

Database documentation

NATURAL GAS INFORMATION
2021 EDITION

International
Energy Agency

iea

INTERNATIONAL ENERGY AGENCY

The IEA examines the full spectrum of energy issues including oil, gas and coal supply and demand, renewable energy technologies, electricity markets, energy efficiency, access to energy, demand side management and much more. Through its work, the IEA advocates policies that will enhance the reliability, affordability and sustainability of energy in its 30 member countries, 8 association countries and beyond.

Please note that this publication is subject to specific restrictions that limit its use and distribution. The terms and conditions are available online at www.iea.org/t&c/

This publication and any map included herein are 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.

Source: IEA. All rights reserved.
International Energy Agency
Website: www.iea.org

IEA member countries:

Australia
Austria
Belgium
Canada
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Japan
Korea
Luxembourg
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States

The European Commission also participates in the work of the IEA

IEA association countries:

Brazil
China
India
Indonesia
Morocco
Singapore
South Africa
Thailand



This document provides support information for the IEA *Annual Natural Gas Statistics* database. This document can be found online at: http://wds.iea.org/wds/pdf/gas_documentation.pdf

Please address your inquiries to GASAO@iea.org.

Please note that all IEA data are subject to the Terms and Conditions which can be found on the IEA's website at: <https://www.iea.org/terms>

TABLE OF CONTENTS

1. CHANGES FROM LAST EDITION	4
2. DATABASE STRUCTURE	6
3. FLOW DEFINITIONS	7
4. PRODUCT DEFINITIONS	14
5. GEOGRAPHICAL COVERAGE	15
6. COUNTRY NOTES AND SOURCES	29
7. UNITS AND CONVERSIONS	48
8. ABBREVIATIONS	52

1. CHANGES FROM LAST EDITION

In the current release the files for OECD countries are updated with complete information for 2019, and with supply data for 2020.

A number of OECD countries have provisional sectoral demand data available for 2020. These data were collected for the first time during the 2019/2020 data cycle. There may be breaks in the time series.

The OECD-focused IVT files now include 14 European non-OECD countries submitting the joint annual natural gas questionnaire to the IEA. These countries are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus¹, Republic of North Macedonia, Georgia, Kosovo, Malta, Republic of Moldova, Montenegro, Romania, Serbia and Ukraine. Please refer to the IEA World Energy Statistics online documentation for their country notes and data sources, which can be found at http://wds.iea.org/wds/pdf/worldbes_documentation.pdf.

In this online data service the default data display is figures rounded to zero decimal places. However, from 2017 data onwards, further detail, up to the three decimal place level, is available where reported by the national administrations, upon selecting View > Decimals in the Menu bar. Please note that the constituent data summed to produce regional and flow aggregates may be reported at differing levels of precision.

Therefore, care should be taken when using data for aggregated flows beyond the level of 0 decimal places. Data up to and including 2016 has been rounded to 0 decimal places. Note: Periods (.) are used to separate decimal places.

Geographical coverage

Colombia became an OECD Member in April 2020. Accordingly, starting with this edition, Colombia appears in the list of OECD Members for data starting in 1971.

Costa Rica joined the OECD in May 2021. However, data for Costa Rica are not included in the OECD aggregates for this edition.

Chile, Colombia, Israel, and Lithuania are currently seeking accession to full IEA membership (Accession country), therefore they are included in the IEA and Accession/Association countries aggregate (IEA family) for data starting in 1971 (Chile, Colombia, and Israel) / 1990 (Lithuania).

The IEA continues to expand the coverage of its statistics reports and encourages more countries to collaborate on data exchange. As detailed data have become consistently available for Niger before 2000 and for Guyana for the

1. Please refer to the section on Geographical coverage.

entire time series, the associated time series are now shown explicitly in the main list of countries for all years, and have been removed from the Other Africa and Other non-OECD Americas regions, respectively.

Old longname	New longname	Shortname	Old shortname (if changed)
	Albania	ALBANIA	
	Bosnia and Herzegovina	BOSNIAHERZ	
	Bulgaria	BULGARIA	
	Colombia	COLOMBIA	
	Croatia	CROATIA	
	Cyprus	CYPRUS	
	Georgia	GEORGIA	
	Kosovo	KOSOVO	
	Malta	MALTA	
	Republic of Moldova	MOLDOVA	
	Montenegro	MONTENEGRO	
	Republic of North Macedonia	NORTHMACED	
	Romania	ROMANIA	
	Serbia	SERBIA	
	Ukraine	UKRAINE	

2. DATABASE STRUCTURE

The Natural Gas Information database contains five files with the following annual data.

OECD files (Last updated in July 2021)

- Countries: 36 countries and 5 regional aggregates (see section Geographical coverage)
- Years: 1960-2020 (unless otherwise specified, see section Geographical coverage)

NGALBALCON.IVT **OECD Supply and Consumption by Sector**

Natural gas statistics on production, total imports and exports, stock changes, stock levels, gross inland consumption and consumption in the transformation sector, energy sector and end-use. (78 flows)
(Mcm; TJ)

NGIMPORT.IVT **OECD Imports**

Breakdown of imports by country of origin (165 different origins). Data are shown for total trade, pipeline and LNG.
(Mcm; TJ)

NGEXPORT.IVT **OECD Exports**

Breakdown of exports by country of destination (165 different destinations). Data are shown for total trade, pipeline and LNG.
(Mcm; TJ)

WORLD files (Last updated in July 2021)

- Countries: 143 countries and 24 regional aggregates (see section Geographical coverage)
- Years: 1960-2019 for OECD countries, 1971-2018 for non-OECD countries and 2020 preliminary energy supply data for every country, unless otherwise specified (see section Geographical coverage)

NGWBAL.IVT **World Supply** (Last updated in July 2021)

Natural gas statistics on production, total imports and exports, and gross inland consumption.
(Mcm; TJ)

NGWIMP.IVT **World Imports** (Last updated in July 2021)

Breakdown of imports by country of origin (over 80 different origins). Data are shown for total trade, pipeline and LNG.
(Mcm; TJ)

3. FLOW DEFINITIONS

Supply		
Flow	Short name	Definition
Indigenous Production	INDPROD	All dry marketable production within national boundaries, including offshore production. Production is measured after purification and extraction of NGLs and sulphur. Extraction losses and quantities reinjected, vented or flared, are not included. Production includes quantities used within the natural gas industry; in gas extraction, pipeline systems and processing plants.
Associated Gas	AGASPRD	Natural gas produced in association with crude oil.
Non-Associated Gas	NAGASPRD	Natural gas originating from fields producing hydrocarbons only in gaseous form.
Colliery Gas	COLLIERY	Methane produced at coal mines, piped to the surface and consumed at collieries or transmitted by pipeline to consumers.
From Other Sources	OSOURCES	Supplies of fuel of which production is covered in other fuel energy balances but which are blended with natural gas, and consumed as a blend. The origin of the fuel could be oil, coal and renewables.
From Other Sources - Oil	OSOIL	From Other Sources of which from Oil (See “From Other Sources”).
From Other Sources - Coal	OSCOAL	From Other Sources of which from Coal (See “From Other Sources”).
From Other Sources - Renewables	OSRENEW	From Other Sources of which from Renewables (See “From Other Sources”).
Imports (Balance)	TOTIMPSB	Amounts are regarded as imported when they have crossed the political boundaries of the country, whether customs clearance has taken place or not. Imports of liquefied natural gas should cover only the dry marketable equivalent, including amounts used as own consumption in the regasification process. Imports by country of origin shown in NGIMPORT and NGWIMP concern imports of gas by ultimate origin for use in the country.

Supply		
Flow	Short name	Definition
Exports (Balance)	TOTEXPSB	Amounts are regarded as exported when they have crossed the political boundaries of the country, whether customs clearance has taken place or not. Exports by country of destination shown in NGEXPORT concern exports of domestically produced gas by ultimate destination.
International Marine Bunkers	BUNKERS	Quantities of LNG or natural gas used by 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.
Stock Changes	STCHANAT	This is the change in stock level of recoverable gas held on national territory; the difference between opening stock level at the first day of the year and closing stock level at the last day of the year of stocks held on national territory. A stock build is shown as a negative number and a stock draw as a positive number.
Inland Consumption (Calculated)	INDCONC	Inland consumption calculated is defined as: + Indigenous Production + From Other Sources + Imports - Exports + Stock Changes
Statistical Difference	STATDIFF	This is the difference between calculated and observed Inland Consumption. National administrations sometimes obtain the data components of domestic availability from a variety of sources. Owing to differences in concepts, coverage, timing and definitions, observed and calculated consumption are often not identical.
Inland Consumption (Observed)	INDCONO	Represents deliveries of marketable gas to the inland market, including gas used by the gas industry for heating and operation of their equipment (i.e. consumption in gas extraction, in the pipeline system and in processing plants) and including losses in distribution.
Opening Stock Level (National territory)	OSNATTER	Refers to opening stock levels held on national territory, at the first day of the year (including government controlled stocks).
Closing Stock Level (National territory)	CSNATTER	Refers to closing stock levels held on national territory, at the last day of the year (including government controlled stocks).
Memo: Opening Stock Level (Held abroad)	OSABR	Refers to opening stock levels held abroad, at the first day of the year (including government controlled stocks). These amounts are not included in the stock changes.
Memo: Closing Stock Level (Held abroad)	CSABR	Refers to closing stock levels held abroad, at the last day of the year (including government controlled stocks). These amounts are not included in the stock changes.

Supply		
Flow	Short name	Definition
Memo: Gas Vented	VENTED	The volume of gas released into the air on the production site or at the gas processing plant.
Memo: Gas Flared	FLARED	The volume of gas burned in flares on the production site or at the gas processing plant.
Memo: Cushion Gas Closing Stock Level	CUSHCSNAT	Total volume of gas required as a permanent inventory to maintain adequate underground storage reservoir pressures and deliverability rates throughout the output cycle. These amounts are not included in the stock levels or stock changes.

Transformation processes		
Flow	Short name	Definition
Transformation - Total	TOTTRANF	Comprises fuel inputs to both public and private electricity, combined heat and power plants and heat plants. An autoproducer is an industrial establishment which, in addition to its main activities, generates electricity, wholly or partly for its own use. It includes railway's own production of electricity. Heat plants and combined heat and power plants only cover fuel inputs for that part of the heat which is sold to a third party. Transformation sector also comprises fuels used as feedstocks in gas works, coke ovens and blast furnaces.
Main Activity Producer Electricity Plants	MAINELEC	Includes inputs of gas for the production of electricity in main activity producer electricity plants, whose primary purpose is to produce, transmit or distribute electricity.
Autoproducer Electricity Plants	AUTOELEC	Includes inputs of gas for the production of electricity by an enterprise which, in addition to its main activities, generates electricity wholly or partly for its own use, e.g. industrial establishments, railways, refineries, etc.
Main Activity Producer Combined Heat and Power Plants	MAINCHP	Includes inputs of gas to main activity producer combined heat and power plants which generate electricity and useful heat in a single installation.
Autoproducer Combined Heat and Power Plants	AUTOCHP	Includes inputs of gas to autoproducer combined heat and power plants which generate electricity and useful heat in a single installation. All fuel inputs for electricity production are taken into account, while for heat production, only that part of inputs to heat which is sold to third parties (e.g. to a network) is shown.
Main Activity Producer Heat Plants	MAINHEAT	Includes inputs of gas to main activity producer plants which are designed to produce heat only.
Autoproducer Heat Plants	AUTOHEAT	Includes inputs of gas to autoproducer plants which are designed to produce heat only. Data for autoproducer heat plants represent inputs of fuel to plants which sell heat to a third party under the provisions of a contract.

