



Key world energy statistics

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2019

KEY WORLD ENERGY STATISTICS

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.

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Foreword

The International Energy Agency (IEA) was established in 1974 to promote energy security and provide authoritative analysis on energy for its member countries and beyond. Energy statistics have always been and remain at the heart of the work of the IEA. They provide a comprehensive view on energy production, transformation and final use for all forms of energy as well as the factors that influence energy choices such as prices and RD&D and the wider impact of energy use on CO₂ emissions. Over the years with input from energy statisticians all around the world, the IEA has gained recognition as the world's most authoritative source for energy statistics.

Energy statistics are produced to be used: to monitor changes in energy production and use; inform debate; and provide a wider understanding of energy, including helping countries understand their energy transitions. In *Key World Energy Statistics (KWES)*, we look to highlight some of the key facts and trends from across the vast number of datasets the IEA produces to enable everyone to know more about energy. As part of the IEA modernisation programme, *KWES* now contains more information on energy efficiency and renewables, more geographic data – including on the “IEA Family”, created through our “Open Doors” policy – and also more of the fundamental data required to fully understand energy security – the heart of our work.

Because energy plays such a vital role in our lives today, I hope that these statistics will not only inform but also help policy makers and others to make wise decisions so that energy is produced and consumed in a secure, affordable, efficient, and sustainable manner.

As I like to say, in the world of energy, data always wins. I would therefore like to thank the whole team in the Energy Data Centre for their work in ensuring we all have the data needed to gain a comprehensive understanding of energy.

Dr. Fatih Birol
Executive Director, International Energy Agency

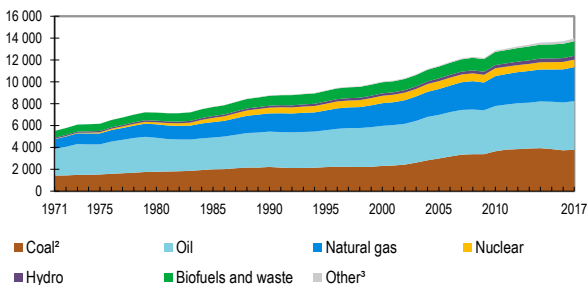
KWES is a summary of the comprehensive data made available by the IEA via its website: www.iea.org/statistics/.

Table of contents

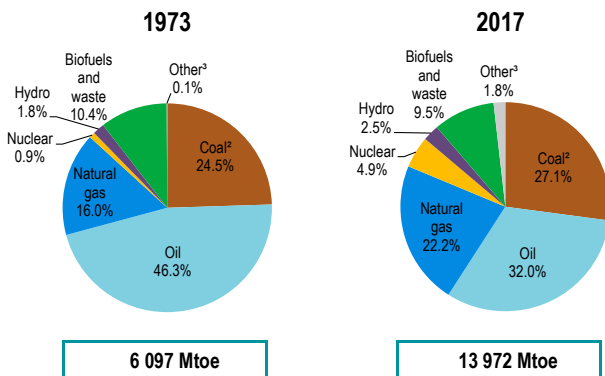
Supply	6
Transformation	26
Final consumption	34
Energy efficiency	44
Energy balances	46
Prices	50
Emissions	54
Research, development and demonstration (RD&D)	56
Outlook	58
Energy indicators	60
Conversion factors	70
Glossary	73

World total primary energy supply (TPES) by source

World¹ TPES from 1971 to 2017 by source (Mtoe)



1973 and 2017 source shares of TPES



1. World includes international aviation and international marine bunkers.

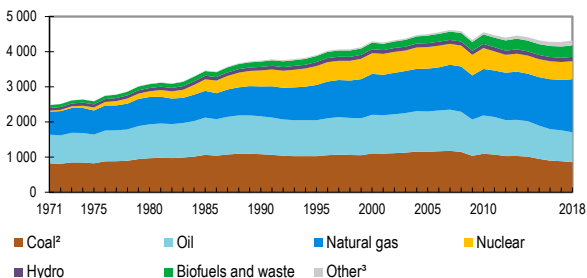
2. In these graphs, peat and oil shale are aggregated with coal.

3. Includes geothermal, solar, wind, tide/wave/ocean, heat and other sources.

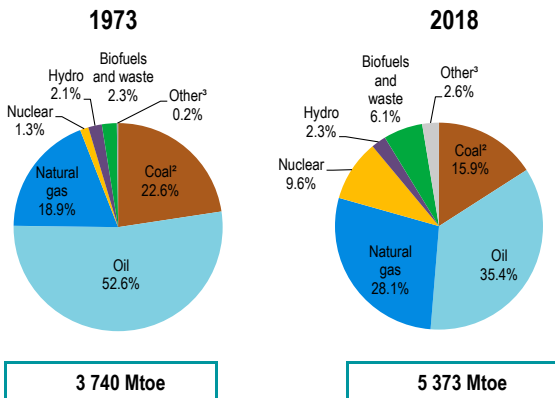
Source: [IEA, World Energy Balances, 2019](#).

OECD total primary energy supply by source

OECD TPES¹ from 1971 to 2018 by source (Mtoe)



1973 and 2018 source shares of TPES¹



1. Excludes electricity trade.

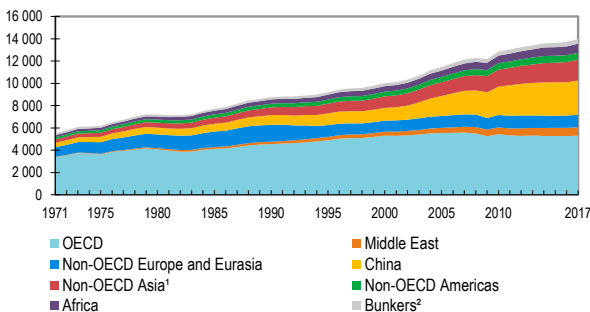
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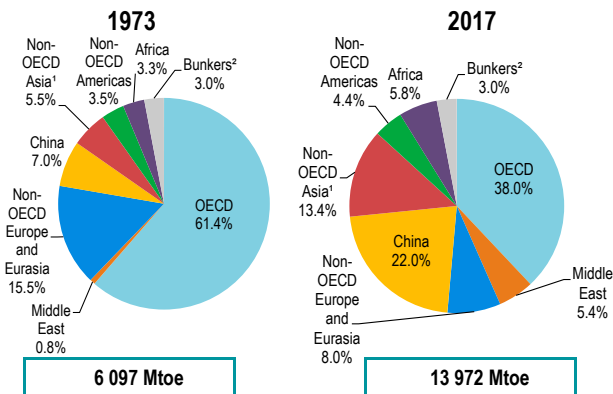
Source: [IEA, World Energy Balances, 2019](#).

World total primary energy supply by region

World TPES from 1971 to 2017 by region (Mtoe)



1973 and 2017 regional shares of TPES



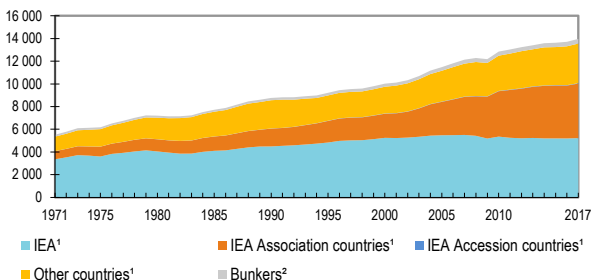
1. Non-OECD Asia excludes China.

2. Includes international aviation and international marine bunkers.

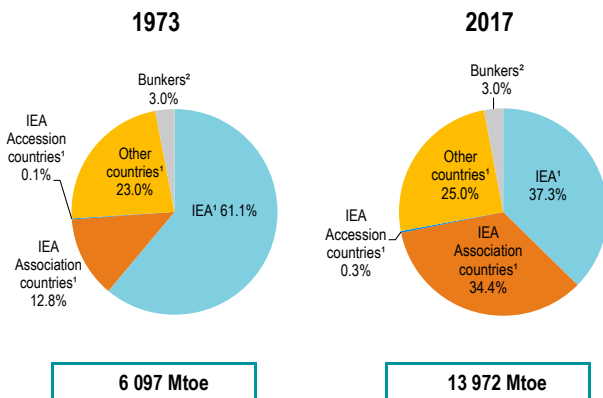
Source: [IEA, World Energy Balances, 2019](#).

