

COAL INFORMATION 2018 EDITION

DATABASE DOCUMENTATION

This documentation provides support information for the IEA *Coal Information* database. This document can be found online at: http://wds.iea.org/wds/pdf/coal_documentation.pdf.

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1. CHANGES FROM LAST EDITION

Geographical coverage:

New IEA Member: Mexico

Mexico became the International Energy Agency's 30th member country on 17 February 2018. Accordingly, starting with the 2018 edition, Mexico appears in the list of IEA Members and is included in the IEA zone aggregates for data starting in 1971 and for the entire time series.

New Association country: Brazil

Brazil joined the IEA as an Association country in October 2017. Accordingly, Brazil is now included in the IEA and Accession/Association countries aggregate for data starting in 1971 and for the entire time series.

2. DATABASE STRUCTURE

The database *Coal information* contains six files with the following annual data.

OECD files (updated July 2018)

- Countries: 35 OECD countries and 5 regional aggregates (see section *Geographical coverage*);
- Years: 1960-2017 (OECD countries and regions unless otherwise specified.);
1978-2017 (OECD Imports and Exports to partner countries)

Coal Balance OECD.ivt	OECD, Coal Balance. (ktoe, ktce, TJ, Tcal) Full balance data for different types of coal and coal products, including manufactured gases. (17 products+4 aggregates; 95 flows; 35 countries + 5 aggregates)
Coal NCV OECD.ivt	OECD, Coal Net Calorific Values. (MJ/tonne) The calorific values used to convert physical tonnes of coal and coal products into energy for the OECD Coal Balance data. (13 products + 2 aggregates; 14 flows; 35 countries). The aggregates, hard coal and brown coal, are included for years prior to 1978 only.
Coal Statistics OECD.ivt	OECD, Coal Supply and Consumption with Full OECD 2016 Data. (kt, TJ) Supply and consumption statistics for different types of coal and coal products, including manufactured gases. (17 products + 3 aggregates; 100 flows; 35 countries + 5 aggregates). The aggregates hard coal, brown coal and steam coal are also included.
Coal Exports.ivt	OECD, Exports by Destination. (kt) Detailed coal export data by country of destination for OECD member states. (11 products + 3 aggregates; 96 flows; 35 countries + 5 aggregates)
Coal Imports.ivt	OECD, Imports by Origin. (kt) Detailed coal import data by country of origin for OECD member states. (11 products + 3 aggregates; 76 flows; 35 countries + 5 aggregates)

WORLD files (last updated July 2018)

- Countries: 169 countries and regional aggregates (see section *Geographical coverage*);
- Years: 1960-2017 (OECD countries and regions unless otherwise specified.);
1978-2017 (OECD Imports and Exports to partner countries)
1971-2016 (non-OECD countries and regions; world unless otherwise specified.);
2017 (provisional energy supply data).

Coal World Supply.ivt

World Coal Supply (kt, TJ)

World supply statistics for different types of coal and coal products, including manufactured gases. (17 products + 3 aggregates; 12 flows; 145 countries + 24 aggregates)

3. FLOW DEFINITIONS

OECD, Coal Statistics (kt,TJ): COAL STATISTICS OECD.IVT
WORLD, World Coal Supply: COAL WORLD SUPPLY.IVT

Supply		
Flow	Short name	Definition
Production	INDPROD	Refers to the quantities of fuels extracted or produced, calculated after any operation for removal of inert matter or impurities (e.g. sulphur from natural gas). For “other hydrocarbons” (shown with crude oil), production should include synthetic crude oil (including mineral oil extracted from bituminous minerals such as oil shale and tar sands, etc.). Production of secondary oil products represents the gross refinery output. Secondary coal products and gases represent the output from coke ovens, gas works, blast furnaces and other transformation processes.
From other sources – coal	OSCOAL	Refers to both primary energy that has not been accounted for under production and secondary energy that has been accounted for in the production of another fuel. For example, under primary coal: recovered slurries, middlings, recuperated coal dust and other low-grade coal products that cannot be classified according to type of coal from which they are obtained; under gas works gas: natural gas, refinery gas, and LPG, that are treated or mixed in gas works (i.e. gas works gas produced from sources other than coal).
From other sources – natural gas	OSNATGAS	Refers to both primary energy that has not been accounted for under production and secondary energy that has been accounted for in the production of another fuel.
From other sources – oil products	OSOIL	Refers to both primary energy that has not been accounted for under production and secondary energy that has been accounted for in the production of another fuel. For example, under additives: benzol, alcohol and methanol produced from natural gas; under refinery feedstocks: backflows from the petrochemical industry used as refinery feedstocks; under “other hydrocarbons” (included with crude oil): liquids obtained from coal liquefaction and GTL plants.

Supply		
Flow	Short name	Definition
From other sources – renewables	OSRENEW	Refers to both primary energy that has not been accounted for under production and secondary energy that has been accounted for in the production of another fuel.
From other sources – not elsewhere specified	OSNONSPEC	Refers to both primary energy that has not been accounted for under production and secondary energy that has been accounted for in the production of another fuel. This flow is used if the source is not known.
Imports	IMPORTS	Comprise the amount of fuels obtained from or supplied to other countries, whether or not there is an economic or customs union between the relevant countries. Coal in transit should not be included.
Exports	EXPORTS	Comprise the amount of fuels obtained from or supplied to other countries, whether or not there is an economic or customs union between the relevant countries. Coal in transit should not be included.
International marine bunkers	MARBUNK	International marine bunkers covers those quantities 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. Consumption by ships engaged in domestic navigation is excluded. 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. Consumption by fishing vessels and by military forces is also excluded. See definitions of <i>transport</i> , <i>fishing</i> , and <i>other non-specified</i> . <i>International marine bunkers</i> are excluded from the <i>supply</i> at the country and regional level, but not for world, where they are included in <i>transport</i> under <i>World marine bunkers</i> .
International aviation bunkers	AVBUNK	Includes deliveries of aviation fuels to aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split should be 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. <i>International aviation bunkers</i> are excluded from the <i>supply</i> at the country and regional level, but not for world, where they are included in <i>transport</i> under <i>World aviation bunkers</i> .
Stock changes	STOCKCHA	Reflects the difference between opening stock levels on the first day of the year and closing levels on the last day of the year of stocks on national territory held by producers, importers, energy transformation industries and large consumers. Oil and gas stock changes in pipelines are not taken into account. With the exception of large users mentioned above, changes in final users' stocks are not taken into account. A stock build is shown as a negative number, and a stock draw as a positive number.

Supply		
Flow	Short name	Definition
Domestic supply	DOMSUP	Domestic supply is defined as <i>production + from other sources + imports - exports - international marine bunkers ± stock changes</i> . Note, exports, bunkers and stock changes incorporate the algebraic sign directly in the number.
Transfers	TRANSFER	Comprises <i>interproduct transfers</i> , products transferred and recycled products. <i>Interproduct transfers</i> results from reclassification of products either because their specification has changed or because they are blended into another product, e.g. kerosene may be reclassified as gasoil after blending with the latter in order to meet its winter diesel specification. The net balance of <i>interproduct transfers</i> is zero. <i>Products transferred</i> is intended for oil products imported for further processing in refineries. For example, fuel oil imported for upgrading in a refinery is transferred to the feedstocks category. <i>Recycled products</i> 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).
Statistical differences	STATDIFF	Defined as deliveries to <i>final consumption + use for transformation processes + consumption by energy industry own use + losses - domestic supply - transfers</i> . Statistical differences arise because the data for the individual components of supply are often derived from different data sources by the national administration. Furthermore, the inclusion of changes in some large consumers' stocks in the supply part of the balance introduces distortions which also contribute to the statistical differences.

Transformation processes		
Flow	Short name	Definition
Transformation processes	TOTTRANF	Transformation processes comprise the conversion of primary forms of energy to secondary and further transformation (e.g. coking coal to coke, crude oil to oil products, and fuel oil to electricity).
Main activity producer electricity plants	MAINELEC	Refers to plants which are designed to produce electricity only. If one or more units of the plant is a CHP unit (and the inputs and outputs cannot be distinguished on a unit basis) then the whole plant is designated as a CHP plant. Main activity producers 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 electricity plants	AUTOELEC	Refers to plants which are designed to produce electricity only. If one or more units of the plant is a CHP unit (and the inputs and outputs cannot be distinguished on a unit basis) then the whole plant is designated as a CHP plant. 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.
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 noted above should be adopted. Main activity producers 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 noted above should be adopted. Note that for autoproducer's 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.

Transformation processes		
Flow	Short name	Definition
Main activity producer heat plants	MAINHEAT	Refers to plants 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 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 heat plants	AUTOHEAT	Refers to plants 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 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.
Heat pumps	THEAT	Includes heat produced by heat pumps in transformation. Heat pumps that are operated within the residential sector where the heat is not sold are not considered a transformation process and are not included here – the electricity consumption would appear as residential use.
Electric boilers	TBOILER	Includes electric boilers used to produce heat.
Chemical heat for electricity production	TELE	Includes heat from chemical processes that is used to generate electricity.
Blast furnaces	TBLASTFUR	Blast furnaces covers the quantities of fuels used for the production of blast furnace gas and oxygen steel furnace gas.. The production of pig-iron from iron ore in blast furnaces uses fuels for supporting the blast furnace charge and providing heat and carbon for the reduction of the iron ore. Accounting for the calorific content of the fuels entering the process is a complex matter as transformation (into blast furnace gas) and consumption (heat of combustion) occur simultaneously. Some carbon is also retained in the pig-iron; almost all of this reappears later in the oxygen steel furnace gas (or converter gas) when the pig-iron is converted to steel. In the 1992/1993 annual questionnaires, Member Countries were asked for the first time to report in the <i>transformation processes</i> the quantities of all fuels (e.g. pulverised coal injection [PCI] coal, coke oven coke, natural gas and oil) entering blast furnaces and the quantity of blast furnace gas and oxygen steel furnace gas produced. The Secretariat then needed to split these inputs into the transformation and consumption components. The transformation component is shown in the row <i>blast furnaces</i> in the column appropriate for the fuel, and the consumption component is shown in the row <i>iron and steel</i> , in the column appropriate for the fuel. The secretariat decided to assume a transformation efficiency such that the carbon input into the blast furnaces should equal the carbon output. This is roughly equivalent to assuming an energy transformation efficiency of 40%.
Gas works	TGASWKS	Includes the manufacture of town gas.

Transformation processes		
Flow	Short name	Definition
Coke ovens	TCOKEOVS	Includes the manufacture of coke and coke oven gas.
Patent fuel plants	TPATFUEL	Includes the manufacture of patent fuels.
BKB/PB plants	TBKB	Includes the manufacture of BKB and peat briquettes.
Oil refineries	TREFINER	Includes the manufacture of finished oil products.
Petrochemical industry	TPETCHEM	Covers backflows returned from the petrochemical industry. Note that backflows from oil products that are used for non-energy purposes (i.e. white spirit and lubricants) are not included here, but in non-energy use.
Coal liquefaction plants	TCOALLIQ	Includes coal, oil and tar sands used to produce synthetic oil.
Gas-to-liquids (GTL) plants	TGTL	Includes natural gas used as feedstock for the conversion to liquids, e.g. the quantities of fuel entering the methanol production process for transformation into methanol.
For blended natural gas	TBLENDGAS	Includes other gases for blending with natural gas.
Charcoal production plants	TCHARCOAL	Includes the transformation of solid biofuels into charcoal.
Not elsewhere specified (Transformation)	TNONSPEC	Includes non-specified transformation.

Energy industry own use and losses		
Flow	Short name	Definition
Energy industry own use	TOTENGY	Energy industry own use covers the amount of fuels used by the energy producing industries (e.g. for heating, lighting and operation of all equipment used in the extraction process, for traction and for distribution). It includes energy consumed by energy industries for heating, pumping, traction and lighting purposes [ISIC Rev. 4 Divisions 05, 06, 19 and 35, Group 091 and Classes 0892 and 0721].
Coal mines	EMINES	Represents the energy which is used directly within the coal industry for hard coal and lignite mining. It excludes coal burned in pithead power stations (included under electricity plants in transformation processes) and free allocations to miners and their families (considered as part of household consumption and therefore included under <i>residential</i>).
Oil and gas extraction	EOILGASEX	Represents the energy which is used for oil and gas extraction. Flared gas is not included.
Blast furnaces	EBLASTFUR	Represents the energy which is used in blast furnaces.
Gas works	EGASWKS	Represents the energy which is used in gas works.
Gasification plants for biogas	EBIOGAS	Represents own consumption of biogas necessary to support temperatures needed for anaerobic fermentation.
Coke ovens	ECOKEOVS	Represents the energy used in coke ovens.
Patent fuel plants	EPATFUEL	Represents the energy used in patent fuel plants.
BKB/PB plants	EBKB	Represents the energy used in BKB and peat briquette plants.
Oil refineries	EREFINER	Represents the energy used in oil refineries.
Coal liquefaction plants	ECOALLIQ	Represents the energy used in coal liquefaction plants.
Liquefaction (LNG) / regasification plants	ELNG	Represents the energy used in LNG and regasification plants.
Gas-to-liquids (GTL) plants	EGTL	Represents the energy used in gas-to-liquids plants.
Own use in electricity, CHP and heat plants	EPOWERPLT	Represents the energy used in electricity, CHP and heat plants.
Used for pumped storage	EPUMPST	Represents electricity consumed in hydro-electric plants for pumped storage.
Nuclear industry	ENUC	Represents the energy used in the nuclear industry.
Charcoal production plants	ECHARCOAL	Represents the energy used in charcoal production plants.
Not elsewhere specified (Energy)	ENONSPEC	Represents use in non-specified energy industries.
Losses	DISTLOSS	Losses in energy distribution, transmission and transport.