Transformation processes		
Flow	Short name	Definition
Gas Works (Transformation)	TGASWKS	Natural gas used in gas works and gasification plants. Gas used for heating and operation of equipment is not included here but reported in the Energy sector.
Coke Ovens (Transformation)	TCOKEOVS	Natural gas used in coke ovens. Gas used for heating and operation of equipment is not included here but reported in the Energy sector.
Blast Furnaces (Transformation)	TBLASTFUR	Natural gas used in blast furnaces.
Gas to Liquids (Transformation)	TGTL	Natural gas used as feedstock for the conversion to liquids.
Of which GTL technology (Transformation)	TGTLTECH	Natural gas used specifically in a process featuring reaction of methane with oxygen or steam to produce syngas followed by synthesis of liquid products from the syngas using Fischer-Tropsch catalytic synthesis.
Not Elsewhere Specified (Transformation)	TNONSPEC	Natural gas used in transformation activities not included elsewhere. It usually includes natural gas used to produce hydrogen for hydrocracking or hydrodesulphurization in oil refineries.

Energy industry own use and Losses		
Flow	Short name	Definition
Energy Industry Own Use - Total	TOTENGY	Natural gas consumed by energy industry to support the extraction (mining, oil and gas production) or transformation activity. ISIC Divisions 05, 06, 19, 35, Group 091, Class 0892 and 0721 (NACE Divisions 05, 06, 19, 35, Group 09.1, Class 08.92 and 07.21). Quantities of natural gas transformed into another energy form are reported under the Transformation sector. Natural gas consumed in support of the operation of oil and gas pipelines is reported in the Transport sector.
Coal Mines	EMINES	Natural gas consumed to support the extraction and preparation of coal within the coal mining industry.
Oil and Gas Extraction	EOILGASEX	Natural gas consumed in the oil and gas extraction process and in natural gas processing plants. Pipeline losses are reported as distribution losses, and natural gas used to operate the pipelines is reported in the Transport sector.
Inputs to Oil Refineries	EREFINER	Own consumption of natural gas in oil refineries.
Coke Ovens (Energy)	ECOKEOVS	Own consumption of natural gas at coking plants.
Blast Furnaces (Energy)	EBLASTFUR	Natural gas consumed in blast furnaces operations.

Energy industry own use and Losses

Flow	Short name	Definition
Gas Works (Energy)	EGASWKS	Own consumption of natural gas at gas works and gasification plants.
Electricity, CHP and Heat Plants	EPOWERPLT	Own consumption of natural gas in electric plants, combined heat and power plants, and heat plants.
Liquefaction (LNG) / Regasification	ELNG	Natural gas consumed as fuel at gas liquefaction and regasification plants.
Gas to Liquids (Energy)	EGTL	Natural gas consumed as fuel at the Gas-to-Liquid conversion plants.
Of which GTL technology (Energy)	EGTLTECH	Natural gas consumed as fuel at the GTL technology plants.
Not Elsewhere Specified (Energy)	ENONSPEC	Natural gas used in energy activities not included elsewhere.
Distribution Losses	DISTLOSS	Losses due to transport and distribution, as well as pipeline losses.

Final consumption

Flow	Short name	Definition
Final Consumption	FINCONS	Final consumption is the sum of consumption by the different end-use sectors (in the Transport, Industry and Other sectors). It excludes deliveries for transformation and/or own use of the energy producing industries.
Transport - Total	TOTTRANS	Natural gas consumed for all transport activity irrespective of the economic sector in which the activity occurs. ISIC Divisions 49, 50 and 51 (NACE Divisions 49, 50 and 51).
Road	ROAD	Compressed natural gas (CNG) for use in road vehicles. Excludes natural gas consumed in stationary engines, which is reported under Other Sectors.
of which Biogas	ROADBIOGAS	Amounts of biogas included in road consumption.
Pipeline Transport	PIPELINE	Natural gas used in support of the operation of oil and gas pipelines.
Not Elsewhere Specified (Transport)	TRNONSPE	Natural gas used in transport activities not included elsewhere.
Industry - Total	TOTIND	Natural gas consumed by the industrial undertaking in support of its primary activities. Includes quantities of natural gas consumed in heat only and CHP plants for the production of heat used by the plant itself. Quantities of natural gas consumed for production of heat that is sold and for the production of electricity, are reported under the appropriate Transformation sector.

Final consumption		
Flow	Short name	Definition
Mining and Quarrying	MINING	ISIC Divisions 07, 08 and Group 099 (NACE Divisions 07, 08 and Group 09.9).
Construction	CONSTRUC	ISIC Division 41, 42 and 43 (NACE Division 41, 42 and 43).
Manufacturing	MANUFACT	<p>Manufacturing refers to the sum of the following industrial sub-sectors:</p> <ul style="list-style-type: none"> • Iron and Steel: • Chemical and petrochemical: • Non-ferrous metals • Non-metallic minerals • Transport equipment • Food and tobacco • Paper, pulp and printing • Wood and wood products • Textile and leather <p>Definitions of the sub-sectors themselves can be found under the listing for each respective sub-sector below.</p>
Iron and Steel	IRONSTL	ISIC Group 241 and Class 2431 (NACE Divisions 24.1, 24.2, 24.3, 24.51 and 24.52).
Chemicals including Petrochemicals	CHEMICAL	ISIC Division 20, 21 (NACE Division 20, 21).. Excludes petrochemical feedstocks.
Non-Ferrous Metals	NONFERR	ISIC Group 242 and Class 2432 (NACE Group 24.4 and Classes 24.53, 24.54).
Non-Metallic Mineral Products	NONMET	ISIC Division 23 (NACE Division 23). This category includes glass, ceramic, cement and other building materials industries.
Transport Equipment	TRANSEQ	ISIC Divisions 29 and 30 (NACE Divisions 29 and 30).
Machinery	MACHINE	ISIC Divisions 25, 26, 27 and 28 (NACE Divisions 25, 26, 27 and 28). This category includes fabricated metal products, machinery and equipment other than transport equipment.
Food Processing, Beverages and Tobacco	FOODPRO	ISIC Divisions 10, 11 and 12 (NACE Divisions 10, 11 and 12).
Pulp, Paper and Printing	PAPERPRO	ISIC Divisions 17 and 18. (NACE Divisions 17 and 18). This category includes reproduction of recorded media.
Wood and Wood Products	WOODPRO	ISIC Division 16 (NACE Division 16).

Final consumption		
Flow	Short name	Definition
Textile and Leather	TEXTILES	ISIC Divisions 13-15 (NACE Divisions 13-15).
Not Elsewhere Specified (Industry)	INONSPEC	Any manufacturing industry not included elsewhere. ISIC and NACE Divisions 22, 31 and 32.
Residential	RESIDENT	Natural gas consumed by all households including “households with employed persons”. (ISIC and NACE Divisions 97 and 98).
Commercial and Public Services	COMMPUB	Natural gas consumed by businesses and offices in the public and private sectors. ISIC and NACE Divisions 33, 36, 37, 38, 39, 45, 46, 47, 52, 53, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81, 82, 84 (excluding Class 8422), 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96 and 99.
Agriculture and forestry	AGRICULT	Natural gas consumption by users classified as agriculture, fishing (ocean, coastal and inland fishing), hunting and forestry. ISIC Divisions 01 and 02 (NACE Divisions 01 and 02).
Fishing	FISHING	Natural gas delivered for inland, coastal and deep-sea fishing. Fishing should cover fuels delivered to ships of all flags that have refueled in the country (include international fishing). Also include energy used in the fishing industry as specified in ISIC Division 03 (NACE Division 03).
Not Elsewhere Specified (Other)	ONONSPEC	All activities not included elsewhere; includes military use.
Total Non-Energy Use	NONENTOTAL	Total non-energy use of natural gas.
Non-Energy Use in Industry	NONENINDUS	Non-energy use of natural gas for Industry.
of which Non-Energy use in the Chemical/Petrochemical Industry	NONPETCH	Feedstocks to the petrochemical industry (ISIC Rev. 4 Group 201).
Other Non-Energy Use	OTHERNONENUSE	Non-energy use of natural gas in Transport and Other sectors.

4. PRODUCT DEFINITIONS

Natural gas Natural gas is expressed in million cubic metres at 15°C and at 760 mmHg, i.e. Standard Conditions and in terajoules on a gross calorific value basis.		
Flow	Short name	Definition
Natural gas	NATGAS	Natural gas comprises gases, occurring in underground deposits, whether liquefied or gaseous, consisting mainly of methane. It includes both “non-associated” gas originating from fields producing hydrocarbons only in gaseous form, and “associated” gas produced in association with crude oil as well as methane recovered from coal mines (colliery gas). Manufactured gas (produced from municipal or industrial waste, or sewage) and quantities re-injected vented or flared are not included.
Natural gas pipeline trade	PIPE	In trade databases (NGEXPORT, NGIMPORT and NGWIMP), this product includes the natural gas that crossed the border through a pipeline in gaseous form.
Natural gas LNG trade	LNG	In trade databases (NGEXPORT, NGIMPORT and NGWIMP), this product includes the natural gas that crossed the border as LNG.

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
Australia	AUSTRALI	Excludes the overseas territories. Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y-1 and ends on 30 June Y are labelled as Year Y.
Austria	AUSTRIA	
Belgium	BELGIUM	
Canada	CANADA	
Chile	CHILE	Data start in 1971.
Czech Republic	CZECH	
Colombia	COLOMBIA	Data start in 1971.
Denmark	DENMARK	Excludes Greenland and the Faroe Islands.
Estonia	ESTONIA	Data start in 1990. Prior to that, they are included within Former Soviet Union.
Finland	FINLAND	

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
France	FRANCE	<p>From 2011 data onwards, France includes Monaco, and the following overseas departments (Guadeloupe; French Guiana; Martinique; Mayotte; and Réunion); and excludes the overseas collectivities (New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna).</p> <p>Prior to 2011, France includes Monaco and excludes the following overseas departments and collectivities: Guadeloupe; French Guiana; Martinique; Mayotte and Réunion; New Caledonia; French Polynesia; Saint Barthélemy; Saint Martin; Saint Pierre and Miquelon; and Wallis and Futuna.</p>
Germany	GERMANY	Includes the new federal states of Germany from 1970 onwards.
Greece	GREECE	
Hungary	HUNGARY	Data start in 1965.
Iceland	ICELAND	There is no natural gas data for Iceland as there is neither production nor consumption of natural gas in this country.
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.
Italy	ITALY	Includes San Marino and the Holy See .
Japan	JAPAN	<p>Includes Okinawa.</p> <p>Starting 1990, data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as Year Y.</p>
Korea	KOREA	Data start in 1971.
Latvia	LATVIA	Data start in 1990. Prior to that, they are included within Former Soviet Union.

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
Lithuania	LITHUANIA	Data start in 1990. Prior to that, they are included within Former Soviet Union. Lithuania appears in the list of OECD Members and is included in the OECD aggregates ONLY in the files which have been updated for this edition: <i>NGALBALCON</i> , <i>NGIMPORT</i> and <i>NGEXPORT</i> . Lithuania was not an OECD Member at the time of the preparation of the World data. Accordingly, in the files <i>NGWBAL</i> and <i>NGWIMP</i> , Lithuania is included in the list of Non-OECD Europe and Eurasia.
Luxembourg	LUXEMBOU	
Mexico	MEXICO	Data start in 1965.
Netherlands	NETHLAND	Excludes Suriname, Aruba and the other former Netherland Antilles (Bonaire, Curaçao ² , Saba, Saint Eustatius and Sint Maarten ²).
New Zealand	NZ	
Norway	NORWAY	
Poland	POLAND	
Portugal	PORTUGAL	Includes the Azores and Madeira.
Slovak Republic	SLOVAKIA	Data start in 1968.
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	

2. 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

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
United Kingdom	UK	As of the 1 st of February 2020, the United Kingdom (UK) is no longer part of the European Union (EU) and has entered into a transition period until 31 December 2020. In this publication with data up to 2019, the UK is still included in the EU28 aggregate. 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.
OECD Total	OECDTOT	Includes Australia; Austria; Belgium; Canada; Chile; Colombia; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Japan; Korea; Latvia; Lithuania; 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, Latvia and Lithuania are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.
OECD Americas	OECDAM	Includes Canada; Chile; Mexico and the United States.
OECD Asia Oceania	OECDAO	Includes Australia; Israel; Japan; Korea and New Zealand.
OECD Europe	OECDEUR	Includes Austria; Belgium; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Italy; Latvia; Lithuania; 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, Latvia and Lithuania are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.
IEA	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.

