



**OIL INFORMATION  
2019 FINAL EDITION**

**DATABASE DOCUMENTATION**

This document provides support information for the IEA *Oil Information* database. This document can be found online at: <http://www.iea.org/statistics/topics/oil/>

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# 1. CHANGES FROM LAST EDITION

In the current release, the files for OECD countries are updated with complete information for 2018. The World file, **AOSWORLD**, includes data up to 2017, with provisional supply data for 2018 for OECD countries.

In the 2019 edition of this online data service the default data display is figures rounded to zero decimal places.

However, from 2017 data onwards, further detail, up to the three decimal place level, is available where reported by the national administrations, upon selecting View > Decimals in the Menu bar. Please note that the constituent data summed to produce regional and flow aggregates may be reported at differing levels of precision. Therefore, care should be taken when using data for aggregated flows beyond the level of 0 decimal places.

Data up to and including 2016 has been rounded to 0 decimal places.

Note: Periods (.) are used to separate decimal places.

Moreover, in the 2019 edition the list of import origins and export destinations was expanded. As a result quantities may no longer appear in the other non-OECD geographical aggregates.

## Geographical coverage

Lithuania became an OECD member in July 2018. Accordingly, Lithuania appears in the list of OECD members and is included in the zone aggregates for data starting in 1990, starting with the 2019 edition. Prior to 1990, data for Lithuania are included in Former Soviet Union.

From 2011 data onwards, France now includes Monaco, and the following overseas departments (Guadeloupe; French Guiana; Martinique; Mayotte; and Réunion); and excludes the overseas collectivities (New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna). Prior to 2011, France includes Monaco and excludes the following overseas departments and territories: Guadeloupe; French Guiana; Martinique; Mayotte and Réunion; New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna.

South Africa joined as an Association country in November 2018. Accordingly, South Africa is now included in the IEA and Accession/Association countries aggregate in the the World file **AOSWORLD**.

The country previously known as Former Yugoslav Republic of Macedonia has been renamed as Republic of North Macedonia.

The short name for the OPEC aggregate has also been renamed; please see details below on the composition of this aggregate in the current edition.

This edition also includes a new regional aggregate for the European Union (28).

Old longname	New longname	Shortname	Old shortname (if changed)
Former Yugoslav Republic of Macedonia	Republic of North Macedonia	NORTHMACED	FYROM
OPEC	Memo: OPEC	OPEC	OPEC13
	Memo: European Union – 28	MEU28	

## Flows

In this edition the number of flows published in the OECD Product Supply and Consumption file (AOSPROD.ivt) has been expanded. This includes further disaggregation of non-energy flows and a new industry sector aggregate (“Manufacturing”). To accommodate this change, the industry sub-sectors have been reordered.

AOSPROD.ivt			
Old longname	New longname	Shortname	Old shortname (if changed)
	Manufacturing	MANUFACT	
Total other sectors	Removed		TOTOTHER
Memo: Non-energy use	Non-energy use	NEINDEMCON	No change
	Non-energy use industry/transformat/energy	NEINTREN	
	Non-energy use in industry	NEIND	
	Memo: Non-energy use in construction	NECONSTRUC	
	Memo: Non-energy use in mining and quarrying	NEMINING	
	Memo: Non-energy use in iron and steel	NEIRONSTL	
	Memo: Non-energy use in non-ferrous metals	NENONFERR	
	Memo: Non-energy use in non-metallic minerals	NENONMET	
	Memo: Non-energy use in transport equipment	NETRANSEQ	
	Memo: Non-energy use in machinery	NEMACHINE	
	Memo: Non-energy use in food/beverages/tobacco	NEFOODPRO	
	Memo: Non-energy use in paper/pulp and printing	NEPAPERPRO	

	Memo: Non-energy use in wood and wood products	NEWOODPRO	
	Memo: Non-energy use in textiles and leather	NETEXTILES	
	Memo: Non-energy use in non-specified industry	NEINONSPEC	
	Non-energy use in transport	NETRANS	
Memo: Other non-energy use	Non-energy use in other	NEOTHER	OTHERNE

## 2. DATABASE STRUCTURE

The Oil Information database contains six files of annual data:

### OECD files (Updated July 2019)

- Countries: 36 countries and 5 regional aggregates (see section Geographical coverage)
- Years: 1960-2018 (unless otherwise specified – see section Geographical coverage)

#### **AOSCRUDE.IVT**      **OECD crude supply**

Information is provided in the form of supply and demand balances, presenting indigenous production, imports, exports, stock changes and refinery intake. Data are in kilotonnes.

#### **AOSPROD.IVT**      **OECD product supply and consumption**

Information is provided in the form of supply and demand balances, presenting refinery gross output, recycled products, imports, exports, transfers, stock changes, international marine bunkers and gross deliveries. In addition, the table includes data on inland deliveries by sector: transformation, energy, transport, industry and other sectors, as well as the non-energy use. Data are in kilotonnes.

#### **AOSIMPS.IVT**      **OECD Imports**

Information on OECD member countries' imports from 163 origins for 22 products. This includes crude oil, NGLs, motor gasoline, gas/diesel oil, residual fuel oil and 15 other refined products. Data are in kilotonnes.

#### **AOS\_EXPS.IVT**      **OECD Exports**

Information on OECD member countries' exports to 163 destinations for 22 products. Included are: crude oil, NGLs, motor gasoline, gas/diesel oil, residual fuel oil and 15 other refined products. Data are in kilotonnes.

#### **AOSCONV.IVT**      **OECD Conversion factors**

This table includes the average conversion factors from tonnes to barrels, for the OECD countries and for 24 products.

## **WORLD file (Updated July 2019)**

- Countries: 140 countries and 24 regional aggregates (see section Geographical coverage)
- Years: 1971-2017 and 2018 provisional production data

### **AOSWORLD.IVT      World Supply**

Information is provided on crude oil and NGL production, refinery output, total trade and oil demand for the World, in kilotonnes and in kilobarrels per day.



### 3. FLOW DEFINITIONS

OECD Crude Supply		
Flow	Short name	Definition
Indigenous production	INDPROD	This includes all quantities of fuels extracted or produced within national boundaries, including offshore production. Production includes only marketable production, and excludes volumes returned to formation. Such production concerns all crude oil, NGL, condensates and other hydrocarbons (including the receipts of additives).
From other sources	OSOURCES	Refers to supplies of additives, biofuels and other hydrocarbons derived from other energies, such as coal, natural gas or renewables.
Backflows	BACKFLOW	Backflows are finished or semi-finished products which are returned from final consumers to refineries for processing, blending or sale. They are usually by-products of petrochemical manufacturing. Transfers from one refinery to another within the country are not included.
Products transferred	PTRANSF	These are imported products which are reclassified as feedstocks for further processing in the refinery, without delivery to final consumers.
Imports	IMPORTS	Comprise amounts having crossed the national territorial boundaries of the country whether or not customs clearance has taken place. Quantities of crude oil and oil products imported under processing agreements (i.e. refining on account) are included. Quantities of oil in transit are excluded. Crude oil, NGL and natural gas are reported as coming from the country of origin; refinery feedstocks and oil products are reported as coming from the country of last consignment.
Exports	EXPORTS	Comprise amounts having crossed the national territorial boundaries of the country whether or not customs clearance has taken place. Quantities of crude oil and oil products exported under processing agreements (i.e. refining on account) are included. Re-exports of oil imported for processing within bonded areas are shown as an export of product from the processing country to the final destination.
Direct use	DIRECUSE	Crude oil, NGL and other hydrocarbons which are used directly without being processed in oil refineries are reported as direct use. This includes, for example, crude oil burned for electricity generation.

<b>OECD Crude Supply</b>		
<b>Flow</b>	<b>Short name</b>	<b>Definition</b>
Statistical differences	STATDIFF	National administrations sometimes obtain the data components of domestic availability from a variety of sources. Owing to differences in concepts, coverage, timing and definitions, observed and calculated consumption are often not identical. This is reflected in statistical differences.
Refinery intake (observed)	REFINOBS	Defined as the amount observed to have entered the refining process.
Refinery losses	REFLOSS	Refers to the difference between Refinery intake (observed) and Refinery Gross Output.
Closing stock level (national territory)	CSNATTER	Refers to closing stock levels, at the last day of the year, of stocks held on national territory (including government controlled stocks).

<b>OECD Products Supply and Consumption</b>		
<b>Flow</b>	<b>Short name</b>	<b>Definition</b>
Refinery gross output	REFGROUT	This is the production of finished products at a refinery or blending plant. This category excludes refinery losses, but includes refinery fuel.
Recycled products	RECYCLED	These are finished products which pass a second time through the marketing network, after having been once delivered to final consumers (e.g. used lubricants which are reprocessed).
Imports	IMPORTS	Comprise amounts having crossed the national territorial boundaries of the country whether or not customs clearance has taken place. Quantities of crude oil and oil products imported under processing agreements (i.e. refining on account) are included. Quantities of oil in transit are excluded. Crude oil, NGL and natural gas are reported as coming from the country of origin; refinery feedstocks and oil products are reported as coming from the country of last consignment.
Exports	EXPORTS	Comprise amounts having crossed the national territorial boundaries of the country whether or not customs clearance has taken place. Quantities of crude oil and oil products exported under processing agreements (i.e. refining on account) are included. Re-exports of oil imported for processing within bonded areas are shown as an export of product from the processing country to the final destination.
International marine bunkers	BUNKERS	Quantities of oil delivered to ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Excludes consumption by ships engaged in domestic navigation (see Domestic navigation). The domestic/international split is determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Excludes consumption by fishing vessels (see Fishing – Other sectors) and consumption by military forces (see Not elsewhere specified – Other sectors).
Transfers	TRANSFERS	These are finished products which have been reclassified and re-entered for use in a refinery without having been delivered to final consumers. This heading also covers transfers between products which are reclassified after blending, for example transfers between kerosene type jet fuel and kerosene. Primary product receipts are also included here.
Stock changes	STOCKCHA	Stock changes reflect the difference between opening stock level at the first day of the year and closing stock level at the last day of the year of stocks held on national territory. A stock build is shown as a negative number and a stock draw as a positive number.
Statistical differences	STATDIFF	National administrations sometimes obtain the data components of domestic availability from a variety of sources. Owing to differences in concepts, coverage, timing and definitions, observed and calculated consumption are often not identical. This is reflected in statistical differences.

<b>OECD Products Supply and Consumption</b>		
<b>Flow</b>	<b>Short name</b>	<b>Definition</b>
Gross inland deliveries (observed)	TOTCONS	This is the gross observed inland consumption (including refinery consumption for oil), before the deduction of amounts returned by the petrochemical industry (backflow).
Total Transformation	TOTTRANF	This sector comprises fuel inputs to both autoproducer and main activity electricity, combined heat and power plants and heat plants. An autoproducer is an industrial establishment which, in addition to its main activities, generates electricity, wholly or partly for its own use. It includes railway's own production of electricity. Heat plants and combined heat and power plants only cover fuel inputs for that part of the heat which is sold to a third party. Transformation sector also comprises fuels used as inputs in gas works, coke ovens, blast furnaces and the petrochemical industry.
Main activity producer electricity plants	MAINELEC	Includes inputs of oil for the production of electricity in electricity plants whose primary purpose is to produce, transmit or distribute electricity.
Autoproducer electricity plants	AUTOELEC	Includes inputs of oil for the production of electricity by an enterprise which, in addition to its main activities, generates electricity wholly or partly for its own use, e.g. industrial establishments, railways, refineries, etc.
Main activity producer CHP plants	MAINCHP	Refers to plants which are designed to produce both heat and electricity (sometimes referred to as co-generation power stations). If possible, fuel inputs and electricity/heat outputs are on a unit basis rather than on a plant basis. However, if data are not available on a unit basis, the convention for defining a CHP plant (if one or more units of the plant is a CHP unit then the whole plant is designated as a CHP plant) should be adopted. Main activity producers (formerly referred to as public supply undertakings) generate electricity and/or heat for sale to third parties, as their primary activity. They may be privately or publicly owned. Note that the sale need not take place through the public grid.
Autoproducer CHP plants	AUTOCHP	Refers to plants which are designed to produce both heat and electricity (sometimes referred to as co-generation power stations). If possible, fuel inputs and electricity/heat outputs are on a unit basis rather than on a plant basis. However, if data are not available on a unit basis, the convention for defining a CHP plant (if one or more units of the plant is a CHP unit then the whole plant is designated as a CHP plant) should be adopted. Note that for autoproducer CHP plants, all fuel inputs to electricity production are taken into account, while only the part of fuel inputs to heat sold is shown. Fuel inputs for the production of heat consumed within the autoproducer's establishment are not included here but are included with figures for the final consumption of fuels in the appropriate consuming sector. Autoproducer undertakings generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.

<b>OECD Products Supply and Consumption</b>		
<b>Flow</b>	<b>Short name</b>	<b>Definition</b>
Main activity producer heat plants	MAINHEAT	Refers to plants (including heat pumps and electric boilers) designed to produce heat only and who sell heat to a third party (e.g. residential, commercial or industrial consumers) under the provisions of a contract. Main activity producers (formerly referred to as public supply undertakings) generate heat for sale to third parties, as their primary activity. They may be privately or publicly owned. Note that the sale need not take place through the public grid.
Autoproducer heat plants	AUTOHEAT	Refers to plants (including heat pumps and electric boilers) designed to produce heat only and who sell heat to a third party (e.g. residential, commercial or industrial consumers) under the provisions of a contract. Autoproducer undertakings generate heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.
Gas works	TGASWKS	Includes quantities of oil used to produce gas at gas works and gasification plants.
For blended natural gas	TBLENDGAS	Includes quantities of petroleum gas products blended with natural gas.
Coke ovens	TCOKEOVS	Includes quantities of oil used in coke ovens.
Blast furnaces	TBLASTFUR	Includes quantities of oil used in blast furnaces. Oil used for heating and operation of equipment are not reported here, but as consumption in the Energy sector. To avoid double counting, fuels used in blast furnaces are not reported in the Iron and steel sector.
Petrochemical industry	TPETCHEM	Includes quantities of backflows returned from the petrochemical sector, whether returned to refineries for further processing/blending or used directly. It refers to oil products only.
Patent fuel plants	TPATFUEL	Includes quantities of oil used as binding material for the production of patent fuel.
Non-specified (transformation)	TNONSPEC	Includes other non-specified transformation.
Total energy sector	TOTENGY	Includes oil consumed by the energy sector to support the extraction (mining, oil and gas production) or transformation activity. For example: oil used for heating, lighting or operating pumps or compressors.
Coal mines	EMINES	Represents oil consumed as a fuel to support the extraction and preparation of coal within the coal mining industry.
Oil and gas extraction	EOILGASEX	Represents oil consumed as a fuel in the oil and gas extraction process and in natural gas processing plants. Pipeline losses are reported as Distribution losses, and fuels used to operate the pipelines are reported in the Transportation sector.
Refinery fuel	REFFUEL	Includes all petroleum products consumed in support of the operation of a refinery. Fuels used at the refineries for the production of electricity and heat sold are also included in this category.