Final consumption		
Flow	Short name	Definition
Final consumption	FINCONS	<p>Equal to the sum of the consumption in the end-use sectors. Energy used for transformation processes and for own use of the energy producing industries is excluded. Final consumption reflects for the most part deliveries to consumers (see note on <i>stock changes</i>).</p> <p>Backflows from the petrochemical industry are not included in final consumption (see <i>from other sources</i> under supply and <i>petrochemical plants</i> in transformation processes).</p> <p>Note that <i>international aviation bunkers</i> and <i>international marine bunkers</i> are not included in final consumption except for the world total, where they are reported as <i>World aviation bunkers</i> and <i>World marine bunkers in transport</i>.</p> <p><i>Starting with the 2009 edition, international aviation bunkers is no longer included in final consumption at the country level.</i></p>
Industry	TOTIND	Industry consumption is specified as follows: (energy used for transport by industry is not included here but is reported under transport):
Iron and steel	IRONSTL	[ISIC Rev. 4 Group 241 and Class 2431]
Chemical and petrochemical	CHEMICAL	[ISIC Rev. 4 Divisions 20 and 21] Excluding petrochemical feedstocks.
Non-ferrous metals	NONFERR	[ISIC Rev. 4 Group 242 and Class 2432] Basic industries.
Non-metallic minerals	NONMET	[ISIC Rev. 4 Division 23] Such as glass, ceramic, cement, etc.
Transport equipment	TRANSEQ	[ISIC Rev. 4 Divisions 29 and 30]
Machinery	MACHINE	[ISIC Rev. 4 Divisions 25 to 28] Fabricated metal products, machinery and equipment other than transport equipment.
Mining and quarrying	MINING	[ISIC Rev. 4 Divisions 07 and 08 and Group 099] Mining (excluding fuels) and quarrying.
Food and tobacco	FOODPRO	[ISIC Rev. 4 Divisions 10 to 12]
Paper, pulp and print	PAPERPRO	[ISIC Rev. 4 Divisions 17 and 18]
Wood and wood products	WOODPRO	[ISIC Rev. 4 Division 16] Wood and wood products other than pulp and paper.
Construction	CONSTRUC	[ISIC Rev. 4 Division 41 to 43]
Textile and leather	TEXTILES	[ISIC Rev. 4 Divisions 13 to 15]
Not elsewhere specified (Industry)	INONSPEC	[ISIC Rev. 4 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>not elsewhere specified</i> industry row has been used. Regional aggregates of industrial consumption should therefore be used with caution.
Transport	TOTTRANS	Consumption in transport covers all transport activity (in mobile engines) regardless of the economic sector to which it is contributing [ISIC Rev. 4 Divisions 49 to 51], and is specified as follows:

Final consumption		
Flow	Short name	Definition
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 should be 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.
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 Rev. 4 Division 35) from the distributor to final users is excluded and should be reported in <i>energy industry own use</i> , while the energy used for the final distribution of water (ISIC Rev. 4 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>losses</i> .
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 should be 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.
Not elsewhere specified (Transport)	TRNONSPE	Includes all transport not elsewhere specified. Note: <i>International marine bunkers</i> and <i>international aviation bunkers</i> are shown in <i>Supply</i> and are not included in transport as part of final consumption.
Other	TOTOTHER	Includes <i>residential, commercial/public services, agriculture/forestry, fishing and non-specified (other)</i> .
Residential	RESIDENT	Includes consumption by households, excluding fuels used for transport. Includes households with employed persons [ISIC Rev. 4 Division 97 and 98] which is a small part of total residential consumption.
Commercial and public services	COMMPUB	[ISIC Rev. 4 Divisions 33, 36-39, 45-47, 52, 53, 55-56, 58-66, 68-75, 77-82, 84 (excluding Class 8422), 85-88, 90-96 and 99]

Final consumption		
Flow	Short name	Definition
Agriculture/forestry	AGRICULT	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) [ISIC Rev. 4 Divisions 01 and 02].
Fishing	FISHING	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 [ISIC Rev. 4 Division 03].
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	NONENUSE	Non-energy use covers those fuels that are used as raw materials in the different sectors and are not consumed as a fuel or transformed into another fuel. Non-energy use is shown separately in final consumption under the heading <i>non-energy use</i> . Note that for biomass commodities, only the amounts specifically used for energy purposes (a small part of the total) are included in the energy statistics. Therefore, all non-energy use quantities are null by definition.
Non-energy use ind./transf./energy	NEINTREN	Non-energy in industry, transformation processes and energy industry own use.
<i>Of which: Non-energy use in chemical/ petrochemical industry</i>	NECHEM	The petrochemical industry includes cracking and reforming processes 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 [part of ISIC Rev. 4 Group 201]. <i>Note: this flow was called "of which petrochemical feedstocks" in previous editions.</i>
Non-energy use in transport	NETRANS	Non-energy use in transport.
Non-energy use in other sectors	NEOTHER	Non-energy use in other sectors such as residential, commercial/public services, agriculture/forestry and fishing.

Electricity output (GWh)		
Flow	Short name	Definition
Electricity output in GWh	ELOUTPUT	Shows the total number of GWh generated by thermal power plants separated into electricity plants and CHP plants. Electricity production for hydro pumped storage is also given separately for main activity producers and autoproducers.
Electricity output-main activity producer electricity plants	ELMAINE	Total electricity generated in main activity producer electricity plants.
Electricity output-autoproducer electricity plants	ELAUTOE	Total electricity generated in autoproducer electricity plants.
Electricity output-main activity producer CHP plants	ELMAINC	Total electricity generated in main activity producer CHP plants.
Electricity output-autoproducer CHP plants	ELAUTOC	Total electricity generated in autoproducer CHP plants.

Heat output (TJ)		
Flow	Short name	Definition
Heat output in TJ	HEATOUT	Shows the total amount of TJ generated by power plants separated into CHP plants and heat plants.
Heat output-main activity producer CHP plants	HEMAINC	Total heat generated in main activity producer CHP plants.
Heat output-autoproducer CHP plants	HEAUTOH	Total electricity generated in autoproducer CHP plants.
Heat output-main activity producer heat plant	HEMAINH	Total electricity generation in main activity producer heat plants.
Heat output-autoproducer heat plants	HEAUTOH	Total electricity generation in autoproducer heat plants.

OECD, Coal Balance (ktoe, ktce, TJ, Tcal): COAL BALANCE OECD.IVT

Supply		
Flow	Short name	Definition
Production	INDPROD	Comprises the production of primary energy, i.e. hard coal, lignite/brown coal, peat, crude oil, NGLs, natural gas, combustible renewables and waste, nuclear, hydro, geothermal, solar and the heat from heat pumps that is extracted from the ambient environment. Production is calculated after removal of impurities (e.g. sulphur from natural gas). Calculation of production of hydro, geothermal, etc. and nuclear electricity is explained in the section <i>Units and conversions</i> .
Imports	IMPORTS	Comprise amounts having crossed the national territorial boundaries of the country whether or not customs clearance has taken place. Comprise the amount of fuels obtained from other countries, whether or not there is an economic or customs union between the relevant countries. Coal in transit should not be included.
Exports	EXPORTS	Comprise amounts having crossed the national territorial boundaries of the country whether or not customs clearance has taken place. Exports comprise the amount of fuels supplied to other countries, whether or not there is an economic or customs union between the relevant countries. Coal in transit should not be included.
International marine bunkers	MARBUNK	Covers those quantities 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. Consumption by ships engaged in domestic navigation is excluded. 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. Consumption by fishing vessels and by military forces is also excluded. See <i>domestic navigation, fishing and other non-specified</i> .
International aviation bunkers	AVBUNK	Includes deliveries of aviation fuels to aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split should be 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.
Stock changes	STOCKCHA	Reflects the difference between opening stock levels on the first day of the year and closing levels on the last day of the year of stocks on national territory held by producers, importers, energy transformation industries and large consumers. A stock build is shown as a negative number, and a stock draw as a positive number.
Total primary energy supply	TPES	Total primary energy supply (TPES) is made up of <i>production + imports - exports - international marine bunkers - international aviation bunkers ± stock changes</i> . Note, exports, bunkers and stock changes incorporate the algebraic sign directly in the number.

Supply		
Flow	Short name	Definition
Transfers	TRANSFER	<p>Comprises <i>interproduct transfers</i>, <i>products transferred</i> and <i>recycled products</i>.</p> <p><i>Interproduct transfers</i> results from reclassification of products either because their specification has changed or because they are blended into another product, e.g. kerosene may be reclassified as gasoil after blending with the latter in order to meet its winter diesel specification. The net balance of <i>interproduct transfers</i> is zero.</p> <p><i>Products transferred</i> is intended for oil products imported for further processing in refineries. For example, fuel oil imported for upgrading in a refinery is transferred to the feedstocks category.</p> <p><i>Recycled products</i> 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).</p>
Statistical differences	STATDIFF	<p>Includes the sum of the unexplained statistical differences for individual fuels, as they appear in the basic energy statistics. It also includes the statistical differences that arise because of the variety of conversion factors in the coal and oil columns.</p>

Transformation processes		
Flow	Short name	Definition
Transformation processes	TOTTRANF	Transformation processes comprises the conversion of primary forms of energy to secondary and further transformation (e.g. coking coal to coke, crude oil to oil products, and fuel oil to electricity). Inputs to transformation processes are shown as negative numbers and output from the process is shown as a positive number. Transformation losses will appear in the “total” column as negative numbers.
Main activity producer electricity plants	MAINELEC	Refers to plants which are designed to produce electricity only. If one or more units of the plant is a CHP unit (and the inputs and outputs cannot be distinguished on a unit basis) then the whole plant is designated as a CHP plant. Main activity producers generate electricity 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 electricity plants	AUTOELEC	Refers to plants which are designed to produce electricity only. If one or more units of the plant is a CHP unit (and the inputs and outputs cannot be distinguished on a unit basis) then the whole plant is designated as a CHP plant. Autoproducer undertakings generate electricity wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.
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 noted above should be adopted. Main activity producers 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 noted above 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.

Transformation processes		
Flow	Short name	Definition
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 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.
Heat pumps	THEAT	Includes heat produced by heat pumps in transformation. Heat pumps that are operated within the residential sector where the heat is not sold are not considered a transformation process and are not included here – the electricity consumption would appear as residential use.
Electric boilers	TBOILER	Includes electric boilers used to produce heat.
Chemical heat for electricity production	TELE	Includes heat from chemical processes that is used to generate electricity.
Blast furnaces	TBLASTFUR	Blast furnaces covers the quantities of fuels used for the production of blast furnace gas and oxygen steel furnace gas. The production of pig-iron from iron ore in blast furnaces uses fuels for supporting the blast furnace charge and providing heat and carbon for the reduction of the iron ore. Accounting for the calorific content of the fuels entering the process is a complex matter as transformation (into blast furnace gas) and consumption (heat of combustion) occur simultaneously. Some carbon is also retained in the pig-iron; almost all of this reappears later in the oxygen steel furnace gas (or converter gas) when the pig-iron is converted to steel. In the 1992/1993 annual questionnaires, Member Countries were asked for the first time to report in <i>transformation processes</i> the quantities of all fuels (e.g. pulverised coal injection [PCI] coal, coke oven coke, natural gas and oil) entering blast furnaces and the quantity of blast furnace gas and oxygen steel furnace gas produced. The Secretariat then needed to split these inputs into the transformation and consumption components. The transformation component is shown in the row <i>blast furnaces</i> in the column appropriate for the fuel, and the consumption component is shown in the row <i>iron and steel</i> , in the column appropriate for the fuel. The Secretariat decided to assume a transformation efficiency such that the carbon input into the blast furnaces should equal the carbon output. This is roughly equivalent to assuming an energy transformation efficiency of 40%.
Gas works	TGASWKS	Includes the manufacture of town gas. <i>Note: in the summary balances this item also includes other gases blended with natural gas (TBLENDGAS).</i>

Transformation processes		
Flow	Short name	Definition
Coke ovens	TCOKEOVS	Includes the manufacture of coke and coke oven gas.
Patent fuel plants	TPATFUEL	Includes the manufacture of patent fuels.
BKB/PB plants	TBKB	Includes the manufacture of BKB and peat products.
Oil refineries	TREFINER	Includes the manufacture of finished oil products.
Petrochemical plants	TPETCHEM	Covers backflows returned from the petrochemical industry. Note that backflows from oil products that are used for non-energy purposes (i.e. white spirit and lubricants) are not included here, but in non-energy use.
Coal liquefaction plants	TCOALLIQ	Includes coal, oil and tar sands used to produce synthetic oil.
Gas-to-liquids (GTL) plants	TGTL	Includes natural gas used as feedstock for the conversion to liquids, e.g. the quantities of fuel entering the methanol product process for transformation into methanol.
For blended natural gas	TBLENDGAS	Includes other gases that are blended with natural gas.
Charcoal production plants	TCHARCOAL	Includes the transformation of solid biofuels into charcoal.
Not elsewhere specified (Transformation)	TNONSPEC	Includes other non-specified transformation.

Energy industry own use and losses		
Flow	Short name	Definition
Energy industry	TOTENGY	Energy industry own use covers the amount of fuels used by the energy producing industries (e.g. for heating, lighting and operation of all equipment used in the extraction process, for traction and for distribution). It includes energy consumed by energy industries for heating, pumping, traction and lighting purposes [ISIC Rev. 4 Divisions 05, 06, 19 and 35, Group 091 and Classes 0892 and 0721].
Coal mines	EMINES	Represents the energy which is used directly within the coal industry for hard coal and lignite mining. It excludes coal burned in pithead power stations (included under electricity plants in transformation processes) and free allocations to miners and their families (considered as part of household consumption and therefore included under <i>residential</i>).
Oil and gas extraction	EOILGASEX	Represents the energy which is used for oil and gas extraction. Flared gas is not included.

Energy industry own use and losses		
Flow	Short name	Definition
Blast furnaces	EBLASTFUR	Represents the energy which is used in blast furnaces.
Gas works	EGASWKS	Represents the energy which is used in gas works.
Gasification plants for biogases	EBIOGAS	Represents own consumption of biogases necessary to support temperatures needed for anaerobic fermentation.
Coke ovens	ECOKEOVS	Represents the energy used in coke ovens.
Patent fuel plants	EPATFUEL	Represents the energy used in patent fuel plants.
BKB plants	EBKB	Represents the energy used in BKB plants.
Oil refineries	EREFINER	Represents the energy used in oil refineries.
Coal liquefaction plants	ECOALLIQ	Represents the energy used in coal liquefaction plants.
Liquefaction (LNG)/regasification plants	ELNG	Represents the energy used in LNG and regasification plants.
Gas-to-liquids (GTL) plants	EGTL	Represents the energy used in gas-to-liquids plants.
Own use in electricity, CHP and heat plants	EPOWERPLT	Represents the energy used in main activity producer electricity, CHP and heat plants.
Used for pumped storage	EPUMPST	Represents electricity consumed in hydro-electric plants for pumped storage.
Nuclear industry	ENUC	Represents the energy used in the nuclear industry.
Charcoal production plants	ECHARCOAL	Represents the energy used in charcoal production plants.
Non-specified (energy)	ENONSPEC	Represents use in non-specified energy sector.
Losses	DISTLOSS	Losses in energy distribution, transmission and transport.

Final consumption		
Flow	Short name	Definition
Total final consumption	TFC	Equal to the sum of the consumption in the end-use sectors. Energy used for transformation processes and for own use of the energy producing industries is excluded. Final consumption reflects for the most part deliveries to consumers (see note on <i>stock changes</i>). Backflows from the petrochemical industry are not included in final consumption (see <i>from other sources</i> under supply and <i>petrochemical plants</i> in transformation). <i>Starting with the 2009 edition, international aviation bunkers is no longer included in final consumption at the country level.</i>
Industry	TOTIND	Industry consumption is specified as follows: (energy used for transport by industry is not included here but is reported under transport):
Iron and steel	IRONSTL	[ISIC Rev. 4 Group 241 and Class 2431]
Chemical and petrochemical	CHEMICAL	[ISIC Rev. 4 Divisions 20 and 21] Excluding petrochemical feedstocks.
Non-ferrous metals	NONFERR	[ISIC Rev. 4 Group 242 and Class 2432] Basic industries.
Non-metallic minerals	NONMET	[ISIC Rev. 4 Division 23] Such as glass, ceramic, cement, etc.
Transport equipment	TRANSEQ	[ISIC Rev. 4 Divisions 29 and 30]
Machinery	MACHINE	[ISIC Rev. 4 Divisions 25 to 28] Fabricated metal products, machinery and equipment other than transport equipment.
Mining and quarrying	MINING	[ISIC Rev. 4 Divisions 07 and 08 and Group 099] Mining (excluding fuels) and quarrying.
Food and tobacco	FOODPRO	[ISIC Rev. 4 Divisions 10 to 12]
Paper, pulp and print	PAPERPRO	[ISIC Rev. 4 Divisions 17 and 18]
Wood and wood products	WOODPRO	[ISIC Rev. 4 Division 16] Wood and wood products other than pulp and paper.
Construction	CONSTRUC	[ISIC Rev. 4 Division 41 to 43]
Textile and leather	TEXTILES	[ISIC Rev. 4 Divisions 13 to 15]
Not elsewhere specified (Industry)	INONSPEC	[ISIC Rev. 4 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>not elsewhere specified</i> industry row has been used. Regional aggregates of industrial consumption should therefore be used with caution.