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
The IEA and Accession/Association countries	IEAFAMILY	Includes: IEA member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia ³ , 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, Colombia, Israel, Lithuania; Association countries: Brazil, the People’s Republic of China; India; Indonesia; Morocco; Singapore; South Africa; Thailand.
Argentina	ARGENTINA	
Bolivia	BOLIVIA	
Brazil	BRAZIL	
Colombia	COLOMBIA	
Costa Rica	COSTARICA	
Cuba	CUBA	
Dominican Republic	DOMINICANR	
Ecuador	ECUADOR	
El Salvador	ELSALVADOR	
Guatemala	GUATEMALA	
Guyana	GUYANA	
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	

3. Estonia is included starting in 1990. Prior to 1990, data for Estonia are included in Former Soviet Union.

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
Uruguay	URUGUAY	
Venezuela	VENEZUELA	
Other Non-OECD Americas	OTHERLATIN	Includes Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; British Virgin Islands; Cayman Islands; Dominica; Falkland Islands (Malvinas); French Guiana; Grenada; Guadeloupe; Martinique; Montserrat; Puerto Rico; 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.
Non-OECD Americas	LATAMER	Includes Argentina; Plurinational State of Bolivia (Bolivia); Brazil; Costa Rica; Cuba; Curaçao ⁴ ; Dominican Republic; Ecuador; El Salvador; Guatemala; Guyana; Haiti; Honduras; Jamaica; Nicaragua; Panama; Paraguay; Peru; Suriname (from 2000); Trinidad and Tobago; Uruguay; Bolivarian Republic of Venezuela (Venezuela) and Other Non-OECD Americas.
Albania	ALBANIA	
Armenia	ARMENIA	Data for Armenia are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Azerbaijan	AZERBAIJAN	Data for Azerbaijan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Belarus	BELARUS	Data for Belarus are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Bosnia and Herzegovina	BOSNIAHERZ	Data for Bosnia and Herzegovina are available starting in 1990. Prior to that, they are included in Former Yugoslavia.
Bulgaria	BULGARIA	
Croatia	CROATIA	Data for Croatia are available starting in 1990. Prior to that, they are included in Former Yugoslavia.

4. 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

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
Cyprus	CYPRUS	<p>Note by Turkey: <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 recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus” issue.</i></p> <p>Note by all the European Union Member States of the OECD and the European Union: <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>
Georgia	GEORGIA	Data for Georgia are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Gibraltar	GIBRALTAR	
Kazakhstan	KAZAKHSTAN	Data for Kazakhstan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Kosovo	KOSOVO	Data for Kosovo are available starting in 2000. Between 1990 and 1999, data for Kosovo are included in Serbia. Prior to 1990, they are included in Former Yugoslavia.
Kyrgyzstan	KYRGYZSTAN	Data for Kyrgyzstan are available starting in 1990. Prior to that, they are included in Former Soviet Union.
Malta	MALTA	
Republic of Moldova	MOLDOVA	Data for Moldova are available starting in 1990. Prior to that, they are included in Former Soviet Union.
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	
Republic of North Macedonia	NORTHMACED	Data for the Republic of North Macedonia are available starting in 1990. Prior to that, they are included in Former Yugoslavia.
Russia	RUSSIA	Data for Russia are available starting in 1990. Prior to that, they are included in Former Soviet Union.

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
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	FSUND	Before 1990, includes Armenia; Azerbaijan; Belarus; Estonia; Georgia; Kazakhstan; Kyrgyzstan; Latvia; Lithuania; Republic of Moldova; Russian Federation; Tajikistan; Turkmenistan; Ukraine and Uzbekistan.
Former Yugoslavia	YUGOND	Before 1990, includes Bosnia and Herzegovina; Croatia; Republic of North Macedonia; Kosovo; Montenegro; Slovenia and Serbia.
Non-OECD Europe and Eurasia	NOECDEUR	Includes Albania; Armenia; Azerbaijan; Belarus; Bosnia and Herzegovina; Bulgaria; Croatia; Cyprus ^{5,6} ; Republic of North Macedonia; Georgia; Gibraltar; Kazakhstan; Kosovo; Kyrgyzstan; Latvia; Lithuania ⁷ ; Malta; Republic of Moldova (Moldova); Montenegro; Romania; Russian Federation; Serbia ⁸ ; Tajikistan; Turkmenistan; Ukraine; Uzbekistan; Former Soviet Union (prior to 1990) and Former Yugoslavia (prior to 1990). Prior to 1990, data for Estonia are included in Former Soviet Union and data for Slovenia in Former Yugoslavia.
Algeria	ALGERIA	

5. Note by Turkey:

The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue”.

6. Note by all the European Union Member States of the OECD and the European Union:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

7. Lithuania appears in the list of OECD Members and is included in the OECD aggregates ONLY in the files which have been updated for this edition: NGBALCON, NGEXPORT and NGIMPORT. Lithuania was not an OECD Member at the time of the preparation of the World data. Accordingly, in the files NGWBAL and NGWIMP, Lithuania is included in the non-OECD data. This file will be updated in August 2019.

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

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
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 Republic of the Congo	CONGOREP	
Côte d'Ivoire	COTEIVOIRE	
Egypt	EGYPT	Data for Egypt are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as year Y.
Eritrea	ERITREA	Data for Eritrea are available from 1992. Prior to that, they are included in Ethiopia.
Ethiopia	ETHIOPIA	Ethiopia includes Eritrea prior to 1992.
Gabon	GABON	
Ghana	GHANA	
Kenya	KENYA	
Libya	LIBYA	
Mauritius	MAURITIUS	
Morocco	MOROCCO	
Mozambique	MOZAMBIQUE	
Namibia	NAMIBIA	Data for Namibia are available starting in 1991. Prior to that, data are included in Other Africa.
Niger	NIGER	Prior to 2000, data for Niger are presented in Other Africa.
Nigeria	NIGERIA	
Senegal	SENEGAL	
South Africa	SOUTHAFRIC	South Africa became an Association country in November 2018. Please note that in the World files NGWBAL and NGWIMP, which were published in August 2018, South Africa is not included in the list of <i>IEA and Accession/Association countries</i> .

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
South Sudan	SSUDAN	Data for South Sudan are available from 2012. Prior to 2012, they are included in Sudan.
Sudan	SUDAN	South Sudan became an independent country on 9 July 2011. From 2012, data for South Sudan are reported separately.
United Republic of Tanzania	TANZANIA	Oil data are reported on a fiscal year basis, beginning on the 1 July Y and ending on the 30 June Y+1.
Togo	TOGO	
Tunisia	TUNISIA	
Zambia	ZAMBIA	
Zimbabwe	ZIMBABWE	
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; Seychelles; Sierra Leone; Somalia; Swaziland; and Uganda.
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.
Bahrain	BAHRAIN	
Islamic Republic of Iran	IRAN	Data are reported according to the Iranian calendar year. By convention data for the year that starts on 20 March Y and ends on 19 March Y+1 are labelled as year Y.
Iraq	IRAQ	
Jordan	JORDAN	
Kuwait	KUWAIT	
Lebanon	LEBANON	
Oman	OMAN	

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
Qatar	QATAR	
Saudi Arabia	SAUDIARABI	
Syrian Arab Republic	SYRIA	
United Arab Emirates	UAE	
Yemen	YEMEN	
Middle East	MIDEAST	Includes Bahrain; Islamic Republic of Iran; Iraq; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syrian Arab Republic; United Arab Emirates and Yemen.
Bangladesh	BANGLADESH	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y-1 and ends on 30 June Y are labelled as Year Y.
Brunei Darussalam	BRUNEI	
Cambodia	CAMBODIA	Data for Cambodia are available starting in 1995. Prior to that, they are included in Other Asia.
Democratic People's Republic of Korea	KOREADPR	
India	INDIA	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as Year Y.
Indonesia	INDONESIA	
Malaysia	MALAYSIA	
Mongolia	MONGOLIA	Data for Mongolia are available starting in 1985. Prior to that, they are included in Other Asia.
Myanmar	MYANMAR	Data were reported on a fiscal year basis until 2015 data. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as Year Y.
Nepal	NEPAL	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as Year Y.
Pakistan	PAKISTAN	Data are reported on a fiscal year basis. By convention fiscal year Y/Y+1 is labelled as year Y.
Philippines	PHILIPPINE	
Singapore	SINGAPORE	

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 a country or territory, as the case may be. Data start in 1960 for OECD countries and regions, and in 1971 for non-OECD countries and regions, unless otherwise specified.

Country/Region	Short name	Definition
Sri Lanka	SRILANKA	
Chinese Taipei	TAIPEI	
Thailand	THAILAND	
Viet Nam	VIETNAM	
Other 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 and Vanuatu.
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 Asia.
Hong Kong (China)	HONGKONG	
China (People's Republic of)	CHINA	In early 2016, the National Bureau of Statistics (NBS) of the People’s Republic of China (China) supplied the IEA with detailed energy balances for 2000 to 2010 and the IEA revised its data accordingly. In September 2015, the NBS published China’s energy statistics for 2013, as well as revised statistics for the years 2011 and 2012. These have already been taken into account by the IEA in the “Special data release with revisions for the People's Republic of China” in November 2015.
China (Region)	CHINAREG	Includes the People's Republic of China and Hong Kong, China.
Non-OECD Total	NOECDTOT	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.
World	WORLD	Includes OECD Total; Africa; Asia (excluding China); China (P.R. of China and Hong Kong, China); Non-OECD Americas; Middle East; Non-OECD Europe and Eurasia; World aviation bunkers and World marine bunkers.

Fiscal year

This table lists the countries for which data are reported on a fiscal year basis. More information on beginning and end of fiscal years by country is reported in the column 'Definition'.

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.

Country/Region	Short name	Definition
Australia	AUSTRALI	Data are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 July Y-1 and ends on 30 June Y are labelled as year Y.
Bangladesh	BANGLADESH	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y-1 and ends on 30 June Y are labelled as year Y.
Egypt	EGYPT	Data are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as year Y.
Ethiopia	ETHIOPIA	Data are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as year Y.
India	INDIA	Data are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as year Y. This convention is different from the one used by Government of India, whereby fiscal year starts on 1 April Y and ends on 31 March Y+1 are labelled as year Y+1.
Islamic Republic of Iran	IRAN	Data are reported according to the Iranian calendar year. By convention data for the year that starts on 20 March Y and ends on 19 March Y+1 are labelled as year Y.
Japan	JAPAN	Starting 1990, data are reported on a fiscal year basis. By convention, data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as year Y.
Kenya	KENYA	Electricity data are reported on a fiscal year basis, beginning on the 1 July Y and ending on the 30 June of Y+1.
Myanmar	MYANMAR	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 April Y and ends on 31 March Y+1 are labelled as year Y.
Nepal	NEPAL	Data are reported on a fiscal year basis. By convention data for the fiscal year that starts on 1 July Y and ends on 30 June Y+1 are labelled as year Y.
Pakistan	PAKISTAN	Data are reported on a fiscal year basis. By convention fiscal year Y/Y+1 is labelled as year Y.
South Africa	SOUTHAFRIC	Nuclear and Hydro electricity generation data are reported on a fiscal year basis, beginning on the 1 July Y and ending on the 30 June Y+1.

Fiscal year

This table lists the countries for which data are reported on a fiscal year basis. More information on beginning and end of fiscal years by country is reported in the column 'Definition'.

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.

Country/Region	Short name	Definition
United Republic of Tanzania	TANZANIA	Oil data are reported on a fiscal year basis, beginning on the 1 July Y and ending on the 30 June Y+1.

6. COUNTRY NOTES AND SOURCES

OECD Countries

General notes

In this release, the files for OECD countries in the online data service are updated as of July 2020 (NGBALCON, NGEXPORT and NGIMPORT). The World files (NGWBAL and NGWIMP) include data up to 2018 with preliminary supply data for 2019. The notes given in this document refer to the data for the years 1960 to 2018 published in the on-line data service. In general, more detailed notes are available for data starting in 1990.

Data are obtained through annual submission of natural gas questionnaires from National Administrations, as indicated for each country in the sources section.

In some instances, it has been necessary for the IEA to estimate some data. Explanations of the estimates are provided in the country notes.