<b>OECD Products Supply and Consumption</b>		
<b>Flow</b>	<b>Short name</b>	<b>Definition</b>
Coke ovens	ECOKEOVS	Represents oil consumed in support of the operation of coking plants.
Blast furnaces	EBLASTFUR	Represents oil consumed as a fuel in operating the furnace.
Gas works	EGASWKS	Represents oil consumed in support of the operation of gas works and coal gasification plants.
Own use in electricity, CHP and heat plants	EPOWERPLT	Represents oil consumed in support of the operation of electricity plants, combined heat and power plants and heat plants.
Non-specified (energy)	ENONSPEC	Represents oil consumed in support of energy activities not included elsewhere.
Distribution losses	DISTLOSS	Losses which occur outside the refinery due to transport and distribution, including pipeline losses.
Total final consumption	FINCONS	Final consumption is all energy delivered to final consumers (in the Transport, Industry and Other sectors). It excludes deliveries for transformation and/or own use of the energy producing industries.
Total transport sector	TOTTRANS	[ISIC Divisions 49, 50 and 51] This sector covers oil products to all transport activities regardless of sector (except for military fuel use). Oil used for heating and lighting at railway, bus stations, shipping piers and airports should be reported in the Commercial sector and not in the Transport sector.
International aviation	INTLAIR	Includes deliveries of aviation fuels to aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split is determined on the basis of departure and landing locations and not by the nationality of the airline. For many countries this incorrectly excludes fuel used by domestically owned carriers for their international departures.
Domestic aviation	DOMESAIR	Includes deliveries of aviation fuels to aircraft for domestic aviation - commercial, private, agricultural, etc. It includes use for purposes other than flying, e.g. bench testing of engines, but not airline use of fuel for road transport. The domestic/international split is determined on the basis of departure and landing locations and not by the nationality of the airline. Note that this may include journeys of considerable length between two airports in a country (e.g. San Francisco to Honolulu). For many countries this incorrectly includes fuel used by domestically owned carriers for outbound international traffic;
Road	ROAD	Includes fuels used in road vehicles as well as agricultural and industrial highway use. Excludes military consumption as well as motor gasoline used in stationary engines and diesel oil for use in tractors that are not for highway use;
Rail	RAIL	Includes quantities used in rail traffic, including industrial railways;

OECD Products Supply and Consumption		
Flow	Short name	Definition
Domestic navigation	DOMESNAV	Includes fuels delivered to vessels of all flags not engaged in international navigation (see <i>international marine bunkers</i> ). The domestic/international split is determined on the basis of port of departure and port of arrival and not by the flag or nationality of the ship. Note that this may include journeys of considerable length between two ports in a country (e.g. San Francisco to Honolulu). Fuel used for ocean, coastal and inland fishing and military consumption are excluded;
Pipeline transport	PIPELINE	Includes energy used in the support and operation of pipelines transporting gases, liquids, slurries and other commodities, including the energy used for pump stations and maintenance of the pipeline. Energy for the pipeline distribution of natural or manufactured gas, hot water or steam (ISIC Division 35) from the distributor to final users is excluded and should be reported in the <i>energy sector</i> , while the energy used for the final distribution of water (ISIC Division 36) to household, industrial, commercial and other users should be included in <i>commercial/public services</i> . Losses occurring during the transport between distributor and final users should be reported as <i>distribution losses</i> ;
Non-specified (transport)	TRNONSPE	Includes fuels used for transport activities not elsewhere specified such as fuels used by airlines for their road vehicles. Note: <i>International marine bunkers</i> are shown in <i>Supply</i> and are not included in the transport sector as part of final consumption.
Total industry	TOTIND	Consumption of the industry sector is specified in the following sub-sectors (energy used for transport by industry is not included here but is reported under transport):
Mining and quarrying	MINING	[ISIC Divisions 07 and 08 and Group 099] Mining (excluding energy producing industries) and quarrying.
Construction	CONSTRUC	[ISIC Divisions 41,42 and 43]
Manufacturing	MANUFACT	Manufacturing refers to the sum of the following industrial sub-sectors: <ul style="list-style-type: none"> <li>• Iron and Steel</li> <li>• Chemical and petrochemical</li> <li>• Non-ferrous metals</li> <li>• Non-metallic minerals</li> <li>• Transport equipment</li> <li>• Food and tobacco</li> <li>• Paper, pulp and printing</li> <li>• Wood and wood products</li> <li>• Textile and leather</li> </ul> Definitions of the sub-sectors themselves can be found under the listing for each respective sub-sector below.
Iron and steel	IRONSTL	[ISIC Group 241 and Class 2431]

OECD Products Supply and Consumption		
Flow	Short name	Definition
Chemical and petrochemical	CHEMICAL	[ISIC Divisions 20 and 21]
Non-ferrous metals	NONFERR	[ISIC Group 242 and Class 2432]
Non-metallic minerals	NONMET	[ISIC Division 23] Such as glass, ceramic, cement and other building materials industries.
Transport equipment	TRANSEQ	[ISIC Divisions 29 and 30]
Machinery	MACHINE	[ISIC Divisions 25, 26, 27 and 28] Fabricated metal products, machinery and equipment other than transport equipment.
Food and tobacco	FOODPRO	[ISIC Divisions 10,11 and 12]
Paper, pulp and printing	PAPERPRO	[ISIC Divisions 17 and 18] This category includes reproduction of recorded media.
Wood and wood products	WOODPRO	[ISIC Division 16] Wood and wood products other than pulp and paper.
Textile and leather	TEXTILES	[ISIC Divisions 13, 14 and 15]
Non-specified (industry)	INONSPEC	[ISIC Divisions 22, 31 and 32] Any manufacturing industry not included above. Note: Most countries have difficulties supplying an industrial breakdown for all fuels. In these cases, the <i>non-specified</i> industry row has been used. Regional aggregates of industrial consumption should therefore be used with caution.
Residential	RESIDENT	[ISIC Divisions 97 and 98] Includes consumption by households, excluding fuels used for transport. Includes households with employed persons, which is a small part of total residential consumption.
Commercial and public services	COMMPUB	[ISIC Divisions 33, 36-39, 45-47, 52-53, 55-56,58-66,68-75, 77-82, 84-96 and 99 (excluding Class 8422), 85-88, 90-96 and 99]
Agriculture and forestry	AGRICULT	[ISIC Divisions 01 and 02] Includes deliveries to users classified as agriculture, hunting and forestry by the ISIC, and therefore includes energy consumed by such users whether for traction (excluding agricultural highway use), power or heating (agricultural and domestic).
Fishing	FISHING	[ISIC Division 03] Includes fuels used for inland, coastal and deep-sea fishing. Fishing covers fuels delivered to ships of all flags that have refuelled in the country (including international fishing) as well as energy used in the fishing industry.
Not-elsewhere specified -other	ONONSPEC	Includes all fuel use not elsewhere specified as well as consumption in the above-designated categories for which separate figures have not been provided. Military fuel use for all mobile and stationary consumption is included here (e.g. ships, aircraft, road and energy used in living quarters) regardless of whether the fuel delivered is for the military of that country or for the military of another country.
Non-energy use	NEINDEMCON	Includes oil products used as raw materials; that is not consumed as a fuel or transformed into another fuel.



<b>OECD Products Supply and Consumption</b>		
<b>Flow</b>	<b>Short name</b>	<b>Definition</b>
Non-energy use in industry/transformat/energy	NEINTREN	Non-energy in industry, transformation processes and energy industry own use.
Non-energy use in industry	NEIND	Non-energy in industry (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in construction	NE-CONSTRUC	Non-energy use in construction (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in mining and quarrying	NEMINING	Non-energy use in mining and quarrying (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in iron and steel	NEIRONSTL	Non-energy use in iron and steel (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use chemical/petrochemical	NECHEM	Non-energy use in the chemical and petrochemical industry as defined above. This includes feedstocks used for the purpose of producing ethylene, propylene, butylene, synthesis gas, aromatics, butadiene and other hydrocarbon based raw materials in processes such as steam cracking, aromatics plants and steam reforming.
Memo: Non-energy use in non-ferrous metals	NENONFERR	Non-energy use in non-ferrous metals (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in non-metallic minerals	NENONMET	Non-energy use in non-metallic minerals (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in transport equipment	NETRANSEQ	Non-energy use in transport equipment (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in machinery	NEMACHINE	Non-energy use in machinery (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in food/beverages/tobacco	NEFOODPRO	Non-energy use in food/beverages/tobacco (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in paper/pulp and printing	NEPAPERPRO	Non-energy use in paper/pulp and printing (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in wood and wood products	NEWOODPRO	Non-energy use in wood and wood products (please see above for more details on industry sub-sector definitions).
Memo: Non-energy use in textiles and leather	NETEXTILES	Non-energy use in textiles and leather (please see above for more details on industry sub-sector definitions).

## OECD Products Supply and Consumption

Flow	Short name	Definition
Memo: Non-energy use in non-specified industry	NEINONSPEC	Non-energy use in non-specified industry (please see above for more details on industry sub-sector definitions).
Non-energy use in transport	NETRANS	Non-energy use in transport.
Non-energy use in other	NEOTHER	Non-energy use in other sectors such as residential, commercial/public services, agriculture/forestry and fishing
Closing stock level (national territory)	CSNATTER	Refers to closing stock levels, at the last day of the year, of stocks held on national territory (including government controlled stocks).

## 4. PRODUCT DEFINITIONS

<b>Oil Products</b>		
<p>Petroleum products are any oil-based products which can be obtained by distillation and are normally used outside the refining industry. The exceptions to this are those finished products which are classified as refinery feedstocks.</p>		
<b>Product</b>	<b>Short name</b>	<b>Definition</b>
Crude oil	CRUDEOIL	Crude oil is a mineral oil of natural origin consisting of a mixture of hydrocarbons of natural origin and associated impurities, such as sulphur. It exists in the liquid phase under normal surface temperature and pressure and its physical characteristics (density, viscosity, etc.) are highly variable. It includes field or lease condensates (separator liquids) which are recovered from associated and non-associated gas where it is commingled with the commercial crude oil stream.
Natural gas liquids	NGL	NGL are the liquid or liquefied hydrocarbons recovered from natural gas in separation facilities or gas processing plants. They include ethane, propane, (normal and iso-) butane, (iso) pentane and pentanes plus (sometimes referred to as natural gasoline or plant condensates).
Refinery feedstocks	REFFEEDS	A refinery feedstock is processed oil destined for further processing (e.g. straight run fuel oil or vacuum gas oil) other than blending in the refining industry. With further processing, it will be transformed into one or more components and/or finished products. This definition also covers returns from the petrochemical industry to the refining industry (e.g. pyrolysis gasoline, C4 fractions, gasoil and fuel oil fractions).
Additives/oxygenates	ADDITIVE	Additives and oxygenates are non-hydrocarbon compounds added to or blended with a product to modify fuel properties (octane, cetane, cold properties, etc.). Alcohols (e.g. methanol, ethanol), ethers such as MTBE (methyl tertiary-butyl ether), ETBE (ethyl tertiary butyl ether), and TAME (tertiary amyl methyl ether), esters (e.g. rapeseed or dimethylester, etc.) and chemical alloys such as TML (tetramethyl lead) and TEL (tetraethyl lead) are included here.

## Oil Products

Petroleum products are any oil-based products which can be obtained by distillation and are normally used outside the refining industry. The exceptions to this are those finished products which are classified as refinery feedstocks.

Product	Short name	Definition
Of which: Biofuels	BIOFUELS	Quantities of liquid biofuels reported in this category relate to the quantities of biofuel and not to the total volume of liquids into which the biofuels are blended. This category includes biogasoline, biodiesels and bio jet kerosene.
Other hydrocarbons	NONCRUDE	This category includes synthetic crude oil from tar sands, shale oil, etc., liquids from coal liquefaction, output of liquids from natural gas conversion into gasoline, hydrogen and emulsified oils (e.g. Orimulsion).
Refinery gas	REFINGAS	Refinery gas includes a mixture of non-condensable gases mainly consisting of hydrogen, methane, ethane and olefins obtained during distillation of crude oil or treatment of oil products (e.g. cracking) in refineries. It also includes gases which are returned from the petrochemical industry. Refinery gas production refers to gross production.
Ethane	ETHANE	A naturally gaseous straight-chain hydrocarbon (C <sub>2</sub> H <sub>6</sub> ), extracted from natural gas and refinery gas streams.
Liquefied petroleum gases	LPG	LPG are light saturated paraffinic hydrocarbons derived from the refinery processes, crude oil stabilisation plants and natural gas processing plants. They consist mainly of propane (C <sub>3</sub> H <sub>8</sub> ) and butane (C <sub>4</sub> H <sub>10</sub> ) or a combination of the two. They could also include propylene, butylene, isobutene and isobutylene. LPG are normally liquefied under pressure for transportation and storage.
Naphtha	NAPHTHA	Naphtha is a feedstock destined for the petrochemical industry (e.g. ethylene manufacture or aromatics production) or for gasoline production by reforming or isomerisation within the refinery. Naphtha comprises material that distils between 30°C and 210°C.
Motor gasoline	MOTORGAS	Motor gasoline is light hydrocarbon oil for use in internal combustion engines such as motor vehicles, excluding aircraft. Motor gasoline is distilled between 35°C and 215°C and is used as a fuel for land based spark ignition engines. Motor gasoline may include additives, oxygenates and octane enhancers, including lead compounds such as TEL (tetraethyl lead) and TML (tetramethyl lead).  This category includes motor gasoline blending components (excluding additives/oxygenates) such as alkylates, isomerate, reformat, and cracked gasoline destined for use as finished motor gasoline.

## Oil Products

Petroleum products are any oil-based products which can be obtained by distillation and are normally used outside the refining industry. The exceptions to this are those finished products which are classified as refinery feedstocks.

Product	Short name	Definition
Of which : biogasoline	BIOGASOL	Biogasoline includes bioethanol (ethanol produced from biomass and/or the biodegradable fraction of waste), biomethanol (methanol produced from biomass and/or the biodegradable fraction of waste), bioETBE (ethyl-tertio-butyl-ether produced on the basis of bioethanol: the percentage by volume of bioETBE that is calculated as biofuel is 47%) and bioMTBE (methyl-tertio-butyl-ether produced on the basis of biomethanol: the percentage by volume of bioMTBE that is calculated as biofuel is 36%).
Aviation gasoline	AVGAS	This is motor spirit prepared especially for aviation piston engines, with an octane number suited to the engine, a freezing point of -60°C, and a distillation range usually within the limits of 30°C and 180°C.
Gasoline type jet fuel	JETGAS	This includes all light hydrocarbon oils for use in aviation turbine power units, distilling between 100°C and 250°C. They are obtained by blending kerosenes and gasoline or naphthas in such a way that the aromatic content does not exceed 25% in volume, and the vapour pressure is between 13.7kPa and 20.6kPa. Additives can be included to improve fuel stability and combustibility.
Kerosene type jet fuel	JETKERO	This is a medium distillate used for aviation turbine power units. It has the same distillation characteristics (between 150°C and 300°C, but generally not above 250°C) and flash point as kerosene. In addition, it has particular specifications (such as freezing point) which are established by the International Air Transport Association (IATA). It includes kerosene blending components.
Other kerosene	OTHKERO	Kerosene (other than kerosene used for aircraft transport which is included with aviation fuels) comprises refined petroleum distillate intermediate in volatility between gasoline and gas/diesel oil. It is a medium oil distilling between 150°C and 300°C.
Gas/diesel oil	GASDIES	Gas/diesel oil includes heavy gas oils. Gas oils are obtained from the lowest fraction from atmospheric distillation of crude oil, while heavy gas oils are obtained by vacuum redistillation of the residual from atmospheric distillation. Gas/diesel oil distils between 180°C and 380°C. Several grades are available depending on uses: diesel oil for diesel compression ignition (cars, trucks, marine, etc.), light heating oil for industrial and commercial uses, and other gas oil including heavy gas oils which distil between 380°C and 540°C and which are used as petrochemical feedstocks.
Of which: biodiesels	BIODIESEL	Biodiesels includes biodiesel (methyl-ester produced from vegetable or animal oil, of diesel quality), biodimethylether (dimethylether produced from biomass), Fischer Tropsch (Fischer Tropsch produced from biomass), cold pressed biooil (oil produced from oil seed through mechanical processing only) and all other liquid biofuels which are added to, blended with Gas/diesel oil.

## Oil Products

Petroleum products are any oil-based products which can be obtained by distillation and are normally used outside the refining industry. The exceptions to this are those finished products which are classified as refinery feedstocks.

Product	Short name	Definition
Fuel oil (Residual)	RESFUEL	<p>Fuel oil defines oils that make up the distillation resi-due. It comprises all residual (heavy) fuel oils, including those obtained by blending. Its kinematic viscosity is above 10 cSt at 80°C. The flash point is always above 50°C and the density is always higher than 0.90 kg/l.</p> <ul style="list-style-type: none"> <li>- <i>Low-sulphur content:</i> Heavy fuel oil with sulphur content lower than 1%.</li> <li>- <i>High-sulphur content:</i> Heavy fuel oil with sulphur content of 1% or higher.</li> </ul>
White spirit & SBP	WHITESP	<p>White Spirit and SBP are defined as refined distillate intermediates with a distillation in the naphtha/kerosene range. They are subdivided as:</p> <ol style="list-style-type: none"> <li><i>i. Industrial spirit (SBP): it comprises light oils distilling between 30°C and 200°C. In other words, SBP is a light oil of narrower cut than motor spirit. There are seven or eight grades of industrial spirit, depending on the position of the cut in the distillation range. The grades are defined according to the temperature difference between the 5% volume and 90% volume distillation points (which is not more than 60°C).</i></li> <li><i>ii. White spirit: it has a flash point above 30°C and a distillation range of 135°C to 200°C.</i></li> </ol>
Lubricants	LUBRIC	<p>Lubricants are hydrocarbons produced from distillate or residue; they are mainly used to reduce friction between bearing surfaces. This category includes all finished grades of lubricating oil, from spindle oil to cylinder oil, and those used in greases, including motor oils and all grades of lubricating oil-based stocks.</p>
Bitumen	BITUMEN	<p>Bitumen is a solid, semi-solid or viscous hydrocarbon with a colloidal structure that is brown to black in colour. It is obtained by vacuum distillation of oil residues from atmospheric distillation of crude oil. Bitumen is often referred to as asphalt and is primarily used for construction of roads and for roofing material. This category includes fluidised and cut-back bitumen.</p>
Paraffin waxes	PARWAX	<p>These are saturated aliphatic hydrocarbons. These waxes are residues extracted when dewaxing lubricant oils, and they have a crystalline structure which is more or less fine according to the grade. Their main characteristics are that they are colourless, odourless and translucent, with a melting point above 45°C.</p>

## Oil Products

Petroleum products are any oil-based products which can be obtained by distillation and are normally used outside the refining industry. The exceptions to this are those finished products which are classified as refinery feedstocks.