Final consumption		
Flow	Short name	Definition
Transport	TOTTRANS	Consumption in transport covers all transport activity (in mobile engines) regardless of the economic sector to which it is contributing [ISIC Rev. 4 Divisions 49 to 51], and is specified as follows:
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 should be 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.
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 Rev. 4 Division 35) from the distributor to final users is excluded and should be reported in <i>energy industry own use</i> , while the energy used for the final distribution of water (ISIC Rev. 4 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>losses</i> .
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 should be 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.
Not elsewhere specified (Transport)	TRNONSPE	Includes all transport not elsewhere specified. Note: <i>International marine bunkers</i> and <i>international aviation bunkers</i> are shown in <i>Supply</i> and are not included in the transport sector as part of final consumption.
Other	TOTOTHER	Includes residential, commercial/public services, agriculture/forestry, fishing and non-specified (other).
Residential	RESIDENT	Includes consumption by households, excluding fuels used for transport. Includes households with employed persons [ISIC Rev. 4 Division 97] which is a small part of total residential consumption.

Final consumption		
Flow	Short name	Definition
Commercial and public services	COMMPUB	[ISIC Rev. 4 Divisions 33, 36-39, 45-47, 52, 53, 55-56, 58-66, 68-75, 77-82, 84 (excluding Class 8422), 85-88, 90-96 and 99]
Agriculture/forestry	AGRICULT	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) [ISIC Rev. 4 Divisions 01 and 02].
Fishing	FISHING	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 [ISIC Rev. 4 Division 03].
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	NONENUSE	Non-energy use covers those fuels that are used as raw materials in the different sectors and are not consumed as a fuel or transformed into another fuel. Non-energy use is shown separately in final consumption under the heading non-energy use. Note that for biomass commodities, only the amounts specifically used for energy purposes (a small part of the total) are included in the energy statistics. Therefore, the non-energy use of biomass is not taken into consideration and the quantities are null by definition.
Non-energy use industry/transformation/energy	NEINTREN	Non-energy in industry, transformation processes and energy industry own use.
<i>Of which: Non-energy use in chemical/petrochemical industry</i>	<i>NECHEM</i>	The petrochemical industry includes cracking and reforming processes for the purpose of producing ethylene, propylene, butylene, synthesis gas, aromatics, butadene and other hydrocarbon-based raw materials in processes such as steam cracking, aromatics plants and steam reforming [part of ISIC Rev. 4 Group 201].
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.

Electricity output (GWh)		
Flow	Short name	Definition
Electricity output in GWh	ELOUTPUT	Shows the total number of GWh generated by power plants separated into electricity plants and CHP plants. Contrary to the <i>Basic Energy Statistics</i> , electricity production for hydro pumped storage is excluded.
Electricity output-main activity producer electricity plants	ELMAINE	Shows the total number of GWh generated by main activity producer electricity plants.
Electricity output-autoproducer electricity plants	ELAUTOE	Shows the total number of GWh generated by autoproducer electricity plants.
Electricity output-main activity producer CHP plants	ELMAINC	Shows the total number of GWh generated by main activity producer CHP plants.
Electricity output-autoproducer CHP plants	ELAUTOE	Shows the total number of GWh generated by autoproducer CHP plants.

Heat output (TJ)		
Flow	Short name	Definition
Heat output in TJ	HEATOUT	Shows the total heat generated by plants separated into CHP plants and heat plants.
Heat output-main activity producer CHP plants	HEMAINC	Shows the total number of TJ generated by main activity producer CHP plants.
Heat output-autoproducer CHP plants	HEAUTOE	Shows the total number of TJ generated by autoproducer CHP plants.
Heat output-main activity producer heat plant	HEMAINH	Shows the total number of TJ generated by activity producer heat plant.
Heat output-autoproducer heat plants	HEAUTOH	Shows the total number of TJ generated by autoproducer heat plants.

OECD, Coal Net Calorific Values (MJ/tonne): COAL NCV OECD.IVT

Net calorific values		
Expressed in Megajoules / tonne or kilojoules / kilogramme		
Flow	Short name	Definition
Average NCV of supply	NAVERAGE	Weighted average of production, imports and exports.
NCV of production	NINDPROD	
NCV of imports	NIMPORTS	
NCV of exports	NEXPORTS	
NCV of coke ovens	NCOKEOVS	Weighted net calorific value of transformation inputs to coke ovens and energy support, for each specific fuel.
NCV of blast furnaces	NBLAST	As per coke ovens, but for blast furnaces.
NCV in main activity producer electricity plants	NMAIN	
NCV in autoproducer electricity plants	NAUTOELEC	
NCV in main activity CHP plants	NMAINCHP	
NCV in autoproducer CHP plants	NAUTOCHP	
NCV in main activity heat plants	NMAINHEAT	
NCV in autoproducer heat plants	NAUTOHEAT	
NCV in industry	NIND	
NCV for other uses	NOTHER	Energy values for aggregated totals should be the sum of their components multiplied by the specific calorific value for each component, rather than using the aggregated total and this flow.

4. PRODUCT DEFINITIONS

Coal and coal products		
With the exception of the coal gases, the fuels in this section are expressed in thousand tonnes. The coal gases are expressed in terajoules on a gross calorific value basis .		
Flow	Short name	Definition
Coal and coal products	COAL	(For balances only.) This is the sum of all primary coals (included peat, peat products or oil shale and oil sands) and all derived coal products (cokes, gases, tars, briquettes etc).
Hard coal	HARDCOAL	Hard coal refers to coal of gross calorific value greater than 24 MJ/kg (~5 732 kcal/kg) on an ash-free but moist basis and with a mean random reflectance of vitrinite of at least 0.6. Hard coal may include coals with a GCV greater than or equal to 24 MJ/kg and a mean Rr < 0.6%. Hard coal is the sum of anthracite, coking coal, other bituminous coal and for some countries, prior to 1978 (see Note on Coal Classification above), hard coal includes sub-bituminous coal.
Brown coal	BROWN	Brown coal is the sum of lignite and sub-bituminous coal. For some countries prior to 1978 (see Note on Coal Classification above), brown coal excludes sub-bituminous coal.
Steam coal	STEAMCOAL	Steam coal is coal used for steam raising and space heating purposes and includes all anthracite and bituminous coals not included under coking coal and for all countries; steam coal also includes sub-bituminous coal.
Anthracite	ANTCOAL	A high rank coal used for industrial and residential applications. It is generally less than 10% volatile matter and a high carbon content (about 90% fixed carbon). Its gross calorific value is greater than 24 MJ/kg (~5 732 kcal/kg) on an ash-free but moist basis. It has a vitrinite mean random reflectance greater than or equal to 2% and is non-agglomerating.
Coking coal	COKCOAL	Coal with a quality that allows the production of a coke suitable to support a blast furnace charge. Its gross calorific value is greater than 24 MJ/kg (~5 732 kcal/kg) on an ash-free but moist basis.

Coal and coal products

With the exception of the coal gases, the fuels in this section are expressed in thousand tonnes.
The coal gases are expressed in terajoules on a **gross calorific value basis**.

Flow	Short name	Definition
Other bituminous coal	BITCOAL	Other bituminous coal is used for steam raising and space heating purposes and includes all bituminous coal that is not included under coking coal. It usually contains more than 10% volatile matter and relatively high carbon content (less than 90% fixed carbon). Its gross calorific value is greater than 24 MJ/kg (~5 732 kcal/kg) on an ash-free but moist basis and can include parabituminous and orthobituminous coals.
Sub-bituminous coal	SUBCOAL	Non-agglomerating coals with a gross calorific value between 20 MJ/kg (~4 777 kcal/kg) and 24 MJ/kg (~5 732 kcal/kg) on a moist but ash free basis, and containing more than 31 per cent volatile matter on an ash-free but moist basis.
Lignite	LIGNITE	Non-agglomerating coal with a gross calorific value of less than 20 MJ/kg (4 777 kcal/kg) on an ash-free but moist basis.
Patent fuel	PATFUEL	A composition fuel manufactured from hard coal fines with the addition of a binding agent. The amount of patent fuel produced therefore can be slightly higher than the actual amount of coal consumed in the transformation process.
Coke oven coke	OVENCOKE	The solid product obtained from the carbonisation of coal, principally coking coal, at high temperature. It is low in moisture content and volatile matter. Also included are semi-coke, a solid product obtained from the carbonisation of coal at a low temperature, lignite coke, semi-coke made from lignite/brown coal, coke breeze and foundry coke. Cokes obtained from other sources such as process residues or flue gas precipitation may also be shown here.
Gas coke	GASCOKE	A by-product of hard coal used for the production of town gas in gas works. Gas coke is used for heating purposes.
Coal tar	COALTAR	Coal tar is a result of the destructive distillation of bituminous coal. Coal tar is the liquid by-product of the distillation of coal to make coke in the coke oven process. Coal tar can be further distilled into different organic products (e.g. benzene, toluene, naphthalene), which normally would be reported as a feedstock to the petrochemical industry.
Brown coal briquettes	BKB	Composition fuels manufactured from lignite/brown coal, produced by briquetting under high pressure. These figures include dried lignite fines and dust.

Coal and coal products

With the exception of the coal gases, the fuels in this section are expressed in thousand tonnes.
The coal gases are expressed in terajoules on a **gross calorific value basis**.

Flow	Short name	Definition
Gas works gas	GASWKSGS	Covers all types of gas produced in public utility or private plants, whose main purpose is the manufacture, transport and distribution of gas. It includes gas produced by carbonisation (including gas produced by coke ovens and transferred to gas works), by total gasification (with or without enrichment with oil products), by cracking of natural gas, and by reforming and simple mixing of gases and/or air. This heading also includes substitute natural gas, which is a high calorific value gas manufactured by chemical conversion of a hydrocarbon fossil fuel. Coal seam gas is reported on the natural gas questionnaire as colliery gas, as most likely will be the case for underground coal gasification (UGC).
Coke oven gas	COKEOVGS	Coke oven gas is obtained as a by-product of solid fuel carbonisation and gasification operations carried out by coke producers and iron and steel plants. It is calorifically rich, and when cleaned is predominantly H ₂ .
Blast furnace gas	BLFURGS	Produced during the combustion of coke in blast furnaces in the iron and steel industry. It is recovered and used as a fuel partly within the plant and partly in other steel industry processes or in power stations equipped to burn it. It is mainly nitrogen (N ₂), with roughly equal amounts of carbon dioxide and carbon monoxide, and will contain other trace gases. Off gases from direct reduced iron and other similar processes may also be reported here.
Other recovered gases	OGASES	Other recovered gases were previously known as oxygen steel furnace gas, which is most commonly obtained as a by-product of the production of steel in an oxygen-fired furnace; it is recovered upon leaving the furnace. The gas is also known as converter gas, LD gas or BOS gas. Other gases of similar nature are also reported in this category, hence the change of name to be intrinsically more inclusive.
Peat	PEAT	Combustible soft, porous or compressed, fossil sedimentary deposit of plant origin with high water content (up to 90 per cent in the raw state), easily cut, of light to dark brown colour. Peat used for non-energy purposes is not included.
Peat products	PEATPROD	Peat products include peat briquettes and peat pellets. Milled peat is included in peat, not peat products..

Coal and coal products

With the exception of the coal gases, the fuels in this section are expressed in thousand tonnes.
The coal gases are expressed in terajoules on a **gross calorific value basis**.

Flow	Short name	Definition
Oil shale and oil sands	OILSHALE	<p>Oil shale should not be confused with shale oil. Shale oil (often obtained by in situ thermally enhanced mining practices) is reported as an oil product.</p> <p>Oil shale is a sedimentary rock which contains organic matter in the form of kerogen – a waxy hydrocarbon-rich material regarded as a precursor of petroleum. In solid form, it contains more inert matter than coal, while the sand in oil sands may often be in the form of sandstone. Oil shale may be burned directly, or retorted to extract shale oil, the process of which is reported as coal liquefaction transformation.</p>

5. GEOGRAPHICAL COVERAGE

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. In this publication, 'country' refers to country or territory, as case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Flow	Short name	Definition
Australia	AUSTRALI	Excludes the overseas territories.
Austria	AUSTRIA	
Belgium	BELGIUM	
Canada	CANADA	
Chile	CHILE	
Czech Republic	CZECH	
Denmark	DENMARK	Excludes the Faroe Islands and Greenland.
Estonia	ESTONIA	
Finland	FINLAND	
France	FRANCE	Includes Monaco and excludes the following overseas departments: Guadeloupe; French Guiana; Martinique; Mayotte; and Réunion; and collectivities: New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna.
Germany	GERMANY	Includes the new federal states of Germany from 1970 onwards.
Greece	GREECE	
Hungary	HUNGARY	
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. Data start in 1971.

Countries and regions

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Flow	Short name	Definition
Italy	ITALY	Includes San Marino and the Holy See.
Japan	JAPAN	Includes Okinawa.
Korea	KOREA	Data start in 1971.
Latvia	LATVIA	Data are included starting in 1990. Prior to 1990, data for Latvia are included in Former Soviet Union.
Luxembourg	LUXEMBOU	
Mexico	MEXICO	Data start in 1971.
Netherlands	NETHLAND	Excludes Suriname, Aruba and the other former Netherlands Antilles (Bonaire, Curaçao ¹ , Saba, Saint Eustatius and Sint Maarten ¹).
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	Does not include Liechtenstein.
Turkey	TURKEY	
United Kingdom	UK	Shipments of coal and oil to the Channel Islands and the Isle of Man from the United Kingdom are not classed as exports. Supplies of coal and oil to these islands are, therefore, included as part of UK supply. Exports of natural gas to the Isle of Man are included with the exports to Ireland.
United States	USA	Includes the 50 states and the District of Columbia but generally excludes all territories, and all trade between the U.S. and its territories. Trade statistics for coal include international trade to and from Puerto Rico and the United States Virgin Islands.

1. 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.