World total primary energy supply by region

World TPES from 1971 to 2017 by region (Mtoe)



1973 and 2017 regional shares of TPES

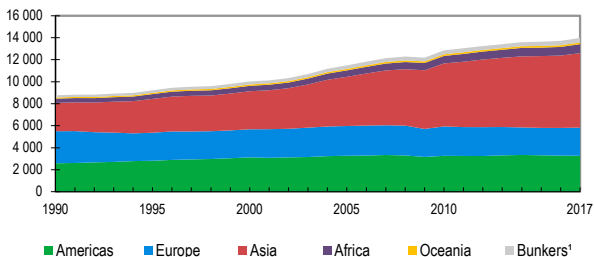


1. Please see geographical coverage for the list of IEA Accession, Association and other countries.
2. Includes international aviation and international marine bunkers.

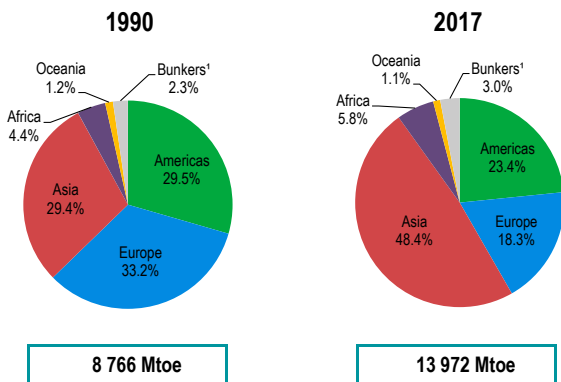
Source: [IEA, World Energy Balances, 2019](#).

World total primary energy supply by geographical region

World TPES from 1990 to 2017 by region (Mtoe)



1990 and 2017 regional shares of TPES

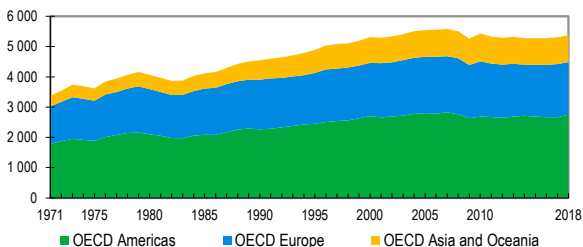


1. Includes international aviation and international marine bunkers.

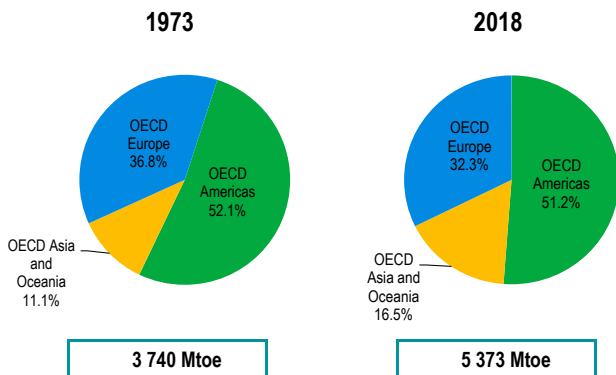
Source: [IEA, World Energy Balances, 2019](#).

OECD total primary energy supply by region

OECD TPES¹ from 1971 to 2018 by region (Mtoe)



1973 and 2018 regional shares of TPES¹

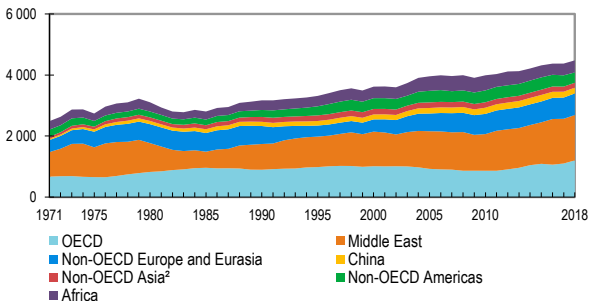


1. Excludes electricity trade.

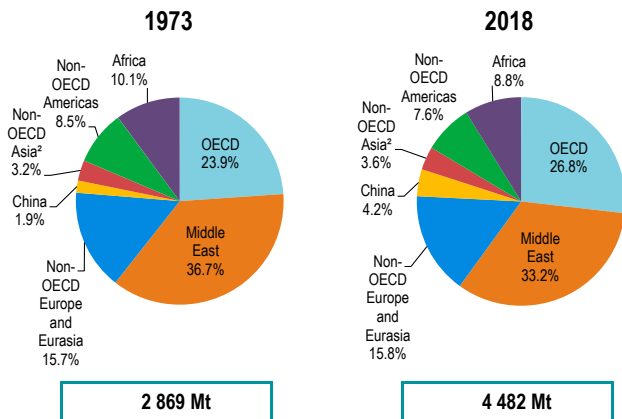
Source: [IEA, World Energy Balances, 2019](#).

Crude oil production

World crude oil¹ production from 1971 to 2018 by region (Mt)



1973 and 2018 regional shares of crude oil¹ production



1. Includes crude oil, NGL, feedstocks, additives and other hydrocarbons.

2. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#).

Crude oil production

Producers, net exporters and net importers of crude oil¹

Producers	Mt	% of world total
United States	666	14.9
Saudi Arabia	575	12.8
Russian Federation	554	12.4
Canada	259	5.8
Iraq	231	5.2
Islamic Rep. of Iran	221	4.9
People's Rep. of China	188	4.2
United Arab Emirates	179	4.0
Kuwait	148	3.3
Brazil	135	3.0
Rest of the world	1 326	29.5
World	4 482	100.0

2018 provisional data

Net exporters	Mt
Saudi Arabia	348
Russian Federation	252
Iraq	187
Islam Rep. of Iran	132
Canada	131
United Arab Emirates	118
Kuwait	103
Nigeria	89
Venezuela	82
Angola	75
Others	563
Total	2 080

2017 data

Net importers	Mt
People's Rep. of China	415
United States	349
India	220
Japan	158
Korea	151
Germany	91
Italy	69
Spain	65
Netherlands	59
France	58
Others	527
Total	2 162

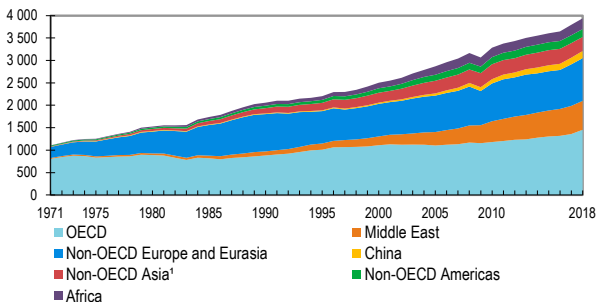
2017 data

1. Includes production of crude oil, NGL, feedstocks, additives and other hydrocarbons. Excludes liquids from other fuel sources (renewables, coal and natural gas).

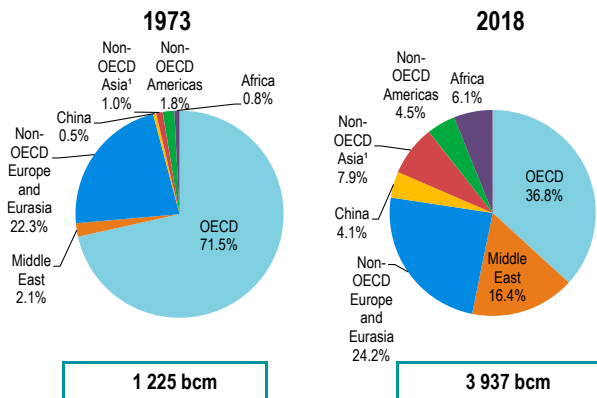
Sources: [IEA, World Energy Statistics, 2019](#).