Australia

Source

Department of Industry, Science, Energy and Resources, Canberra.

General notes

- In the 2020 edition, the Australian administration reallocated quantities in the consumption side, based on analysis of new data and to be consistent with Australian Energy Statistics. Additionally, revisions were made to trade flows based on a revised

methodology for calculating the volumes of imports and exports.

- In the 2019 edition, the Australian administration proceeded to major revisions on the supply side from 2013 onwards due to a change in methodology on production quantities and more recent sources on calorific values. Additionally the *oil and gas extraction*, and *liquefaction (LNG) / re-gasification* plants on the demand side were revised from 2003 onwards, which resulted in increased *statistical difference*.
- In the 2016 edition, the Australian administration revised **natural gas** demand data for some flows back to 2010, resulting in breaks in time series between 2009 and 2010.
- Prior to 1991 **natural gas** data included ethane.
- Data after 1973 are based on national surveys.
- All data refer to fiscal years, which run from 1 July to 30 June (e.g. 2016 = 1 July 2015 to 30 June 2016).
- For reasons of data confidentiality, Australia does not provide a breakdown of exports by destination and data prior to 2015 are estimated by the Secretariat. Since the 2017 edition, Australian administration started to provide estimates of the LNG exports to their main markets, whereas in the 2018 edition the 2017 preliminary data were provided by the Australian Bureau of Statistics (ABS) barring exports to Chinese Taipei.

Supply

- For 2018, there is a continuation of the increase in *indigenous production* (+15%) and *exports* (+18%) of gas, which started in 2017 due to the LNG exporting capacity coming online in 2016 and 2017.

- Around 30% of the production (mainly coal seam gas) is estimated by the Australian administration.
- In the 2015 edition the Australian administration revised production and certain consumption flows back to 2006. The production figures now include previously uncaptured flows.
- Pipeline imports are from the Joint Petroleum Development Area, an area jointly administered by Timor-Leste and Australia pursuant to the Timor Sea Treaty.

Transformation

- From 2011 to 2016, the non-specified transformation of **natural gas** represents amounts used to produce hydrogen for hydrocracking in refineries.
- Prior to 1973 there are no detailed data available for autoproducers and for sub-sector industry consumption. Autoproducer data are included in main activity producer before 1974.

Consumption

- Consumption in the *residential* and *agriculture and forestry* sectors are estimated by the Australian administration based on models.
- There are breaks between 2002 and 2003 in due to major revisions made in the *oil and gas extraction*, and *liquefaction (LNG) / regasification plants* in the context of the 2019 edition.
- Between 2009 and 2010 some breaks in time series may occur due to changes in methodologies and to improved data sources. Revisions to the consumption data include changes to energy use in liquefaction plants, and a shift of *gas works gas (transformation)* to non-specified energy from 2006 onwards. Revisions to previous years are pending.
- Until 2005 **natural gas** consumed to fuel the distribution of natural gas in natural gas networks was reported as transformation for **gas works gas** production.
- Between 2001 and 2002 there are breaks in time series for consumption data due to an industry structural shift and changes in methodology.
- In 1999 and 2000 end-use consumption data are estimated by the Australian administration.

Austria

Source

Bundesanstalt Statistik Österreich, Vienna.

General note

- Prior to 2000 differences due to measurement are included with *distribution losses*.

Supply

- Export amounts are calculated by the national administration by subtracting *stock changes* and domestic consumption from import figures. The split by country is confidential so all the exports are reported under *not elsewhere specified* since 2002. Similarly, all imports are reported under *not elsewhere specified* since 2014 for confidentiality reasons.

Transformation

- In the 2018 edition, the time series for *blast Furnaces* was reclassified from 1990 onwards, and thus moved from the *transformation* to the *energy sector*.
- Between 1995 and 1996 there is a break in time series for *autoproducer electricity* and *CHP* plants due to the availability of more detailed data.
- In 1980 the consumption of **natural gas** in *gas works* within the transformation sector stopped.

Consumption

- In the 2019 edition, Austrian administration revised *oil and gas extraction* and *oil refinery* consumption data for 2005 onwards based on data reported to the Emissions Trading Scheme (ETS). Additionally, it revised data since 2005 for *other sectors'* flows since 2005 and *industry* since 2012 based on a combination of the results of sample surveys and data from the regulator.
- In 2013 the increase in *pipeline transport* consumption is due to a new methodology of data collection. Historical revisions are pending.
- Any inconsistencies in the time series for *commercial/public services* until 2011 are the result of this sub-sector being computed as a residual. Since 2012 the *commercial/public services* consumption figures are surveyed annually and the consumption

quantities in small and medium enterprises in industry are the projected results of biannual sample surveys.

Belgium

Source

Observatoire de l'Energie, Brussels.

Supply

- For 2018 data, trade includes real transit. This results in higher figures for Germany, the Netherlands and the UK.
- Since 2009 gas trade in Belgium includes imported LNG which is regasified and subsequently exported to other countries.
- *Imports* include spot purchases.
- The LNG consumption data in *international marine bunkers* are confidential.

Transformation

- The Belgian administration is in the process of revising 2011 and 2010 *transformation sector data*. As such, an unusually high quantity of **natural gas** is reported under *not elsewhere specified (transformation)*.
- From 2000 **natural gas** begun to replace **blast furnace gas** in the *iron and steel* industry.

Consumption

- Consumption in the *transport equipment* sub-sector decreased in 2015 due to the closure of a big industry of this sector in December 2014.
- In 2003 the large decrease in non-specified industry consumption is due to improvements in data collection.

Canada

Source

Natural Resources Canada, Ottawa.

General notes

- In the 2019 edition, the Canadian administration proceeded to data revisions from 2005 onwards based on the revised source statistics from Statistics Canada and with the aim of achieving greater consistency with the Energy Efficiency Indicators data submission to IEA.
- Prior to 1990 data for consumption of **natural gas** for *construction* are not available.
- Prior to 1978 consumption in the non-specified category of the industry sector includes gas used as fuel in *oil refineries*.

Supply

- 2015 is the first year when stock levels were measured in Canada. Based on this measurement and the *stock change* of previous years, Canadian authorities have estimated the stock level back to 2005.
- *Indigenous production* is measured by the Canadian administration by upscaling the marketable production by approximately 11% to account for own-use in the extraction process.
- *Associated gas* has been estimated by the Canadian administration for 2016 and 2017.
- *Non-associated gas* production data include *colliery gas* as well as *associated gas* produced in Alberta.

Transformation

- In 2000 the increase in *main activity electricity producer* data is due to new generation plants in Alberta and Ontario.
- Due to confidentiality reasons, the Canadian administration estimated **natural gas** consumption in *oil refineries* for the 2014-2017.
- *Gas-to-liquids (Transformation)* represents quantities of **natural gas** consumed in the production of synthetic crude oil.
- *Non-specified (Transformation)* represents quantities of **natural gas** used for the upgrading of refined oil products.

Consumption

- In 2018 refinery gas started being further purified into products, leading to a higher consumption by *oil refineries*.
- In the 2019 edition, the *oil and gas extraction* consumption was revised from 2005 onwards in order

to more accurately separate it from other mining/extractive activities.

- In the 2019 edition, an improved methodology was applied to *industry sector* for 2005 onwards resulting in a share of the non-specified industry being allocated to various industrial sub-sectors and creating breaks between 2004 and 2005.
- Starting from 2014, *distribution losses* will no longer be reported by Canada as this flow was historically computed as a balancing variable.
- Due to confidentiality reasons, the Canadian administration estimated **natural gas** consumption in the following sectors for 2014-2017: *iron and steel, non-ferrous metal, transport equipment and machinery*.
- In 2011 the increase consumption by *non-metallic mineral* production is due to switching from **coal** to **natural gas** in cement manufacturing.
- Prior to 1978 *agriculture/forestry* is included in *industry*, and no detailed industry sub-sector data are available.

Chile

Source

Ministerio de Energía, Santiago.

General notes

- Since 2008 stocks levels data are available.
- The 2017 values for *not elsewhere specified (Transformation)* and *oil refineries* have been estimated by the IEA Secretariat.

Supply

- Exports of regasified LNG to Argentina started in 2016, after the works to enable reverse flows in the interconnector finished.
- Since 2009 data representing **LPG** injected into the **natural gas** distribution network are available. They are reported in from *other sources – Oil*.

Transformation

- For 2009 and 2010 inputs of **natural gas** to *auto-producer CHP* plants were estimated by the Chilean administration. For other years these inputs are included in *autoproducer electricity*.

- *Not elsewhere specified (Transformation)* represents **natural gas** that is blended with refinery gas.

Consumption

- **Natural gas** used for *oil and gas extraction* is included in gas consumption for energy sector own use under *oil refineries*.
- *Non-specified (transport)* corresponds to marine transport.

Colombia

Source

Ministry of Mines and Energy, Bogota.

General notes

- Colombia joined the OECD in April 2020.
- Data starts in 1971.

Czech Republic

Source

Czech Statistical Office, Prague.

General notes

- Prior to 1994 data in *transport sector* are for former Czechoslovakia.
- Between 1993 and 1994 there are some breaks in time series due to a change in the energy balance methodology between former Czechoslovakia and the Czech Republic.

Supply

- From 2013 all *non-associated gas* production was reclassified as *colliery gas* production.

Consumption

- There is a break in time series in the *industry and transformation sectors* between 2009 and 2010 due to new available data from distribution companies.
- Since 2008 hydrogen production is reported in petrochemical feedstocks as non-energy use. Up to

2007, *chemical and petrochemical* consumption includes both energy and non-energy use.

Denmark

Source

Danish Energy Agency, Copenhagen.

General note

- In the 2004 edition, the Danish administration revised the time series back to 1972. .

Supply

- In the 2019 edition, biogas (*receipts from other sources - Renewables*) was reported for the first time.

Consumption

- In Edition 2020, Gas Works (Transformation) were revised due to a change in the reporting methodology.
- The consumption of LNG for marine transport and *international marine bunkers* is not reported due to confidentiality.
- The breakdown for industrial consumption for the latest year is estimated by the Danish administration using the previous year's split and revised the following year.

Estonia

Source

Statistics Estonia, Tallinn.

General note

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

Consumption

- Consumption reported under *not elsewhere specified (Energy)* represents consumption of different activities of companies in the *energy sector* (NACE 35) for own uses without transformation.

- There are inconsistencies in the time series for *residential* consumption as this sector is computed as a residual.
- In 2014 Estonia's main company in the *chemical and petrochemical* sector ceased activity, resulting in no non-energy use of **natural gas**.
- In 2009 Estonia's main producer of fertilisers ceased activity, resulting in a sharp decrease in the non-energy use of **natural gas**. The plant reopened in 2012.

Finland

Source

Statistics Finland, Helsinki.

General notes

- In 2018, more operators entered the market. As a result, stock data stopped being confidential.
- Finland imports LNG since September 2016. Before 2018 there was only one company operating in this market, LNG supply data was thus confidential and excluded from the supply side flows.
- Between 1989 and 1990 there are some breaks in the time series as data from 1990 to 1999 were revised by the Finnish administration in 2002.

Supply

- Data are reported for *international marine bunkers* consumption since 2017.
- The *opening and closing stock levels* data are confidential and *stock changes* data for 2017 are estimates by the Finnish administration.

Transformation

- *Not elsewhere specified (Transformation)* data represent **natural gas** used for hydrogen manufacture. This hydrogen is used for hydrodesulphurization and hydrocracking in oil refineries

Consumption

- *Distribution losses* include the quantities of boil-off **natural gas** originating from the natural evaporation of LNG in tanks.

- *Not elsewhere specified (Transport)* includes LNG consumption for domestic navigation.
- Since 1995 the breakdown between *residential* and *commercial/public services* is available due to new system of data collection.
- Prior to 1989 data for consumption in the *residential* and *agriculture/forestry* sectors were estimated by the Finnish administration.