Countries and regions

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Flow	Short name	Definition
OECD Total	OECDTOT	Includes Australia; Austria; Belgium; Canada; Chile; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel ² ; Italy; Japan; Korea; Latvia Luxembourg; Mexico; the Netherlands; New Zealand; Norway; Poland; Portugal; the Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Turkey; the United Kingdom and the United States. Estonia, Latvia and Slovenia are included starting in 1990. Prior to 1990, data for Estonia and Latvia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia. <i>Lithuania was not an OECD Member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD Members and is not included in the zone aggregates.</i>
OECD Americas	OECDAM	Includes Canada; Chile; Mexico and the United States.
OECD Europe	OECDEUR	Includes Austria; Belgium; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Italy; Latvia; Luxembourg; the Netherlands; Norway; Poland; Portugal; the Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Turkey and the United Kingdom. Estonia, Latvia and Slovenia are included starting in 1990. Prior to 1990, data for Estonia and Latvia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.
OECD Asia Oceania	OECDAO	Includes Australia; Israel ² ; Japan; Korea and New Zealand.
IEA Total	IEATOT	Includes Australia; Austria; Belgium; Canada; the Czech Republic; Denmark; Estonia; 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. Estonia is included starting in 1990. Prior to 1990, data for Estonia are included in Former Soviet Union.

2. 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.

Countries and regions

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Flow	Short name	Definition
The IEA and Accession/Association countries	IEAFAMILY	Includes: IEA member countries: Australia; Austria; Belgium; Canada; the Czech Republic; Denmark; Estonia; 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 countries: Chile; Association countries: Brazil, the People's Republic of China; India; Indonesia; Morocco; Singapore; Thailand.
Algeria	ALGERIA	
Angola	ANGOLA	
Benin	BENIN	
Botswana	BOTSWANA	Data for Botswana are available from 1981. Prior to that, they are included in Other Africa.
Cameroon	CAMEROON	
Congo	CONGO	
Democratic Rep. of Congo	CONGOREP	
Cote d'Ivoire	COTEIVOIRE	
Egypt	EGYPT	Data for Egypt are reported on a fiscal year basis. Data for 2011 are for 1 July 2011 - 30 June 2012.
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.

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Flow	Short name	Definition
Niger	NIGER	Data for Niger begin in 2000. Prior to that, data are included in Other Africa.
Nigeria	NIGERIA	
Senegal	SENEGAL	
South Africa	SOUTHAFRIC	
Sudan	SUDAN	South Sudan became an independent state on 9 July 2011, and has data from 2012 onwards. Prior to that, data are reported for a combined Sudan.
South Sudan	SSUDAN	South Sudan became an independent state on 9 July 2011, and has data from 2012 onwards.
United Republic of Tanzania	TANZANIA	
Togo	TOGO	
Tunisia	TUNISIA	
Zambia	ZAMBIA	
Zimbabwe	ZIMBABWE	
Other Africa	OTHERAFRIC	Includes Botswana (until 1980); Burkina Faso; Burundi; Cape 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; Rwanda; Sao Tome and Principe; the Seychelles; Sierra Leone; Somalia; Swaziland; and Uganda.
Argentina	ARGENTINA	
Bolivia	BOLIVIA	
Brazil	BRAZIL	Brazil became an Association country in October 2017.
Colombia	COLOMBIA	
Costa Rica	COSTARICA	
Cuba	CUBA	

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Flow	Short name	Definition
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	
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 Anguilla; Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; British Virgin Islands; Cayman Islands; Dominica; Falkland Islands (Malvinas); French Guiana; Grenada; Guadeloupe; Guyana; Martinique; Montserrat; Puerto Rico[9] (for natural gas and electricity); Saba (from 2012); Saint Eustatius (from 2012); Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Sint Maarten (from 2012); Suriname (until 1999); and the Turks and Caicos Islands.
Bangladesh	BANGLADESH	Data for Bangladesh are reported on a fiscal year basis. Data for 2015 are for 1 July 201 - 30 June 2016.
Brunei Darussalam	BRUNEI	

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Flow	Short name	Definition
Cambodia	CAMBODIA	Data for Cambodia are available starting in 1995. Prior to that, they are included in Other non-OECD Asia.
DPR of Korea	KOREADPR	
India	INDIA	Data for India are reported on a fiscal year basis. Data for 2015 are for 1 April 2015 - 31 March 2016.
Indonesia	INDONESIA	
Malaysia	MALAYSIA	
Mongolia	MONGOLIA	Data for Mongolia are available starting in 1985. Prior to that, they are included in Other non-OECD Asia.
Myanmar	MYANMAR	
Nepal	NEPAL	Data for Nepal are reported on a fiscal year basis.
Pakistan	PAKISTAN	
Philippines	PHILIPPINE	
Singapore	SINGAPORE	
Sri Lanka	SRILANKA	
Chinese Taipei	TAIPEI	
Thailand	THAILAND	
Viet Nam	VIETNAM	
Other non-OECD Asia	OTHERASIA	Includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; Fiji; French Polynesia; Kiribati; Lao People's Democratic Republic; Macau, China; the Maldives; Mongolia (until 1984); New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; the Solomon Islands; Timor-Leste; Tonga; Vanuatu.
Hong Kong (China)	HONGKONG	
People's Republic of China	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.

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Flow	Short name	Definition
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.
Cyprus	CYPRUS	<p>Note by Turkey:</p> <p><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 United Nations, Turkey shall preserve its position concerning the "Cyprus issue".</i></p> <p>Note by all the European Union Member States of the OECD and the European Union:</p> <p><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>
Former Yugoslav Republic of Macedonia	FYROM	Data for the Former Yugoslav Republic of Macedonia are available starting in 1990. Prior to that, they are included in Former Yugoslavia.
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.
Lithuania	LITHUANIA	Data for Lithuania 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.

Countries and regions

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Flow	Short name	Definition
Montenegro	MONTENEGRO	Data for Montenegro are available starting in 2005. Between 1990 and 2004, data for Montenegro are included in Serbia. Prior to 1990, they are included in Former Yugoslavia.
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.
Former Soviet Union (if no detail)	FSUND	Before 1990, comprises Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.
Former Yugoslavia (if no detail)	YUGOND	Before 1990, comprises Bosnia and Herzegovina, Croatia, Kosovo, the Former Yugoslav Republic of Macedonia, Montenegro, Slovenia and Serbia.
Bahrain	BAHRAIN	
Islamic Republic of Iran	IRAN	Data are reported according to the Iranian calendar year. Data for 2016 correspond to 20 March 2016 – 19 March 2017.
Iraq	IRAQ	
Jordan	JORDAN	
Kuwait	KUWAIT	
Lebanon	LEBANON	
Oman	OMAN	
Qatar	QATAR	
Saudi Arabia	SAUDIARABI	
Syria	SYRIA	

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Flow	Short name	Definition
United Arab Emirates	UAE	
Yemen	YEMEN	
Africa	AFRICA	Includes Algeria; Angola; Benin; Botswana (from 1981); Cameroon; the Republic of the Congo (Congo) ; Côte d'Ivoire; the Democratic Republic of the Congo; Egypt; Eritrea; Ethiopia; Gabon; Ghana; Kenya; Libya; Mauritius; Morocco; Mozambique; Namibia (from 1991); Niger (from 2000); Nigeria; Senegal; South Africa; South Sudan (from 2012), Sudan; the United Republic of Tanzania (Tanzania); Togo; Tunisia; Zambia; Zimbabwe and Other Africa.
Non-OECD Asia excluding China	ASIA	Includes Bangladesh; Brunei Darussalam; Cambodia (from 1995); Democratic People's Republic of Korea; India; Indonesia; Malaysia; Mongolia (from 1985); Myanmar; Nepal; Pakistan; Philippines; Singapore; Sri Lanka; Chinese Taipei; Thailand; Viet Nam and Other non-OECD Asia.
China Region	CHINAREG	China Region includes the People's Republic of China and Hong Kong, China.
Non-OECD Europe and Eurasia	EURASIA	Includes Albania; Armenia; Azerbaijan; Belarus; Bosnia and Herzegovina; Bulgaria; Croatia; Cyprus; Former Yugoslav Republic of Macedonia (FYROM); Gibraltar; Kazakhstan; Kyrgyzstan; Lithuania; Malta; Republic of Moldova; Romania; Russian Federation; Serbia; Former Soviet Union; Tajikistan; Turkmenistan; Ukraine; Uzbekistan and Former Yugoslavia.
Middle East	MIDDLEEAST	Includes Bahrain; Islamic Republic of Iran; Iraq; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syrian Arab Republic; United Arab Emirates and Yemen.
Non-OECD Americas	LATINAMERI	Includes Argentina; Plurinational State of Bolivia (Bolivia); Brazil; Colombia; Costa Rica; Cuba; Curaçao ³ ; Dominican Republic; Ecuador; El Salvador; Guatemala; Haiti; Honduras; Jamaica; Nicaragua; Panama; Paraguay; Peru; Suriname (from 2000); Trinidad and Tobago; Uruguay; Bolivarian Republic of Venezuela (Venezuela) and Other Non-OECD Americas.
Non-OECD Total	NONOECDTOT	Includes Africa; Asia (excluding China); China (P.R. of China and Hong Kong, China); Non-OECD Americas; Middle East and Non-OECD Europe and Eurasia.

3. 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.

Countries and regions

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Flow	Short name	Definition
World marine bunkers	WORLDMAR	
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: Africa (UN)	UNAFRICA	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; Swaziland; the United Republic of Tanzania (Tanzania); Togo; Tunisia; Uganda; Zambia; Zimbabwe.
Memo: Americas (UN)	UNAMERICAS	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).

Countries and regions

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Flow	Short name	Definition
Memo: Asia (UN)	UNASIATOT	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.
Memo: Europe (UN)	UNEUROPE	Includes Albania; Austria; Belarus; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; the Czech Republic; Denmark; Estonia; Finland; the Former Yugoslav Republic of Macedonia; France; Germany; Gibraltar; Greece; Hungary; Iceland; Ireland; Italy; Kosovo ⁴ ; Latvia ⁵ ; 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.
Memo: Oceania (UN)	UNOCEANIA	Includes Australia; New Zealand; Cook Islands; Fiji; French Polynesia; Kiribati; New Caledonia; Palau; Papua New Guinea; Samoa; the Solomon Islands; Tonga; Vanuatu.

4. 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.

5. Latvia is included starting in 1990. Prior to 1990, data for Latvia are included in Former Soviet Union.

6. COUNTRY NOTES AND SOURCES

GENERAL NOTES

Energy data for OECD countries are submitted to the IEA Secretariat in a common reporting format and methodology to allow for international comparisons to be made.

Energy data for member countries reported for 2017 (shown as 2017p) are provisional data based on the submissions received in early 2018 and on quarterly submissions to the IEA. In some instances it has been necessary for the IEA to estimate some data. Explanations of these estimates are provided in the country notes. Final 2017 data on solid fuels and manufactured gases will be submitted by OECD member countries to the Secretariat in annual questionnaires in late 2018. As a result, final data for 2017 and provisional 2018 data will be published in the 2019 edition of *Coal Information*.

Additional information on methodologies and reporting conventions are included in the notes in *World Energy Balances* 2018 edition and *World Energy Statistics* 2018 edition.

Qualifiers

Data marked as “e” are estimates of the IEA Secretariat. Data marked as “c” mean that the data are confidential due to country specific regulations. Data marked as “..” mean that data are not available (either not collected or not submitted by national government). Data marked as “x” mean that the data point is not applicable or there is no meaningful explanation of a value there. For example, the price cannot be shown if the consumption in the country is forbidden or the country itself did not exist as an independent

entity at a given point in time. The year marked as “p” (e.g. 2017p) refers to provisional data.

Treatment of blast furnace coke and PCI data

Data on coke used in and pulverised coal injected into blast furnaces (PCI), are harmonized for all OECD countries in order to ensure that blast furnace transformation data are consistently presented and that comparisons between countries for consumption are meaningful. The main effect of these revisions has been, where necessary, to revise the reported consumption of coal in the iron and steel industry and in blast furnace transformation, so discrepancies between IEA and national accounts may ensue. In effect, inputs to blast furnaces may be calibrated to be proportionate to production of blast furnace gas and some inputs to blast furnace consumption may be reported as consumption in the iron and steel industry if there are lower than normal outputs of blast furnace gas.

It should be noted that in IEA statistics of coal trade and consumption, PCI is not separately specified as a product in its own right. Rather it is included in some form of hard coal. This methodology is based on the fact that pulverised coal injection is a process, and this process, unlike for coke oven coke manufacture, is somewhat independent of coal type.

For Japan and Korea, PCI consumption is reported in this book as a coking coal to be consistent with the national practice of including imports of PCI coal with coking coal without regard to coal type. Other countries that report some usage of coking coal as inputs to blast furnaces (the Netherlands, Poland, the Slovak Republic, Turkey and the United Kingdom) may do so for this reason, or because of the respective coal quality.

People's Republic of China

Methodology

In this edition, the National Bureau of Statistics (NBS) changed the definition of cleaned coal and other washed coal. Now, only the coal used for coking is called cleaned coal. This might result in breaks in time series in coking coal between 2015 and 2016. As this change of methodology resulted in uncertainty on the use of cleaned coal, the IEA Secretariat estimated the use of coking coal in transformation and final consumption sectors.

In this edition, based on new information, coal consumption in rail was revised for the whole time series to reflect the fact that coal is used for other usages than transport in the Rail sector. The IEA Secretariat has allocated part of the coal reported under rail to other non-specified sectors for the period 1990-2003. For the period 2004-2016 the IEA Secretariat allocated the total amount of coal reported under rail to other non-specified sectors.

In this edition, based on new information, coal inputs to main activity heat plants and part of coal inputs to main activity electricity plants were allocated to main activity CHP plants for the period 2005-2016.

Net calorific values (NCV) for coal inputs to power generation from 2000 are estimated by applying assumptions used by China on the average thermal efficiency of coal-fired power stations in these years. NCVs are also estimated for bituminous coal production from 2000 as well as for inputs to main activity heat plants from 2008.

NBS and IEA collaborate to provide additional detail on energy production, transformation and consumption of all five different types of coal (e.g. anthracite, coking coal, other bituminous, sub-bituminous and lignite). At the moment NBS only provides quantities of raw coal and washed coal in their energy balances and the IEA Secretariat has attributed these quantities to coking coal and other bituminous coal. It is expected that the continuing work to provide disaggregated data on the five different coals will result in greater detail in future editions.

Since 2000, imports and exports of cleaned coal are no longer reported in the national energy balance of China. The IEA Secretariat has used secondary sources of information to report this coking coal trade

and corresponding quantities have been removed from bituminous coal trade. Consumption of this coking coal is assumed to be in coke ovens.

The IEA data of coal stocks for the years 1985 and 1990 as well as coal production for the years 1997-1999 are estimates and do not represent official data released by the Chinese government. Those estimates were based on the assumption that coal consumption statistics are more reliable than coal production statistics and that the production-consumption relationship should maintain a balance over time.

Observations

In recent years, China has reported large increases in stocks for crude oil, oil products and for different types of coal. These stock increases are seen as consistent with trends in economic growth and development in China; however, information is currently lacking on the scale of the infrastructure available for this magnitude of stock increases.