Natural gas production

World natural gas production from 1971 to 2018 by region
(billion cubic metres, bcm)



1973 and 2018 regional shares of natural gas production



1. Non-OECD Asia excludes China.

Sources: [IEA, Natural Gas information, 2019.](#)

Natural gas production

Producers, net exporters and net importers¹ of natural gas

Producers	bcm	% of world total
United States	862	21.9
Russian Federation	715	18.2
Islamic Rep. of Iran	231	5.9
Canada	190	4.8
Qatar	171	4.3
People's Rep. of China	160	4.1
Norway	126	3.2
Australia	118	3.0
Saudi Arabia	97	2.5
Algeria	96	2.4
Rest of the world	1 171	29.7
World	3 937	100.0

2018 provisional data

Net exporters	bcm
Russian Federation	236
Qatar	121
Norway	118
Australia	77
Canada	59
Turkmenistan	56
Algeria	52
Indonesia	27
Nigeria	27
Malaysia	26
Others	194
Total	993

2018 provisional data

Net importers	bcm
People's Rep. of China	116
Japan	111
Germany	89
Italy	67
Korea	56
Mexico	52
Turkey	50
France	43
United Kingdom	39
Spain	32
Others	297
Total	952

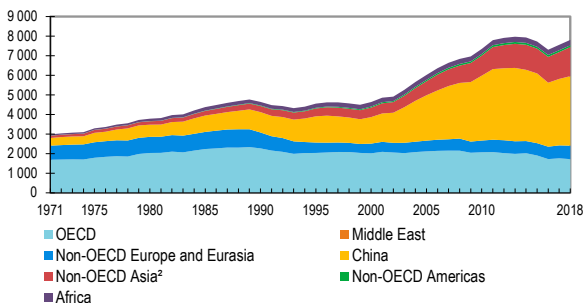
2018 provisional data

1. Net exports and net imports include pipeline gas and LNG.

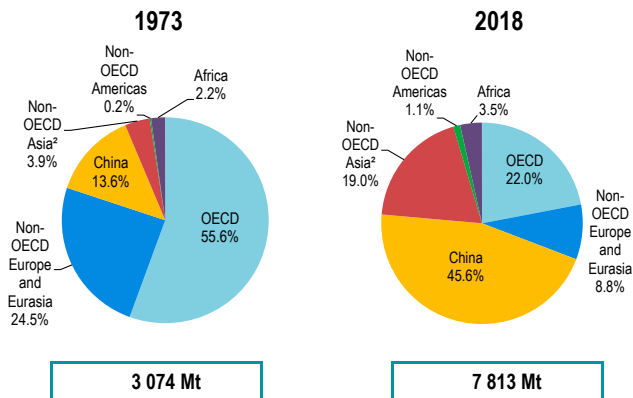
Sources: [IEA, Natural Gas information, 2019](#).

Coal production

World coal¹ production from 1971 to 2018 by region (Mt)



1973 and 2018 regional shares of coal¹ production



1. Includes steam coal, coking coal, lignite and recovered coal.

2. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Coal Information, 2019](#).

Coal production

Producers, net exporters and net importers of coal¹

Producers	Mt	% of world total
People's Rep. of China	3 550	45.4
India	771	9.9
United States	685	8.8
Indonesia	549	7.0
Australia	483	6.2
Russian Federation	420	5.4
South Africa	259	3.3
Germany	169	2.2
Poland	122	1.6
Kazakhstan	114	1.5
Rest of the world	691	8.7
World	7 813	100.0

2018 provisional data

Net exporters	Mt
Indonesia	433
Australia	382
Russian Federation	182
United States	99
Colombia	82
South Africa	69
Mongolia	34
Kazakhstan	25
Canada	23
Mozambique	12
Others	4
Total	1 345

2018 provisional data

Net importers	Mt
People's Rep. of China	289
India	239
Japan	185
Korea	142
Chinese Taipei	67
Germany	44
Turkey	38
Malaysia	32
Thailand	25
Ukraine	21
Others	267
Total	1 349

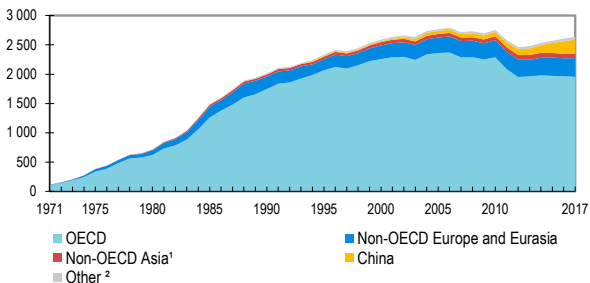
2018 provisional data

1. Includes steam coal, coking coal, lignite and recovered coal.

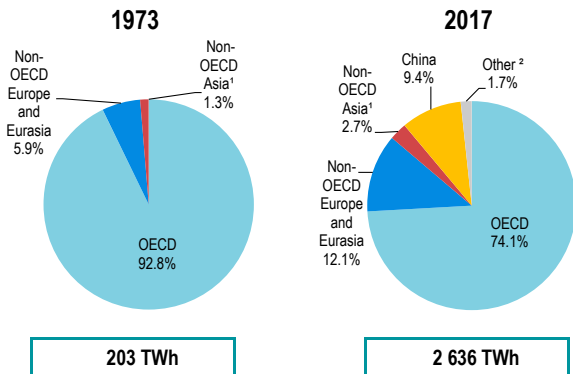
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Coal Information, 2019](#).

Nuclear electricity production

World nuclear electricity production from 1971 to 2017
by region (TWh)



1973 and 2017 regional shares of nuclear electricity production



1. Non-OECD Asia excludes China.

2. Other includes Africa, Non-OECD Americas and the Middle East.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Electricity Information, 2019](#).

Nuclear electricity production

Producers of nuclear electricity

Producers	TWh	% of world total
United States	839	31.8
France	398	15.1
People's Rep. of China	248	9.4
Russian Federation	203	7.7
Korea	148	5.6
Canada	101	3.8
Ukraine	86	3.3
Germany	76	2.9
United Kingdom	70	2.7
Sweden	66	2.5
Rest of the world	401	15.2
World	2 636	100.0

2017 data

Net installed capacity	GW
United States	100
France	63
Japan	40
People's Rep. of China	35
Russian Federation	26
Korea	22
Canada	14
Ukraine	13
Germany	10
United Kingdom	9
Rest of the world	60
World	392

2017 data

Sources:

[International Atomic Energy Agency](#)

Country (top ten producers)	% of nuclear in total domestic electricity generation
France	71.5
Ukraine	55.4
Sweden	40.0
Korea	26.4
United Kingdom	21.0
United States	19.7
Russian Federation	18.6
Canada	15.4
Germany	11.8
People's Rep. of China	3.8
Rest of the world ¹	7.4
World	10.3

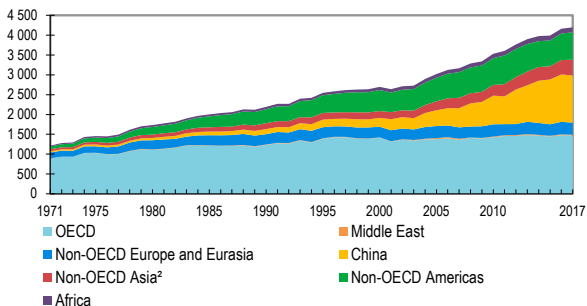
2017 data

1. Excludes countries with no nuclear production.

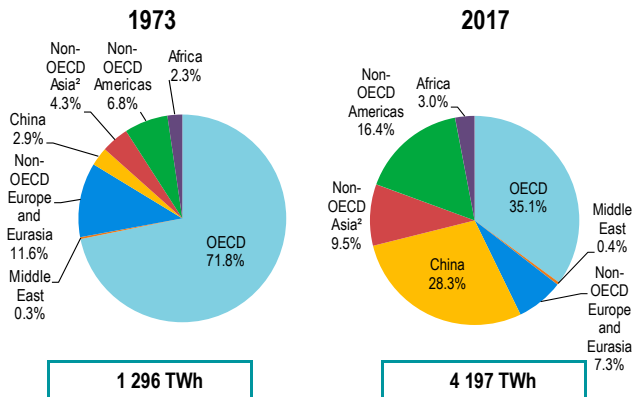
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Electricity Information, 2019](#).