Product	Short name	Definition
Petroleum coke	PETCOKE	<p>Petroleum coke is a black solid by-product, obtained mainly by cracking and carbonising of petroleum derived feedstocks, vacuum bottoms, tar and pitches in processes such as delayed coking or fluid coking. It consists mainly of carbon (90 to 95%) and has low ash content. It is used as a feedstock in coke ovens for the steel industry, for heating purposes, for electrode manufacture and for production of chemicals. The two most important qualities are “green coke” and “calcinated coke.” This category also includes “catalyst coke” deposited on the catalyst during refining processes: this coke is not recoverable and is usually burned as refinery fuel.</p>
Other products	OPRODS	<p>All products not specifically mentioned above, for example: tar and sulphur. This category also includes aromatics (e.g. BTX or benzene, toluene and xylene) and olefins (e.g. propylene) produced within refineries.</p> <p>For the estimated year it also includes white spirit, lubricants, bitumen and paraffin waxes.</p>

## 5. GEOGRAPHICAL COVERAGE

<b>Countries and Regions</b>		
This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.		
Country/Region	Short name	Definition
Australia	AUSTRALI	Excludes the overseas territories. Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y-1 and ends on 30 June Y are labelled as Year Y.
Austria	AUSTRIA	
Belgium	BELGIUM	
Canada	CANADA	
Chile	CHILE	Data start in 1971.
Czech Republic	CZECH	Data start in 1971.
Denmark	DENMARK	Excludes Greenland and the Faroe Islands, except prior to 1990, where data on oil for Greenland were included with the Danish statistics. The Administration is planning to revise the series back to 1974 to exclude these amounts.
Estonia	ESTONIA	
Finland	FINLAND	



## Countries and Regions

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Country/Region	Short name	Definition
France	FRANCE	<p>From 2011 data onwards <b>includes</b> Monaco, and the following overseas departments (Guadeloupe; French Guiana; Martinique; Mayotte; and Réunion); and <b>excludes</b> the overseas collectivities (New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna).</p> <p>Prior to 2011, France includes Monaco and excludes the following overseas departments and territories: Guadeloupe; French Guiana; Martinique; Mayotte and Réunion; New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna.</p>
Germany	GERMANY	Includes the new Federal states of Germany from 1970 onwards.
Greece	GREECE	
Hungary	HUNGARY	Data start in 1965.
Iceland	ICELAND	
Ireland	IRELAND	
Israel	ISRAEL	The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.
Italy	ITALY	Includes San Marino and the Holy See.
Japan	JAPAN	<p>Includes Okinawa.</p> <p>Starting 1990, data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as Year Y.</p>
Korea	KOREA	Data start in 1971.
Latvia	LATVIA	Data start in 1990. Prior to that, they are included within Former Soviet Union.
Lithuania	LITHUANIA	Data start in 1990. Prior to that, they are included within Former Soviet Union.
Luxembourg	LUXEMBOU	
Mexico	MEXICO	Data start in 1971.

## Countries and Regions

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Country/Region	Short name	Definition
Netherlands	NETHLAND	Excludes Suriname, Aruba and the other former Netherlands Antilles (Bonaire, Curaçao, Saba, Sint Eustatius and Sint Maarten).
New Zealand	NZ	
Norway	NORWAY	
Poland	POLAND	
Portugal	PORTUGAL	Includes the Azores and Madeira.
Slovak Republic	SLOVAKIA	Data start in 1971.
Slovenia	SLOVENIA	Data start in 1990. Prior to that, they are included within Former Yugoslavia.
Spain	SPAIN	Includes the Canary Islands.
Sweden	SWEDEN	
Switzerland	SWITLAND	Includes Liechtenstein.
Turkey	TURKEY	
United Kingdom	UK	
United States	USA	Includes the 50 states, the District of Columbia, Guam, Puerto Rico and the United States Virgin Islands. <i>Note that this geographical coverage may differ from the other fuel publications; please refer to the geographical coverage section.</i>
OECD Total	OECDTOT	Includes Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.
OECD Americas	OECDAM	Includes Canada, Chile, Mexico and the United States.
OECD Asia Oceania	OECDAO	Includes Australia, Israel, Japan, Korea and New Zealand.

## Countries and Regions

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Country/Region	Short name	Definition
OECD Europe	OECD EUR	Includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.
IEA Total	IEA TOT	Includes Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States.
IEA Americas	IEA AM	Includes Canada, Mexico and the United States.
IEA Asia Oceania	IEA AO	Includes Australia, Japan, Korea and New Zealand.
IEA Europe	IEA EUR	Includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey and United Kingdom.
The IEA and Accession/Association countries	IEA FAMILY	Includes: IEA member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia <sup>7</sup> , Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States; Accession country: Chile; Association countries: Brazil; the People's Republic of China; India; Indonesia; Morocco; Singapore; South Africa; Thailand.
Algeria	ALGERIA	
Angola	ANGOLA	
Benin	BENIN	
Botswana	BOTSWANA	
Cameroon	CAMEROON	
Congo	CONGO	

## Countries and Regions

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Country/Region	Short name	Definition
Democratic Rep. of Congo	CONGOREP	
Cote d'Ivoire	COTEIVOIRE	
Egypt	EGYPT	Data for Egypt are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as year Y.
Eritrea	ERITREA	Data for Eritrea are available from 1992. Prior to that, they are included in Ethiopia.
Ethiopia	ETHIOPIA	Ethiopia includes Eritrea prior to 1992.
Gabon	GABON	
Ghana	GHANA	
Kenya	KENYA	
Libya	LIBYA	
Mauritius	MAURITIUS	
Morocco	MOROCCO	
Mozambique	MOZAMBIQUE	
Namibia	NAMIBIA	Data for Namibia are available starting in 1991. Prior to that, data are included in Other Africa.
Niger	NIGER	Prior to 2000, data for Niger are presented in Other Africa.
Nigeria	NIGERIA	
Senegal	SENEGAL	
South Africa	SOUTHAFRIC	
South Sudan	SSUDAN	Data for South Sudan are available from 2012. Prior to 2012, they are included in Sudan.
Sudan	SUDAN	South Sudan became an independent country on 9 July 2011. From 2012, data for South Sudan are reported separately.
United Republic of Tanzania	TANZANIA	Oil data are reported on a fiscal year basis, beginning on the 1 July Y and ending on the 30 June Y+1.
Togo	TOGO	
Tunisia	TUNISIA	
Zambia	ZAMBIA	
Zimbabwe	ZIMBABWE	

## Countries and Regions

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Country/Region	Short name	Definition
Other Africa	OTHERAFRIC	Includes Botswana (until 1980); Burkina Faso; Burundi; Cabo Verde; Central African Republic; Chad; Comoros; Djibouti; Equatorial Guinea; Gambia; Guinea; Guinea-Bissau; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Namibia (until 1990); Niger (until 1999); Réunion (up to 2011); Rwanda; Sao Tome and Principe; Seychelles; Sierra Leone; Somalia; the Kingdom of Eswatini and Uganda.  <i>From 2011 onward, data from La Réunion is included under France.</i>
Africa	AFRICA	Includes Algeria; Angola; Benin; Botswana (from 1981); Cameroon; Republic of the Congo (Congo); Democratic Republic of the Congo (DRC); Côte d'Ivoire; Egypt; Eritrea; Ethiopia; Gabon; Ghana; Kenya; Libya; Mauritius; Morocco; Mozambique; Namibia (from 1991); Niger (from 2000); Nigeria; Senegal; South Africa; South Sudan <sup>1</sup> ; Sudan; United Republic of Tanzania (Tanzania); Togo; Tunisia; Zambia; Zimbabwe and Other Africa.
Argentina	ARGENTINA	
Bolivia	BOLIVIA	
Brazil	BRAZIL	
Colombia	COLOMBIA	
Costa Rica	COSTARICA	
Cuba	CUBA	
Curaçao	CURACAO	The Netherlands Antilles was dissolved on 10 October 2010, resulting in two new constituent countries, Curaçao and Sint Maarten, with the remaining islands joining the Netherlands as special municipalities. From 2012 onwards, data now account for the energy statistics of Curaçao Island only. Prior to 2012, data remain unchanged and still cover the entire territory of the former Netherlands Antilles.
Dominican Republic	DOMINICANR	
Ecuador	ECUADOR	
El Salvador	ELSALVADOR	
Guatemala	GUATEMALA	

2. South Sudan became an independent country on 9 July 2011. Data for South Sudan are available from 2012. Prior to 2012, they are included in Sudan.

## Countries and Regions

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Country/Region	Short name	Definition
Haiti	HAITI	
Honduras	HONDURAS	
Jamaica	JAMAICA	
Nicaragua	NICARAGUA	
Panama	PANAMA	
Paraguay	PARAGUAY	
Peru	PERU	
Suriname	SURINAME	Data for Suriname are available starting in 2000. Prior to that, they are included in Other Non-OECD Americas.
Trinidad and Tobago	TRINIDAD	
Uruguay	URUGUAY	
Venezuela	VENEZUELA	
Other Non-OECD Americas	OTHERLATIN	Includes Antigua and Barbuda; Aruba; the Bahamas; Barbados; Belize; Bermuda; Bonaire (from 2012); the British Virgin Islands; the Cayman Islands; Dominica; the Falkland Islands (Malvinas); French Guiana (up to 2011); Grenada; Guadeloupe (up to 2011); Guyana; Martinique (up to 2011); Montserrat; Puerto Rico <sup>2</sup> (for natural gas and up to 2016 electricity); Saba (from 2012); Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Sint Eustatius (from 2012); Sint Maarten (from 2012); Suriname (until 1999); and the Turks and Caicos Islands.  <i>From 2011 onward data from Guadeloupe, French Guiana and Martinique are included under France data.</i>
Non-OECD Americas	LATINAMERI	Includes Argentina; Plurinational State of Bolivia (Bolivia); Brazil; Colombia; Costa Rica; Cuba; Curaçao <sup>3</sup> ; the Dominican Republic; Ecuador; El Salvador; Guatemala; Haiti; Honduras; Jamaica; Nicaragua; Panama; Paraguay; Peru; Suriname (from 2000), Trinidad and Tobago; Uruguay; the Bolivarian Republic of Venezuela (Venezuela) and Other Non-OECD Americas.

2. Oil statistics as well as coal trade statistics for Puerto Rico are included under the United States.

3. The Netherlands Antilles was dissolved on 10 October 2010 resulting in two new 'constituent countries' (Curaçao and Sint Maarten) with the other islands joining The Netherlands as 'special municipalities'. However, due to lack of detailed data the IEA secretariat's data and estimates under the 'Netherlands Antilles' still refer to the whole territory of the Netherlands Antilles as it was known prior to 10 October 2010 up to the end of 2011. Data refer only to the island of Curaçao from 2012. The other islands of the former Netherlands Antilles are added to Other Non-OECD Americas from 2012.

## Countries and Regions

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Country/Region	Short name	Definition
Bangladesh	BANGLADESH	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y-1 and ends on 30 June Y are labelled as Year Y.
Brunei	BRUNEI	
Cambodia	CAMBODIA	Data for Cambodia are available starting in 1995. Prior to that, they are included in Other Asia.
India	INDIA	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as Year Y
Indonesia	INDONESIA	
DPR of Korea	KOREADPR	
Malaysia	MALAYSIA	
Mongolia	MONGOLIA	Data for Mongolia are available starting in 1985. Prior to that, they are included in Other Asia.
Myanmar	MYANMAR	Data were reported on a fiscal year basis until 2015 data. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as Year Y.
Nepal	NEPAL	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as Year Y.
Pakistan	PAKISTAN	Data are reported on a fiscal year basis. By convention fiscal year Y/Y+1 is labelled as year Y.
Philippines	PHILIPPINE	
Singapore	SINGAPORE	
Sri Lanka	SRILANKA	
Chinese Taipei	TAIPEI	
Thailand	THAILAND	
Vietnam	VIETNAM	

## Countries and Regions

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Country/Region	Short name	Definition
Other non-OECD Asia	OTHERASIA	Includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; East Timor; Fiji; French Polynesia; Kiribati; Lao People's Democratic Republic; Macau, China; Maldives; New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; Solomon Islands; Tonga; and Vanuatu.
Non-OECD Asia excluding China	ASIA	Includes Bangladesh; Brunei Darussalam; Cambodia (from 1995); India; Indonesia; Democratic People's Republic of Korea (DPRK); Malaysia; Mongolia; Myanmar; Nepal; Pakistan; Philippines; Singapore; Sri Lanka; Chinese Taipei; Thailand; Viet Nam and Other non-OECD Asia.
People's Republic of China	CHINA	In early 2016, the National Bureau of Statistics (NBS) of the People's Republic of China (China) supplied the IEA with detailed energy balances for 2000 to 2010 and the IEA revised its data accordingly. In September 2015, the NBS published China's energy statistics for 2013, as well as revised statistics for the years 2011 and 2012. These have already been taken into account by the IEA in the "Special data release with revisions for the People's Republic of China" in November 2015.
Hong Kong, China	HONGKONG	
China	CHINAREG	Includes the (People's Republic of) China; and Hong Kong, China.
Albania	ALBANIA	
Armenia	ARMENIA	Data for Armenia are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Azerbaijan	AZERBAIJAN	Data for Azerbaijan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Belarus	BELARUS	Data for Belarus are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Bosnia and Herzegovina	BOSNIAHERZ	Data for Bosnia and Herzegovina are available starting in 1990. Prior to that, they are included in Former Yugoslavia.
Bulgaria	BULGARIA	
Croatia	CROATIA	Data for Croatia are available starting in 1990. Prior to that, they are included in Former Yugoslavia.



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Country/Region	Short name	Definition
Cyprus	CYPRUS	<p><b>Note by Turkey:</b>  <i>The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue”.</i></p> <p><b>Note by all the European Union member states of the OECD and the European Union:</b>  <i>The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus.</i></p>
Republic of North Macedonia	NORTHMACED	Data for the Republic of North Macedonia are available starting in 1990. Prior to that, they are included in Former Yugoslavia.
Former Yugoslavia (if no detail)	YUGOND	Before 1990, includes Bosnia and Herzegovina; Croatia; Republic of North Macedonia; Kosovo; Montenegro; Slovenia and Serbia.
Former Soviet Union (if no detail)	FSUND	Before 1990, includes Armenia; Azerbaijan; Belarus; Estonia; Georgia; Kazakhstan; Kyrgyzstan; Latvia; Lithuania; Republic of Moldova; Russian Federation; Tajikistan; Turkmenistan; Ukraine and Uzbekistan.
Georgia	GEORGIA	Data for Georgia are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Gibraltar	GIBRALTAR	
Kazakhstan	KAZAKHSTAN	Data for Kazakhstan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Kosovo	KOSOVO	Data for Kosovo are available starting in 2000. Between 1990 and 1999, data for Kosovo are included in Serbia. Prior to 1990, they are included in Former Yugoslavia.
Kyrgyzstan	KYRGYZSTAN	Data for Kyrgyzstan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Malta	MALTA	
Republic of Moldova	MOLDOVA	Data for Moldova are available starting in 1990. Prior to that, they are included in Former Soviet Union.