Starting with 2010 data, NBS increased the level of detail of the national energy balance regarding oil products and coal gases. Breaks in time series may occur between 2009 and 2010.

Data for coal trade in this publication may not match data from secondary sources of information.

Sources 1990 to 2016:

- *China Energy Statistical Yearbook*, National Bureau of Statistics, Beijing, various editions up to 2016.
- Direct communication with the China National Renewable Energy Centre (CNREC), National Energy Administration (NEA), Beijing.
- China Electricity Council, online statistics, various editions up to 2014.
- Zhang G., *Report on China's Energy Development 2010*, China's National Energy Administration, Beijing, editions 2009 to 2011.
- IEA Secretariat estimates.

Sources up to 1990:

- *Electric Industry in China in 1987*, Ministry of Water Resources and Electric Power, Department of Planning, Beijing, 1988.
- *Outline of Rational Utilization and Conservation of Energy in China*, Bureau of Energy Conservation State Planning Commission, Beijing, June 1987.

- *China Coal Industry Yearbook*, Ministry of Coal Industry, People's Republic of China, Beijing, 1983, 1984, 1985 and 2000.
- *Energy in China 1989*, Ministry of Energy, People's Republic of China, Beijing, 1990.
- *China: A Statistics Survey 1975-1984*, State Statistical Bureau, Beijing, 1985.
- *Almanac of China's Foreign Economic Relations and Trade*, The Editorial Board of the Almanac, Beijing, 1986.

Other sources

Quarterly energy statistics

Readers who are interested in more recent data should consult the OECD/IEA publication *Oil, Gas, Coal and Electricity Quarterly Statistics* which is published in January, April, July and October each year.

This book provides current, accurate and detailed statistics on quarterly production, supply and demand and trade of the major energy forms mainly in, but not limited to, the OECD area.

Coal quarterly data include

- World steam and coking coal, and lignite production;
- World steam coal and coking coal trade; and
- Coking coal and steam coal imports and exports for major OECD countries.

OECD Main Economic Indicators

OECD Main Economic Indicators is a monthly compilation of a range of indicators on recent economic developments for the 35 OECD member countries. Please refer to this publication for detailed notes regarding the selected indicators.

Price data

Energy prices are published quarterly in the IEA/OECD *Energy Prices and Taxes*, where complete notes on prices may be obtained.

IEA data on coal prices are managed in two sub-systems, which vary not only in content, but also with respect to the data collection methods.

Import and export unit values

Import and export unit values are calculated quarterly (March, June, September and December) from national

customs statistics import and export volumes and values. The basic data are collected from monthly national trade sources (Chile, Japan, Korea, United States, Australia and Canada) or provided monthly to the IEA by the Statistical Office of the European Communities (Eurostat).

Values recorded at the import stage are the sum of cost, insurance and freight (CIF – cost including freight/fees), but exclude import duties. Values recorded at the export stage (FOB – free on board), exclude seaborne or international transport, but include inland transport costs of the exporting country.

As far as possible, the concept of ‘general imports and exports’ is used. This includes coal imports for re-export with or without processing, but excludes transit trade.

The definitions of coal categories and the volume and value units used in each of the above source systems vary considerably. A certain amount of regrouping and unit conversions is necessary once the basic data are compiled.

The rules for regrouping coal categories are consistent with the definitions used in the annual IEA/OECD coal statistics. Prices are compiled for steam coal and for coking coal. Definitions and the correspondence to national and European classifications are discussed in detail in the quarterly IEA publication *Energy Prices and Taxes*. Comments in *Energy Prices and Taxes* on certain data items, as well as general background information, are developed systematically. Data comments relate mainly to calorific values of specific coal trade flows and to national coal definitions. Background information covers duties and trade regulations.

End-user prices

End-user prices are collected quarterly from national administrations and other relevant bodies and supplemented with data extracted from national publications. Although a standard approach to reporting the data has been developed, differences in definitions between countries are explained in the notes published in *Energy Prices and Taxes*.

The standard approach to reporting end-use prices can be summarised as follows:

- includes transport costs to the consumer;
- shows prices actually paid, i.e. net of rebates; and
- includes taxes which have to be paid by the consumer as part of the transaction and which are not refundable. This excludes value added taxes paid in many European countries by industry (including

electric power stations) for all goods and services (including energy). In these cases, value added taxes are refunded to the customer, usually in the form of a tax credit. Therefore, it is not shown as part of the prices.

A standard coal quality for all international comparisons of end-use prices is not possible given the wide variety of coal qualities in domestic and international coal trade. As a result, only average prices covering a range of different qualities are collected, along with the calorific value of these averaged sales. If average prices are not available, prices of a selected coal may be chosen. Accordingly, international comparisons of coal end-use prices may be misleading if read at face value. Detailed notes concerning these price series are published in *Energy Prices and Taxes*. Also, please refer to *Energy Prices and Taxes* for the detailed description of price mechanisms in each country and country specific notes.

Derived price data

The information collected on prices is converted by the IEA Secretariat into a variety of secondary data in order to facilitate its analysis. Inter-fuel price comparisons for one country are usually made on the basis of prices per heat unit such as a tonne of coal equivalent. In the end-user price tables, the conversion factor used for converting gross calories to net calories for natural gas is 0.9.

Inter-country price comparisons are made on the basis of a standard currency unit, e.g. US dollars. Prices for regional totals are calculated as the weighted average only of the available price data in the region and, therefore, prices shown should be considered as only indicative.

For coal exports and imports, customs unit values are prices reported by OECD member countries.

Customs unit values are average values derived from customs' administrations total volume and total value data. These data indicate broad price movements as they are averages of all qualities of coal without regard to the end-use of the coal or to the contract terms and conditions under which the trade occurs.

End-user prices are those paid by end-users in the power sector and in industry and are reported by member countries in a quarterly reporting system which the IEA's Standing Group on Long Term Co-operation initiated in 1981. Data received are published in the IEA quarterly publication *Energy Prices and Taxes*.

Unless otherwise stated, prices are reported in US dollars in the year specified (i.e. current US dollars).

In addition to the official price statistics presented, coal price statistics published in the industry press are used to summarise short-term spot steam and coking coal price trends. Although not "official" in that they are not provided by member countries, there is a high correlation between prices published by the industry press and national coal price statistics.

Conversion to euro

Prices and taxes prior to the date of entry into the Economic and Monetary Union (EMU) have been converted from the former national currency using the appropriate irrevocable conversion rate. The irrevocable conversion rate on 1 January 1999 was used for all countries, except Greece (fixed rate as of 1 January 2001), Slovenia (fixed rate as of 1 January 2007), Malta and Cyprus¹ (both fixed rate as of 1 January 2008), the Slovak Republic (fixed rate as of 1 January 2009), and Estonia (fixed rate as of 1 January 2012).

Country	Rate	Country	Rate
Austria	13.7603	Italy	1936.27
Belgium	40.3399	Luxembourg	40.3399
Cyprus ⁶	0.585274	Malta	0.4293
Estonia	15.6466	Netherlands	2.20371
Finland	5.94573	Portugal	200.482
France	6.55957	Slovak Republic	30.126
Germany	1.95583	Slovenia	239.64
Greece	340.75	Spain	166.386
Ireland	0.787564		

This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rate) is preserved. However, pre-EMU Euro are notional units and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

Sources

Most of the prices are submitted on a quarterly basis to the IEA Secretariat by administrations; others are taken from national publications or web sites.

Energy end-use prices in US dollars

In general, country differentials between national end-use prices expressed in US dollars are heavily influenced by exchange rate differentials. However, world market prices of primary fuels in US dollars are an important parameter for the pricing of final energy

1. Please refer to Part I Section 4, Geographical Coverage.

consumption, particularly for countries which rely heavily on energy imports.

The difference between world market prices and national end-use prices in US dollars correspond to the remaining pricing parameters, i.e. transformation and distribution costs, non-internationally tradable energy sources (mainly hydro-power, but also natural gas), market structures (e.g. mix of large- and small-purchase lots), and the pricing policies of central or local authorities, which naturally include the national tax policies.

Household energy prices in US dollars: purchasing power parities versus exchange rates

Over time, there have been wide fluctuations in exchange rates and there has been some concern regarding international price comparisons based on exchange

rates which may not reflect the *relative purchasing power* in each currency.

An alternative method of comparison is provided by Purchasing Power Parities (PPPs) which are the rates of currency conversion that equalise the purchasing power of different currencies. A given sum of money, when converted into different currencies at the PPP rates, buys the same basket of goods and services in all countries. In other words, PPP's are the rates of currency conversion which eliminate the differences in price levels between different countries.

The Purchasing Power Parities used here were developed jointly by the OECD statistics directorate and Eurostat (the Statistical Office of the European Communities) to enable international price comparisons to be made for GDP and its components. (For more information on the methodology, see www.oecd.org/std/ppp.)

COUNTRY NOTES

In some cases, data submitted by Member countries to the Secretariat do not conform to the standard reporting methodology or have other particular characteristics. Information set out below will assist readers to interpret data for particular countries and aid in the comparison of data among countries.

The notes given below refer to the years 1960 to the provisional 2017 data cover the summary tables at the back of the book, as well as the information on CD-ROM and the on-line data service. In general, more detailed notes are available for data since 1990.

Data for anthracite, coking coal, other bituminous coal, sub-bituminous coal and lignite are available separately from 1978. Prior to 1978, only data for hard coal (anthracite + coking coal + other bituminous coal) and brown coal (lignite + sub-bituminous coal) are available. In prior editions to *Coal Information 2014*, sub-bituminous coal was included under hard coal for the following countries, namely; Australia, Belgium, Chile, Finland, France, Iceland, Japan, Korea, Mexico, New Zealand, Portugal and the United States. While this is no longer the case since 1978, data earlier than this were aggregated into either hard coal or brown coal, and unless specified, there has been no attempt to reclassify portions of data from hard coal to brown coal in this period.

In 1996, the IEA Secretariat extensively revised data on coal and coke use in blast furnaces, and in the iron and steel industry (for those countries with blast furnaces), based on data provided to the OECD Steel Committee and other sources. Where necessary, the quantities of fuels transformed into blast furnace gas have been estimated by the IEA Secretariat based on its blast furnace model.

Australia

Source

Department of Environment and Energy, Canberra.

General notes

- All data refer to the fiscal year (e.g. July 2016 to June 2017 for 2017).
- In the 2013 edition and following, 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 the time series for many data between 2002 and 2003. The revisions have also introduced some methodological issues, including identifying inputs and outputs to certain transformation processes such as gas works plants, electricity plants and CHP plants. Energy industry own use and inputs to the transformation processes are sometimes not reported separately in the correct categories. More detail is given in the notes below.

- In the 2017 edition, the Australian Administration revised data on **coal tar** back to 2010 resulting in breaks in time series between 2009 and 2010.
- In the 2017 edition, the decrease of lignite production and consumption was due to the closure of brown coal fired Hazelwood power plant in early 2017, contributing to a higher consumption of other bituminous coal.
- In the 2016 edition, extensive revisions were made to 2010 to 2013 data for many primary and manufactured products causing breaks in production, trade and consumption between 2009 and 2010. Series which begin in 2010 may be reported in other flows until 2009. 2014 data were reported on the same basis as 2010 to 2013.
- In the 2015 edition, increases of production and consumption of **other bituminous coal** for 2013 are due to both new mine capacity and improved classification data. In the 2016 edition, these revisions were extended back to 2010. Apparent switching between **sub-bituminous coal** and **other bituminous coal** between 2009 and 2010 suggests that some **other bituminous coal** was reported as **sub-bituminous coal** prior to this, across several flows.
- In the 2013 edition, production data for all **manufactured gases** were revised downwards as part of the new national methodology, leading to significant statistical differences.
- Reclassification of some **coal** types in the 2013 edition were calculated on an energy basis and resulted in a net increase of quantities of primary coal from 2003 to 2011.
- Breaks in the time series for **gas works gas** between 2008 and 2009 are due to a change of survey, while reduced production and consumption between 2006 and 2008 are due to the removal of some **natural gas** inputs.
- Data on **blast furnace gas** for electricity production by autoproducers begins in 1986.
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Supply

- Only **anthracite** exports are reported separately; the remainder that is consumed domestically is included with **other bituminous coal**.
- Export trade in **coke oven coke** between 2005 and 2011 exists, but data are unavailable for reasons of confidentiality.

Transformation

- In 2015 a new plant within the mining sector started its operations increasing the consumption of **coke oven coke**.
- The one company producing **BKB** closed its operation during 2015. As such, production and consumption declined significantly.
- For 2003 to 2012, **Coke oven gas** reported as energy industry own-use in electricity or CHP plants is used for generation purposes, while **natural gas** used for own-use plant support is reported in the transformation sector.
- **Natural gas** consumed to fuel the distribution of **natural gas** in natural gas networks is reported as transformation for **gas works gas** production until 2005.
- The drop in **BKB** production in 2004 was due to a fire in the main production plant.

Consumption

- In the 2016 edition, revisions for 2010 onwards have increased the quantities of **sub-bituminous coal** and decreased the quantities of **other bituminous coal** being used in the non-metallic minerals industry as more accurate information has become available.
- Consumption in wood and wood products is included in paper, pulp and print from 2001 onwards.

Austria

Source

Bundesanstalt Statistik Österreich, Vienna.

General notes

- Starting with the 2016 edition and following, widespread data revisions were received due to enhanced reporting from 2005 onwards as a consequence of improved Austrian Final Energy Consumption surveys. For some time series, these revisions were

extrapolated back to 1990. As a consequence, there may be breaks between 2004 and 2005, and 1989 and 1990.

- In the 2017 edition, revisions concerning the iron and steel industry were received for data since 2005. The revisions impacted the energy sector for **coke oven gas** and **blast furnace gas**.
- In the 2016 edition, revisions concerning the iron and steel industry were received for data since 1990. The following flows were impacted by these revisions: inputs to blast furnaces, the breakdown between transformation and own-use energy support, and calorific values.
- The last **lignite** mine closed in the second quarter of 2004 and **lignite** use for power generation ceased in 2006.
- Since 1996, **gas works gas** data are reported with **natural gas** because it is distributed in the same network. The amount of **gas works gas** is negligible and it is mostly consumed by households.
- “Troddenkohle” is included with **BKB** because of its high calorific value.
- LD gas, which should normally be reported as **other recovered gases**, is reported with **blast furnace gas**.

Belgium

Source

Observatoire de l'Energie, Brussels.

General notes

- In the 2016 Edition, improved data collection has led to some breaks in time series. These revisions include **hard coal** classifications, products and processes in integrated iron and steel manufacture and may be extended further back in future editions.
- Data for **anthracite** prior to 2014 may include a small portion of **other bituminous coal**.
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.
- **Other bituminous coal** and **sub-bituminous coal** data reported in *from other sources* refer to coal recuperated from coal dumps.

Supply

- Supply-side data are obtained through surveying questionnaires instead of customs data.

- Conventional production of **other bituminous coal** ceased on 31 August 1992.