Hydroelectricity production

World hydroelectricity production¹ from 1971 to 2017
by region (TWh)



1973 and 2017 regional shares of hydroelectricity production¹



1. Includes electricity production from pumped storage.

2. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Renewables Information, 2019](#).

Hydroelectricity production

Producers of hydroelectricity¹

Producers	TWh	% of world total
People's Rep. of China	1 190	28.3
Canada	393	9.4
Brazil	371	8.8
United States	325	7.7
Russian Federation	187	4.5
Norway	143	3.4
India	142	3.4
Japan	90	2.1
Viet Nam	89	2.1
Sweden	65	1.6
Rest of the world	1 202	28.7
World	4 197	100.0

2017 data

Net installed capacity	GW
People's Rep. of China	344
United States	103
Brazil	100
Canada	81
Russian Federation	52
Japan	50
India	48
Norway	32
Turkey	27
France	26
Rest of the world	407
World	1 270

2017 data

Sources:

[IEA, Market Report Series:](#)[Renewables, 2018,](#)[United Nations Statistics](#)[Division.](#)

Country (top ten producers)	% of hydro in total domestic electricity generation
Norway	95.7
Brazil	62.9
Canada	59.6
Viet Nam	44.8
Sweden	39.7
People's Rep. of China	17.9
Russian Federation	17.1
India	9.3
Japan	8.4
United States	7.6
Rest of the world ²	14.3
World	16.3

2017 data

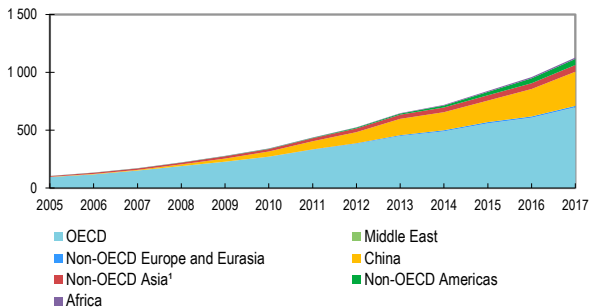
1. Includes electricity production from pumped storage.

2. Excludes countries with no hydro production.

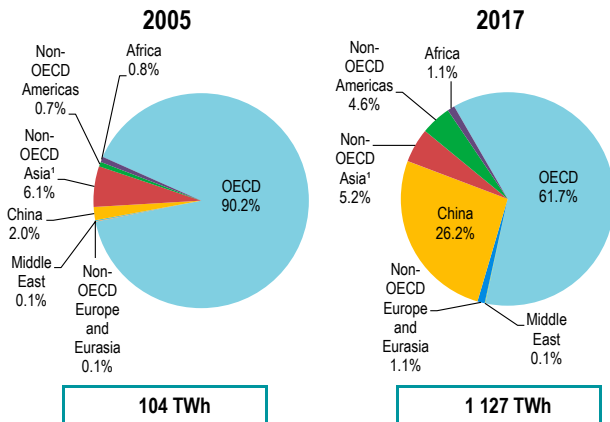
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Renewables Information, 2019](#).

Wind electricity production

World wind electricity production from 2005 to 2017 by region (TWh)



2005 and 2017 regional shares of wind electricity production



1. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Renewables Information, 2019](#).

Wind electricity production

Producers of wind electricity

Producers	TWh	% of world total
People's Rep. of China	295	26.2
United States	257	22.8
Germany	106	9.4
India	51	4.5
United Kingdom	50	4.4
Spain	49	4.4
Brazil	42	3.8
Canada	29	2.6
France	25	2.2
Turkey	18	1.6
Rest of the world	205	18.1
World	1 127	100.0

2017 data

Net installed capacity	GW
People's Rep. of China	163.7
United States	88.3
Germany	55.7
India	32.8
Spain	23.0
United Kingdom	19.9
France	13.1
Canada	12.3
Brazil	12.3
Italy	9.6
Rest of the world	84.2
World	514.9

2017 data

Country (top ten producers)	% of wind in total domestic electricity generation
Spain	17.8
Germany	16.2
United Kingdom	14.8
Brazil	7.2
Turkey	6.0
United States	6.0
People's Rep. of China	4.5
France	4.4
Canada	4.4
India	3.3
Rest of the world ¹	2.4
World	4.4

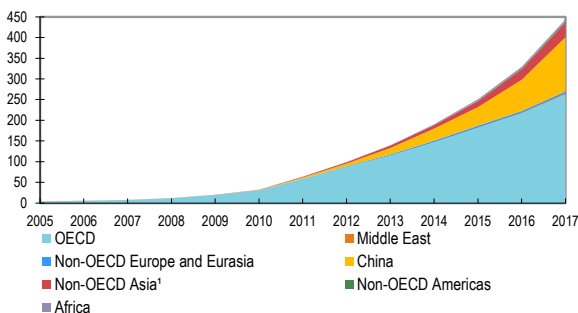
2017 data

1. Excludes countries with no wind production.

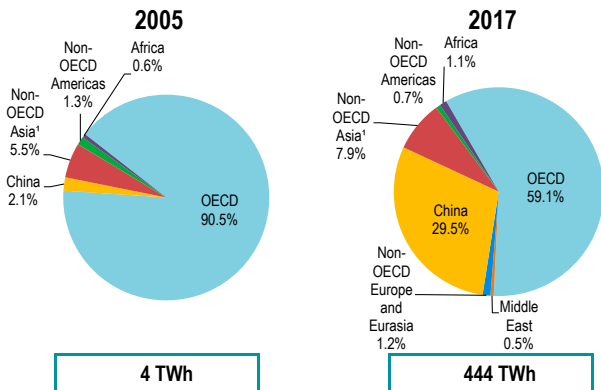
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Renewables Information, 2019](#); [IEA, Market Report Series: Renewables, 2018](#).

Solar photovoltaic electricity production

World solar PV electricity production from 2005 to 2017
by region (TWh)



2005 and 2017 regional shares of solar PV electricity production



1. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Renewables Information, 2019](#).

Solar photovoltaic electricity production

Producers of solar PV electricity

Producers	TWh	% of world total
People's Rep. of China	131	29.5
United States	67	15.2
Japan	55	12.4
Germany	39	8.9
India	26	5.9
Italy	24	5.5
United Kingdom	12	2.6
France	10	2.2
Spain	9	1.9
Australia	8	1.8
Rest of the world	63	14.1
World	444	100.0

2017 data

Net installed capacity	GW
People's Rep. of China	130.6
United States	52.0
Japan	49.0
Germany	42.4
Italy	19.7
India	19.0
United Kingdom	12.8
France	8.2
Australia	6.9
Korea	5.7
Rest of the world	51.4
World	397.7

2017 data

Country (top ten producers)	% of solar PV in total domestic electricity generation
Italy	8.2
Germany	6.0
Japan	5.2
United Kingdom	3.4
Australia	3.1
Spain	3.1
People's Rep. of China	2.0
India	1.7
France	1.7
United States	1.6
Rest of the world ¹	0.7
World	1.7