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Country/Region	Short name	Definition
Montenegro	MONTENEGRO	Data for Montenegro are available starting in 2005. Between 1990 and 2004, data for Montenegro are included in Serbia.
Romania	ROMANIA	
Russia	RUSSIA	Data for Russia are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Serbia	SERBIA	Data for Serbia are available starting in 1990. Prior to that, they are included in Former Yugoslavia. Serbia includes Montenegro until 2004 and Kosovo until 1999.
Tajikistan	TAJIKISTAN	Data for Tajikistan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Turkmenistan	TURKMENIST	Data for Turkmenistan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Ukraine	UKRAINE	Data for Ukraine are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Uzbekistan	UZBEKISTAN	Data for Uzbekistan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Non-OECD Europe and Eurasia	EURASIA	Includes Albania; Armenia; Azerbaijan; Belarus; Bosnia and Herzegovina; Bulgaria; Croatia; Cyprus ; Republic of North Macedonia; Georgia; Gibraltar; Kazakhstan; Kosovo; Kyrgyzstan;; Malta; Republic of Moldova (Moldova); Montenegro; Romania; Russian Federation (Russia); Serbia <sup>4</sup> ; Tajikistan; Turkmenistan; Ukraine; Uzbekistan; Former Soviet Union and Former Yugoslavia.
Bahrain	BAHRAIN	
Islamic Republic of Iran	IRAN	Data are reported according to the Iranian calendar year. By convention data for the year that starts on 20 March Y and ends on 19 March Y+1 are labelled as year Y.
Iraq	IRAQ	
Jordan	JORDAN	
Kuwait	KUWAIT	
Lebanon	LEBANON	
Oman	OMAN	

5. Serbia includes Montenegro until 2004 and Kosovo until 1999.

## Countries and Regions

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Country/Region	Short name	Definition
Qatar	QATAR	
Saudi Arabia	SAUDIARABI	
Syria	SYRIA	
United Arab Emirates	UAE	
Yemen	YEMEN	
Middle East	MIDDLEEAST	Includes Bahrain; Islamic Republic of Iran (Iran); Iraq; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syrian Arab Republic (Syria); United Arab Emirates; and Yemen.
Non-OECD Total	NONOECDTOT	Includes all Non-OECD countries.
World	WORLD	Includes OECD Total, non-OECD Total, World marine bunkers and World aviation bunkers. This also same as sum of the five UN aggregates (Africa(UN), Americas(UN), Asia(UN), Europe(UN) and Oceania(UN)), World marine bunkers and World aviation bunkers.
Memo: OPEC	OPEC	Includes Algeria; Angola; Ecuador; Equatorial Guinea; Gabon; Islamic Republic of Iran; Iraq; Kuwait; Libya; Nigeria; Qatar; Saudi Arabia; the United Arab Emirates and Bolivarian Republic of Venezuela (Venezuela). <sup>5</sup>

5. Equatorial Guinea became a full member of OPEC on 25 May 2017; as such data are included in the OPEC aggregate in the current edition (**AOSIMPORTS**, **AOSWORLD**). Data for Qatar that terminated its membership on 1 January 2019 are included in the OPEC aggregate in the current edition (**AOSIMPORTS**, **AOSWORLD**). Data for the Republic of the Congo that became a full member of OPEC on 22 June 2018 are not included in the OPEC aggregate in the current edition (**AOSIMPORTS**, **AOSWORLD**) but is available separately.

## Countries and Regions

This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Country/Region	Short name	Definition
Memo: European Union – 28	MEU28	<p>The European Union - 28 (EU-28) includes Austria; Belgium; Bulgaria; Croatia; Cyprus; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; the Netherlands; Poland; Portugal; Romania; the Slovak Republic; Slovenia; Spain; Sweden and the United Kingdom.</p> <p>Please note that in the interest of having comparable data, all these countries are included since 1990 despite different entry dates into the European Union.</p> <p><b>Note by Turkey:</b>  <i>The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue”.</i></p> <p><b>Note by all the European Union member states of the OECD and the European Union:</b>  <i>The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus.</i></p>
Africa (UN)	AFRICATOT	<p>Includes Algeria; Angola; Benin; Botswana; Burkina Faso; Burundi; Cabo Verde; Cameroon; Central African Republic; Chad; Comoros; the Republic of the Congo (Congo); Côte d’Ivoire; the Democratic Republic of the Congo; Djibouti; Egypt; Equatorial Guinea; Eritrea; Ethiopia; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Kenya; Lesotho; Liberia; Libya; Madagascar; Malawi; Mali; Mauritania; Mauritius; Morocco; Mozambique; Namibia; Niger; Nigeria; Réunion; Rwanda; Sao Tome and Principe; Senegal; the Seychelles; Sierra Leone; Somalia; South Africa; South Sudan (from 2012), Sudan; the Kingdom of Eswatini; the United Republic of Tanzania (Tanzania); Togo; Tunisia; Uganda; Zambia; Zimbabwe.</p>

## Countries and Regions

This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Country/Region	Short name	Definition
Americas (UN)	AMERICAS	Includes Antigua and Barbuda; Argentina; Aruba; the Bahamas; Barbados; Belize; Bermuda; the Plurinational State of Bolivia (Bolivia); Bonaire (from 2012); the British Virgin Islands; Brazil; Canada; the Cayman Islands; Chile; Colombia; Costa Rica; Cuba; Curaçao; Dominica; the Dominican Republic; Ecuador; El Salvador; the Falkland Islands (Malvinas); Guatemala; the French Guiana; Grenada; Guadeloupe; Guyana; Haiti; Honduras; Jamaica; Martinique; Mexico; Montserrat; Nicaragua; Panama; Paraguay; Peru; Puerto Rico (for natural gas and electricity); Saba (from 2012); Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Sint Eustatius (from 2012); Sint Maarten (from 2012); Suriname; Trinidad and Tobago; the Turks and Caicos Islands; the United States; Uruguay; the Bolivarian Republic of Venezuela (Venezuela).
Asia (UN)	ASIATOT	Includes Afghanistan; Armenia; Azerbaijan; Bahrain; Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the People's Republic of China; Cyprus; Georgia; Hong Kong, China; India; Indonesia; the Islamic Republic of Iran; Iraq; Israel; Japan; Jordan; the Democratic People's Republic of Korea; Korea; Kazakhstan; Kuwait; Kyrgyzstan; Lao People's Democratic Republic; Lebanon; Macau, China; Malaysia; the Maldives; Mongolia; Myanmar; Nepal; Oman; Pakistan; the Philippines; Qatar; Saudi Arabia; Singapore; Sri Lanka; the Syrian Arab Republic; Tajikistan; Chinese Taipei; Thailand; Timor-Leste; Turkey; Turkmenistan; the United Arab Emirates; Uzbekistan; Viet Nam; and Yemen.
Europe (UN)	EUROPE	Includes Albania; Austria; Belarus; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; the Czech Republic; Denmark; Estonia; Finland; the Republic of North Macedonia; France; Germany; Gibraltar; Greece; Hungary; Iceland; Ireland; Italy; Kosovo <sup>6</sup> ; Latvia; Lithuania; Luxembourg; Malta; the Republic of Moldova (Moldova); Montenegro; the Netherlands; Norway; Poland; Portugal; Romania; the Russian Federation; Serbia; the Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Ukraine; the United Kingdom.

6. This designation is without prejudice to positions on status, and is in line with United Nations Security Council Resolution 1244/99 and the Advisory Opinion of the International Court of Justice on Kosovo's declaration of independence.

## Countries and Regions

This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Country/Region	Short name	Definition
Oceania (UN)	OCEANIA	Includes Australia; New Zealand; Cook Islands; Fiji; French Polynesia; Kiribati; New Caledonia; Palau; Papua New Guinea; Samoa; the Solomon Islands; Tonga; Vanuatu.

Please note that the following countries have not been considered due to lack of data:

- Non-OECD Europe and Eurasia: Andorra;
- Africa: Mayotte; Saint Helena; Western Sahara;
- Non-OECD Americas: Anguilla;
- Non-OECD Asia excluding China: Christmas Island, Nauru, Niue and Tuvalu.

## 6. COUNTRY NOTES AND SOURCES

### General notes

Statistics for OECD countries are based on data submissions from national administrations to the IEA Secretariat. Statistics up to 2015 are from the Annual Oil Statistics (AOS) database, while provisional oil data for 2016 are mainly based on the Monthly Oil and Gas Statistics (MOS) database, except for blending of liquid biofuels (Annual Biofuels Survey). Annual data submitted to the IEA may differ from the sum of monthly data submissions due to the lack of availability of data on a monthly basis, or due to different reporting entities.

These differences tend to be widespread for certain products, such as petroleum coke, excluded from monthly demand in certain countries, and certain flows, such as international marine bunkers, refinery fuel, transfers and observed gross inland deliveries. To arrive at a comparable time series between AOS and MOS data, the monthly data are adjusted to take into account the historical differences between the two data sets. Data may therefore differ from similar statistics published in the publication *Oil, Gas, Coal and Electricity Quarterly Statistics* (based on MOS data). Please see notes related to individual countries for more information on data sources and estimations.

### Australia

#### Source

Department of Environment and Energy, Canberra.

#### General notes

- All data refer to fiscal years, which run from 1 July to 30 June (e.g. 2017 = 1 July 2016 to 30 June 2017).

- There is a break in series between 2017 and 2018 due to a change in reporting methods, which involves new mandatory reporting for refineries and companies in the oil sector.
- Moreover, in the 2019 edition the Australian administration introduced several revisions to the time series as a result of new and updated data sources becoming available.
- Between 2009 and 2010 some breaks in time series may occur due to changes in methodologies and to improved data sources, with major revisions explained below.
- An in-depth review of Australian oil statistics, in particular an investigation of amounts currently reported under recycled products as well as statistical differences for **motor gasoline** and **bitumen**, is on-going and may result in further improvements in the next editions.
- In 2013, data for Australia were revised back to 2003 due to the adoption of the National Greenhouse and Energy Reporting (NGER) as the main energy consumption data source for the Australian Energy Statistics. As a result, there are breaks in series for many data between 2002 and 2003.
- Prior to 1991, **LPG** includes **ethane**.
- Between 1982 and 1983, the large drop in industry consumption is due to the restructuring of the iron and steel industry, the economic recession and one of the worst droughts in history.
- From 1973, data are based on national surveys. Prior to 1973, there are no detailed data available for auto-producers and for sub-sector industry consumption.

#### Supply

- In 2017 Kwinana refinery underwent a major maintenance turnaround. The maintenance lasted



six weeks and focused primarily on the residue cracking unit.

- In 2017, the Australian administration added new companies to their reporting. As a result there is a break in stocks of **motor gasoline** and **gas/diesel oil** between 2016 and 2017.
- **Crude oil** production and imports continued to decline in 2015 in line with the closure of domestic refining capacity in New South Wales (Kurnell Refinery) and Queensland (Bulwer Island Refinery). Refinery outputs also fell as a result. These two sites have been converted to import terminals helping Australia expanding its import capacity. Refined products imports increased considerably in 2015 with non-bio gasoline accounting for most of the increase.
- In the 2015 data, **fuel oil** imports dropped significantly due to the closure of the two large consumers of this product, the Gove alumina refinery and the Point Henry aluminium smelter.
- From 2010 **crude oil** production estimates for selected companies have been replaced by actual data.
- From November 2013, the breakdown of exports of **crude oil** to selected countries (China, India, Japan, Korea, and Malaysia) is confidential. Exports for these countries are reported in non-specified.
- From 2010, the breakdown of trade of **fuel oil** by destination/origin is confidential.
- From 2010, receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used by refineries. This consumption ceased in 2017 due to the closure of the refinery that consumed hydrogen.
- Prior to 2009, possible double counting of **NGL** and **LPG** stocks may occur.
- Between 2001 and 2002, there is a break in series for **crude oil** and **NGL** production.
- In 1999, the drop in the **NGL** production is due to a gas explosion at Longford plant. Prior to 1992, part of the **NGL** production is included in **crude oil**.
- Prior to 1974 **refinery gas** is reported net of consumption in refineries.
- For **other products**, inputs from recycled products, most of which are transferred back to the refinery as **refinery feedstocks** are used as a balancing item by the Australian administration to com-

pensate for the possible underreporting of refinery inputs.

### Transformation

- There is a break in the refinery input and output balance in 2011 as a result of a reclassification of a facility from upstream to downstream.
- As a result of a new methodology adopted to split **gas/diesel oil** inputs between main activity and autoproducter plants, breaks in series appear between 2009 and 2010.

### Consumption

- In 2017 the Queensland Nickel refinery closed down and the Portland Aluminium refinery was reduced for an extended period due to a power fault. As a result **fuel oil** consumption in the non-ferrous metal sector declined in 2017.
- In the 2018 edition the **bitumen** time series was revised with higher levels of consumption for 2015 and 2016. This is based on the monthly Australian Petroleum Statistics which now has better coverage of the consumption data.
- There is an increase in non-energy consumption of **other oil products** in the chemical and petrochemical sector in 2016 and 2017, this is largely driven by one facility that completed a production expansion project in 2013 but has only started to report the production increase now.
- Breaks in series appear between 2009 and 2010 in transport consumption due to a change in methodology.
- From 2009, all consumption of **naphtha, bitumen, lubricants, white spirit and SBP and paraffin waxes** is reported as non-specified industry consumption as no further breakdown is available.

## Austria

### Source

Bundesanstalt Statistik Österreich, Vienna.

### General notes

- In the 2016 edition, widespread data revisions were received due to enhanced reporting for 2005 as a consequence of the Austrian Energy Efficiency Act (Bundes-Energieeffizienzgesetz). For some



time series, these revisions were extrapolated back to 1990. As a consequence, there may be breaks in series between 2004 and 2005, and 1989 and 1990.

- Between 2013 and 2014, breaks in series appear for **naphtha** due to a review of the refinery internal reporting system. Exports of petrochemical raw material, previously recorded under **naphtha** exports, are no longer reported.
- Between 1998 and 1999, breaks in series for industry appear due to a change in survey methodology.
- As of 1978, **other products** include **paraffin waxes**. **Petroleum coke** is included from 1978 to 1989 and **naphtha** prior to 1990.

### Supply

- In the 2016 edition, time series for **gas/diesel** oil consumption in international marine bunkers were revised after implementation of study results on international bunkers back to 1990.

### Transformation

- In the 2019 edition the administration incorporated revisions as a result of improved reporting from the refinery to Statistics Austria. As a result there may be breaks in the time series between 2004 and 2005.
- In 2017 **fuel oil** consumption in blast furnaces was replaced by PCI coal.

### Consumption

- Before 1990, **lubricants** consumption is reported in the road sector as no further breakdown is available.
- For 1978 and 1979, industry consumption of **gas/diesel oil** is included with **fuel oil**.

## Belgium

### Source

Observatoire de l'Energie, Brussels.

### General notes

- Between 2008 and 2009 breaks in series occur for **naphtha** and **LPG** in both transformation and final consumption of the petrochemical sector as a result of methodological improvements made by the Belgian administration.

- From 2010, the Belgian administration started to collect **NGL** statistics.
- Data on **biofuels** are not available before 2009.

### Supply

- In 2017 new legislation increased the biofuel blending target for **motor gasoline** from 4% of volume to 8.5% of volume. As part of this E10 gasoline was introduced and became the new standard product in the country.
- In the 2019 edition, the Belgian administration included new companies in their reporting, some of which are particularly active in the production and trade of **lubricants** and **bitumen**.
- Consumption in international marine bunkers dipped in 2014 and 2015 due to the closure of several bunkering companies. During 2015 these were replaced by new companies which became fully operational in 2016.
- From 2013, a new source was introduced for **petroleum coke** trade.
- In 2009, there is break in series for stocks of **naphtha**
- In 1995, the decrease of products transferred to **refinery feedstocks** was due to refinery maintenance of one month.
- Prior to 1975, **refinery gas** is reported net of consumption in refineries.

### Transformation

- In 2017 the upgrade project of Antwerp refinery and petrochemical plant was completed. Two key projects were completed: new refinery capacity for the conversion of heavy fuel oil into low sulphur light products and increasing steam cracker flexibility to maximize the processing of low cost advantaged feedstock. The latter is reflected in feedstock needs. Output of lighter end products as well as **petroleum coke** is impacted by these upgrades.
- In 2008, a new reporting system started for inputs to electricity and CHP plants. From 1974 to 2007, inputs to electricity and CHP plants have been estimated by the IEA Secretariat based on inputs reported in the Annual Electricity Questionnaire.