Transformation

- In 2016, the decrease of **other bituminous coal** inputs to main activity producer electricity plants was due to the permanent closure of Langerlo, Belgium's last coal-fired main activity electricity.
- In 2015, the decrease of **coke oven gas** inputs to autoproducer CHP plants is due to a power plant closure in 2015.
- In 2014 and 2015, **coking coal** inputs to coke ovens decreased due to a coke oven closure in June 2014.
- In 2014, the decrease of **other bituminous coal** inputs to main activity producer electricity plants is due to a power plant closure in 2014.

Consumption

- In the 2018 edition, industrial consumption for the period 2013 through 2015 was revised for **coking coal** and **anthracite**, as more accurate consumption data became available. Data for **coking coal** prior to 2013 may include a small portion of **anthracite**.
- The decrease of **other bituminous coal** and **coke oven coke** in the iron and steel industry in 2002 is due to the closure of several plants.
- The use of **coke oven gas** in chemical and petrochemical activities ceased in 1996.

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 (RES-D), 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. Additional details are given under each fuel.
- Due to the extensive revisions of the Report on Energy Supply and Demand (RES-D), significant statistical differences can be observed for several coal products for the period 2005-2015. This issue

is under investigation and further improvements are expected in future editions.

- In the 2016 and 2017 edition, extensive revisions for the period 2005 to 2015 were received as more data became available due to improvements in data collection.
- In the 2014 and 2015 editions, some revisions to the 2004 to 2006 data were received in addition to some time series and products for 2007 to 2011. The Canadian administration is planning to further refine its reporting.
- From the 2014 edition, the Canadian administration revised time series back to 2005, using additional data from the Annual Industrial Consumption of Energy, the Annual Survey of Secondary Distributors, the Report on Energy Supply and Demand and the Natural Resources Canada Office of Energy Efficiency. Breaks in time series also between appear 1989 and 1990, due to changes in methodology, incorporated in 2002.
- Due to a Canadian confidentiality law, it is not possible for the Canadian administration to submit disaggregated series for all of the **coal** types. Between 2002 and 2006, the IEA Secretariat has estimated some of the missing series. The data for 2007 onwards are given directly as reported, however data may be present in non-representative products, and additionally these ad hoc reclassification methodologies contribute significantly to larger than normal statistical differences across products.
- At this point in time, **oil shale and oil sands** data are not submitted, and this energy source is deemed to enter the supply stream as shale oil (**other hydrocarbons**).

Supply

- Due to confidentiality constraints, from 2014 the breakdown of production by type of coal is estimated by the Canadian Administration, while stock changes and statistical differences are estimated since 2001.

Transformation

- Injection of pulverised coal into blast furnaces (**PCI**) occurs, but is not available for confidentiality reasons. Coals consumed in this manner are reported in the iron and steel industry along with other consumption.
- Before 1978, **lignite** inputs to main activity producer heat plants are included in final consumption.

Starting in 1979, these inputs are included in main activity producer electricity plants.

Consumption

- Since 2001 consumption of anthracite in non-energy use is estimated by the Canadian Administration. Statistical differences include consumption in iron and steel.
- Due to the unavailability of data, non-energy use of **coke oven coke** and **hard coal** is included with final consumption sectors prior to 1978 and 1980, respectively.

Chile

Source

Energía Abierta, Comisión Nacional de Energía, Ministerio de Energía, Santiago.

General notes

- Data are available starting in 1971.
- **Other bituminous coal** data includes **sub-bituminous coal** for all years, if present.
- In the 2017 edition, data for 2014 and 2015 were revised to replace figures previously estimated by the Secretariat.
- From 1990, consumption in paper and pulp includes forestry and consumption in agriculture is included in non-specified industry. In general, a new methodology has been applied for data since 1990, leading to other breaks in series between 1989 and 1990.

Czech Republic

Source

Czech Statistical Office, Prague.

General notes

- Data are available starting in 1971.
- **Other bituminous coal** data includes **sub-bituminous coal** for all years, if present.
- In the 2018 edition, data for the Czech Republic were revised back to 2010 based on administrative data causing breaks in time series between 2009 and 2010. These revisions impacted mainly industrial

consumption for **lignite**, **BKB** and **other recovered gases**.

- In the 2017 edition, data for the Czech Republic were revised back to 2010 based on administrative data causing breaks in time series between 2009 and 2010. Additionally, due to the new survey in households made by Czech Statistical Office, coal consumption in the residential sector has been revised back to 2010 creating breaks in time series between 2009 and 2010.
- Increased production and consumption of **other recovered gases** in 2014 is due to improved tracking of by-products from various transformation processes. Tail gases from the production of carbon black from **coal tar** are reported here, as are off gases from the manufacture and cleaning of syngas from **lignite** for an IGCC plant.
- Coal which had been previously classified as **sub-bituminous coal** until the 2008 edition is now reported under **lignite** for all years.
- Revisions by the Czech administration have resulted in some breaks in series between 2001 and 2002.
- Data for 1990 to 1995 were estimated based on the Czech publication *Energy Economy Year Book*.
- In 1995, town gas production (included in **gas works gas**) ceased.

Supply

- **Other recovered gases** are combustible gases obtained during the production of **gas works gas** and as a result of chemical processes.
- Production *from other sources* of **other bituminous coal** is from coal slurries, and these data are not available for 2017p.
- A portion of **other bituminous coal** reported under *from other sources* for the period 2010-2015 correspond to reclassified **coking coal**.
- Statistical differences for **coking coal** for the period 2010-2015 are partly due to the reclassification of coking coal to **other bituminous coal**.

Consumption

- In the 2015 edition, improved reporting enabled revisions to be made for some primary **coal** consumption flows between 2010 and 2012.
- In the 2014 edition, residential consumption for the period 1990 through 2011 was revised for **other bituminous coal**, **lignite**, **coke oven coke** and **BKB**, as more accurate consumption data became available.

- Due to economic restructuring in consumption in the late 1990s (big state enterprises subdividing and/or privatising and the utilisation of new technologies by businesses), there may be breaks in time series in these sectors.

Denmark

Source

Danish Energy Agency, Copenhagen.

General note

- In the 2004 edition, major revisions were made by the Danish administration for the 1990 to 2001 data, which may cause breaks in time series between 1989 and 1990.

Supply

- A large increase of **steam coal** imports in 2003 was related to a drought in Scandinavia. Thermal power plants were operated more intensively to replace hydro-generated electricity that was consumed in the country. Additionally, more coal-generated electricity was exported to other countries in the region. Significant fluctuations in demand are also evident for other years for similar reasons, including 2006 and 2013, but exist to a lesser extent.
- Declines in stocks of steam coal stem from extensive deployment of renewable generation technologies and policy to further reduce Denmark's utilisation of coal-fired power and implement co-firing with renewable fuels as a part of their *Energy Strategy 2050*.

Estonia

Source

Statistics Estonia, Tallinn.

General notes

- Fuels reported as **coke oven coke** and **gas works gas** are the solid and gaseous by-products of **oil shale** liquefaction. Inputs of **oil shale** to "gas works", "coke ovens" and for coal liquefaction plants, while reported separately, combined, are the inputs for retorting in liquefaction plants.

- In the 2013 edition, data for **oil shale** production for the period 1991 to 1997 were revised to match Estonian GHG National Inventory values. Consumption data remained unchanged.
- Data for Estonia are available starting in 1990. Prior to that, they are included in Former Soviet Union in World Energy Statistics.

Supply

- Indigenous production of **peat products** stopped in 2016.

Finland

Source

Statistics Finland, Helsinki.

General notes

- **Coal tar** used for non-energy purposes or exported is not reported in either production or consumption.
- In the 2015 edition, revisions were received for some consumption flows of **other bituminous coal** and **coke oven coke**, while **other recovered gases** (from ferrochromium manufacture) were reported separately for the first time, with revisions back to 2000. Prior to 2000, off-gases from ferrochromium manufacture are included in **blast furnace gas**, and inputs of **coke oven coke** for ferrochromium manufacture in inputs to blast furnaces instead of non-specified transformation.
- In 2014, a new survey system and a reclassification of the data lead to breaks in the time series between 1999 and 2000 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.
- Prior to 2008, **peat products** are included with **peat** data.
- A large increase of **steam coal** imports in 2003 is related to a drought in Scandinavia. Thermal power plants were operated more intensively to replace hydro-generated electricity that is consumed in the country. Additionally, more coal-generated electricity was exported to other countries in the region.
- The increase of **other bituminous coal** inputs into main activity producer electricity plants from 1993 to 1994 was due to coal replacing imported electricity and hydro power.

- Production of **gas works gas** ceased in April 1994.
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Transformation

- In the 2017 edition, fuel inputs and heat production from **peat** main activity heat plants have been revised from 2000 as a result of new data access for smaller peat heat plant units.
- The significant increases and decreases of **other bituminous coal** inputs into main activity producer electricity plants from year to year are due to coal replacing imported electricity and hydro power.
- Likewise, **peat** production is highly dependent upon favourable weather conditions and the pricing of other fuels. The decrease in **peat** and **other bituminous coal** usage in main activity electricity plants in 2008 was due to record electricity generation from hydro plants. A similar circumstance occurred in 2012.
- The first coking plant started operation in 1987, hence imports of **coking coal** and production of **coke oven coke** and **coke oven gas** started in that year.

France

Source

Ministère de la Transition Écologique et Solidaire, Paris.

General notes

- 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.
- In 2018 edition, the calorific value of coking coal has been revised in agreement with Eurostat and the IEA. The revision was made for the period 1990 to 2016.
- In the 2017 edition, the French Administration undertook comprehensive revisions on sectoral coal consumption back to 2011. Starting this edition, new information became available for **anthracite**,

BKB and **other recovered gases**. Breaks in time series for **coke oven gas** and **blast furnace gas** consumption between 2010 and 2011 are due to a change in the methodology, impacting significantly consumption in the iron and steel sector.

- From 2012, the energy consumption is more detailed due to a more precise national survey.
- Prior to 2011, **other manufactured gases** (oxygen steel furnace gas) are included in **blast furnace gas**.
- For 1989 to 1998, the IEA Secretariat has estimated industry consumption based on *Consommations d'Énergie dans l'Industrie*, SESSI.
- Prior to 1985, consumption of colliery gas is included with the use of **coke oven gas** by autoproducers.
- Hard coal data prior to 1978 may include **sub-bituminous coal**.

Transformation

- In 2016 the company that consumed **blast furnace gas** for electricity and heat generation ceased its activity.

Consumption

- In the 2018 edition, the split of energy consumption between the residential sector and the commerce and public services sector has been revised back to 1990 by the French Administration for **other bituminous coal**, **lignite**, **coke oven coke**, **BKB** and **patent fuel**.
- **Blast furnace gas** and **coke oven gas** used for energy purposes in blast furnaces prior to 2011 are reported under the iron and steel industry.
- Final consumption in industry is estimated by the secretariat from 1986 to 2001 for some products.

Germany

Source

Federal Ministry for Economic Affairs and Energy, Berlin.

General notes

- Data start in 1960. German data include the new federal states of Germany from 1970 onwards.
- Comprehensive official data are only collected for the aggregate of hard coal. Due to the unavailability

of detailed data, the split into **anthracite**, **coking coal** and **other bituminous coal** is partly estimated by the National Administration.

- In the 2018 edition, more detailed information on the breakdown of **other bituminous coal** and **coking coal** imports became available for 2017p. Prior to 2017, the large amount of **coking coal** imports allocated to *Other OECD* corresponds to Netherlands and therefore may not constitute the country of origin. For more details please refer to the country note of Netherlands.
- In the 2014 edition, significant revisions were submitted for all primary coal types, derived products and manufactured gases for the period 2003 to 2011 as previous estimations were updated with more accurate information. Revisions primarily affected consumption, including industry and other sectors; but also supply, statistical differences and weighted calorific values.
- Up to 2002, **other bituminous coal** includes **anthracite**.
- The German administration has changed the methodology for reporting heat over time:
 - Starting in 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.
 - Between 2003 and 2006, autoproducer heat output was provided, but no inputs.
 - Between 2002 and 2003 and between 2003 and 2004, breaks in series occur, due to the implementation of the Energy Statistics Act, collection concerning heat produced in heat plants and district heating plants became more efficient and more complete.
- Between 1998 and 2005, breaks in series may occur for **coke oven gas** and **blast furnace gas**.
- Between 1990 and 1992, breaks in series may occur due to earlier reclassification of several sectors by the German administration; this particularly affects **BKB**, **lignite** and **coke oven coke**.

Transformation

- Breaks in time series between 2014 and 2015 for **coke oven gas** and **blast furnace gas** are due to a reclassification of main activity producers and autoproducers.
- In 1997, **BKB** inputs to gas works plants stopped.

Consumption

- Consumption of **non-renewable municipal waste** and **other solid biofuels** as a reductant occurs in German blast furnaces, but is not currently quantified. Likewise, **coal tar** is a by-product of coke ovens, but not currently reported.

Greece

Source

Ministry for Environment and Energy, Athens.

Hungary

Source

Hungarian Energy and Public Utility Regulatory Authority, Budapest.

General notes

- Data are available starting in 1965.
- From 1992, the production of **sub-bituminous** coal has been included with **lignite** due to the low quality of the coal. For 1990 to 1999, the use of this domestic coal in main activity producer electricity and CHP plants has also been reclassified to **lignite**.

Transformation

- Autoproducer heat and power plants using **coke oven gas** and **blast furnace gas** were reclassified in 1998 as main activity power plants.

Iceland

Source

National Energy Authority, Reykjavik

General notes

- Iceland was unable to provide data for 2017p. These data have been estimated by the IEA Secretariat.
- The industrial classifications used by the Icelandic administration were changed in 1987.

- Hard coal data prior to 1978 may include sub-bituminous coal
- Prior to 1970, final consumption includes inputs and outputs to heat production.

Consumption

- Final consumption increased in 2000 as a new iron and steel plant came on-line.

Ireland

Sources

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

General notes

- Due to confidentiality reasons, inputs of **anthracite**, **other bituminous coal** and **peat briquettes** for patent fuel transformation are reported with residential consumption, while production and consumption of **patent fuel** is not reported.
- Prior to 1990, any imports of **BKB**, were included with imports of **peat products**, as is the case for consumption.

Supply

- The country of origin for imports of **other bituminous coal** is known for 2017p, but unavailable for reasons of confidentiality.
- Rainfall in 2012 led to the lowest **peat** harvest since IEA records began in 1960, requiring large stock drawdown and increased use of **biofuels** for electricity generation. In 2013, production targets were met before the end of the year however production continued in order to further build stocks to alleviate the potential impacts of future weather events.
- Low production of **peat** in 1985 was due to a poor “harvest” due to an unusually wet summer.
- Production data for **peat products** (briquettes) are available from 1975.

Transformation

- A reclassification caused a break in the series for **peat** consumption in the energy industry own use in BKB/peat product plants from 1989 to 1990.
- The production of **gas works gas** ceased in 1987 due to fuel switching to **natural gas**.

- **Other bituminous coal** inputs to main activity producer electricity plants increased from 1986 due to three new generating units at Moneypoint coming on-line.

Israel

Source

Israel Central Bureau of Statistics, Jerusalem.