France

Source

Ministère de la Transition Écologique et Solidaire

General notes

- Starting from the 2018 edition, the French administration revised the methodology used in order to bring it more in line with the international standards. More specifically, (i) Supply figures were revised for the period 2007-2016, (ii) *transformation sector* consumption for 2007-2016, (iii) *energy sector* consumption for 2011-2016, (iv) *transport* and *commercial/public services* for 2000-2016, (v) *industry sector* for 2011-2016 and (vi) *imports* and *exports* for 2011-2016.
- In the 2019 edition, the French administration revised the demand side from 2011 onwards by improving the methodology with the consolidation of data from SDSE surveys and additional official sources.
- Until 2007 some *statistical differences* reported by the French utilities were included in *distribution losses*. Since 2008 these amounts are included under *statistical difference*.
- Between 1999 and 2000 there are some breaks in time series due to a new methodology for preparing the **natural gas** balances.
- The data include the French overseas departments, however **natural gas** is neither produced, nor consumed in these departments.

Supply

- From 2000 onwards the exports breakdown is not available.
- There is a break in stocks between 2004 and 2005.

- Pipeline imports from not elsewhere specified origin may contain spot purchases of LNG.
- The pipeline imports and pipeline exports data include transit amounts.
- From 1990 to 1998 *statistical differences* include gas consumption which is not broken down by sectors.

Consumption

- The increase in **natural gas** consumption in the electricity sector for 2016 and 2017 has been mainly driven by the decrease in nuclear generation due to maintenance operations, which was compensated by gas-fired power plants.
- Between 2005 and 2006 there is a break in the time series in the *industry* sub-sectors.
- Gas for pipelines is included in *distribution losses*.

Germany

Source

Federal Statistical Office (DESTATIS), Wiesbaden.

General notes

- Between 2009 and 2010 there is a break in time series due to a new, more comprehensive legal framework that resulted in methodological changes for production and new calorific values for **natural gas**.
- Between 2002 and 2003 there are breaks in the time series for some sectors due to modifications in reporting methodology.
- Between 1994 and 1995 there are some breaks in time series due to the fact that the industry sub-sector breakdown is based on the 1995 NACE classification.
- Between 2016 and 2017 there is a break in the gross calorific value of **natural gas** in the *observed inland consumption*, because the German administration acquired better information on the import amounts of L-Gas (low calorific gas) for the 2017 data.

Supply

- Starting in 2018, due to a change in the reporting methodology, *Imports* and *Exports* no longer include transit volumes, as was the case up until 2017.

- Since 2018 onwards, indigenous production is being phased out, leading to a decrease in *non-associated gas*.
- In 2016 and 2017, *natural gas* imports from the Netherlands are included under *not elsewhere specified* origin due to confidentiality. *Not elsewhere-specified* imports also include gas imported from the UK and Denmark.
- The low GCV of the *vented gas* is due to its high Sulphur content. This flow was revised back to 2003.

Transformation

- In 2003 there is a break in time series for electricity and CHP plants (both autoproducers and main activity producers).
- Prior to 1995 inputs of **natural gas** for *main activity producer heat* plants are included with *main activity producer CHP* plants.

Consumption

- In the 2020 edition, the German administration included energy use in *Agriculture/Forestry* and *Construction* for the period 2010-2018. In the next reporting cycle, values for 2003-2010 are expected.
- Since 2018, gas distribution networks are included in *pipeline transport*, while it was only covering transmission networks before.
- Since 2003 there are no official data for the *construction* sector.
- Since 2003 consumption in *agriculture/forestry* and other *not elsewhere specified (Other)*, which were previously estimated, are no longer shown, and losses data have been included in *statistical difference*.
- Since 2003 gas consumption in *coke ovens* was negligible.
- Prior to 1995 end-use consumption data are based on *Arbeitsgemeinschaft Energiebilanzen*.
- Before 1970 there is no detailed breakdown available for the industry sector with the exception of *iron and steel* and *chemical and petrochemical* industries.

Greece

Source

Ministry for Environment and Energy, Athens.

General notes

- In the 2020 edition, due to more disaggregated data and a revised methodology, years 2017 and 2018 are not comparable to time-series prior to this.
- **Natural gas** produced in Greece has a higher than average GCV due to a high content of C2/C4 hydrocarbons.
- In 1997 a new pipeline between Russia and Greece became operational.

Supply

- In November 1998 the production of **natural gas** stopped in and started again in December 1999.

Consumption

- Between 2010 and 2011 there is a break in time series for the *non-ferrous metals* due to a new methodology for measuring gas consumed by this sub-sector.
- Since 2017, **natural gas** has started to be consumed in the *construction* sub-sector as well.
- In 1998 consumption in the *residential* sector is included with *commercial/public services*.

Hungary

Source

Hungarian Energy and Public Utility Regulatory Authority, Budapest.

General note

- Between 1996 and 1997 some breaks in time series exist due to a new methodology applied by the Hungarian administration.

Supply

- Between 2012 and 2013 there is a break in the stock levels due to a change in the methodology.
- Between 2001 and 2002 there is a break in the time series for the stock levels.
- From 2001 to 2004 statistical difference includes **natural gas** used for refilling cushion gas.
- *Imports* and *exports* data are reported according to the TSO's data, which include transit volumes.

Transformation

- Since 2010, data reported for *not elsewhere specified (Transformation)* represent **natural gas** used for hydrogen manufacture used in refineries for hydrodesulphurization. Prior to this year, these quantities are reported under *oil refineries*.
- Prior to 2004, *iron and steel* consumption includes transformation of **natural gas** in *blast furnaces*.
- The increase in *main activity producer CHP* plants data in 2000 is due to a reclassification of autoproducer plants into main activity producer plants.
- Since 1997, two *autoproducer heat* plants have been reclassified to *main activity producer heat* plants.

Consumption

- Consumption under the *not elsewhere specified (Other)* sector includes military usage.
- Between 2012 and 2013 there are some breaks in the time series for the *energy sector, transport and industry* consumption due to a new methodology. Historical revisions are pending.

Iceland

There is no **natural gas** data for Iceland, as there is neither production nor consumption.

Ireland

Sources

Sustainable Energy Authority of Ireland, Cork.

General note

- Since April 2017 there is no gas storage facility in Ireland.

Supply

- **Natural gas indigenous production** has been increasing since 2015 when the Corrib Gas field began production at the end of that year.
- In 2009 the data sources for the *opening stock level* and the *closing stock level* are different. This has

resulted in a very low value for the GCV of the *stock change*.

- Since 1996 the increase in imports is due to the depletion of the Kinsale gas field and the availability of a new pipeline system to the United Kingdom.

Transformation

- Since 2006 a different methodology for allocating unsold steam from *autoproducer CHP* is used.
- *Not elsewhere specified (Transformation)* corresponds to **natural gas** blended with **refinery gas**.

Consumption

- In the 2019 edition, the Irish administration revised the *distribution losses* based on new data coming from the Emissions Trading Scheme, which had a knock-on effect in the final consumption data, primarily for industry.
- In 2011, the increase in *non-ferrous metals* consumption is due to a fuel switch to **natural gas**.
- Since 2009 the disaggregation of consumption into all the industry sub sectors excluding *non-ferrous metals* is done according to data from the Census of Industrial Production (CIP). The last energy consumption data available from the CIP are from 2009 and therefore the 2009-2015 subsector breakdown is the same every year.
- In 2007, the increase in *machinery* consumption is due to changes in industry sub-sector structure and fuel usage.
- In 2004, there is a break in the time series in *food, beverages and tobacco* consumption due to a change in methodology.
- In 2003, feedstock use in the *chemical and petrochemical* industry stopped due to the shutdown of a fertiliser plant.
- In 2001, **natural gas** consumption in the *iron and steel* industry stopped due to the shutdown of Ireland's main steel plant.
- Prior to 1986, detailed figures for the consumption of **natural gas** in *industry* and *other sectors* are not available.

Israel

Source

Israel Central Bureau of Statistics, Jerusalem.

General note

- From 2012 all **natural gas** data, except inputs to electricity production, are estimated by the IEA Secretariat.
- The 2020 edition includes 2018 data and revisions in consumption based on the Energy Balances published by the Israeli Central Bureau of Statistics (CBS). As a result, breaks in time series appear between 2012 and 2013. More specifically, this revision impacted *oil refineries*, the *industry sector* and *other sectors*. Finally, all *industry* is categorised as *non-specified industry* and all *other sectors* as *non-specified other*, because no disaggregation is available.

Supply

- Imports of **natural gas** began in 2008.

Transformation

- In the 2017 edition, the Israeli administration revised transformation data back to 2013 creating breaks in the time series between 2012 and 2013.
- In the 2019 edition, the not elsewhere specified (Transformation) since 2013 refers to quantities of **natural gas** used for the generation of hydrogen, which is subsequently used for hydrodesulphurization in oil refineries. In the previous editions, these figures were reported as energy consumption of gas in *oil refineries*.
- In the 2019 edition, the 2016 and 2017 gas inputs to main producers and autoproducers of electricity were estimated by the IEA Secretariat.

Consumption

- In the 2019 edition, the Israeli administration revised *industry* and *other sectors* data for 2016. Due to lack of categorisation, industry is classified as not elsewhere specified (Industry) and the other sectors as not elsewhere specified (Other).

Italy

Source

Ministry of Economic Development, Rome.

General notes

- From 1991 data for losses include some statistical differences. However, since 1994 improved collection methods have decreased these differences.
- Between 1989 and 1990 there is a break in stocks level.

Supply

- Imports from Croatia represent **natural gas** transferred with a pipeline directly to Italy from fields in Croatian territory in the Adriatic Sea.

Transformation

- Prior to 2008, inputs of **natural gas** to all heat production in industry were reported in final consumption.
- Between 2003 and 2004 there are breaks in time series in industry and transformation due to a new data reporting methodology
- From 2000 to 2002 no autoproducer data are available due to confidentiality reasons. These data are included in main activity producer plants.
- In 1996 the production of **gas works gas** from **natural gas** ceased.

Consumption

- From 2007 a more detailed breakdown of consumption for energy industry own use is available.
- Prior to 1990 consumption in *commercial/public services* is included in *residential*.
- Prior to 1970 the breakdown of industry data is only available for *iron and steel* and *chemical and petrochemical* industry; all other data are included in not elsewhere specified (Industry).
- Except for liquefaction plants, data for the energy sector are estimated and include statistical differences and other non-specified consumption.

Japan

Source

The Institute of Energy Economics, Tokyo.

General notes

- The 2019 edition contains major revisions to time series which go back to 1990. These reflect the revisions in the Energy Balance Table from the Ministry of Economy, Trade and Industry, which is the data source.
- From 1990 data are reported on a fiscal year basis, which runs from 1 April to 31 March (e.g. 2015 = April 2015 to March 2016).

Supply

- In the 2019 edition, *indigenous production, receipts from other sources, imports data, stock changes* and stock levels were revised back to 1990.
- In certain cases, the country of the last consignment of **natural gas** is often reported as the country of origin for the LNG imports, instead of the country where the gas was produced

Transformation

- In the 2019 edition, *main activity* and *autoproducer electricity* plants were revised back to 1990. Similarly, flows of the *energy sector* were revised back up to 1990.
- Since 1990 most of the **gas works gas** production and consumption has been included with **natural gas**.

Consumption

- In the 2019 edition, own consumption in *electricity, CHP and heat* plants was subject to a major revision since 1990.
- In the 2019 edition, all the *transport, industry and other sectors* flows were revised back to 1990.

Korea

Source

Korea Energy Economics Institute, Ulsan.

General note

- Energy industry own-use in liquefaction plants includes measuring errors and losses.

Supply

- Korea reports production of **natural gas** since 2005. The production is decreasing and the reservoir is expected to be possibly depleted by the end of 2018.
- The *receipts from other sources* from 2006 to 2012 represent the amount of **liquefied petroleum gases** that are either blended with **natural gas** or are directly used in city gas distribution networks.

Consumption

- Energy industry own use in liquefaction plants includes losses and measuring errors.
- Prior to 2007 consumption of **natural gas** in *machinery* was included with *transport equipment*.
- From 1987 to 1991 the breakdown of final consumption has been estimated by the Secretariat, as well as the *residential* subsector for 1992.

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 World Energy Statistics.

Supply

- Stock levels in Latvia do not include stocks held in national territory for other countries.