## Consumption

- Between 1999 and 2000, the break in series for **petroleum coke** and **other products** is due to improvements in the data collection system.
- From 1993, the decrease in **fuel oil** industry consumption is due to the introduction of an excise tax as well as the increased use of natural gas.
- Prior to 1976, **gas/diesel oil** and **LPG** consumption in the commercial/public services sector is included in the residential sector.
- Between 1975 and 1976, the break in series for **fuel oil** is due to a change in classification between the industry and “*other*”.
- Prior to 1971, data for non-metallic minerals, machinery, mining/quarrying, food/beverages, pulp/paper/printing, tobacco and construction are not available.

## Canada

### Source

Natural Resources Canada, Ottawa.

### General notes

- In the 2018 edition, data for Canada were revised back to 2005 following a ten year revision of the Report on Energy Supply and Demand (RESO), the main set of Canadian annual data. The revision standardizes the methodology used for the IEA data submission and has mainly affected the demand side. Breaks in the series appear as a result between 2004 and 2005.
- In the 2016 edition, the Canadian administration was able to reconcile some historical inconsistencies by reporting inputs and outputs to upgraders. In the supply side, these quantities are reported under **other hydrocarbons**. In the demand side, they are reported under the respective output products (**refinery gas**, **road diesel**, and **petroleum coke**).
- Between 1989 and 1990, breaks in series appear as a result of changes in methodology incorporated in the 2002 edition.
- Prior to 1990, **LPG** includes **ethane**, condensates and pentanes. **Ethane** is mainly used as petrochemical feedstock.
- Prior to 1979, **gasoline type jet fuel** is included with **kerosene type jet fuel**.

- Time series for **other products** may fluctuate as they are computed as residuals.
- Receipts from non-reporting companies are currently represented in the statistical difference flow, work is ongoing with the Canadian administration to address gaps in the coverage that lead to increasing statistical differences.

## Supply

- The Sturgeon refinery began operations in late 2017. The refinery produced its first diesel fuel in December 2017. It is still under constructions and can currently only process synthetic **crude oil** and not **bitumen**.
- In the 2018 edition the domestic supply of crude oil was revised due overall revisions to the Report on Energy Supply and Demand and the inclusion of additional data sources in the reporting.
- From 2014 data the Canadian administration started using customs based trade data to report **crude oil** imports. In the 2017 edition, **crude oil** imports data have been revised following this methodology back to 2005. Some revisions to imports of secondary products have already been made and further revisions are expected.
- Condensates and pentanes plus are included in **crude oil** from 2005, in **NGL** from 1990 to 2004, and in **LPG** prior to 1990. Historical revisions are pending. The Canadian administration plans to report condensates and pentanes plus in **crude oil** for the entire time series because the split between the two products is not available for all supply flows.
- From 2005 primary oil imports include direct imports of condensates by **crude oil** producers.
- From 2005, receipts from other sources (natural gas) of **other hydrocarbons** correspond to natural gas used for the upgrading of synthetic crude oil and natural gas used to upgrade petroleum products. From 1990 to 2005, these quantities are reported in indigenous production. This flow has been revised in the 2019 edition. Prior to 1990, they are included in the natural gas supply.
- From 1994 to 2000, imports of **other hydrocarbons** correspond to Orimulsion from Venezuela.
- The Canadian administration is currently unable to provide a figure for the domestic production of **additives and oxygenates**, but is working on solutions which will make this possible. Meanwhile,

significant statistical differences can be observed for several secondary oil products.

- Indigenous production of **other hydrocarbons** represents synthetic crude oil produced from tar sands and inputs to upgraders.
- Primary product receipts of **gas/diesel oil** includes output from oil sands (available in monthly data as of 2019).
- Primary product receipts of **petroleum coke** includes output from oil sands (available in monthly data as of 2019).

## Consumption

- Due to confidentiality issues, consumption data for selected products and flows, such as **fuel oil** and **gas/diesel** consumption in iron and steel from 2009, are not available. For the same reason, selected products may include estimates provided by the Canadian administration, such as **fuel oil** and **bitumen** for 2014.
- In the 2019 edition the data series for consumption in oil and gas extraction was revised back to 2005 by the Canadian administration as new data sources meant a more accurate distribution between this sector and mining is now possible.
- From 2003, data for **crude oil** consumption in the energy sector are not available.
- Separate consumption data for agriculture (including forestry) are available from 1983 for **kerosenes**, from 1973 for **gas/diesel oil** and from 1978 for **fuel oil**. For previous years, agriculture consumption is included with residential.
- From 1982, amounts of **gas/diesel oil** consumed by fleets in the wholesale/retail service industry are reported in the commerce/public services sector. Prior to 1982, they were included in the road sector.
- Prior to 1980, several breaks in series exist for detailed industrial consumption for **other kerosene**, **gas/diesel oil** and **fuel oil**. From 1980, all consumption data are based on one survey. However, from 1988, data for transport equipment, machinery, food and textiles are not available as Statistics Canada has ceased the collection of these data.
- Prior to 1978, international marine bunkers are included with inland waterways.

## Chile

### Source

Ministerio de Energía, Santiago.

### General notes

- Data are available starting in 1971.
- Stocks data are available starting in 2009. Prior to year 2009, the Chilean administration can only provide data for stock changes.
- Between 2008 and 2009, breaks in series occur due to Chilean administration's changes in accounting.
- From 1990, a new methodology has been applied to data, leading to breaks in series between 1989 and 1990.

### Supply

- Receipts from other sources of **other hydrocarbons** correspond to natural gas used in refineries.

### Consumption

- Starting with 2017 reference year data the administration can now identify consumption in construction and agriculture. Prior to these quantities were reported under not elsewhere specified.
- From 1990, consumption in paper and pulp includes forestry and consumption in agriculture is included in non-specified industry.

## Czech Republic

### Source

Czech Statistical Office, Prague.

### General notes

- Data are available starting in 1971.
- Prior to 1994, consumption data are estimated by the IEA Secretariat. The Czech administration submitted official data from 1994.
- In 2016 both Czech re-refineries were affected by accidents which resulted in decreased refinery throughput, increased refinery losses and led to a large decrease in imports of crude oil offset by increased imports of finished products. The second accident affected the ethylene production unit and

led to decreased activity in the petrochemical sector. In 2017 both refineries were upgraded and brought back online.

### Transformation

- From 2002, some amounts of **fuel oil** have been reclassified under **other products**. This change mainly affects the transformation sector.

### Consumption

- From 1999, the Czech administration has implemented a new updating system. It entails breaks in series for final consumption of **gas/diesel oil**.

## Denmark

### Source

Danish Energy Agency, Copenhagen.

### General notes

- Starting with 2013 data, the Danish administration reports products transferred to **refinery feedstocks**. In previous years refinery output is reported net of product transfers.
- Breaks in series between 1989 and 1990 may occur due to major revisions introduced by the Danish administration in the 2004 edition for data from 1990-2001.
- From 2012, all liquid **biofuels** are reported under **biodiesel** due to confidentiality issues.
- From 1990, Greenland and Faroe Islands are no longer included in oil data.
- From 1987, separate data on **paraffin waxes** are no longer available.

### Supply

- Quantities of **other hydrocarbons** represent natural gas used by refineries.
- Between 1995 and 2004, imports of **other hydrocarbons** represent orimulsion (used as input to main activity producer CHP plants). Orimulsion imports stopped in 2004.
- Prior to 1975, **refinery gas** is reported net of consumption in refineries.

### Transformation

- In 1994, the increase in inputs of **fuel oil** to CHP production is due to increased electricity exports to Norway.
- Between 1993 and 1994, inputs to electricity and heat generation have been reclassified due to improved survey methods, causing breaks in series. The oil inputs used in industrial sub-sectors for producing surplus of heat, which is delivered to district heating networks, are allocated to these industrial subsectors.
- From 1974 to 1979, consumption of **fuel oil** for CHP production by autoproducers has been estimated.

### Consumption

- For 1994 and 1995, industry detail is based on a different survey.
- Prior to 1990, **gas/diesel oil** and **fuel oil** consumption for fishing is included in domestic navigation.
- From 1989, information on recycling and end-use consumption of **other products** is available, and refers to waste oil.
- In 1988, consumption of **gasoline type jet fuel** ceased. From 1989, only **kerosene type jet fuel** is consumed.
- Prior to 1976, all oil consumption in commercial/public services is included in residential, except **fuel oil** which is shown separately from 1975.
- Data for end-use consumption may vary from year to year due to a detailed survey which is sent to companies in Denmark every other year. For non-survey years, the consumption by end-use is estimated by the Danish Energy Agency.
- **Heating oil** consumption in industry is based on a bi-annual survey which is carried out at even years. Revisions to the latest odd year are expected in the following even year edition.
- Inland deliveries of **white spirit and SBP** and **lubricants** are estimated by the Danish Energy Agency.

## Estonia

### Source

Statistics Estonia, Tallinn.

## General notes

- Data for Estonia are available starting in 1990. Prior to that, they are included in Non-OECD data in Former Soviet Union.
- For the years 1990 to 2007, oil data are based on direct communication with Statistics Estonia and UNECE.

## Supply

- In 2012, breaks in series occur for trade, now including re-exports, and for international bunkers.

## Finland

### Source

Statistics Finland, Helsinki.

### General notes

- The 2018 edition includes revisions to several products from 1999 onwards.
- In spring 2015, the Porvoo refinery had the largest shut down in its history for maintenance works. This is the reason for the large decrease in refinery throughput in 2015.
- In 2014 the Finnish administration revised the time series of **refinery gas** back to 2000. Newly reported distribution losses correspond to the flaring of petrochemical gases.
- Between 2012 and 2013, breaks in series for stocks of **crude oil** and selected oil products results from the reclassification of military stocks as government stocks.
- Between 1999 and 2000, a new survey system and a reclassification of the data lead to breaks in the series for most products and sectors. The new survey system is more detailed and has better product coverage, especially in electricity, CHP and heat production, as well as in industry.
- In 1995, there is a break in series for oil products trade due to the aligning of the National Board of Customs trade data collection system with the European Union's Intrastat system.
- From 1985, **petroleum coke** data are available

## Supply

- Receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used in refineries.

## Consumption

- Before 2000, **petroleum coke** used as refinery fuel was included with **refinery gas**.
- Between 1998 and 1999, there is a break in series in *other* consumption of **fuel oil** due to a new calculation model.

## France

### Source

Ministère de la Transition Écologique et Solidaire, Paris.

### General notes

- From 2011 data onwards, France includes Monaco, and the following overseas departments (Guadeloupe; French Guiana; Martinique; Mayotte; and Réunion); and excludes the overseas collectivities (New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna).
- In the 2018 edition, data for France were revised back to 2011 following changes in methodology and procedures used by the energy statistics sub-department (SDSE) within the Ministry for the ecological and inclusive transition. As a result, the revisions, to bring the reporting more in line with the international standards, impacted all fuels. Additional details are given under each fuel.
- From 2013, information is available for imports of condensates used by the petrochemical sector. These are reported under imports of **NGL**, interproduct transfers of **NGL** to other products, and consumption of other products.
- From 2012, the energy consumption is more detailed due to a more precise national survey. Specifically, separate data on main activity heat plants inputs are available.
- From 1998, a different treatment of transfers was adopted. Imported oil products needing further refinery processing are no longer reported as **refinery feedstocks** imports but as oil product imports and products transferred. **Fuel oil** includes part of the amounts previously reported in **other**



**products** from 1999 and various other products from 2001.

- The breakdown between international and domestic marine bunkers is estimated by the French administration.

## Supply

- Higher than usual seasonal maintenance in the spring of 2018 impacted refinery intake and output.
- From 2009, transfers of **kerosene type jet fuel to white spirit and SBP** correspond to kerosene used as a base for making **white spirit and SBP**.
- From 2008, refinery intake of **refinery feedstocks** and refinery output of **refinery gas** exclude natural gas used in the steam reformer of the Gonfreville refinery.
- From 2008, refinery output of **ethane** is reported.
- In 2003, exports of **additives and oxygenates** started.
- From 2002, ethylene produced in Lacq is not included in **NGL**.
- From 1991, data for **additives and oxygenates** are available.
- Statistical differences observed for **motor gasoline** and **naphtha** are partly due to the absence of a specific **naphtha** category in the Customs classification.
- Statistical differences for **other products** are the result of different definitions used by Customs, refineries, power plants and petrochemical industry.

## Consumption

- Between 2005 and 2006, there is a break in series for **LPG** as consumption from one chemical company was reclassified from energy use to non-energy use. Breaks in **LPG** series also appear in 2001 due to improved data collection.
- From 2000, **petroleum coke** consumption in the non-ferrous metals industry is no longer available separately. Prior to 1982, no breakdown between energy and non-energy use is available for this product.
- From 1998, military consumption of **kerosene type jet fuel** is reported separately from domestic aviation.
- From 1985 to 1998, residential and commerce/public services consumption for **gas/diesel oil** and residual **fuel oil** has been estimated by the IEA

Secretariat based on information provided by the French administration.

- From 1982 to 1994, consumption of **gas/diesel oil** in the non-metallic minerals sector has been reclassified as non-ferrous metals and vice-versa.
- Prior to 1994, the separation of **LPG** consumption between residential and commerce/public services has been estimated by the IEA Secretariat.
- Prior to 1988, **LPG** consumption includes **ethane**.
- Prior to 1985, **gas/diesel oil** residential consumption is reported under commerce/public service as no separate data are available.

## Germany

### Source

Federal Ministry for Economic Affairs and Energy, Berlin.

### General notes

- In the 2019 edition, the German administration included additional firms in the chemical sector to their data collection system. As a result, 2017 data shows an increase in deliveries of oil products to the petrochemical sector.
- In 2017, the German administration applied a new methodology for reporting liquid **biofuels**.
- In 2016 the German administration reclassified the consumption of a chemical company from fuel oil to other oil products. This leads to a decrease in the supply and consumption of **fuel oil** with a corresponding increase for **other oil products**. Due to the assumptions made by the German administration about the energy consumption of the respective products, this also creates a break in time series in the split between energy and non-energy consumption for the chemical sector.
- In 2016 there are breaks in time series for **white spirit** due to an increase in data coverage. Historical revisions are expected in the next edition.
- From 1994, **gasoline type jet fuel** was reclassified to jet kerosene.
- From 2000, part of the product “Andere Rückstände” (other residues) is included with **fuel oil** instead of **other products**.

- Prior to 1979, other products data includes paraffin waxes, bitumen, white spirit and SBP and lubricants for eastern Germany.
- The methodology to determine net calorific values has been changed for 2015 data. The values for crude oil and refinery feedstocks were revised back to 2003.

### Transformation

- From 2007, more information is available on main activity heat plants and additional inputs started to be reported for this category. This causes breaks in series between 2006 and 2007.

### Consumption

- Between 2002 and 2003, breaks in series in consumption data are due to structural changes in energy statistics following the newly introduced Energy Statistics Act.
- In 1995, a break in series for the **gas/diesel oil** consumption in the industry sector occurred due to an alignment with the NACE classifications.
- Between 1993 and 1994, there is a break in series for final consumption by sub-sector due to improved survey methods instituted by Mineralölwirtschafts Verband.
- In 1989, end-use consumption of **gas/diesel oil** decreased due to an exceptionally warm winter and a lowering of consumer stocks.
- Prior to 1980, **fuel oil** consumption in blast furnaces was included in the iron and steel sector.
- Prior to 1970, **refinery gas** consumption in the chemical industry is included with refineries' own consumption.

## Greece

### Source

Ministry for Environment and Energy, Athens.

### General notes

- In the 2016 edition, the Greek administration reclassified **gasoline type jet fuel** as **aviation gasoline** from 2009.
- Between 2012 and 2013, breaks in series for **bio-diesel**, **lubricants** and stocks appear due to the introduction of a new reporting system.

- Prior to 1987, consumption in commerce/public services is included with residential. In 1978 and 1982, peaks in residential consumption are due to unusually cold winters.

### Supply

- Production of **crude oil** was stopped end of November 1998, and started again in December 1999.

### Transformation

- From 1990, there has been an increased use of **refinery gas** in electricity generation, replacing **fuel oil**.

### Consumption

- In 2013, the drop of **gas/diesel oil** residential consumption is linked with changes in the taxation of heating oil.
- From 1996, more detailed end-use information is available due to improved reporting methods.
- From 1993, more information is available on the allocation of **fuel oil** to specific industrial sub-sectors. Fuel oil consumption in agriculture and residential has been replaced by **gas/diesel oil** starting in 1993.

## Hungary

### Source

Hungarian Energy and Public Utility Regulatory Authority, Budapest.