General notes

- Due to confidentiality constraints, imports of **other bituminous coal** have been estimated by the IEA Secretariat for 2017p.
- Data 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.

Italy

Sources

- Ministry of Economic Development, Rome.
- Terna, Rome.

General notes

- The increase in production of **coke oven gas** in 2012 was the consequence of improvements in scope of reporting. As such, coke oven gas data in prior years should be viewed as under-representing production and consumption, and coke oven efficiencies will likewise appear lower than actual.
- A change in methodology lead to breaks in series for industry and transformation between 2003 and 2004.
- Due to a change in the survey system, breaks in series may occur between 1997 and 1998 for final consumption.
- From 1986 onwards, figures from **lignite** are given using the same methodology as in the *Bilancio Energetico Nazionale*.

Supply

- In the 2018 edition, production of **coke oven coke**, **coke oven gas**, **coal tar** and **other recovered gases** was revised back to 2014 due to new available information. The revisions increased efficiencies of coke ovens and blast furnaces and led to breaks between 2013 and 2014.
- **Other bituminous coal** production ceased in 2016 due to the closure of the one coal mine in 2015.

Transformation

- Breaks in the time series between 2014 and 2015 for **coke oven gas**, **blast furnace gas** and **other recovered gases** are due to a reclassification of main activity producers and autoproducers.
- Prior to 2009, **sub-bituminous coal** used in main activity electricity plants was included with **other bituminous coal**.
- For data since 2001, calorific values for imports of **other bituminous coal** and **sub-bituminous coal** are derived from inputs to main activity electricity generation.

Consumption

- In 1991, all industrial activities were reclassified on the basis of ISTAT/NACE 91. This has implied some transfers of activities which may result in some anomalies between 1991 and earlier years.

Japan

Source

The Institute of Energy Economics Japan, Tokyo.

General notes

- From 1990, data are reported on a fiscal year basis (e.g. April 2016 to March 2017 for 2016).
- **Other bituminous coal** includes **sub-bituminous coal**.
- The net calorific values for **coal** and **coal products** have been recalculated by the IEA Secretariat based upon gross values submitted by Japan.
- In the 2018 edition, imports of **other bituminous coal** and **coking coal** –by partner country - have been estimated by the IEA Secretariat for data from 1990 to 2017, based on customs data and total imports by coal type.

- In the 2018 edition, Japan revised their data back to 1990 based on new methodology in all questionnaires.
- Consumption data for commercial/public services may include consumption in small and medium-size industries. The Japanese administration expects that this shortcoming will be corrected in the near future. .
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Supply

- Statistical differences for **hard coal** include stock changes since 2001. Large positive differences for several years since 2004 are partly due to stock build by final consumers.

Transformation

- The inputs of **coke oven coke** to blast furnaces as well as the final consumption of **coke oven coke** in the iron and steel industry have been estimated by the IEA Secretariat since 1990.
- From 1998, inputs of **coke oven gas**, **blast furnace gas** and **other recovered gases** into auto-producer electricity plants include the amount used to produce electricity with TRT technology (Top pressure Recovery Turbines) which was previously included in industry.
- Inputs of manufactured gases (**coke oven gas**, **blast furnace gas** and **other recovered gases**) to main activity electricity and heat plants are calculated based on outputs and using efficiencies of main activity producers from other fuels. For auto-producers, the specific inputs are known, however the specific electricity production by each gas is estimated based on a pro-rata of the total electricity generation from all gas types.
- Coal injected in blast furnaces (PCI) is classified as **coking coal** in order to be consistent with Japanese trade statistics.

Korea

Source

Korea Energy Economics Institute, Ulsan.

General notes

- Data are available from 1971.

- Imports of **anthracite, other bituminous coal** and **coking coal** from partner countries have been estimated by the IEA Secretariat for 2017p.
- **Coal tar** production data prior to 2007 are not available at this time.
- Data for 2002 onwards have been reported on a different basis, causing breaks in series between 2001 and 2002, 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 time and resources allow.
- Data for **coal** and **coal products** from 1971 to 2001 are based on information provided by the Korean administration, as well as information from the *Yearbook of Energy Statistics 2002*, the *Yearbook of Coal Statistics 2001* (both from the Ministry of Commerce, Industry and Energy), and *Statistics of Electric Power in Korea 2001* (from the Korea Electric Power Corporation). During this period, import data by coal type were estimated by the IEA Secretariat, based on statistics of the exporting countries.
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Transformation

- Statistical differences for **manufactured gases** in 2012 are partly the result of classification issues. The national administration is working to improve reporting of coal-derived gases production and consumption.

Consumption

- Data on **blast furnace gas** used for energy purposes in blast furnaces prior to 2007 are reported in the iron and steel industry.
- Consumption of imported **coke oven coke** starting in 2002 is reported under non-specified industry.
- Consumption of **manufactured gases** in the iron and steel industry starting in 2002 includes the consumption in blast furnaces, oxygen steel furnaces and other iron and steel processing plants.

Latvia

Source

Central Statistical Bureau, Riga

General note

- Data for Latvia are available starting in 1990. Prior to that, they are included in Former Soviet Union in the publication *World Energy Statistics*.

Supply

- The increase of distribution losses for peat in 2003 is due to a fire in one of the warehouses.

Consumption

- The fall in the iron and steel industry in 2014 is due to the bankruptcy of the major company in the market.

Luxembourg

Source

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

General notes

- For the 2011 edition, the Luxembourgian administration revised the time series from 2000 for most **coal** and coal products. Time series for **BKB** consumption were revised from 1990.
- Prior to 1978, some **sub-bituminous coal** may be included in **hard coal**.
- Steel production from blast furnaces ceased at the end of 1997.

Mexico

Source

Ministry of Energy (SENER), Mexico City.

General notes

- Data are available starting in 1971. The Mexican administration submitted data directly by questionnaire for the first time with 1992 data. As a result, some breaks in series may occur between 1991 and 1992. For prior years, data are partly estimated based on the publication *Balance Nacional - Energía*.

- In the 2016 edition, the Mexican administration completed a major work on revisions of the time series back to 1990.
- The Mexican administration is currently undertaking major work on revisions of the time series back to 1990. For several products, only revisions back to 2003 were provided in the 2016 edition. Further revisions to historical data are pending.
- Prior to 2003, **other bituminous coal** is either reported as **coking coal** or **sub-bituminous coal**, depending upon usage, while **anthracite** and indigenously produced **lignite** were included with **sub-bituminous coal**. Calorific values currently in use may not accurately reflect any of this.
- The time series for **blast furnace gas** and inputs of **coke oven coke** to blast furnaces start in 1991.
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Consumption

- Use of pulverised coal injection in blast furnaces occurs in Mexico, but is not currently reported.
- Oxygen steel furnace gas production and production of other **other recovered gases** occur as by-products of heavy industry, but are not reported.

IEA Estimations

- Trade of **coking coal** and **other bituminous coal** were estimated by the IEA secretariat based on partner data for 2017p. Consumption data were also estimated for these coal types.
- For **coking coal**, amounts reported for consumption in main activity electricity generation and associated imports for the years 2003 to 2016 have been reallocated to other bituminous coal by the IEA Secretariat.
- Imports by country of origin for other **bituminous coal** and **coking coal** are based off partner data and splits provided in earlier cycles.
- **Blast furnace gas** production and consumption have been estimated by the IEA for 1990 to 2015 based on inputs of **coke oven coke** to blast furnaces in a ratio provided by Mexico, as are the proportions of **blast furnace gas** consumed in auto-producer electricity production, energy support for blast furnaces and consumption elsewhere in the iron and steel industry.
- **Coke oven coke** production was estimated by the IEA for some years between 1999 and 2012 based

off historical and commodities data, as were inputs of **coking coal** to coke ovens between 1990 and 2012.

- Current Mexican methodology estimates production of **coal tar** and **coke oven gas** using **coke oven coke** production as a guide. This was extended for 1990 to 2001 and for years where **coke oven coke** production was estimated by the IEA.

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 CO₂ 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. More details are available here: <http://www.cbs.nl>
- 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.
- 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 the Central Bureau of Statistics.
- International trade into and through the hub ports of Amsterdam and Rotterdam is complicated by the capacity to purchase coal directly at these points. The majority of coal passing through these ports is intended for consumption in European countries other than the Netherlands, which is neither the country of origin or destination, therefore these data have been removed where possible.

Supply

- From 2013 onwards, trade reported by the Central Bureau of Statistics includes **coal** in transit, to align more closely with gross trade data.
- In the 2013 edition, non-specified exports for 2011 were estimated by the Central Bureau of Statistics due to a lack of information from key market players.
- For data prior to 2011, stock changes for primary coal types were estimated by the Dutch administration based on trade and consumption data.
- For 1984 to 1986, production *from other sources* of other bituminous coal represents a stock of “smalls” washed for re-use.

Transformation

- At the end of 2015 three low-efficiency plants running on bituminous coal input closed down. These closures were part of the so-called Agreement on Energy for Sustainable Growth in The Netherlands (<https://www.energieakkoordser.nl/doen/engels.aspx>) agreed upon by the Social and Economic Council of the Netherlands (SER) and more than forty representative organisations and stakeholders.

Consumption

- Prior to 1989, non-energy use is included with industry consumption.

New Zealand

Source

Ministry of Business, Innovation and Employment, Wellington.

General notes

- Prior to 1994, data refer to fiscal year (April 1993 to March 1994 for 1993). From 1994, data refer to calendar year.
- Peat, although produced in New Zealand, is not used as a fuel, and is used for agricultural purposes only.
- In the 2014 edition, the definition of **hard coal** was aligned with the International Recommendations for Energy Statistics. Prior to this, **hard coal** for New Zealand from 1960 to 1977 had contained **sub-bituminous coal**. The portion of **sub-bituminous coal** production and residential consumption has

been estimated by the IEA Secretariat for this period and moved to **brown coal**.

- In the 2011 edition, the New Zealand administration has revised some of the **coal**, natural gas, oil, renewable and electricity time series back to 1990.

Supply

- Breakdown of exports of **coking coal** by country of destination for 2017p has been estimated by the IEA Secretariat, based on partner data.
- The decrease of **other bituminous coal** production in 2015 is due to a temporary shutdown in one of the coal mines at the beginning of 2015 and another one at the end of 2015.
- A detailed breakdown of exports of **coking coal** by country of destination between 2001 and 2011 is estimated by the IEA, based on secondary sources and partner data.

Transformation

- **Sub-bituminous coal** inputs into coke ovens refers to coal that is merged with iron sands and limestone to form the inputs for the multi-hearth-furnaces, kilns and melters that produce direct reduced iron (Glenbrook Steel Site), with off-gases and supplemental and natural gas driving CHP plants. This method, while not the typical iron and steel process, produces similar by-products. The **sub-bituminous coal** inputs are reported under coke oven coke transformation and the resulting off-gases are reported as production of **coke oven gas** and **blast furnace gas**.
- **Blast furnace gas** production and distribution losses prior to 1998 are IEA Secretariat estimates. Portions of this gas will have been used for energy purposes in the multi-hearth furnaces or elsewhere in the plant. Some transformation efficiencies will appear higher than normal due to non-reporting of certain inputs, including some confidential data.

Consumption

- In final consumption, some industry data are reported in non-specified industry for confidentiality reasons.
- In 2014, the increase in consumption of **sub-bituminous coal** in mines included the combustion of some unsold coal fines for safety reasons.
- Prior to 2010, the construction sector is included with commercial/public services.

- Prior to 2009, mining and quarrying is included in agriculture.

Norway

Source

Statistics Norway, Oslo.

General notes

- **Other bituminous coal** includes **lignite**.
- In the 2018 edition, data for Norway were revised 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”.
- Production of **coking coal**, **coke oven coke** and **coke oven gas** ceased in the late 1980s.

Supply

- The decrease of **other bituminous coal** production in 2015 is due to a temporary shutdown in one of the coal mines.
- The decrease of **other bituminous coal** production in 2005 is due to a fire in one of the coal mines; this entailed a break in the production for a large part of the year.

Poland

Source

Central Statistical Office, Warsaw.

General notes

- Other recovered gases which appear in the balances as output from blast furnaces include off-gases from zinc and copper smelting, ceramics kilns and steel production.
- Prior to 2016 data, **other bituminous coal** includes **anthracite**.

Transformation

- In the past two editions, the Central Statistical Office has revised their methodology which accounts for sold heat produced from autoproducer heat plants using **coking coal** and **other bituminous coal**, resulting in lower, but more accurate data for 2007 onwards.

Consumption

- Consumption in agriculture/forestry for BKB, and own use in power stations for lignite are residual flows, so may contain statistical differences and other consumption not reported elsewhere. As a consequence, changes in these time series may not be wholly representative of the activities shown.
- Prior to 2010, own use in coal mines included workers' take home allowance, which should be included in residential consumption.

Portugal

Source

Direcção-Geral de Energia e Geologia, Lisbon.

General note

- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Consumption

- Between 1997 and 2001 **gas works gas** was gradually replaced by **natural gas** in the commercial/public service and residential sectors.
- The production of pig iron ceased in the first quarter of 2001, leading to decreases in supply and consumption of **coking coal**, **coke oven coke**, **coke oven gas** and **blast furnace gas** in 2001.

Slovak Republic

Source

Statistical Office of the Slovak Republic, Bratislava.

General notes

- Data are available starting in 1971.
- 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 time series between 1992 and 1993, and between 2000 and 2001.

- Data for **anthracite**, **patent fuel** and **coal tar** all begin in 2005. Prior to this, **anthracite** was included with other hard coals, and **patent fuel** and **coal tar** data were not reported.
- Since 2005, data for **coal tar** and **patent fuel** are based solely on trade receipts. Production of **coal tar** which is consumed within the national boundary is not reported. Consumption of **patent fuel** adopts the residual methodology for statistical differences described above.
- Breaks in time series may exist between 2000 and 2001 as the result of the implementation of a new survey system.
- Commercial/public services also includes statistical differences for **other bituminous coal**, **lignite**, **patent fuel** and **coke oven coke** from 1980 onwards and **BKB** from 1989 onwards.

Slovenia

Source

Statistical Office of the Republic of Slovenia, Ljubljana.

General notes

- Data for Slovenia are available starting in 1990. Prior to that, they are included in *Energy Statistics of Non-OECD Countries* in Former Yugoslavia.
- A new energy data collection system was implemented in January 2001, causing some breaks in time series between 1999 and 2000.

Transformation

- In 2015, a main activity electricity plant burning **lignite** ceased its operations.

Spain

Source

Ministerio de Industria, Energía e Turismo, Madrid.

General note

- The calorific values for **sub-bituminous coal** are correct on an as received basis, and comply with

definitions of **sub-bituminous coal** on a moist, but ash free basis.

Supply

- **Lignite** mining ceased in 2008.

Transformation

- In the 2018 edition, a reclassification of plants from autoproducer to main activity has led to breaks between 2015 and 2016.

Sweden

Sources

- Statistics Sweden, Örebro.
- Swedish Energy Agency, Energimyndigheten, Eskilstuna.