Transformation

- In 2017 there was a steep decrease reported in *main activity CHP* consumption and a respective increase in *main activity heat* consumption due to the classification of fuel inputs according to the units of the plants instead of the plants as a whole that was previously used.

Consumption

- The consumption in the *iron and steel* industry decreased in 2014 due to the bankruptcy of the major company in the market.

Lithuania

Source

Statistics Lithuania, Vilnius.

General note

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

Supply

- The export quantities since 2014 represent imported LNG which is regasified and subsequently exported to other countries.

Transformation

- *Not elsewhere specified (Transformation)* data represent **natural gas** used for methanol manufacture, which is used as input in oil refineries.

Consumption

- **Natural gas** consumption for power generation has been falling significantly from 2010 onwards as gas-fired power and heating plants are being retired, largely replaced by biomass.
- There is a break between 2010 and 2011 in the *not elsewhere specified (Energy)* timeseries due to **natural gas** being consumed for heat that was used to destroy radioactive waste after the decommissioning of the only Lithuanian nuclear plant at the end of 2009.

Luxembourg

Source

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

General note

- In 1982 there is a break in the time series in transformation and industry due to a change in methodology.

Supply

- *Not elsewhere specified* imports include gas purchased on the spot market.

Transformation

- Since 2002 the increase of gas consumption in the *transformation sector* is due to a new 350-MW combined cycle power plant.

The last main activity producer electricity gas-consuming plant closed in 2016. Consumption

- In the 2017 edition, Luxembourg integrated supplementary data from ETS companies and revised industrial consumption back to the year 2000.
- The breakdown of Total final consumption for the latest year is preliminary and will be finalised in the next edition of the book.
- Since 2012, the methodology to determine final consumption was changed in order to integrate basic data from National Accounts.
- Since 2000, a more detailed breakdown of final consumption data is available due to a change in methodology.
- Since 2000, consumption in the *non-ferrous metals* sub-sector is included in *iron and steel* for reasons of confidentiality.
- Since 2000, consumption in *not elsewhere specified (Industry)* includes activity of companies reclassified to preserve the confidentiality.
- Prior to 2000 *residential* consumption includes consumption in *commercial/public services* and *agriculture/forestry*.

Mexico

Source

Secretaría de Energía, Mexico City.

General note

- 2018 data was estimated by the IEA Secretariat.

- Mexico is currently improving the data collection process and revisions of historical data are expected in the following editions.
- In 2013 there are breaks in series due to a change in the methodology for reporting energy data. The Mexican administration is currently working on the revision of historical data.
- Since 1993 data have been submitted by the “Secretaría de Energía”.
- **Natural gas** reported in the IEA publications may be different from what is reported in the Mexican energy publications, as the IEA includes only dry gas and excludes **natural gas liquids**, which are considered as part of **oil products**.

Consumption

- The split of **natural gas** used for hydrogen manufacture and used in refineries is not currently available and it will be provided in the 2020 edition of this publication.
- Losses and pipeline transport are included in *oil and gas extraction*.
- *Not elsewhere specified (Energy)* was estimated by the Mexican administration for 2017 and will be revised in the 2020 edition.
- Revisions are expected to *not elsewhere specified (Industry)* in the 2020 edition, as the Mexican administration works on the disaggregation of the industry subsectors over the course of the year.
- From 1993 to 1999 *oil and gas extraction* and *not elsewhere specified (Industry)* data were estimated.
- Since 1993 the breakdown of the *energy sector* and of *other sectors* is available.

Netherlands

Source

Statistics Netherlands, The Hague.

General note

- In the 2018 edition, the Dutch administration revised the supply side data for 1990-2016 in order to (i) better account for flows from underground storages which used to be incorporated in the production data and also (ii) handle inflows/outflows of gas stored in Germany as imports/exports.

- In the 2019 edition, the Dutch administration revised the *opening* and *closing stock levels* based on a dedicated questionnaire used. Additionally, industrial consumption was revised since 2012 based on inputs coming from the Emissions Trading Scheme (ETS) data.
- Between 1981 and 1982, and between 1983 and 1984 there are breaks in time series due to the introduction of more comprehensive surveys on end-use consumption.

Supply

- A production cap of **natural gas** was set by the government in 2015, which has been extended and gradually tightened for 2016 and 2017.
- Due to confidentiality issues, the split of LNG imports is estimated by the Dutch administration based on trade data.
- In the past, the amounts reported under *indigenous production* also included quantities coming from *stock changes*. The reason was that the Dutch administration could not distinguish between quantities of **natural gas** falling under marketable production and amounts being moved from offshore fields to onshore fields without undergoing any purification and/or other necessary production processes. From 2015 the data reported distinguish between amounts to be reported as *indigenous production* and amounts that should be classified as *stock changes*. This created a break in stocks levels between 2014 and 2015.
- Dutch trade figures include transit volumes.
- *Imports* from Germany include imports from Russia.
- Due to the revision in 2018 of inflows and outflows from stored gas held in Germany, there have been amendments to historical imports and exports data.
- *International marine bunkers* were reported for the first time in the 2019 edition.

Transformation

- The values for *not elsewhere specified (Energy)* represents **natural gas** combusted by the distribution operator for the purpose of operating the grid.
- In 2009 the increase in *main activity electricity* consumption is due to the opening of a new plant in the second half of 2008.

- In 2008 the large increase in *autoproducer CHP* plants consumption is due to a new *autoproducer CHP* plant which came on-stream.

Consumption

- Between 1987 and 1988 there is a break in the time series in the *commercial/public services* consumption due to a major reorganisation of three public utility companies.
- In the 2018 edition, the Dutch administration provided data on the not elsewhere specified (Other) Non-energy use flow for the years 2007-2014, which represent the volume of gas injected as cushion gas in a new underground storage.

New Zealand

Source

Ministry of Business, Innovation and Employment, Wellington.

General notes

- 2018 data was estimated based on monthly data submitted to the IEA Secretariat.
- Between 2012 and 2013 there are breaks in series for the final consumption breakdown due to the introduction of a new survey.
- From 1977 to 1979 and from 1986 to 1989 losses are included in the *statistical difference*.

Supply

- There are no imports or exports of **natural gas** for New Zealand.

Transformation

- In 1998 there is a large increase in *autoproducer CHP* plants consumption as two new *autoproducer CHP* plants came on-stream.

Consumption

- In 2005 the decline in *chemical and petrochemical* industry consumption was due to the closure of the Motunui methanol production plant. The Motunui plant was then reopened in late 2008.
- Prior to 2003 **natural gas** consumed in industry includes some gas for energy industry own-use.

- In February 1997 production of synthetic gasoline from **natural gas** ended.
- Since 1990 a detailed consumption breakdown for industry is available.

Norway

Source

Statistics Norway, Oslo.

General note

- At the time of publication of the 2019 edition, the Norwegian administration had qualified the **natural gas** data for 2017 as provisional figures.
- In the 2018 edition, the Norwegian administration made widespread revisions to their data back to 2010, following the introduction of a new system for energy balances and energy accounts. Breaks in series may appear between 2009 and 2010 as a result.
- Since 2008 data on stocks are available.

Supply

- For Norway, the supply of **natural gas** is the residual of two very large and opposite amounts: *indigenous production* and *exports*. As a result, large *statistical differences* in some years may lead to discrepancies in the growth rates of supply and demand of **natural gas**.
- In 2008 there is a break in the time series for *indigenous production* as the production of gas amounts consumed by the offshore platforms were included.
- In 2000 *non-associated gas* production ceased.
- In 1992 the large increase in *oil and gas extraction* is due to the start-up of new fields.
- For the years 2010-2014 no split between countries of origin was provided, therefore these were estimated by the IEA Secretariat.

Transformation

- Since 2007 gas inputs to all electricity and CHP plants are included in *autoproducer electricity* plants due to confidentiality.

- The last *main activity electricity producer* plant closed down in 2016.

Consumption

- In 2007 the increase in *not elsewhere specified (Transport)* is due to the wider use of gas-powered sea vessels.
- Since 2002 domestic navigation is included under *not elsewhere specified (Transport)*.
- Before 2000 *oil and gas extraction* consumption also included some data which should have been included under total final consumption.
- Consumption for *pipeline transport* is included in *oil and gas extraction*.

Poland

Source

Central Statistical Office, Warsaw.

General notes

- *Distribution losses* may include some *statistical differences*.

Supply

- *Exports* include all the gas sold by companies operating in Poland (these are mainly re-exports).
- *Imports* from Germany mainly represent **natural gas** purchased through virtual reverse flow in the Polish section of the Yamal-Europe pipeline
- Since 2010 gas imports from Russia include gas produced in Azerbaijan, Turkmenistan, Kazakhstan or Uzbekistan.
- In 2009 imports reported from Other FSU are from Turkmenistan, Kazakhstan or Uzbekistan.
- **Natural gas** reported in *associated gas* production contains some heavier hydrocarbons. This results in a high gross calorific value for this flow.

Transformation

- *Not elsewhere specified (Transformation)* data represent **natural gas** used for hydrogen manufacture. This hydrogen is used for hydrodesulphurization in oil refineries.

- In 2013 and 2014 some CHP plants were used as backup reserve plants, resulting in a decrease in consumption under *main activity producers CHP* plants.
- In 2004 and 2005 small amounts of gas were used to start up *main activity electricity producer* plants.
- In the 2017 data, local small-CHP & heat plants were reclassified from the *commercial/public services* to the *transformation sector* and the *residential* sub-sector.

Consumption

- *Not elsewhere specified (Energy)* own use includes gas used for heating and pumping operations in the distribution network.

Portugal

Source

Direcção-Geral de Energia e Geologia, Lisbon.

Supply

- The imports reported under *not elsewhere specified* represent gas entering Portugal through the pipeline from Spain.
- Prior to February 2004 most LNG imports from Nigeria arrived via the Huelva terminal in Spain, where they were regasified and sent by pipeline to Portugal. From February 2004 LNG imports arrive directly at the Sines terminal.
- The surge in 2017 imports is attributed to the consumption of gas-fired power plants that filled in the gap of decreased hydro-generation due to a drought.

Transformation

- In 2014, the decrease in *autoproducer CHP* plants consumption was due to a plant closure.
- Since 2012, data reported for *not elsewhere specified (Transformation)* represent **natural gas** used for hydrogen manufacture. Prior to this year, these quantities are reported under *oil refineries*.
- In 2002 the decrease in **natural gas** used for *gas works* is due to the closing of the Lisbon gas works plant in May 2001.

Slovak Republic

Source

Statistical Office of the Slovak Republic, Bratislava.

General notes

- Data for losses were not available between 2009 and 2013.
- Between 1970 and 1971, and between 1978 and 1979 there are breaks in time series due to a revision of data for 1968-1969 and 1979-92 made in 2003. Data for 1970 were estimated by the Secretariat.

Supply

- In 2002 the GCV of *indigenous production* increased significantly as extraction from a field with a low GCV ended.
- *Imports* include gas used for pipeline compressor stations.

Transformation

- In 2014, the decrease in *autoproducer CHP* plants consumption was due to a plant closure.
- The last *autoproducer electricity* plant stopped operation in 2016.
- *Not elsewhere specified (Transformation)* data represent **natural gas** used for hydrogen manufacture. This hydrogen is used for hydrodesulphurization and for hydrocracking in oil refineries.

Consumption

- In 2018, following a change in the nature of its economic activity (as per the NACE classification), a big consuming company is now accounted for in the natural gas consumption for the mining sector, leading to a substantial increase.
- In 2016, non-energy use of **natural gas** in the *chemical and petrochemical* industry decreased due to a two-month stoppage in ammonia production.
- In 2001, there is a break in time series for energy use in *oil and gas extraction* due to the application of the IEA's definition starting that year.
- There are inconsistencies in the time series for *commercial/public services* as this sub-sector is computed as a residual.

Slovenia

Source

Statistical Office of the Republic of Slovenia, Ljubljana.

General notes

- From 1990 data for Slovenia are available. Prior to that, they are included in Former Yugoslavia.
- Between 1999 and 2000 there are some breaks in series due to the implementation of a new energy data collection system in January 2001.