### General notes

- From 2010, *receipts from other sources (natural gas)* of **other hydrocarbons** correspond to hydrogen used in refineries, for hydrodesulphurization, also represented as the output of *non-specified transformation processes* in the balances format.
- Between 2012 and 2013, there are breaks in series for some products and flows. In particular, information on the energy use of **naphtha** by the chemical/petrochemical industry is available only from 2013. For prior years, all is reported under non-energy use, except consumption resulting in oil backflows (transformation petrochemical plants). Historical revisions are pending.
- From 2004, **other products** include aromatics and other products that were previously included mainly under **white spirit and SBP**.

- From 1998, the breakdown between low and high sulphur **fuel oil** is available.
- From 1998, data for additives and oxygenates and **aviation gasoline** are available.
- Prior to 1993, data for **refinery gas, paraffin waxes, and lubricants** are partly estimated by the IEA Secretariat.
- Prior to 1993, **white spirit and SBP** is included in **motor gasoline**.

### Supply

- In the 2016 edition, stocks of **crude oil** and oil products have been revised back to 2010.

### Consumption

- In the 2016 and 2017 editions revisions to consumption data back to 2010 were provided by the Hungarian administration following a new survey introduced in 2014. This results in breaks in time series between 2009 and 2010.

## Iceland

### Source

National Energy Authority, Reykjavik.

### General note

- 2008 and 2009 oil supply and consumption data are estimated by the IEA Secretariat.

### Supply

- Between 2015 and 2016 there is a break in stocks for several products due to a change in the methodology.
- In 2014, the Icelandic administration revised **petroleum coke** data from 1990 to exclude imports of anodes for the aluminium industry.

### Consumption

- The industrial classifications used by the Icelandic administration were changed in 1987.
- Prior to 1982, detailed **fuel oil** industry consumption is not available.
- Prior to 1980, consumption data are estimated by the IEA Secretariat.
- Prior to 1970, final consumption includes inputs and outputs to heat production.

## Ireland

### Sources

- Department of Communications, Energy and Natural Resources, Dublin.
- Sustainable Energy Authority of Ireland, Cork.

### General note

- In the 2018 edition, the Irish administration revised the methodology for reporting biogasoline and biodiesel, as well as for reporting final consumption of oil products. This leads to some breaks in series between 2015 and 2016. Revisions to historical data are expected in the next edition.
- *Receipts from other sources (natural gas)* of **other hydrocarbons** correspond to natural gas blended with refinery gas.

### Transformation

- Due to confidentiality reasons, inputs of **petroleum coke** into patent fuel transformation are reported with residential consumption.

### Consumption

- In 2014, the drop of **fuel oil** consumption in non-metallic minerals sector observed is linked with the replacement of HFO boilers by natural gas boilers as the primary source of steam for alumina production.
- In 2013 and 2014, **bitumen** consumption data is not available and calculated as a residual.
- Between 2008 and 2009, there is a break in series for **LPG, kerosene type jet fuel, gas/diesel oil and petroleum coke** due to a new methodology being applied to sectoral demand by Sustainable Energy Ireland.
- Between 2006 and 2007, there is a break in series for **white spirit and SBP, lubricants, bitumen and paraffin waxes** due to a new methodology being applied to sectoral demand by Sustainable Energy Ireland.
- In 1993, end-use data for **LPG, gas/diesel oil, kerosene type jet fuel** and **fuel oil** are based on a detailed survey conducted by a consulting company. Data for historical years back to 1990 were revised by the national administration based on the results of this survey, resulting in breaks in series between years 1989 and 1990.



- From 1986, **gas/diesel oil** consumption in agricultural is available.
- From 1970 to 1977, the split between commercial and public services and agricultural use of **other kerosene** was estimated by the IEA Secretariat.
- Consumption of **other kerosene** in commercial/public services includes quantities used by state-owned agricultural companies.

## Israel

### Source

Israel Central Bureau of Statistics, Jerusalem.

### General notes

- Data for Israel are available starting in 1971.
- The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD and/or the IEA is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.
- Oil data for 2013 to 2017 have been revised based on Israel's energy balance. As a result, breaks in time series may appear between 2012 and 2013. Israel's national energy balance aggregates bitumen, petroleum coke and other oil products. The split of these products was estimated by the IEA secretariat for all flows. The split of refinery output between jet kerosene and other kerosene was also estimated by the IEA secretariat, as was the sectoral breakdown of consumption of liquefied petroleum gases.
- From 2011, **kerosene type jet fuel** supply and consumption data are estimated by the IEA Secretariat.
- From 2010, **white spirit and SBP** is included in **other products**. No **white spirit and SBP** data are available before that year.
- From 2007 to 2009, some oil data are estimated by the IEA Secretariat based on information from the Ministry of National Infrastructures.

### Supply

- In 2018 the CDU 3 unit and hydrocracker facility at Bazan refinery underwent maintenance. In 2017 the continuous catalytic reformer unit was upgrad-

ed, together with the isomerization units and the naphtha catalytic hydrotreating unit.

- Quantities of **other hydrocarbons** represent natural gas used in refineries, including for the operation of the cogeneration power stations.
- In 2013, a new catalytic cracker came into use, leading to a substantial increase in exports of **gas/diesel oil**.

### Consumption

- From 2013, consumption data are based on a new and detailed classification system and on estimations made by the Israeli administration.

## Italy

### Source

Ministry of Economic Development, Rome.

### General notes

- From 1992 to 1997, all data were estimated by the IEA Secretariat based on *Bilancio Energetico Nazionale*. This is true also for the detailed consumption breakdown for other years.
- In 1988, there are breaks in series for **aviation fuels** due to a change in classification.

### Supply

- In 2016 and 2017 the closure of the Val d'Agri oil centre lasting several months, led to a decrease in production of **crude oil**.
- In the 2018 edition, some unfinished **motor gasoline** was reclassified as finished **naphtha**, the resulting increase in statistical difference is under investigation by the Italian administration and revisions are expected next cycle.
- From 2009, transfers data for **lubricants** could not be disaggregated from refinery output data.
- Statistical difference for **crude oil** may arise as trade corresponding to stock held for Austria and Germany in the Port of Trieste are not included.
- From 2004, refinery output of **other products** increased due to methodological changes.

## Transformation

- From 1984 to 1997, inputs to electricity and heat generation have been estimated by the IEA Secretariat based on submissions of the Annual Electricity questionnaire.

## Consumption

- Between 2003 and 2004, breaks in series for industry and transformation occur due to a change in methodology.
- Between 1998 and 1999, breaks appear in the consumption series due to new surveys.
- A new survey to determine the split between international marine bunkers and domestic navigation caused a break in series for **fuel oil** in 1996 and for **gas/diesel oil** in 1999.
- **Gas/diesel oil** non-specified use is included in commerce/public services.

## Japan

### Source

The Institute of Energy Economics, Tokyo.

### General notes

- From 1990, data are reported on a fiscal year basis (April 2017 to March 2018 for 2017).
- In the 2019 edition, data for Japan were revised back to 1990 by the Japanese administration based on new methodology for the Energy Balance Table.
- In the 2016 edition, the Japanese administration revised several NCVs of both primary and secondary oil products back to 1990. The Japanese administration reviews calorific values every 5 years, with the other most recent revisions occurring in 2005 and in 2013.
- In 1994 and 1995, exports and imports of oil products are reported on a calendar year basis.
- Between 1981 and 1983, breaks in series exist for several products due to improved data collection methods.
- From 1991 to 2006, imports of **other hydrocarbons** correspond to Orimulsion which was imported for electricity generation.
- **Other hydrocarbons** also comprise sulphuric acid, clay (not white clay) and caustic soda.

## Supply

- In 2018 refinery runs were impacted by a heavier than usual maintenance season.
- In 2013 and 2014, the statistical difference for **crude oil** is explained by large amount of stocks held on board incoming vessels in port or at mooring in March 2014 (end of Japan's 2013 financial year). These amounts are included in the stock change but not in the imports in 2013 annual data.
- Between 1981 and 1982 there is a break in series for stocks due to a change in the reporting system to exclude stock levels at service stations and retail stores.
- From 2005 onwards the split between **high** and **low sulphur fuel oil** is no longer available. As a result **high sulphur fuel oil** is reported together with low sulphur.

## Transformation

- In 2016 the liberation of the power market resulted in electricity autoproducers becoming main activity producers.

## Consumption

- Oil consumption continued to fall in 2018 as more nuclear capacity came back online.
- Demand for **heating oil** and **other kerosene** fell driven by a warmer than usual winter in 2018.
- Road consumption is based on the "Automobile fuel consumption survey" from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT). Since 2000, **lubricants** consumption data is estimated by the Japanese administration.
- From 1990, **lubricants** consumption in commerce/public and fishing started.
- From 1990, **petroleum coke** use in blast furnaces series started.
- In 1982, the decrease in **other kerosene** end-use consumption was due to an exceptionally warm winter.
- In 1970, the classification of fuel use between road transport and internal navigation changed.
- Consumption data for commercial/public services may include consumption in small and medium-size industries. The Japanese administration expects that this shortcoming be corrected in the near future.

## Korea

### Source

Korea National Oil Corporation, Ulsan.

### General notes

- Data are available starting in 1970.
- Between 2001 and 2002, there are breaks in series due to a different report methodology, especially for inputs and outputs to electricity generation and consumption in the iron and steel industry. The Korean administration is planning to revise the historical series as soon as time and resources permit.

### Supply

- From 1997, stock levels include vessel stocks.
- Prior to 1994, data are net of backflows to the petrochemical industry.
- The production of heavy distillates has been declining due to the expansion of heavy oil upgrading facilities.
- In 2017, due to constraints to imports of condensate, Korean refineries inputted naphtha into the refinery process.
- The Korean refinery balance shows increasing refinery losses, the problem is under investigation by the Korean administration and is likely related to the density used to convert refinery inputs from volumetric to mass units.

### Transformation

- Inputs of **fuel oil** to autoproducer electricity and autoproducer CHP are included with final consumption.

### Consumption

- From 1990 to 1995, **kerosene type jet fuel** split between international civil aviation and domestic air transport has been estimated.

## Latvia

### Source

Central Statistical Bureau, Riga.

### General notes

- Data for Latvia are available starting in 1990. Prior to that, they are included in Former Soviet Union.
- **Other hydrocarbons** represent shale oil.

### Supply

- In 2018 one of the main players in marine bunkering at Latvia's largest port ceased operations. As a result deliveries of oil products to marine bunkers decreased in that year. As of 2019 the issues have been resolved and bunkering activity is expected to resume.

## Lithuania

### Source

Statistics Lithuania, Vilnius.

### General notes

- Data for Lithuania are available starting in 1990. Prior to that, they are included in Former Soviet Union.

### Supply

- In 2014, production efficiency enhancement projects were implemented at Lietuva refinery which allowed reducing the amount of components blended with **motor gasoline**.
- In 2013 one of the companies engaging in marine bunkering shut down, as a result deliveries of **gas/diesel oil** and **fuel oil** drop in that year.
- **Jet kerosene** is sometimes reclassified as **road diesel** to improve cold flow properties of arctic diesel.

### Consumption

- Consumption of **other oil products** reflects consumption of sulphur. In 2014, the Lietuva oil refinery was upgraded enabling the production and export of granulated sulphur.

## Luxembourg

### Source

Statec – Institut national de la statistique et des études économiques du Grand-Duché du Luxembourg, Luxembourg.

### Consumption

- In 1994, all high-sulphur **fuel oil** consumption has been replaced by low-sulphur **fuel oil** due to the introduction of an excise tax.
- In the late 1970s, the reduction in consumption of **fuel oil** in the iron and steel industry was due to substitution by coal.

## Mexico

### Source

Secretaría de Energía, Mexico City.

### General notes

- Data are available starting in 1971.
- In the 2016 edition, major revisions were carried by the Mexican administration on the time series back to 1990 based on updated information available from PEMEX, the Mexican Institute of Petroleum and the Federal Electricity Commission (CFE). Revisions include notably crude production, refinery output, gas separation plant production, auto-producer generation and road consumption.
- From 1990, the breakdown of **road diesel** and **heating oil** is available.
- **Additives and oxygenates** represent methyl tertiary butyl ether (MTBE).
- The split of **kerosene type jet fuel** consumption between domestic and international aviation is not available. By default, all consumption is reported under international aviation bunkers.

### Supply

- Refinery intake of **crude oil** was estimated by the IEA Secretariat for the years 2016, 2017 and 2018 based on growth rates from SENER and PEMEX published data.
- In 2017, production of **crude oil** and **NGL** was impacted by heavy maintenance at the Ku-Maloob-Zaap field and decline at the Cantarell

field in the Gulf Mexico which was affected by several force majeure events.

- For 2017 import data of **LPG, naphtha, road diesel** and **fuel oil**, the received data was supplemented with estimates by the IEA Secretariat based on published data from SENER.
- 2018 and 2017 imports of **petroleum coke** were estimated by the IEA Secretariat based on information from the U.S. Energy Information Agency.
- In 2017 Minatitlán refinery was offline for several months and later operating well below capacity as a result of an accident on site. The refinery at Tula was also temporarily offline. Both these events impact refinery throughput in 2018.
- From 2016 data onwards trade information is based on daily customs data.. Historical revisions are pending.
- **NGL** production reported in the IEA publications may be different from what is reported in the Mexican energy publications as the IEA includes in its oil data liquids produced in conjunction with natural gas.
- The large refinery losses from 2005 onwards are the result of the downward revisions to refinery output of **gas/diesel oil** carried out in 2017.
- From 2013, stock levels of **petroleum coke** available.
- In 2003, a new facility was added to a refinery to produce **petroleum coke**.
- From 1993, receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used at the Minatitlan refinery.

### Transformation

- For several months in 2017 Salina Cruz refinery was under extensive maintenance, following operational problems and structural damage as a result of the September 2017 earthquake.
- The Madero refinery closed for maintenance in August 2017 and remained close through the start of 2018.
- 2017 refinery gross output of **gas/diesel oil, bitumen, lubricants and paraffin waxes** was estimated by the IEA Secretariat based on SENER and PEMEX published data.
- Data for inputs of **gas/diesel oil** and **fuel oil** to autoproducer CHP generation are available from 1999.

- From 2013, inputs to autoproducer plants are available.

## Consumption

- 2017 consumption of **naphtha** for feedstock purposes in the chemical and petrochemical sector was estimated by the IEA Secretariat based on ethylene production figures.
- The consumption of **motor gasoline** and **road diesel** is impacted by changes to fuel subsidies introduced on January 1, 2017.
- Consumption of **lubricants** and **bitumen** for 2017 was estimated by the IEA Secretariat based on sales data from SENER.
- From 1993, **petroleum coke** and **other products** end use data are available.
- From 1990, **lubricants**, **bitumen** and **paraffin waxes** end use data are available.
- Prior to 1987, the split of **LPG** consumption between residential and commercial/public services has been estimated by the IEA Secretariat.

## Netherlands

### Source

Statistics Netherlands, The Hague.

### General notes

- The Netherlands Central Bureau of Statistics has conducted reviews and revisions of their energy balance three times; in 2005, 2011 and 2015. The 2005 revisions were to improve basic energy statistics, particularly with respect to carbon and CO<sub>2</sub> reporting, while the 2011 revisions were part of a harmonization program with international energy statistics. The 2015 revisions were the result of increased data collection, availability of new source information, and further alignment with international energy definitions.
- Following revisions made in the previous edition to data for 1995 onwards, this edition includes further revisions made by the Dutch administration for the period 1990 to 1994. These revisions are the result of increased data collection, availability of new source information, and further alignment with international energy definitions.

- In 2017, large amounts of **fuel oil** were reclassified as **other products** due to their chemical properties.
- From 2013, data collection for **gas/diesel oil** road demand became more difficult, as taxation no longer distinguished **road diesel** from **heating oil**.
- In 1990, some breaks in series occur as the Dutch administration started reporting the petrochemical industry according to IEA methodology.
- From 1990, **naphtha** data include aromatics and other light oils.
- Until 1990, **motor gasoline** data include other light oils.
- Prior to 1990, **LPG** includes **ethane**.
- From 1968 to 1977 and from 1983 to 1990, **petroleum coke** is included with **other products**.
- From 1978, **refinery gas** data include chemical gas. These quantities are shown as chemical industry consumption. Inputs to public combined heat and power generation begin in 1995.

### Supply

- Prior to 1994, stocks of **crude oil** held by stockholding entities were not included.
- In 2017 the main plant producing **lubricants** closed as a result there is no more refinery gross output of this product.
- Data for deliveries of fuel oil to international marine bunkers were revised downwards in the 2019 edition back to 2015. This was due to an improvement in the underlying data and figures available to CBS Statistics Netherlands.