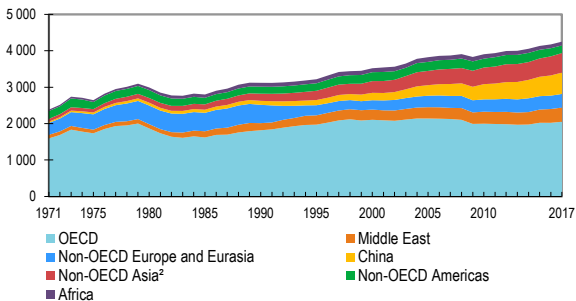
2017 data

1. Excludes countries with no solar PV production.

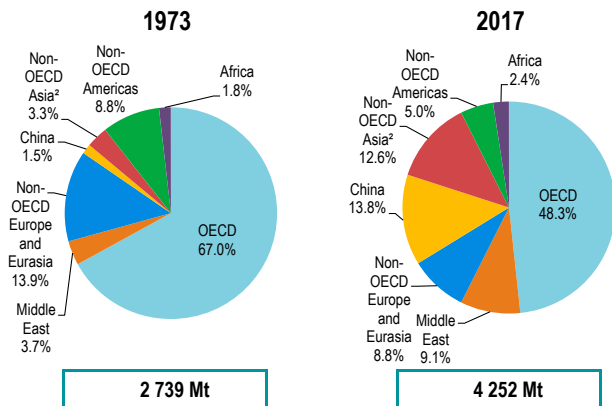
Source: [IEA, World Energy Statistics, 2019](#); [IEA, Renewables Information, 2019](#); [IEA, Market Report Series: Renewables, 2018](#).

Refining by region

World refinery intake¹ from 1971 to 2017 by region (Mt)



1973 and 2017 regional shares of refinery intake¹



1. Includes crude oil, NGL, refinery feedstocks, additives and other hydrocarbons.
2. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Oil Information, 2019](#).

Refining by region

Refinery capacity, net exporters and net importers of oil¹

Crude distillation capacity	kb/cd	% of world total
United States	18 915	19.2
People's Rep. of China	15 449	15.7
Russian Federation	6 558	6.6
India	5 117	5.2
Japan	3 558	3.6
Korea	3 276	3.3
Saudi Arabia	2 829	2.9
Brazil	2 175	2.2
Germany	2 022	2.0
Canada	1 931	2.0
Rest of the world	36 834	37.3
World	98 664	100.0

2018 data

Net exporters	Mt
Saudi Arabia	414
Russian Federation	378
Iraq	174
Islamic Rep. of Iran	153
United Arab Emirates	143
Canada	143
Kuwait	130
Venezuela	94
Norway	78
Kazakhstan	71
Others	520
Total	2 298

2017 data

Net importers	Mt
People's Rep. of China	419
United States	209
India	187
Japan	184
Korea	123
Germany	108
Singapore	84
France	79
Spain	62
Italy	53
Others	759
Total	2 267

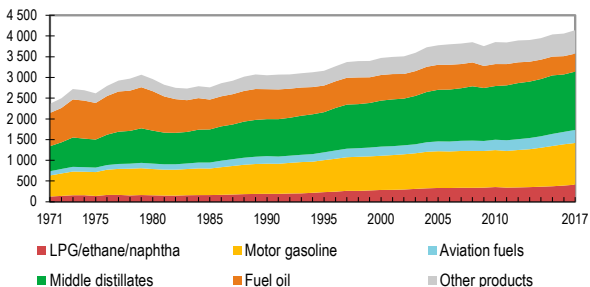
2017 data

1. Includes crude oil and oil products.

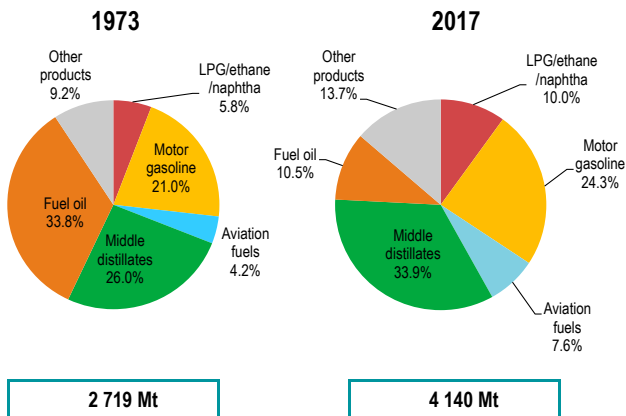
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Oil Information, 2019](#).

Refining by product

World refinery output from 1971 to 2017 by product (Mt)



1973 and 2017 shares of refinery output by product



Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Oil Information, 2019](#).

Refining by product

Producers, net exporters and net importers of oil products

Producers	Mt	% of world total
United States	838	20.2
People's Rep. of China	564	13.6
Russian Federation	280	6.8
India	260	6.3
Japan	158	3.8
Korea	153	3.7
Saudi Arabia	131	3.2
Germany	102	2.5
Brazil	96	2.3
Canada	93	2.2
Rest of the world	1 465	35.4
World	4 140	100.0

2017 data

Net exporters	Mt
United States	140
Russian Federation	126
Saudi Arabia	66
India	34
Korea	28
Kuwait	27
United Arab Emirates	25
Netherlands	21
Qatar	21
Islamic Republic of Iran	20
Others	176
Total¹	684

2017 data

Net importers	Mt
Mexico	41
Singapore	28
Japan	26
Australia	26
Indonesia	23
Brazil	22
Nigeria	21
Hong Kong, China	21
France	21
Turkey	20
Others	321
Total¹	570

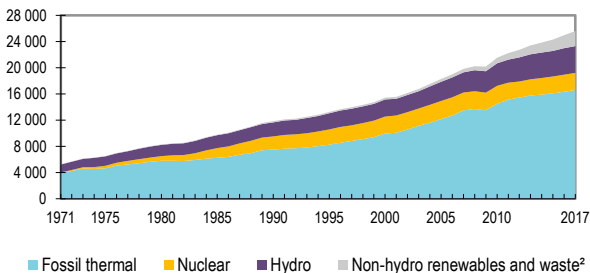
2017 data

1. The discrepancy between total net exports and total net imports arises from different data sources and possible misallocation of bunkers into exports for some countries.

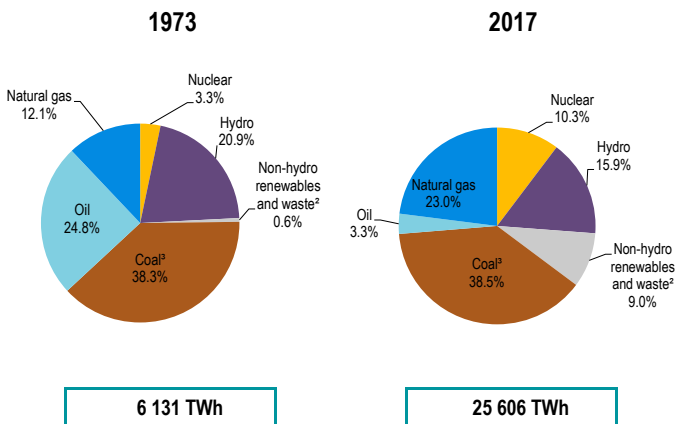
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Oil Information, 2019](#).

Electricity generation by source

World electricity generation¹ from 1971 to 2017 by fuel (TWh)



1973 and 2017 source shares of electricity generation¹



1. Excludes electricity generation from pumped storage.

2. Includes geothermal, solar, wind, tide/wave/ocean, biofuels, waste, heat and other.

3. In these graphs, peat and oil shale are aggregated with coal.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Electricity Information, 2019](#).