General notes

- **Peat products** data may be reported under the category of **peat**, particularly for imports.
- Autoproducer inputs to waste heat production that are sold are reported in the respective final consumption sectors and not in transformation.
- Some mixture of **LNG** with air to form a lower calorie product is reported as **gas works gas** production replacing traditional gas works gas manufacture.

Supply

- **Other bituminous coal** production until 1992 is coal recovered during the quarrying of clay.

Switzerland

Sources

- Swiss Federal Office of Energy (SFOE), Ittigen.
- Carbur, Swiss Organisation for Stockholding of Oil Products, Zurich.

General notes

- From 1999, data on consumption result from a new survey and are not comparable with data for previous years.
- Calorific values for **anthracite**, **other bituminous coal** and **coke oven coke** are taken from a

common default figure. **Lignite** calorific values are also default data, but are based on dried **lignite** fines which have a higher calorific value.

Consumption

- From 1985, industrial consumption of **gas works gas** is reported in non-specified industry to prevent the disclosure of commercially confidential data.
- Allocation of consumption data between certain coal types is estimated by the Swiss administration.

Turkey

Sources

- Ministry of Energy and Natural Resources (Enerji ve Tabii Kaynaklar Bakanlığı), Ankara.
- Petrol İşleri Genel Müdürlüğü, Ankara.

General notes

- In the 2018 edition, revisions were conducted by the Turkish administration back to 1990 impacting the transformation and industrial sector. The revisions in the transformation sector were the result of new data submitted by the Turkish Electricity Transmission Company (TECT).
- In the 2017 edition, historical revisions on **coal tar** data were conducted by the Turkish Administration due to new available information.
- Data from 2012 onwards utilised the latest census data, causing breaks in time series between 2011 and 2012.
- Data from 2008 are provided from the results of an improved questionnaire. Significant changes occur in consumption patterns within the iron and steel industry, coal mining as well as across industry, residential and commercial/public services for **other bituminous coal**.
- Calorific values for fuels consumed in electricity, CHP and heat plants are obtained from data submitted to the Ministry of Energy and Natural Resources (MENR) by the Turkish Electricity Transmission Company, and these values may differ significantly from production and import values provided by MENR, causing imbalances for some years.
- Production of **gas works gas** declined in 1989 due to plant closures; the last plant closed in 1994. Use of **gas coke** and **gas works gas** ceased in 1994.
- Due to government regulations in industry and residential, in particular, there has been a shift

from the use of domestically produced **coal** to imported **coal** and **natural gas**.

Transformation

- In the middle of 2014, most autoproducer plants in Turkey were reclassified as main activity producer due to a change in the legislation. Amongst other things, this brought the reporting of unsold heat and prorated inputs, in line with IEA methodology.

Consumption

- In the 2018 edition, revisions on industrial coal consumption were conducted by the Turkish administration back to 2010 due to new available information.
- Privatisation of state owned coke ovens in recent years results in incomplete information on **coke oven gas** distribution.
- In 2017 edition, consumption of **sub-bituminous coal** in construction has been reclassified by the Turkish Administration as consumption in the non-metallic minerals industry.
- In 2015, a new survey was introduced by the Turkish Administration to collect more detailed industrial consumption data, resulting in breaks in time series between 2014 and 2015.

United Kingdom

Source

Department for Business, Energy & Industrial Strategy, London.

General notes

- Oxygen steel furnace gas data are reported with blast furnace **gas** rather than as **other recovered gases**.
- In the 2017 edition, calorific values of **other bituminous coal** were revised for the period 2002-2015 due to a change in the methodology, impacting all flows.
- Prior to 1994, the consumption of substitute natural gas is included with natural gas while its production is included with gas works gas.

Supply

- Underground production of **other bituminous coal** in 2016 decreased due to the closure of Hatfield, Thoresby and Kellingly mines.

Transformation

- The consumption of **solid biofuels** has increased in 2015, as the largest power station in the UK converted a further unit from **coal** to **biomass** midyear, and the previously converted unit had a full year of operation in 2015 rather than just the last few months of 2014.
- The market decline in use of **other bituminous coal** from 2013 onwards for autoproducer electricity generation was due to a plant being sold to a dedicated main-activity electricity producer.

Consumption

- Consumption data shown for the commercial/public services includes consumption of some of *other non-specified*.

United States

Source

Energy Information Administration, Washington, DC.

General notes

- Since the Energy Information administration (EIA) and the US Department of Commerce do not collect separate data on **patent fuel** exports by country, total exports data of **patent fuel** are included in the exports of **other bituminous coal**.

- End-use energy consumption data for the United States present a break in series with historical data due to a change in methodology in 2014. The break in series occurs between 2011 and 2012 for oil; and between 2001 and 2002 for electricity and natural gas. The new methodology is based on the last historical year of the most recent Annual Energy Outlook (AEO) publication. Changes occur primarily in reported end-use energy consumption in the industrial sector and its subsectors, including the non-manufacturing industries of mining, construction and agriculture. Historical revisions are pending. Due to other changes in reporting methodologies, there are numerous breaks in series for the US data, particularly in 1992, 1999, 2001, 2002 and 2013. Care should be taken when evaluating consumption by sector since inputs of fuel to autoproducers are included in final consumption for some years.
- **Coal tar** as a by-product of coke ovens is not currently reported.
- In 2002, the United States reported “synfuel” production as **patent fuel** for the first time. Prior to 2002, the consumption of this fuel was reported with **other bituminous coal**. Production ceased in 2007 for economic reasons.
- **Hard coal** data prior to 1978 may include **sub-bituminous coal**.

Supply

Other sources coal production represents coal production that does not have a Mine Health and Safety Administration (MSHA) identifier.

7. UNITS AND CONVERSIONS

General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
TJ	1	238.8	2.388×10^{-5}	947.8	0.2778
Gcal	4.1868×10^{-3}	1	10^{-7}	3.968	1.163×10^{-3}
Mtoe	4.1868×10^4	10^7	1	3.968×10^7	11630
MBtu	1.0551×10^{-3}	0.252	2.52×10^{-8}	1	2.931×10^{-4}
GWh	3.6	860	8.6×10^{-5}	3412	1

Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	0.001	9.84×10^{-4}	1.102×10^{-3}	2.2046
tonne (t)	1000	1	0.984	1.1023	2204.6
long ton (lt)	1016	1.016	1	1.120	2240
short ton (st)	907.2	0.9072	0.893	1	2000
pound (lb)	0.454	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}	1

Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft ³	l	m ³
From:	multiply by:					
U.S. gallon (gal)	1	0.8327	0.02381	0.1337	3.785	0.0038
U.K. gallon (gal)	1.201	1	0.02859	0.1605	4.546	0.0045
Barrel (bbl)	42.0	34.97	1	5.615	159.0	0.159
Cubic foot (ft ³)	7.48	6.229	0.1781	1	28.3	0.0283
Litre (l)	0.2642	0.220	0.0063	0.0353	1	0.001
Cubic metre (m ³)	264.2	220.0	6.289	35.3147	1000.0	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 (μ)
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)

The conversion factors shown above are available online with greater precision at: www.iea.org/statistics/resources/unitconverter/.

2016 COUNTRY SPECIFIC AVERAGE NET CALORIFIC VALUES [kJ/kg]

	Anthracite	Coking coal	Other bituminous coal	Sub-bituminous coal	Lignite / Oil shale and oil sands ¹	Peat	Patent fuels	Coke oven coke	Coal tar	BKB / Peat products ²
Australia	26 700	28 500	25 700	18 478	9 800	-	-	27 000	35 714	21 951
Austria	26 700	28 661	27 559	22 054	9 900	-	31 000	28 876	37 030	19 800
Belgium	28 425	29 250	26 261	-	-	-	30 480	29 308	37 654	20 682
Canada	26 381	25 002	27 302	17 897	14 019	-	-	27 457	-	-
Chile	-	28 638	22 121	-	-	-	-	30 145	38 841	-
Czech Republic	28 064	28 598	26 254	-	12 625	-	-	28 494	35 681	21 453
Denmark	-	-	23 318	-	-	-	-	29 300	-	-
Estonia	-	-	27 150	-	8 346 ¹	11 426	-	28 500	-	-
Finland	27 550	29 300	25 478	-	-	9 950	-	29 300	37 000	-
France	32 322	29 500	26 000	-	17 000	-	32 000	28 000	37 883	16 920
Germany	29 700	29 000	27 051	-	9 004	-	31 400	28 650	-	21 473
Greece	-	-	25 542	-	5 096	-	-	-	-	-
Hungary	-	31 711	26 781	18 920	6 717	-	-	29 880	38 000	19 005
Iceland	28 050	-	-	-	-	-	-	26 670	-	-
Ireland	30 117	-	24 848	-	-	8 922	-	-	-	19 816
	-	-	-	-	-	-	-	-	-	18 548 ²
Israel	-	-	24 875	-	3 970	-	-	-	-	-
Italy	-	30 984	24 985	18 832	10 468	-	-	28 800	35 950	-
Japan	27 246	28 076	24 386	-	-	-	-	29 181	35 393	-
Korea	20 135	28 219	24 660	21 353	-	-	18 631	28 889	37 000	-
Latvia	27 433	-	23 720	-	-	10 050	-	-	-	-
Luxembourg	26 700	-	24 400	-	-	-	-	28 500	-	22 200
Mexico	26 685	29 299	25 875	20 134	11 346	-	-	28 383	37 970	18 000
Netherlands	29 259	28 627	24 969	-	19 999	-	-	28 498	41 876	20 000
New Zealand	-	30 282	25 967	20 299	14 508	-	-	29 500	-	-
Norway	-	-	28 100	-	-	-	-	28 500	-	-
Poland	25 043	29 500	23 039	-	8 116	-	23 188	28 000	37 720	17 503
Portugal	27 875	-	24 743	-	-	-	-	30 427	-	-
Slovak Republic	26 263	29 810	26 336	-	10 993	-	28 000	28 102	33 490	17 245
Slovenia	-	-	27 256	19 376	11 767	-	-	29 985	-	-
Spain	24 078	29 200	23 015	13 520	-	-	-	26 795	38 519	-
Sweden	-	30 000	27 400	-	-	12 552	-	28 080	-	-
Switzerland	25 500	-	25 500	-	23 600	-	-	25 500	-	-
Turkey	-	29 750	26 035	20 908	8 353	-	-	27 000	37 681	-
United Kingdom	-	30 250	25 368	-	-	-	28 310	29 800	35 016	-
United States	29 349	28 350	26 614	19 047	13 945	-	-	28 865	-	-

Source: IEA/OECD Coal Statistics

Data are weighted averages of supply side statistics, on a net as received (NAR) basis.

Coal classification

The definitions of products presented are based on those of *the Joint IEA/Eurostat/UNECE annual energy questionnaires*, and on the United Nations *International Recommendations on Energy Statistics*.

The IEA collects statistics on coal production, trade and consumption according to a technically precise classification based on the quality of coal as follows:

- Anthracite is a high rank, non-agglomerating coal with a gross calorific value not less than 24 000 kJ/kg (5 732 kcal/kg) on an ash-free but moist basis and with a mean random reflectance of vitrinite of at least 2.0;
- Coking coal is hard coal suitable for the production of coke that can support a blast furnace charge;
- Other bituminous coal is an agglomerating coal with a gross calorific value not less than 24 000 kJ/kg (5 732 kcal/kg) on an ash-free but moist basis and with a mean random reflectance of vitrinite of at least 0.6;
- Sub-bituminous coal is a non-agglomerating coal with a gross calorific value between 24 000 kJ/kg (5 732 kcal/kg) and 20 000 kJ/kg (4 777 kcal/kg) and with a mean random reflectance of vitrinite of less than 0.6; and
- Lignite is a non-agglomerating coal with a gross calorific value less than 20 000 kJ/kg (4 777 kcal/kg).

However, when publishing these data, the IEA sometimes adopts a simplified classification of hard coal, steam coal and brown coal. The correspondence is as follows:

- Total coal is the sum of hard coal and brown coal;
- Hard coal is the sum of coking coal, anthracite and other bituminous coal for all countries, plus, prior to 1978, may include sub-bituminous coal for Australia, Belgium, Chile, Finland, France, Iceland, Japan, Korea, Mexico, New Zealand, Portugal and the United States;
- Brown coal contains lignite and sub-bituminous coal for all countries barring the exceptions prior to 1978 above; and
- Steam coal consists of anthracite, other bituminous coal and sub-bituminous coal.

The term *total coal* also refers to the sum of hard coal and brown coal after conversion to a common energy unit (tonne of coal equivalent - tce). The conversion is done by multiplying the calorific value of the coal in question (the conversion factors are submitted by national administrations to the IEA Secretariat each year) by the total volume of hard and brown coal used, measured in physical units, i.e. in tonnes. One tce has an energy content of 29.3 Gigajoules (GJ) or 7 000 kcal and corresponds to 0.7 tonnes of oil equivalent (toe).

Defining coal consumption

Energy statistics are compiled and presented to take account of the complexity in the way fuels are used and to avoid double counting. Misunderstandings can arise when statistics on coal consumption are used because of the particular terminology used by energy statisticians.

Coal is used in four possible ways:

- As a *primary input* to produce electricity or a secondary/tertiary fuel that is used elsewhere or sold - this is referred to as use in *transformation processes*;
e.g. coking coal used to *produce* coke in a coke oven or steam coal used to *produce* electricity.
- As a *fuel* used to *support* a transformation process - this is referred to as *energy industry own use*;
e.g. coke oven gas used to heat the coke oven or steam coal used to operate the power plant.
- As a *fuel* consumed in manufacturing, industry, mining and construction, in transport, in agriculture, in commercial and public services and in households - this is referred to as use in the *final consumption* sectors;
e.g. steam coal used to produce heat in cement kilns, steam coal used to produce industrial process steam.
- As a *raw material* - this is referred to as non-energy use;
e.g. coal tar used as a chemical feedstock.

In the wider community, the term “consumption” is commonly understood to include all of the above end-uses. In Parts IV and V of this book, the term “consumption” refers only to use in the *final consumption* sectors (i.e. in the third item above). In Parts II and III, “consumption”, unless otherwise specified, refers to Total Primary Energy Supply as defined in the section in *Flows: energy balance* in Part I Definitions.

8. ABBREVIATIONS

Units and technical abbreviations

t	: metric ton = tonne = 1000 kg
kt	: thousand tonnes
Mt	: million tonnes
toe	: tonne of oil equivalent
Mtoe	: million tonnes of oil equivalent
tce	: tonne of coal equivalent (= 0.7 toe)
Mtce	: million tonnes of coal equivalent
kcal	: kilocalories (10^3 calories)
MBtu	: million British thermal units
GWh	: million kilowatt hours
USD	: US dollars
GDP	: Gross Domestic Product
GCV	: gross calorific value
PCI	: coals for pulverised injection
TPES	: Total primary energy supply
EU	: European Union
FSU	: Former Union of Soviet Socialist Republics/Soviet Union
OECD	: Organisation for Economic Co-operation and Development
UN	: United Nations
UNECE	: United Nations Economic Commission for Europe
0 or 0.0	: negligible
c	: confidential
e	: estimated
..	: not available
-	: nil
x	: not applicable