### Transformation\

- In the national statistical system of the Netherlands, use of fuel in manufacturing industries for CHP production is considered to be consumption in transformation. However, in IEA statistics, this own use for heat production (autoproduced heat) is reported under the relevant industry sub-sector, based on estimates provided by Statistics Netherlands.

### Consumption

- In the 2019 edition several revisions were introduced to flows relating to the chemical and petrochemical industry. Energy consumption in the chemical industry has been revised upwards back to 2012, following an internal audit of the data that revealed gaps in coverage. Non-energy consump-



tion in the chemical industry has been revised downwards back to 1990 following a review of the data submitted by one of the main companies.

- Between 1983 and 1984, significant breaks in series are due to the introduction of a more comprehensive survey on end-use consumption. However, aggregated consumption data for transport, industry and “*other*” are not affected.

## New Zealand

### Source

Ministry of Business, Innovation and Employment, Wellington.

### General notes

- For 2016, the following data were estimated by the IEA Secretariat: consumption of **lubricants**; imports of **bitumen**; and refinery output and inter-product transfers of **other oil products**.
- For 2015, the following data were estimated by the IEA Secretariat: stock changes and consumption of **lubricants**; consumption of **bitumen**, and all figures for **petroleum coke** and **other oil products**.
- Prior to 1994, data refer to fiscal year (April 1993 to March 1994 for 1993). From 1994, data refer to calendar year.
- From 1994, the New Zealand administration no longer reports data on the production of methanol due to confidentiality reasons.
- From 2000, **paraffin waxes** are included with **lubricants**.
- From 1998, light **fuel oil** is included in **gas/diesel oil**. Until 1997, it is included in **fuel oil**.
- Until 1997, synthetic gasoline production from natural gas is reported under **other hydrocarbons** (ceased in February 1997).

### Supply

- Between 2013 and 2014, the spike in imports of **kerosene type jet fuel** can be explained by an anticipated strike at refineries.

### Consumption

- From 1960 to 1973, consumption data have been estimated by the IEA Secretariat.

## Norway

### Source

Statistics Norway, Oslo.

### General notes

- In the 2018 edition, the Norwegian administration made widespread revisions to their data back to 2010, following the introduction of a new system for energy balances and energy accounts. Breaks in series may appear between 2009 and 2010 as a result. For more detailed information regarding the methodological changes, please refer to the documentation of statistics production since statistics year 2010 on the Statistics Norway website. At the time of writing, the document was available in Norwegian as “Dokumentasjon av statistikkproduksjonen fra statistikkår 2010 og fremover”.
- A major project is being carried by Statistics Norway in order to reduce the statistical differences observed between calculated supply and demand of oil in Norway. Starting with 2014 data, new methodologies have been introduced for reporting **crude oil**, **NGL** and **naphtha**. Balances for **motor gasoline**, **gas/diesel oil**, **kerosene type jet fuel** and **fuel oil** are also under investigation. Further improvements are expected in future editions.
- Prior to 1990, **LPG** includes **ethane**.

### Supply

- In 2017 the Goliat field was offline from September through October for planned and unplanned maintenance.
- In 2014, the strong decrease in **crude oil** refinery intake is due to heavy maintenance works carried out in the refineries in fall 2014.
- From 2014, Statistics Norway has changed the source for annual **crude oil** exports to include shipping information collected by the National Petroleum Directorate.
- From 2014, the breakdown between **crude oil** and **NGL** refinery intake is available in annual data.
- From 2014, there is a break in series in **naphtha** supply series due to a change in reporting methodology adopted by Statistics Norway.
- Prior to 2002, part of **LPG** exports was reported as **NGL** exports.

- Between 1999 and 2000, breaks in series for stocks levels appear for crude oil and some oil products due to a change in reporting methodology.
- For 1996, some **lubricants** are included with **other products**.
- Since 1986, imports of **refinery feedstocks** are reported under the relevant oil product.
- Indigenous production of **crude oil** includes condensates.

### Transformation

- In 2016 Slagen refinery underwent maintenance.
- From 1970 to 1975, electricity generation from **gas/diesel oil** has been estimated by the IEA Secretariat.

### Consumption

- Between 2004 and 2005, there is a break in series in **petroleum coke** industry consumption according to new information.
- In 2003 and 1993, breaks in series for consumption in the chemical/petrochemical industry appear due to newly available information.
- Since 2001, **petroleum coke** used as refinery fuel has been reported.
- Prior to 2000, **gas/diesel oil** consumption in fishing is included in agriculture/forestry.
- From 1990, electricity autoproduced on oil and gas platforms from **gas/diesel oil** is reported under energy industry own use.
- From 1976, the detailed consumption of **gas/diesel oil** and **fuel oil** is available.
- **Naphtha** consumption data are not available, as they are not part of the Norwegian energy accounts. Statistics Norway is working towards solving this issue.
- Consumption of **lubricants** is reported in the industry, as no further breakdown is available.

## Poland

### Source

Central Statistical Office, Warsaw.

### Supply

- In 2018 new legislation introduced a biofuel blending obligation for liquid fuels. The effects of this policy can be seen throughout 2017 as compa-

nies prepared for the implementation of the new directive.

- From 2003, **petroleum coke** supply data are available.
- From 1997, receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used by refineries.
- From 1988, stock levels are available.

### Transformation

- In 2017 lower refinery activity is linked to maintenance activities at several refinery installations across the country.
- Prior to 1998, inputs of **gas/diesel oil** and heavy **fuel oil** to autoproducer CHP in petroleum refineries have been included in the transformation.

### Consumption

- In 2016 regulatory changes affecting the customs and tax authorities meant that consumption of fuel in the informal economy decreased.
- In 2015, a new flue-gas desulphurisation unit was installed. As this unit facilitates high sulphur fuel oil burning in place of natural gas, this explains the increase in **fuel oil** consumption in oil refineries.

## Portugal

### Source

Direcção-Geral de Energia e Geologia, Lisbon.

### General note

- The increase in refinery throughput in 2015 is a result of increased refinery capacity linked to the expansion of the Sines refinery.

### Supply

- Scheduled refinery maintenance through the months of September and October 2018 affected the refinery intake and output in 2018.
- As of 2017 the blending of biofuels in **motor gasoline** is no longer compulsory. This primarily impacts quantities of bioETBE. As a result, there is a decrease in primary product receipts of **bio-gasoline** between 2016 and 2017.
- Between 2012 and 2013, the increase in imports of **refinery feedstocks** and refinery output of middle

distillates is linked with the opening of a new hydro-cracking unit in Sines Refinery in April 2013.

- Between 2012 and 2013, breaks in series for stock levels appear for oil products as new information became available on emergency stocks.
- From 2012, receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used by refineries.

### Consumption

- **Gas/diesel oil** consumption in industry and commercial/public services represents diesel use in the mobile fleets.
- In 1986, the consumption breakdown for **lubricants, white spirit and SBP, bitumen and paraffin waxes** has been estimated by the IEA Secretariat.
- In 1984, feedstock use of **fuel oil** in the chemical industry reflects the opening of a new ammonia plant which uses **fuel oil** as raw material.

## Slovak Republic

### Source

Statistical Office of the Slovak Republic, Bratislava.

### General notes

- Data are available starting in 1971.
- Starting with 2016 data **ethane** is included with **refinery gas**.
- The Slovak Republic became a separate state in 1993 and harmonised its statistics to EU standards in 2000. These two facts lead to several breaks in series between 1992 and 1993, and between 2000 and 2001.
- From 2001, **kerosene type jet fuel** includes small amounts of **other kerosene**.
- Before 1989, data for **naphtha** are not available and therefore not included in total products.
- **Fuel oil** includes both light and heavy fuel oil.

### Supply

- From 2013, high exports of **naphtha** correspond to transfers between Slovnaft petrochemicals in Slovak Republic and its parent company MOL in Hungary.
- **Additives and oxygenates** from non-fossil fuel sources correspond to demineralised water.

- Receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used in refineries.

### Transformation

- Between 2008 and 2009, there is a break in series for **refinery gas** as a company operating in the transformation sector changed its status from auto-producer to main activity producer.
- Between 2008 and 2009, one company changed its status from autoproducer CHP plant to main activity producer CHP plant, resulting in a decrease in **fuel oil** consumption for autoproducer CHP.

### Consumption

- From 2001, **kerosene type jet fuel** international civil aviation consumption includes domestic use.
- Road data for **gas/diesel oil** includes rail use.
- Energy use of **white spirit and SBP** is not available.

## Slovenia

### Source

Statistical Office of the Republic of Slovenia, Ljubljana.

### General notes

- Data are available starting in 1990. Prior to that, they are included in Non-OECD data in Former Yugoslavia.
- Between 1999 and 2000, some breaks in series occur due to a new energy data collection system implemented in January 2001.

### Supply

- Between 2013 and 2014, breaks in series for **kerosene type jet fuel** and **fuel oil** trade data appear due to improved reporting methodology. New trade data correspond to imports that are first stocked on Slovenian territory and later re-exported.
- From 2009, stock holding organization's stocks are included in stock levels.

### Consumption

- **Motor gasoline** and **gas/diesel oil** time series for road consumption may fluctuate as they are computed by the Slovenian administration as a re-



sidual between the supply and the total consumption of all other categories.

## Spain

### Source

Ministry of Energy, Tourism and Digital Agenda, Madrid.

### General note

- Between 1996 and 1997, breaks in series are due to a change in the reporting system in mid-1996.

### Supply

- In 2013, the rise in **crude oil** production is linked with the development of the Montanazo-Lubina deep off shore field.
- In 2013, the tax exemption for **biofuels** expired and the mandatory **biodiesel** blending target was reduced from 7% to 4.1%. These changes explain the drop in **biodiesel** blending from 2012 to 2013.
- In 1996, backflows have been estimated by the IEA Secretariat.
- Before 1980, **refinery feedstocks** data are not available.

### Consumption

- Between 2012 and 2013, breaks in consumption series are due to a new reporting methodology.
- From 1982, more detailed **petroleum coke** consumption data are available.
- Prior to 1981, detailed consumption data are partly estimated on the basis of national statistics covering consumption on the Spanish mainland.
- Between 1976 and 1977, there is a break in series for **gas/diesel oil** and **fuel oil** due to a reclassification of the “*other*” sector.
- Prior to 1973, consumption specifications for **LPG** and **fuel oil** are less detailed.

## Sweden

### Source

Energimyndigheten, Eskilstuna.

### General notes

- 2018 data was estimated based on monthly data submitted to the IEA. From January 2018, monthly submissions of data are based on a new data collection survey rolled out by Statistics Sweden which incorporates new companies and has a higher level of detail available resulting in new flows being reported and some breaks in the time series.
- In 2017 Statistics Sweden added more companies to their new data collection system; these have been progressively included in the reporting through 2018 reference year data.
- From 2003, data for **refinery gas** are available.
- In 2002, Sweden changed conversion factors for some products. This explains the small breaks in series between 2001 and 2002.
- From 2000, data for **additives and oxygenates** and **ethane** are available.
- Between 1985 and 1986, breaks in series for fuel oil consumption are due to more detailed reporting.

### Supply

- There is a break in stocks between 2017 and 2018 for **refinery feedstocks** and **additives/oxygenates** reflecting additional information collected by the Swedish administration.
- Quantities of receipts from other sources of **other hydrocarbons** correspond to natural gas used by refineries.
- In 2013, the drop in **crude oil** refinery intake is related to maintenance at Swedish refineries in August and September 2013.
- Swedish stock data include peacetime crisis stocks. Since these stocks may be held in **crude oil** instead of oil products, there may be occurrences of negative stock levels for products.
- There is a break in time series for stock levels between 2015 and 2016 as Statistics Sweden added more companies to their new data collection system.

### Transformation

- From 2014, **gas/diesel oil** inputs to main activity CHP electricity plants are confidential and aggregated with fuel oil.

## Consumption

- From 2011, gas works plants in Sweden stopped using **naphtha**.
- In 1995, Sweden changed its standard classification of industry sub-sectors.
- In 1984, **other kerosene** consumption in road was discontinued due to product reclassification.

## Switzerland

### Source

Carbura – Swiss Organisation for the Compulsory Stockpiling of Oil Products, Zurich.

### Supply

- There is a break in stocks between 2017 and 2018 for **refinery feedstocks** as more detailed information of refinery activity is now collected by the national administration.
- In 2015, low refinery throughput is due to maintenance in May and June and to an unplanned outage in October due to a leak in a heat exchanger, at the Cressier refinery. The closure of the Collombey refinery from March 2015 also contributed. As a result imports of many oil products increased in 2015.
- Collombey refinery remained closed in 2016, resulting in decreased refinery throughput and increased imports in this year.
- Refinery output of **petroleum coke** stopped as this product was only produced at Collombey refinery.
- Refinery losses at the Cressier refinery are low and are under investigation.
- Since 2013 oil importers are obliged to compensate parts of the CO<sub>2</sub> emission that are produced by the transport fuels they sell. The biofuel components are exempt from this obligation, which together with tax exemptions on biofuels, partly explains the increase in biofuel blending since.
- In 2012, low refinery intake is due to the temporary shutdown of the Refinery in Cressier in the first semester of 2012 and to maintenance at Collombey refinery.
- In 2004, **petroleum coke** production started due to the installation of a cracking unit in a refinery.
- In January 1996, the Swiss administration revised its stock reporting.

- From 1993, **naphtha** refinery gross output figures are net of quantities used for blending into **motor gasoline**. For 1994, 1995, 1997, 1999, 2001 and 2002 this reporting has led to negative production numbers for **naphtha**. For these years, the IEA Secretariat has moved the data into transfers and reduced the production of **motor gasoline** by corresponding amounts.
- In 1988, the reduction in refinery intake of **refinery feedstocks** is partly due to a switch to **crude oil** and partly to a shutdown for maintenance of a refinery.
- Statistical difference for **gas/diesel oil** is partly due to changes of consumer stocks.

### Transformation

- **Gas/diesel oil** non-specified transformation represents inputs to mobile and stationary power generators.

### Consumption

- In the 2019 edition the Swiss administration revised data back to 1990 for **road diesel** consumption in rail and domestic navigation, and **motor gasoline** consumption in domestic navigation.
- In the 2016 edition, the Swiss administration revised **LPG** road consumption back to 2009 based on newly available tax information.
- From 1999, data on consumption result from a new survey and are not comparable with data of previous years.
- In 1994, the increase in **gas/diesel oil** consumption is due to consumer stock-building prior to the introduction of a value-added excise tax on heating fuels as of 1 January 1995.
- **Gas/diesel oil** non-specified industry (small manufacturers) consumption is estimated. The method of reporting has been revised from 1987 to 1993.

## Turkey

### Source

Petrol İşleri Genel Müdürlüğü, Ankara.

### General notes

- A project to upgrade the İzmit refinery was completed in 2015. This resulted in considerably higher refinery throughput in 2015, compared to previous years. The project included a new unit to con-

vert high sulphur fuel oil into higher grade products, such as **gas/diesel oil** and **motorgasoline**, producing **petroleum coke** as a by-product.

- In 2014, the drop in imports and consumption of **lubricants**: is related to a legislation change effective 1<sup>st</sup> of January 2014 regarding base oil imports.
- From 2012, **petroleum coke** data are available. From 2013, additional information is available on consumption in the cement industry.

## Supply

- In 2018 Izmir refinery underwent maintenance for several months.
- In the 2016 edition, the Ministry of Energy revised **crude oil** net calorific values from 2010 due to a new methodology for calculating them.
- In 2013, breaks in series for **fuel oil** appear as Turkey started reporting marine fuels under **fuel oil** instead of **gas/diesel oil**.
- From 2012, new information on **additives and oxygenates** imports (MTBE) is available.
- From 2012, no exports breakdown for **white spirit and SBP, lubricants, bitumen and other products** is available.
- In 1984, 1983, 1981, 1980 and 1978, **gas/diesel oil** and **fuel oil** amounts for international marine bunkers are included in exports.
- Receipts from other sources (natural gas) of **other hydrocarbons** correspond to hydrogen used in refineries.

## Transformation

- Inputs of **gas/diesel oil** and **fuel oil** to electricity production are used both in oil and coal-fired plants.

## Consumption

- As of 2017 reference year data consumption of marine diesel in international marine bunkers and domestic navigation is reported under **heating and other gasoil**. Prior to this it was included under **road diesel**.
- In the 2019 edition consumption of **petroleum coke** was reclassified from non-energy to energy use.
- For the 2015 data, the new surveys were used to create a more detailed breakdown of the industry and other sectors. This leads to breaks in time series between 2014 and 2015.