Electricity generation by source

Producers of electricity by source

Coal ¹	TWh
People's Rep. of China	4 485
United States	1 321
India	1 134
Japan	352
Korea	256
Germany	253
South Africa	227
Russian Federation	175
Australia	162
Indonesia	148
Rest of the world	1 350
World	9 863

2017 data

Oil	TWh
Saudi Arabia	126
Japan	70
Iraq	54
Kuwait	48
Mexico	38
United States	32
Pakistan	30
Islamic Rep. of Iran	26
India	25
Egypt	25
Rest of the world	368
World	842

2017 data

Natural gas	TWh
United States	1 338
Russian Federation	519
Japan	398
Islamic Rep. of Iran	258
Saudi Arabia	222
Mexico	190
People's Rep. of China	183
Egypt	147
Italy	140
United Kingdom	137
Rest of the world	2 351
World	5 883

2017 data

Renewables ²	TWh
People's Rep. of China	1 662
United States	718
Brazil	466
Canada	432
India	263
Germany	216
Russian Federation	186
Japan	168
Norway	145
Italy	104
Rest of the world	1 909
World	6 269

2017 data

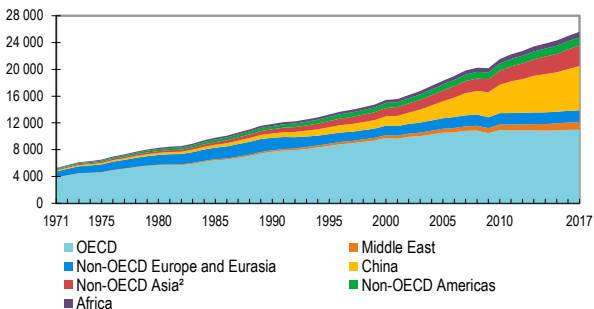
1. In this table, peat and oil shale are aggregated with coal.

2. Excludes electricity generation from pumped storage.

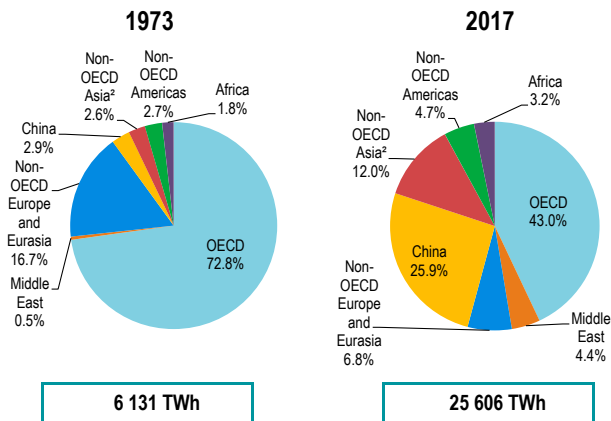
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Electricity Information, 2019](#).

Electricity generation by region

World electricity generation¹ from 1971 to 2017 by region (TWh)



1973 and 2017 regional shares of electricity generation¹



1. Excludes electricity generation from pumped storage.

2. Non-OECD Asia excludes China.

Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Electricity Information, 2019](#).

Electricity generation by region

Producers, net exporters and net importers of electricity

Producers ¹	TWh	% of world total
People's Rep. of China	6 602	25.8
United States	4 264	16.7
India	1 532	6.0
Russian Federation	1 092	4.3
Japan	1 061	4.1
Canada	658	2.6
Germany	648	2.5
Brazil	589	2.3
Korea	563	2.2
France	557	2.2
Rest of the world	8 040	31.3
World	25 606	100.0

2017 data

Net exporters	TWh
Canada	62
Germany	52
Paraguay	44
France	40
Sweden	19
Norway	15
People's Rep. of China	13
Czech Republic	13
Russian Federation	11
South Africa	7
Others	74
Total	350

2017 data

Net importers	TWh
United States	56
Italy	38
Brazil	36
Thailand	23
Finland	20
United Kingdom	15
Hungary	13
Iraq	12
Hong Kong, China	11
Argentina	10
Others	112
Total	346

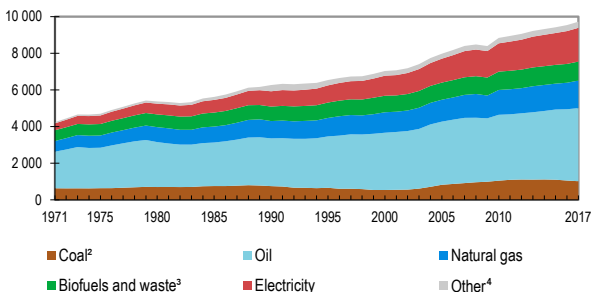
2017 data

1. Gross production minus production from pumped storage plants.

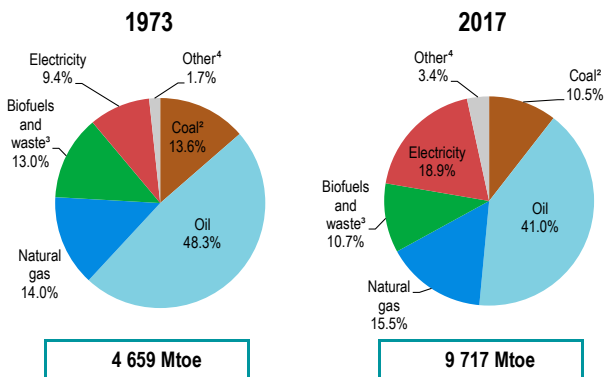
Sources: [IEA, World Energy Statistics, 2019](#); [IEA, Electricity Information, 2019](#).

World total final consumption (TFC) by source

World¹ TFC from 1971 to 2017 by source (Mtoe)



1973 and 2017 source shares of TFC



1. World includes international aviation and international marine bunkers.

2. In these graphs, peat and oil shale are aggregated with coal.

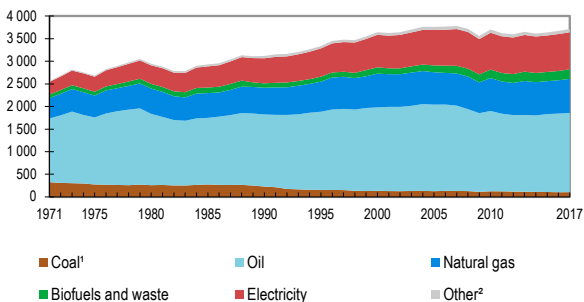
3. Data for biofuels and waste final consumption have been estimated for a number of countries.

4. Includes heat, solar thermal and geothermal.

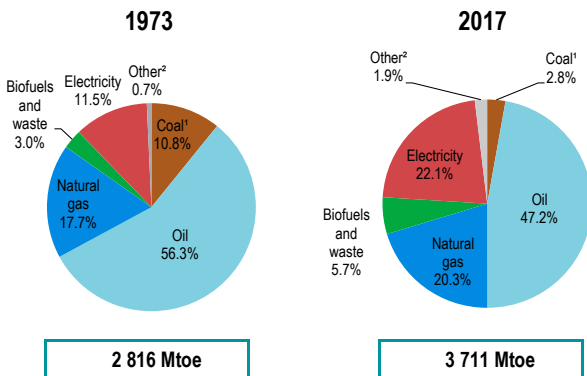
Source: [IEA, World Energy Balances, 2019](#).

OECD total final consumption by source

OECD TFC from 1971 to 2017 by source (Mtoe)



1973 and 2017 source shares of TFC

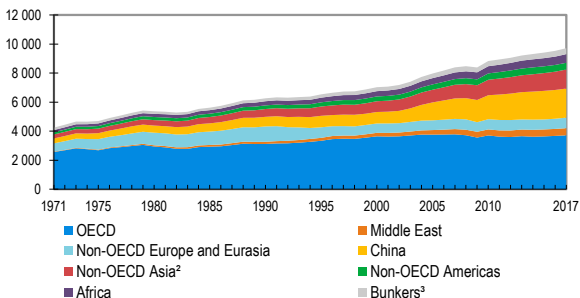


1. In these graphs, peat and oil shale are aggregated with coal.
2. Includes heat, solar thermal and geothermal.

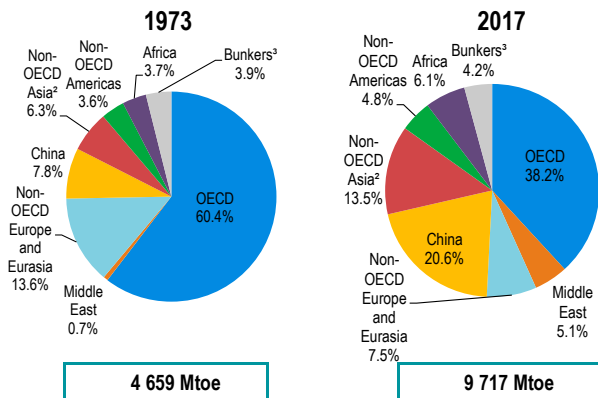
Source: [IEA, World Energy Balances, 2019](#).