Supply

- The country of the trading station where the gas was purchased is often reported as the country of origin for the imports, instead of the country where the gas was produced.
- In 2017 Slovenia started exporting small quantities of **natural gas** to Croatia.

Transformation

- In 2014, improvements in a *main activity producer CHP* plant resulted in a substantial reduction of **natural gas** consumption in this sector.

Consumption

- In 2011, the decrease in the *chemical and petrochemical* sector non-energy use consumption is due to minimal use of gas for production of methanol.
- There are inconsistencies in the time series for *commercial/public services* as this sub-sector is computed by the Slovenian administration as a *residual*.

Spain

Source

Ministry of Energy, Tourism and the Digital Agenda, Madrid.

General notes

- Spain in the 2018 edition implemented an improvement in data collection for industry, so there are currently breaks in the time series and historical revisions for 2015.
- In 2014, there are breaks in series for some transformation sectors due to the implementation of a new tool for data collection.
- Between 2008 and 2009 there is a break in stock levels due to the exclusion of mechanically recoverable *cushion gas* from the reported levels.
- Between 2006 and 2007 there is a break in stocks levels due to a new methodology of including stocks in transport facilities and in storage facilities during testing phase.
- Between 2005 and 2006 there are some breaks in time series for the energy industry own use and for final consumption due to a change in the estimation methodology.
- Between 2002 and 2003 there is a break in stock levels due to an improvement in stocks level data from 2003 onwards.

Supply

- Between 1996 and 1997 total *imports* and domestic supply increased due to the enlargement of the gas grid.
- Pipeline imports data from France are reported based on the country of last consignment.
- *Exports* include re-exported gas volumes.

Transformation

- The increase in the *transformation sector* consumption for 2017 comes from more gas-fired plants being used to compensate decreased hydro generation due to a drought.
- Due to the implementation of an updated tool for gathering information on electricity generation plants in 2013 many *autoproducer electricity* plants were reclassified as *autoproducer CHP* plants.
- In 1997 the increase in *main activity producer electricity* consumption is due to two *main activity electricity producers* running on **natural gas**.
- Between 1993 and 1994 there is a break in time series in *autoproducer CHP* plants consumption, since a new survey revealed a large number of CHP autoproducers that were previously included in industry consumption.

- Since 1990 the decrease of **natural gas** inputs into **gas works gas** production is due to the substitution of **natural gas** by manufactured gas.

Consumption

- Since 2001 the final consumption breakdown is estimated by the Spanish administration.
- Since 1988 the increase of **natural gas** used as feedstock is due to a substitution of **naphtha** for the production of fertilisers.
- Prior to 1982 **natural gas** consumption in *textiles and leather, transportation equipment and machinery* has been included in *not elsewhere specified (Industry)*.

Sweden

Source

Energimyndigheten, Eskilstuna.

General notes

- In 2013, the **natural gas** consumed by *oil refineries* has been estimated by the Secretariat.
- In 2008, total final consumption and its breakdown have been estimated by the Secretariat based on other Statistics Sweden publications.
- Since 2005 the **natural gas** inputs to *gas works* has been estimated by the Secretariat.

Supply

- **Natural gas** consumption data in *international marine bunkers* are available for the first time for the year 2017.

Transformation

- Autoproducer inputs to waste-heat production that are sold are reported in the respective end-use sectors and not in the *transformation sector*.

Consumption

- Prior to 1993 *road transport* is included in *commercial/public services*.

Switzerland

Source

Swiss Federal Office of Energy - SFOE, Ittigen.

General notes

- Since the 2019 edition, the *non-specified other* flow is calculated as residual flow for **natural gas**. Prior to this, the statistical differences used to be absorbed by *agriculture/forestry*.

Supply

- Gas *imports* are attributed according to the importing company's registered office, instead of gas's ultimate country of origin.

Transformation

- Since 2013 there are fluctuations in **natural gas** consumption of *main activity producers CHP* plants due to the fuel flexibility of a plant.
- In 1996 the increase of gas consumption in *main activity CHP* plants is due to more complete accounting for all producing entities.

Consumption

- Between 1998 and 1999 there are breaks in series for the final consumption breakdown due to the introduction of a new survey.
- Between 1977 and 1978 there are breaks in time series due to the introduction of a new survey by industry type.
- In the 2019 edition, the not elsewhere specified (Other) flow is calculated as residual flow for **natural gas**. Up until the 2018 edition, the *statistical differences* used to be absorbed by *agriculture/forestry*.

Turkey

Source

Petrol İşleri Genel Müdürlüğü, Ankara.

General notes

- From 2009 there are some breaks in time series across all sectors as consumption data started being collected by a different institution, the Turkish Energy Market Regulatory Authority.
- In 2008, there is a break in time series for stock change due to a revision of storage capacity data.
- In 2006 there is a break in time series for non-energy use in *chemical and petrochemical* industry due to classification improvements.
- Not elsewhere specified (Industry) includes the **natural gas** distributed by OIZ (Organised Industrial Zones).
- In December 2016 the first Floating Storage and Regasification Unit (FSRU) terminal started to work allowing thus greater import quantities and stock levels.

Supply

- *Exports* reported the by the Turkish administration represent transit gas.

Transformation

- In the 2018 edition, the Turkish administration revised 2014 and 2015 data, as some main activity producing plants in Turkey were reclassified as autoproducers.
- *Not elsewhere specified (Transformation)* of **natural gas** represents amounts used to produce hydrogen for hydrocracking in refineries.

Consumption

- In 2015, a new survey was introduced by the Turkish administration to collect industrial consumption data, resulting in a substantial decrease of consumption reported under *not elsewhere specified (Industry)*.
- In 2013 no **natural gas** was consumed by blast furnaces due to it being replaced by **coal** and **coke**.
- Prior to 2001 *commercial/public services* consumption was included in the *residential* data.
- Between 1999 and 2001 the decrease in **natural gas** consumption in petrochemical feedstocks is due to the fertiliser industry.
- Since 1988 **natural gas** consumption data in the *chemical and petrochemical* industry (for fertilisers) and in *not elsewhere specified (Industry)* (dye industry) are available.

- *Not elsewhere specified (Energy)* sector includes gas used for heating and pumping operations in the distribution network.

United Kingdom

Source

Department for Business, Energy and Industrial Strategy - BEIS, London.

General notes

- Since 1992 *distribution losses* include metering differences and losses due to pipeline leakage.
- Prior to 1985 distribution losses include *stock changes*.

Supply

- In the 2018 edition, the UK administration revised the supply balance back to 2008 to update Norwegian imports from two terminals previously reported as *indigenous production*.
- In 2009 the increase in LNG imports is due to the expansion of the Isle of Grain terminal and to two new terminals at Milford Haven. These included gas that arrived at the Isle of Grain terminal in November and December 2008 but which was not unloaded until 2009.
- In 2002 the increase in *imports* is due to increased supplies from the Norwegian sector of the North Sea through the Vesterled pipeline, which was commissioned in the 4th quarter of 2001.
- Imports from Belgium reflect physical flows from unknown origin through the Bacton-Zeebrugge Interconnector.
- Exports reported under *not elsewhere specified* are all delivered to the Isle of Man, whereas not elsewhere specified imports come from the Dominican Republic.
- In 2017 data the decrease in *closing stock levels* is related to the cessation of storage operations in Rough, UK's single largest storage facility.

Transformation

- The **natural gas** reported in coke oven transformation is used to form synthetic coke oven gas rather than undergoing a coking process.

Consumption

- In the 2018 edition, **natural gas** consumption in the sectors of *industry, residential, commercial/public services*, was revised back to 2008 to include information from other data sources such as the Purchases Inquiry, EU ETS and ONS Index of Services and Production.
- In the 2019 edition, the UK administration proceeded to revisions back to 2015 based on improved data from the Purchases Inquiry annual survey of the Office of National Statistics (ONS).
- Before 2008 consumption of **natural gas** in the commercial sector is included in not elsewhere specified (Other) while public services consumption is shown separately.
- Between 2007 and 2008 there are some breaks in time series in sectoral consumption due to a new methodology of data estimation.
- Consumption includes substitute **natural gas** made at gas works and piped into the natural gas distribution system.
- Not elsewhere specified (Energy) includes gas used for heating and pumping operations in the distribution network.
- Data in the not elsewhere specified (Industry) sector refer to sales by independent gas suppliers unallocated by categories.
- **Natural gas** consumed by the *mining and quarrying* and the *wood and wood products* sub-sectors is included under *not elsewhere specified (Industry)*.

United States

Source

Energy Information administration, Washington, DC.

General notes

- Since the 2014 edition of this publication, energy final consumption data for the United States shows breaks in time series with historical data due to a change in methodology. The break in time 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 energy final consumption in the *industrial sector* and its subsectors, including the non-manufacturing industries of mining, construction and agriculture. Historical revisions are pending.

- Between 1995 and 2001 the detailed breakdown of industry consumption is estimated by the Energy Information Administration using the Manufacturing Energy Consumption Survey (MECS), which is conducted quadrennially.
- Puerto Rico is currently not included in US data with the exception of **natural gas** consumed for electricity generation in 2017. LNG imports into Puerto Rico are reported in the Other non-OECD Americas regional aggregate.

Supply

- In the 2017 edition of this publication, the *indigenous production* data for 2014 was revised by the US administration creating a break in the time series between 2013 and 2014 due to a change in the methodology. In addition, this increased the *statistical difference* that remained high in 2015 and 2016.
- The LNG exports have been increasing since 2015, due to new liquefaction capacity (i.e. Sabine Pass) coming online which also resulted in numerous new export destinations. LNG exports include re-exports.

Transformation

- Since 2012, data reported for *not elsewhere specified (Transformation)* represent **natural gas** used for hydrogen manufacture. Prior to 2012, these quantities are reported under the *chemical and petrochemical* sector.
- Between 1999 and 2000 there are some breaks in time series for the transformation subsectors due to a new data reporting method.
- Between 1990 and 2002 the amounts of **gas works gas** that are blended with **natural gas** have been estimated on the basis of the output efficiency of the process.
- Since 1989 consumption by *autoproducer CHP* plants is available, while consumption by *autoproducer electricity* and *main activity producer CHP* plants is available since 1991. Prior to these years

these consumptions are included with *industry and commerce/public services*.

Consumption

- In the 2019 edition, revisions were made to the *industry sector* from 2015 onwards, by reallocating **natural gas** consumption to the *chemical and petrochemical* sub-sector from other industrial sub-sectors.
- Due to revisions made to the iron and steel model, there is a break in the time series between 2014 and 2015 for the consumption in *blast furnaces (Energy)*.
- Until 2001 *agriculture/forestry* consumption is included under *industry*.
- Prior to 1995 a detailed breakdown of *industry* consumption is not available (between 1990 and 1994 chemical consumption is estimated by the American administration).
- In 1991 data on **natural gas** use in the *road sector* were collected for the first time, and are not available for previous years.
- *Not elsewhere specified (Energy)* industry own use represents gas consumed for the production of ethanol.
- Consumption in fisheries is included under industry.