- In the 2016 edition, the Ministry of Energy revised **kerosene type jet fuel** time series from 2013. Sales to foreign airlines, previously accounted for under exports, are now reported under international aviation according to the IEA methodology. Data could not be revised for prior years. As a consequence, exports up to 2012 may include some amounts delivered to international aviation.
- From 2014, information on **gas/diesel oil** and **fuel oil** fishing consumption is available.
- Prior to 2012, consumption of **other products** by the chemical sector was included under non-specified industry.
- Between 2010 and 2011, breaks in series in **LPG, motor gasoline** and **gas/diesel oil** end-use consumption are due to improved survey methods.
- As of 1978, **gas/diesel oil** and **fuel oil** consumption data for commercial are included with industry, while public services are included with transport. Part of non-metallic mineral products industry consumption is included with non-ferrous metals sector.
- Between 1977 and 1978, breaks in series appear as **gas/diesel oil** and **fuel oil** end-use classification was changed in the Turkish national statistics.

## United Kingdom

### Source

Department for Business, Energy and Industrial Strategy, London.

### General notes

- Breaks in time series occur for **LPG** between 2007 and 2008 due the inclusion of additional information from the petrochemical sector.
- Between 2000 and 2001, breaks in series for **LPG** are due to changes in methodology.
- Prior to 1990, **LPG** includes **ethane**.
- Prior to 1979, all **petroleum coke** data are included with **other products**.

### Supply

- Indigenous production of crude oil and natural gas liquids increased in 2018 primarily due to multiple new projects coming online towards the end of 2017.

- Refinery output of total oil products decreased in 2018 due to relatively high levels of maintenance throughout 2018.
- Between 2007 and 2008 breaks in time series appear for **NGL** due to the UK administration obtaining additional information on the destination of some upstream **NGL**. Previously classified as exports, these amounts now appear as transfers, mainly to **LPG**, and as consumption in the petrochemical sector.
- From 2008 data on **naphtha** and **motor gasoline** better reflects the blending of these products. Breaks in series may appear between 2007 and 2008. In 2013, breaks in series appear for **refinery feedstocks** as semi-finished products designed for exports have been reclassified by the UK administration under **road diesel** and **motor gasoline**.
- Between 2007 and 2008, breaks in series for **fuel oil** used in international marine bunkers and domestic navigation occur as a different methodology was applied from 2008, in line with UK's National Atmospheric Emissions Inventory. Deliveries to international marine bunkers may be underestimated for previous years.
- Imports of **motor gasoline** were revised back to 2005, following the UK administration's improved access to customs trade data.
- From 2005, stocks of **LPG**, **naphtha** and **bitumen** have been revised, following the removal of a historical estimate of stocks held by final consumers.
- From 2002 to 2004, products transferred include backflows and interproduct transfers. From 2005 backflows were estimated by the UK administration.
- Prior to 1995, the product breakdown for returns is estimated by the UK administration. Beginning with 1995, the UK administration revised their product breakdown for returns and petrochemical reporting methodology.
- Until 1994, receipts from other sources (coal) of **other hydrocarbons** correspond to **bitumen** produced from coal.
- Prior to 1992, imports and exports of **other products** include **petroleum coke**.
- From 1985, stock levels and stock changes in main activity producer are available.
- From 1980, **NGL** includes condensates (from 1986 for stock levels and stock changes). For earlier years, condensates are included with **crude oil**.

## Transformation

- Between 1999 and 2000, breaks in series for **fuel oil** appear due to changes in methodology and the introduction of heat production data.

## Consumption

- In the 2016 edition, **gas/diesel oil** consumption was revised back to 2012, following the UK administration's improved access to customs trade data (in particular duty figures for demand in agriculture).
- Between 2012 and 2013, breaks in series appear for **ethane, naphtha, white spirit and SBP, lubricants, bitumen, petroleum coke** and **other products** as new information became available on the energy use of these products following increased cooperation with the Greenhouse Gas Bureau.
- Between 2008 and 2009, breaks in series appear for **petroleum coke** as new information on use of in patent fuel plants is available.
- Between 2007 and 2008, breaks in series for **motor gasoline** consumption appear as the UK administration revised its methodology to better track consumption of imported oil products and domestically refined oil products sold through third parties to final consumers.

## United States

### Source

Energy Information Administration, Washington, DC.

### General notes

- In the 2018 edition, the US administration revised data back to 2011 for several products owing to the introduction of a number of methodological changes. This results in a number of breaks in the time series between 2010 and 2011, particularly in the consumption balance.
- From 2011 onwards olefins are reported under **other oil products** instead of in **LPG**.
- In 1993, the US administration made several adjustments to its collection system for oil statistics in order to accommodate the revisions to the Clean Air Act of 1990. As a result, data for **additives and oxygenates** (i.e. fuel ethanol, MTBE, etc.) are collected as of 1993.

- From 1992, the individual components of **NGL** and **LPG** have been converted using their respective conversion factor rather than an average factor, resulting in a break in series.
- Prior to 1990, **LPG** includes **ethane** and pentanes plus. Prior to 1978, imports and exports of **NGL** are reported as trade.

## Supply

- Deliveries to international marine bunkers of **gas/diesel oil** have been estimated by the IEA Secretariat for 2016 and 2017 based on information provided by the EIA.
- Completion of the Utopia pipeline from Ohio to Ontario has facilitated more ethane exports to Canada, as seen in 2018 data.
- Starting with 2011 data the breakdown of exports by destination of **low sulphur fuel oil** and **high sulphur fuel oil** is no longer available..
- From 2013, the US administration reports exports of **refinery feedstocks**, some of which were previously reported under **white spirit and SBP**.
- In 2011, there is a break in series for **refinery gas** due to the use of a different value for density. Revisions are pending.
- For 2001, there were significant revisions to residual **fuel oil** and unfinished oils. Primarily, the changes were a result of importers misclassifying unfinished oils as residual **fuel oil**.
- From 1996, stock changes for **gas/diesel oil, fuel oil** and **petroleum coke** are estimated by the IEA Secretariat in order to include stock changes at utilities.
- In 1990 and 1993, the change in the **fuel oil** series for transfers is due to new reporting methods used by the US administration.
- In 1990, international marine bunkers show a large increase for **fuel oil** due to a change in the data collection and reporting methodology in the US administration.
- High statistical differences for **crude oil** represent “*Unaccounted for crude oil*”, the difference between the supply and disposition of **crude oil**.

## Transformation

- From 2002, the IEA Secretariat has estimated the inputs of **refinery gas** for autoproducer electricity production.
- For 2002, autoproducer electricity output for oil includes generation from **refinery gas** with a low average calorific value.
- From 1997, inputs of **gas/diesel oil, fuel oil** and **petroleum coke** to autoproducers of electricity are available. From 1999, the inputs to CHP plants are available. Before 1999, main activity producer CHP plants were included in main activity producer electricity plants; autoproducers of CHP were included in autoproducers of electricity and in industry.

## Consumption

- In 2018 demand for petrochemical feedstocks derived from oil products increased as new ethylene production capacity came online and polyethylene capacity ramped up. This trend is expected to continue through 2019 as further ethylene capacity comes online.
- Between 2010 and 2011, end-use energy consumption data for the United States present a break in series due to a change in methodology.
- For the period 2011-2016, quantities of non-energy use of **LPG** in chemical and petrochemical have been estimated by the IEA Secretariat.
- For the period 2011-2017 quantities of **other oil products** in non-specified industry have been estimated by the IEA Secretariat.
- From 2013 onwards road use **lubricants** are reported under non energy industry consumption in transport Equipment, machinery, and wood and wood products. Previously such quantities were reported under non-specified.
- Due to other changes in reporting methodologies, there are numerous breaks in series for the US data, particularly in 1992, 1999, 2001, 2002. Care should be taken when evaluating consumption by sector since inputs of fuel to autoproducers are included in final consumption for some years. No data are available for most energy products in the construction and mining and quarrying industries.
- Between 1999 and 2000, there are breaks in series for the industry as a result of the 2002 Manufacturing Energy Consumption Survey (MECS). Between

2000 and 2001, there are breaks in series for auto-producer electricity inputs for the same reason.

- From 1995, inputs to gas works are included in the industry.
- Prior to 1995, a detailed breakdown of oil products consumption in the industry is not available. However, data by industry are published for fuel oil for the period 1971 to 1982. The consumption breakdown between low and high sulphur fuel oil has been estimated.
- From 1994, motor gasoline consumption in the commerce/public services is based on a new model from the Department of Transportation.
- Prior to 1980, gas/diesel oil consumption in agriculture is estimated by the IEA Secretariat.
- From 1978, the decrease of naphtha consumption in the chemical industry is due to a reclassification of the product.



## 7. UNITS AND CONVERSIONS

### General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
terajoule (TJ)	1	2.388x10 <sup>2</sup>	2.388x10 <sup>-5</sup>	9.478x10 <sup>2</sup>	2.778x10 <sup>-1</sup>
gigacalorie (Gcal)	4.187x10 <sup>-3</sup>	1	1.000x10 <sup>-7</sup>	3.968	1.163x10 <sup>-3</sup>
million tonnes of oil equivalent (Mtoe)	4.187x10 <sup>4</sup>	1.000x10 <sup>7</sup>	1	3.968x10 <sup>7</sup>	1.163x10 <sup>4</sup>
million British thermal units (MBtu)	1.055x10 <sup>-3</sup>	2.520x10 <sup>-1</sup>	2.520x10 <sup>-8</sup>	1	2.931x10 <sup>-4</sup>
gigawatt hour (GWh)	3.600	8.598x10 <sup>2</sup>	8.598x10 <sup>-5</sup>	3.412x10 <sup>3</sup>	1

### Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	1.000x10 <sup>-3</sup>	9.842x10 <sup>-4</sup>	1.102x10 <sup>-3</sup>	2.205
tonne (t)	1.000x10 <sup>3</sup>	1	9.842x10 <sup>-1</sup>	1.102	2.205x10 <sup>3</sup>
long ton (lt)	1.016x10 <sup>3</sup>	1.016	1	1.120	2.240x10 <sup>3</sup>
short ton (st)	9.072x10 <sup>2</sup>	9.072x10 <sup>-1</sup>	8.929x10 <sup>-1</sup>	1	2.000x10 <sup>3</sup>
pound (lb)	4.536x10 <sup>-1</sup>	4.536x10 <sup>-4</sup>	4.464x10 <sup>-4</sup>	5.000x10 <sup>-4</sup>	1

### Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft <sup>3</sup>	l	m <sup>3</sup>
From:	multiply by:					
U.S. gallon (gal U.S.)	1	8.327x10 <sup>-1</sup>	2.381x10 <sup>-2</sup>	1.337x10 <sup>-1</sup>	3.785	3.785x10 <sup>-3</sup>
U.K. gallon (gal U.K.)	1.201	1	2.859x10 <sup>-2</sup>	1.605x10 <sup>-1</sup>	4.546	4.546x10 <sup>-3</sup>
barrel (bbl)	4.200x10 <sup>1</sup>	3.497x10 <sup>1</sup>	1	5.615	1.590x10 <sup>2</sup>	1.590x10 <sup>-1</sup>
cubic foot (ft <sup>3</sup> )	7.481	6.229	1.781x10 <sup>-1</sup>	1	2.832x10 <sup>1</sup>	2.832x10 <sup>-2</sup>
litre (l)	2.642x10 <sup>-1</sup>	2.200x10 <sup>-1</sup>	6.290x10 <sup>-3</sup>	3.531x10 <sup>-2</sup>	1	1.000x10 <sup>-3</sup>
cubic metre (m <sup>3</sup> )	2.642x10 <sup>2</sup>	2.200x10 <sup>2</sup>	6.290	3.531x10 <sup>1</sup>	1.000x10 <sup>3</sup>	1

## Decimal prefixes

$10^1$	deca (da)	$10^{-1}$	deci (d)
$10^2$	hecto (h)	$10^{-2}$	centi (c)
$10^3$	kilo (k)	$10^{-3}$	milli (m)
$10^6$	mega (M)	$10^{-6}$	micro ( $\mu$ )
$10^9$	giga (G)	$10^{-9}$	nano (n)
$10^{12}$	tera (T)	$10^{-12}$	pico (p)
$10^{15}$	peta (P)	$10^{-15}$	femto (f)
$10^{18}$	exa (E)	$10^{-18}$	atto (a)



## Oil products

### Average densities, volume and heat equivalents

Product	Density kg/m <sup>3</sup>	Litres per tonne	Barrels per tonne	Gross calorific value (GJ/t)	Net calorific value (GJ/t) <sup>1</sup>
Crude oil	853	1 172	7.37	47.37	45.00
Ethane	366	2 730	17.17	51.90	47.51
Refinery gas	786	1 272	8.00	52.00	47.60
Propane	508	1 969	12.38	50.32	46.33
Butane	585	1 709	10.75	49.51	45.72
LPG <sup>2</sup>	539	1 856	11.67	50.08	46.15
Naphtha	706	1 416	8.91	47.73	45.34
Aviation gasoline	707	1 414	8.90	47.40	45.03
Motor gasoline <sup>3</sup>	741	1 350	8.49	47.10	44.75
Kerosene type jet fuel	803	1 246	7.84	46.93	44.58
Other kerosene	810	1 235	7.76	46.05	43.75
Gas/diesel oil	844	1 186	7.46	45.66	43.38
Fuel oil low sulphur	925	1 081	6.80	43.75	41.56
Fuel oil high sulphur	975	1 026	6.45	42.00	39.90
Fuel oil	944	1 059	6.66	42.82	40.68
White spirit	743	1 346	8.46	46.32	44.00
Paraffin waxes	801	1 248	7.85	42.00	39.90
Lubricants	887	1 127	7.09	44.00	41.80
Bitumen	1 035	966	6.08	42.10	40.00
Petroleum coke	1 150	870	5.47	34.80	33.06
Other products	786	1 273	8.00	42.30	40.19

1. For naphtha and heavier oils the net calorific value is assumed to be 95% of gross.

2. Assumes a mixture of 60% propane and 40 % butane by mass.

3. An average for motor gasolines with RON between 91 and 95.

## Crude oil production 2017<sup>1</sup>

### Volume equivalent of thousand tonnes

	Thousand barrels	Thousand kilolitres
Australia	7.890	1.254
Austria	7.040	1.119
Canada <sup>2</sup>	6.850	1.089
Denmark	7.400	1.177
France	7.330	1.165
Germany	7.200	1.145
Italy	6.830	1.086
Japan	7.370	1.172
Mexico	7.080	1.126
Netherlands	7.090	1.127
New Zealand	8.130	1.293
Norway	7.520	1.196
Poland	7.330	1.165
Turkey	7.030	1.118
United Kingdom	7.560	1.202
United States	7.400	1.177
Algeria	7.900	1.256
Angola	7.462	1.186
Azerbaijan	7.300	1.161
Brazil	7.197	1.144
China, People's Republic of	7.320	1.164
Colombia	7.080	1.126
Egypt	7.260	1.154
Indonesia	7.510	1.194
Iran	7.320	1.164
Iraq	7.430	1.181
Kazakhstan	7.300	1.161
Kuwait	7.200	1.145
Libya	7.580	1.205
Nigeria	7.500	1.192
Oman	7.440	1.183
Russia	7.370	1.172
Qatar	7.500	1.192
Saudi Arabia	7.323	1.164
Syria	7.290	1.159
United Arab Emirates	7.330	1.165
Bolivarian Republic of Venezuela	6.940	1.103

1. For OECD countries, crude oil includes field condensate, unless specified in country notes (for example U.K.)  
For Non-OECD countries, crude oil production includes field condensates with the exception of OPEC members and Russia.
2. Canada crude oil production includes heavy bitumen, condensates and pentanes. Please refer to the country notes.

## 8. ABBREVIATIONS

Mt	Million tonnes
Mtoe	Million tonnes of oil equivalent
TPES	Total primary energy supply
kb	Thousand barrels
kb/d	Thousand barrels per day
mb/d	Million barrels per day
mb	Million barrels
CHP:	combined heat and power
GCV:	gross calorific value
LNG:	liquefied natural gas
NCV:	net calorific value
TPES:	total primary energy supply
IEA:	International Energy Agency
OECD:	Organisation for Economic Co-Operation and Development
c	confidential
e	estimated
..	not available
x	not applicable