World total final consumption by region

World TFC¹ from 1971 to 2017 by region (Mtoe)



1973 and 2017 regional shares of TFC¹



1. Data for biofuels and waste final consumption have been estimated for a number of countries.

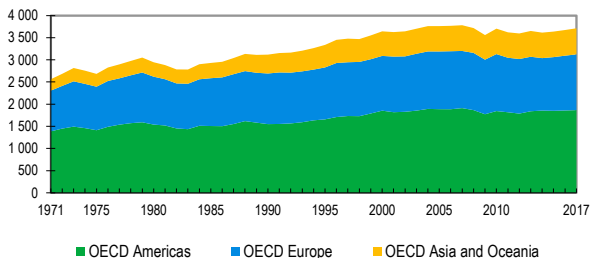
2. Non-OECD Asia excludes China.

3. Includes international aviation and international marine bunkers.

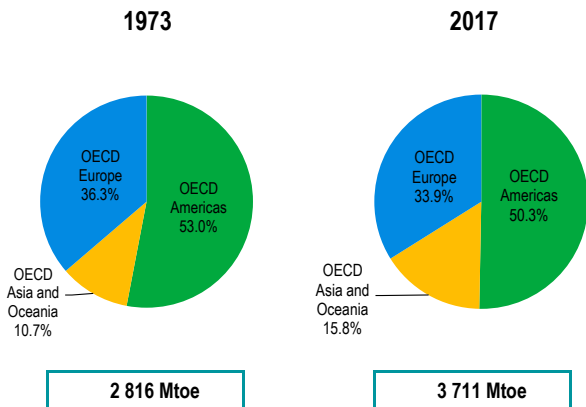
Source: [IEA, World Energy Balances, 2019](#).

OECD total final consumption by region

OECD TFC from 1971 to 2017 by region (Mtoe)



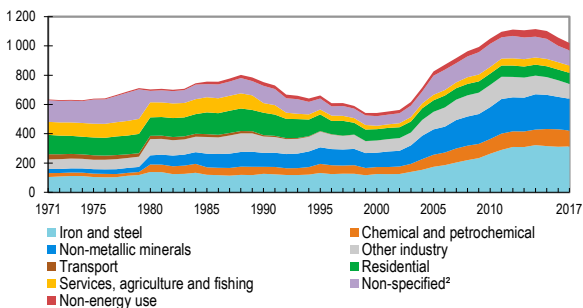
1973 and 2017 regional shares of TFC



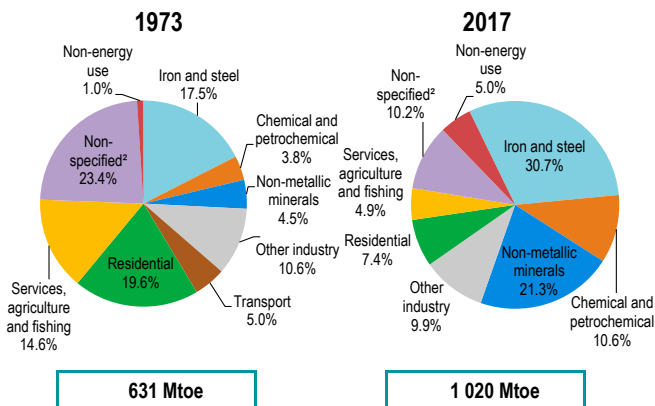
Source: [IEA, World Energy Balances, 2019](#).

Total final consumption by sector: coal¹

Coal TFC from 1971 to 2017 by sector (Mtoe)



1973 and 2017 shares of world coal¹ final consumption



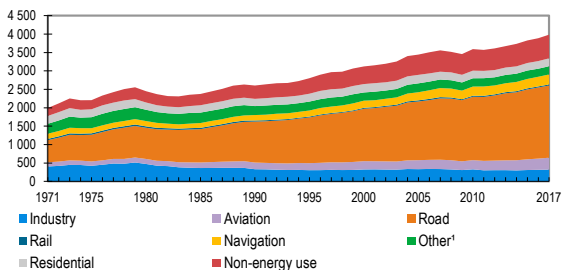
1. In these graphs, peat and oil shale are aggregated with coal.

2. Includes non-specified industry, transport and other.

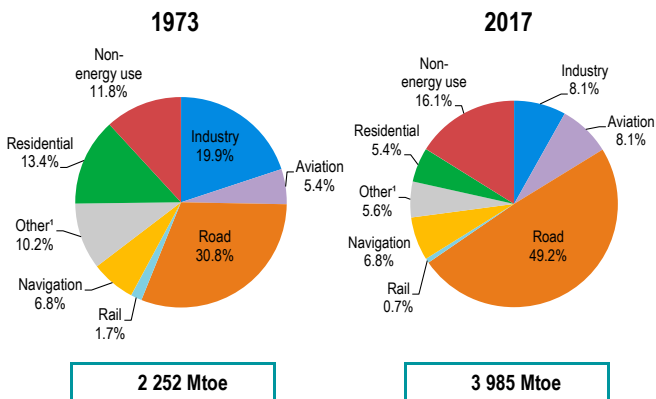
Source: IEA, [World Energy Balances, 2019](#).

Total final consumption by sector: oil

Oil TFC from 1971 to 2017 by sector (Mtoe)



1973 and 2017 shares of world oil final consumption

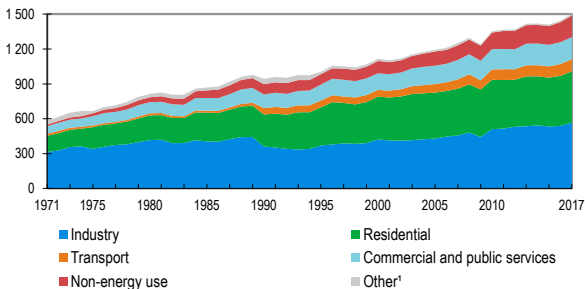


1. Includes agriculture, commercial and public services, non-specified other, pipeline and non-specified transport.

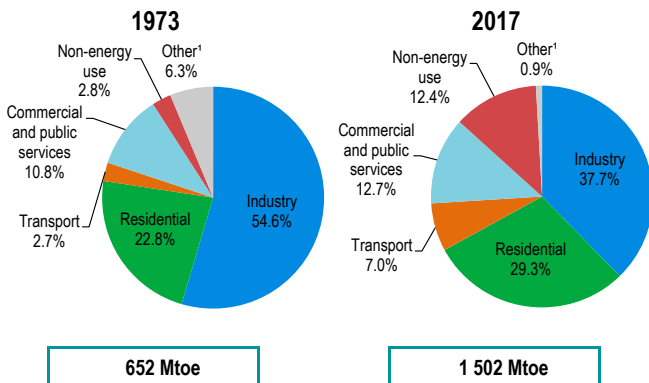
Source: [IEA, World Energy Balances, 2019](#).