7. UNITS AND CONVERSIONS

General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
Terajoule (TJ)	1	2.388×10^2	2.388×10^{-5}	9.478×10^2	2.778×10^{-1}
Gigacalorie (Gcal)	4.187×10^{-3}	1	1.000×10^{-7}	3.968	1.163×10^{-3}
Million tonnes of oil equivalent (Mtoe)	4.187×10^4	1.000×10^7	1	3.968×10^7	1.163×10^4
Million British thermal units (MBtu)	1.055×10^{-3}	2.520×10^{-1}	2.520×10^{-8}	1	2.931×10^{-4}
Gigawatt hour (GWh)	3.600	8.598×10^2	8.598×10^{-5}	3.412×10^3	1

Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
Kilogramme (kg)	1	1.000×10^{-3}	9.842×10^{-4}	1.102×10^{-3}	2.205
Tonne (t)	1.000×10^3	1	9.842×10^{-1}	1.102	2.205×10^3
Long ton (lt)	1.016×10^3	1.016	1	1.120	2.240×10^3
Short ton (st)	9.072×10^2	9.072×10^{-1}	8.929×10^{-1}	1	2.000×10^3
Pound (lb)	4.536×10^{-1}	4.536×10^{-4}	4.464×10^{-4}	5.000×10^{-4}	1

Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft ³	l	cm
From:	multiply by:					
U.S. gallon (gal U.S.)	1	8.327×10^{-1}	2.381×10^{-2}	1.337×10^{-1}	3.785	3.785×10^{-3}
U.K. gallon (gal U.K.)	1.201	1	2.859×10^{-2}	1.605×10^{-1}	4.546	4.546×10^{-3}
Barrel (bbl)	4.200×10^1	3.497×10^1	1	5.615	1.590×10^2	1.590×10^{-1}
Cubic foot (ft³)	7.481	6.229	1.781×10^{-1}	1	2.832×10^1	2.832×10^{-2}
Litre (l)	2.642×10^{-1}	2.200×10^{-1}	6.290×10^{-3}	3.531×10^{-2}	1	1.000×10^{-3}
Cubic metre (cm)	2.642×10^2	2.200×10^2	6.290	3.531×10^1	1.000×10^3	1

Conversion factors from mass or volume to heat (Gross calorific value)

	LNG ²		GAS									
			Norway		Netherlands		Russia		Algeria		Qatar	
To:	MJ	Btu	MJ	Btu	MJ	Btu	MJ	Btu	MJ	Btu	MJ	Btu
From:	multiply by:											
cm ¹	40.00	37 913	40.00	37 913	33.32	31 581	38.23	36 235	39.19	37 145	41.17	39 018
Kg	54.25	51 417	52.22	49 495	42.07	39 875	55.25	52 363	52.46	49 726	54.98	52 107

1. At 15°C and 760 mm Hg

2. In gaseous state – average OECD imports

Conversion factors for natural gas

Scm versus Ncm

To:	Standard cm	Normal cm
From:	multiply by:	
Standard cm ³	1	9.480x10 ⁻¹
Normal cm ⁴	1.055	1

3. 1 Scm measured at 15°C and 760 mm Hg

4. 1 Ncm measured at 0°C and 760 mm Hg

LNG versus GAS

To:	t of LNG	cm of LNG	Standard cm
From:	multiply by:		
t of LNG	1	2.220	1.360x10 ³
cm of LNG	4.500x10 ⁻¹	1	6.150x10 ²
Standard cm ⁵	7.350x10 ⁻⁴	1.626x10 ⁻³	1

5. 1 Scm = 40 MJ

Gross versus net calorific value

$$1 \text{ NCV}^6 = 0.9 \text{ GCV}^7$$

6. NCV = Net Calorific Value

7. GCV = Gross Calorific Value

Conversion factors for natural gas flow rates⁸

To	Bcm per year	Mt per year	Bcf/d	Tcf per year	PJ per year	TWh per year	MBtu per year	Mtoe per year
From:	multiply by:							
Bcm per year	1	7.350x10 ⁻¹	9.681x10 ⁻²	3.534x10 ⁻²	4.000x10 ¹	1.111x10 ¹	3.790x10 ⁷	9.554x10 ⁻¹
Mt per year	1.360	1	1.317x10 ⁻¹	4.808x10 ⁻²	5.440x10 ¹	1.511x10 ¹	5.160x10 ⁷	1.299
Bcf/d	1.033x10 ¹	7.595	1	3.650x10 ⁻¹	4.132x10 ²	1.148x10 ²	3.910x10 ⁸	9.869
Tcf per year	2.830x10 ¹	2.081x10 ¹	2.740	1	1.132x10 ³	3.145x10 ²	1.070x10 ⁹	2.704x10 ¹
PJ per year	2.500x10 ⁻²	1.838x10 ⁻²	2.420x10 ⁻³	8.834x10 ⁻⁴	1	2.778x10 ⁻¹	9.470x10 ⁵	2.388x10 ⁻²
TWh per year	9.000x10 ⁻²	6.615x10 ⁻²	8.713x10 ⁻³	3.180x10 ⁻³	3.600	1	3.410x10 ⁶	8.598x10 ⁻²
MBtu per year	2.638x10 ⁻⁸	1.939x10 ⁻⁸	2.554x10 ⁻⁹	9.320x10 ⁻¹⁰	1.055x10 ⁻⁶	2.930x10 ⁻⁷	1	2.520x10 ⁻⁸
Mtoe per year	1.047	7.693x10 ⁻¹	1.013x10 ⁻¹	3.698x10 ⁻²	4.187x10 ¹	1.163x10 ¹	3.970x10 ⁷	1

8. Based on gas with calorific value of 40 MJ/cm at standard conditions

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)

Country specific conversion factors

Average¹ Gross Calorific Value of Natural Gas (kJ/m³)

	Production	Imports	Exports	Consumption
Albania	34 887	-	-	34 726
Algeria	39 565	39 565	39 565	39 565
Angola	38 000	38 000	38 000	38 000
Argentina	38 937	38 937	38 937	38 937
Armenia	38 000	38 190	38 000	38 190
Australia	39 755	40 903	41 743	37 762
Austria	38 451	38 451	38 451	38 451
Azerbaijan	39 060	39 060	39 060	39 060
Bahrain	38 000	38 000	38 000	38 000
Bangladesh	38 861	38 861	38 861	38 861
Belarus	38 622	38 622	-	38 622
Belgium	-	37 756	39 535	37 666
Plurinational State of Bolivia	38 940	38 940	38 940	38 940
Bosnia and Herzegovina	38 000	37 861	38 000	37 862
Brazil	39 609	39 609	39 425	39 609
Brunei Darussalam	39 413	39 413	39 413	39 413
Bulgaria	38 410	38 714	39 038	38 700
Cameroon	38 000	38 000	38 000	38 000
Canada	39 072	39 072	39 102	39 072
Chile	39 116	39 112	39 109	39 210
People's Republic of China	38 931	38 865	38 931	38 931
Colombia	34 598	34 598	34 598	34 598
Republic of the Congo	38 000	38 000	38 000	38 000
Cote d'Ivoire	37 283	37 283	37 283	37 283
Croatia	38 396	38 396	38 396	38 393
Cuba	36 957	36 957	36 957	36 957
Czech Republic	38 296	38 342	41 875	38 322
Democratic Republic of the Congo	38 333	38 333	38 333	38 333
Denmark	41 610	41 610	41 610	41 610
Dominican Republic	38 000	37 458	38 000	37 458
Ecuador	34 783	34 783	34 783	34 783
Egypt	38 063	38 000	38 000	38 063
Estonia	-	38 315	-	38 315
Finland	-	38 292	37 523	38 289
Republic of North Macedonia	-	38 414	-	38 659
France	41 760	41 192	41 760	41 115
Gabon	37 700	37 700	37 700	37 700
Georgia	39 354	39 354	39 133	39 354
Germany	33 787	38 436	38 988	37 998
Ghana	38 000	38 000	38 000	38 000
Greece	50 357	39 312	-	39 360
Hong Kong (China)	38 000	38 000	38 000	38 000
Hungary	36 092	38 784	38 839	38 171
India	39 000	41 400	38 520	39 913
Indonesia	40 600	40 600	40 600	40 600
Islamic Republic of Iran	39 356	39 356	39 356	39 356

1. Average values for 2015 to 2019

Average¹ Gross Calorific Value of Natural Gas (kJ/m³)

	Production	Imports	Exports	Consumption
Iraq	38 000	38 000	38 000	38 000
Ireland	37 803	39 573	-	38 917
Israel	38 086	38 091	37950e	38 087
Italy	38 100	38 100	38 100	38 100
Japan	42 562	41 732	-	42 024
Jordan	31 223	31 223	31 223	31 223
Kazakhstan	40 207	39 428	39 428	40 157
Korea	41 719	41 714	-	41 714
Kuwait	38 000	38 000	38 000	38 000
Kyrgyzstan	37 046	39 023	38 000	38 821
Latvia	-	38 145	-	38 079
Lebanon	38 000	38 897	38 000	38 897
Libya	38 000	38 000	38 000	38 000
Lithuania	-	38 419	38 359	38 410
Luxembourg	-	40 733	-	40 719
Malaysia	39 249	39 249	39 249	39 249
Mexico	39 275	38 431	36 572	37 057
Republic of Moldova	33 873	33 863	38 000	33 863
Morocco	35 253	39 339	39 685	39 030
Mozambique	41 270	41 270	41 270	41 270
Myanmar	39 269	39 269	39 269	39 269
Netherlands	33 339	33 339	33 339	33 339
Nigeria	38 000	38 000	38 000	38 000
Norway	39 471	39 227	39 269	42 999
New Zealand	38808	-	-	38 712
Oman	37 865	41 400	41 700	38 060
Other Africa	38 000	38 000	38 000	38 000
Other Non-OECD Asia	38 000	38 000	38 000	38 000
Other Non-OECD Americas	38 000	38 000	38 000	38 000
Pakistan	32 291	33 433	32 291	32 291
Peru	44 922	44 922	44 922	44 922
Philippines	38 549	38 549	38 549	38 549
Poland	28 455	38 427	37 948	35 573
Portugal	-	40 189	-	40 189
Qatar	41 400	41 400	41 400	41 400
Romania	37 221	37 027	37 618	37 124
Russian Federation	38 230	38 230	38 230	38 451
Saudi Arabia	38 000	38 000	38 000	38 000
Senegal	34 500	34 500	34 500	34 500
Serbia	37 042	37 042	38 000	37 042
Singapore	38 000	38 000	38 000	38 000
Slovak Republic	38 903	38 647	38 567	38 640
Slovenia	39 832	37 862	39 688	37 872
South Africa	38 000	38 000	38 000	38 000
Spain	40 864	40 474	40 483	40 474
Sweden	-	41 463	44 107	40 145
Switzerland	-	38 088	-	38 088
Syrian Arab Republic	37 700	37 700	37 700	37 700
Chinese Taipei	37 255	41 519	37 263	41 293
Tajikistan	37 429	38 333	37 700	38 322
United Republic of Tanzania	38 139	38 000	38 139	38 139
Thailand	36 396	36 396	36 396	36 396
Trinidad and Tobago	38 937	38 937	38 937	38 937
Tunisia	39 784	40 232	37 700	40 211
Turkey	38 297	38 303	38 305	38 300
Turkmenistan	37 889	37 889	37 889	37 889
United Arab Emirates	37 679	38 000	37 679	37 679
United Kingdom	39 823	39 354	39 612	39 636
Ukraine	35 969	38 357	38 000	36 952
Uruguay	38 000	38 000	38 000	38 000
United States	38 534	37 996	37 800	38 625
Uzbekistan	37 889	37 889	37 889	37 889
Bolivarian Republic of Venezuela	39 705	39 705	39 705	39 705
Viet Nam	38 612	38 612	38 612	38 612
Yemen	40 089	40 600	40 089	40 089

1. Average values for 2015 to 2019.

8. ABBREVIATIONS

Bcm:	billion cubic metres
Btu:	British thermal unit
cm:	cubic metre
GWh:	gigawatt hour
kcal:	kilocalorie
kg:	kilogramme
kJ:	kilojoule
m ³ :	cubic metre
Mcm:	million cubic metres
Mt:	million metric tonnes
Ncm	normal cubic metre
Scm	standard cubic metre
t:	metric ton = tonne
TJ:	terajoule
toe:	tonne of oil equivalent
CHP:	combined heat and power
GCV:	gross calorific value
LNG:	liquefied natural gas
NCV:	net calorific value
TPES:	total primary energy supply
IEA:	International Energy Agency
OECD:	Organisation for Economic Co-Operation and Development
c	confidential
e	estimated
..	not available
-	nil
x	not applicable

This publication reflects the views of the IEA Secretariat but does not necessarily reflect those of individual IEA member countries. The IEA makes no representation or warranty, express or implied, in respect of the publication's contents (including its completeness or accuracy) and shall not be responsible for any use of, or reliance on, the publication. Unless otherwise indicated, all material presented in figures and tables is derived from IEA data and analysis.

This publication and any map included herein are 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.

IEA. All rights reserved.

IEA Publications

International Energy Agency

Website: www.iea.org

Contact information: www.iea.org/about/contact

Typeset in France by IEA - July 2021

Cover design: IEA