Total final consumption by sector: natural gas

Natural gas TFC from 1971 to 2017 by sector (Mtoe)



1973 and 2017 shares of world natural gas final consumption

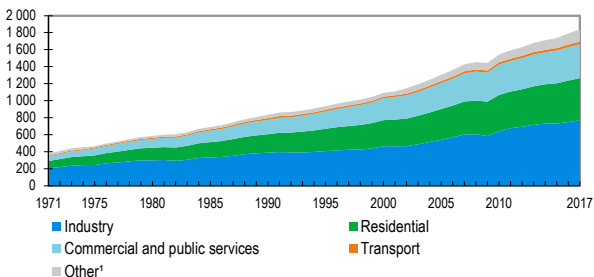


1. Includes agriculture, fishing and non-specified other.

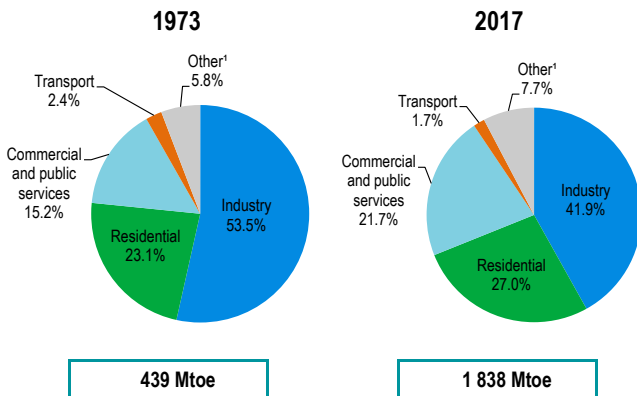
Source: [IEA, World Energy Balances, 2019](#).

Total final consumption by sector: electricity

Electricity TFC from 1971 to 2017 by sector (Mtoe)



1973 and 2017 shares of world electricity final consumption

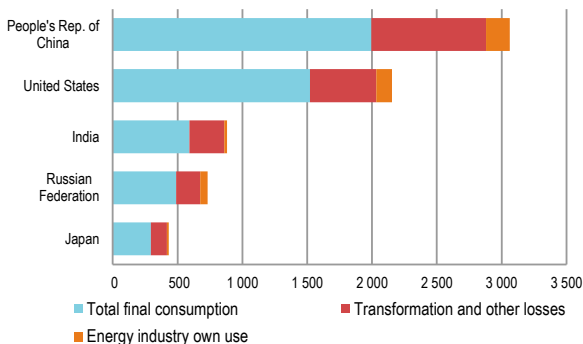


1. Includes agriculture, fishing and non-specified other.

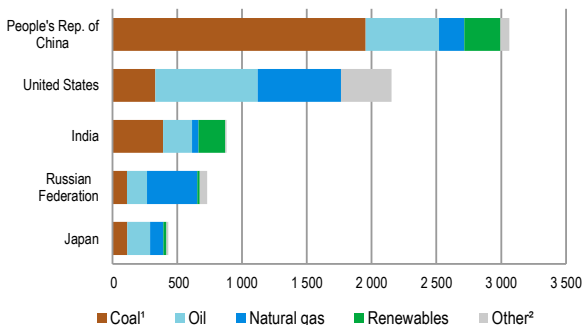
Source: [IEA, World Energy Balances, 2019](#).

Top five countries by total primary energy supply (TPES)

TPES by sector (Mtoe), 2017



TPES by energy source (Mtoe), 2017



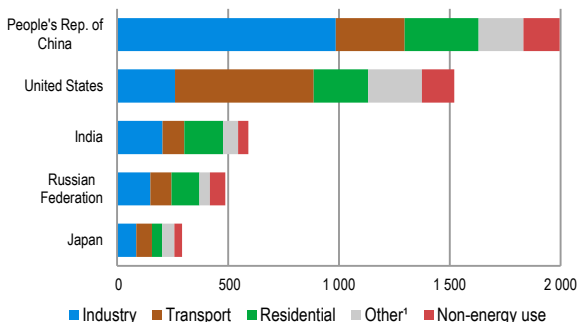
1. In this graph, peat and oil shale are aggregated with coal.

2. Other includes nuclear, electricity trade, heat, non-renewable waste.

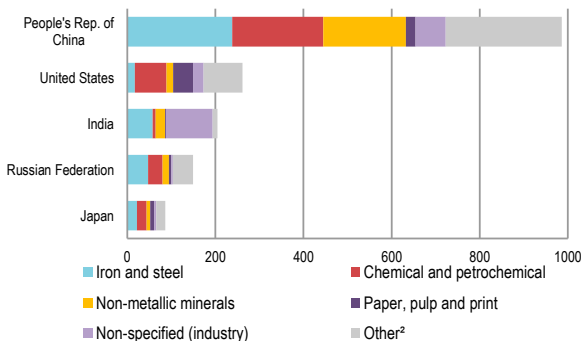
Source: [IEA, World Energy Balances, 2019](#).

Top five countries by total final consumption (TFC)

TFC by sector (Mtoe), 2017



Industry consumption by sub-sector (Mtoe), 2017



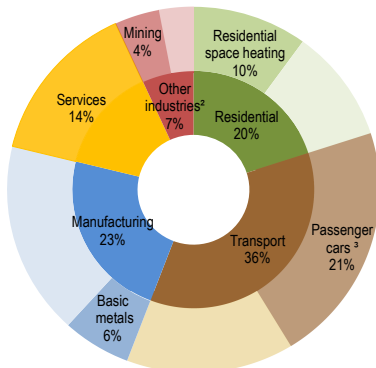
1. Other includes commercial and public services, agriculture/forestry, fishing and non-specified.

2. Other includes non-ferrous metals, transport equipment, machinery, mining and quarrying, food and tobacco, wood and wood products, construction, textile and leather.

Source: [IEA, World Energy Balances, 2019](#).

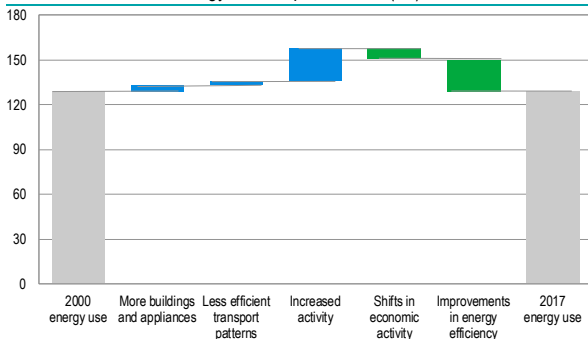
Energy efficiency indicators

Largest end uses of energy by sector in IEA¹



Source: [IEA Energy Efficiency Indicators database](#).

Drivers of final energy consumption in IEA (EJ) from 2000 to 2017



Source: Adapted from [Energy Efficiency 2018, Market Report Series](#), based on [IEA Energy Efficiency Indicators database, 2018](#).

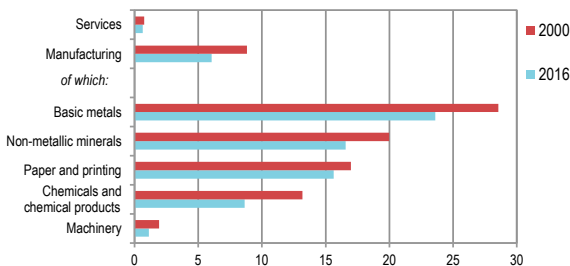
1. Refers to 2016 data for 20 IEA countries for which data are available for most end uses: Australia, Austria, Canada, Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, New Zealand, the Netherlands, Portugal, Spain, Switzerland, the United Kingdom and the United States.

2. Other industries include agriculture, mining and construction.

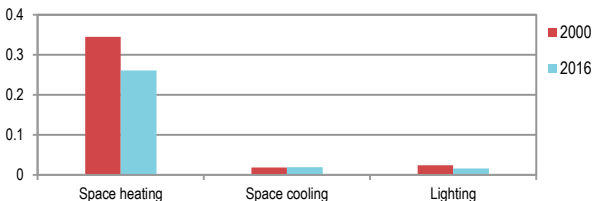
3. Passenger cars include cars, sport utility vehicles and personal trucks.

Energy efficiency indicators

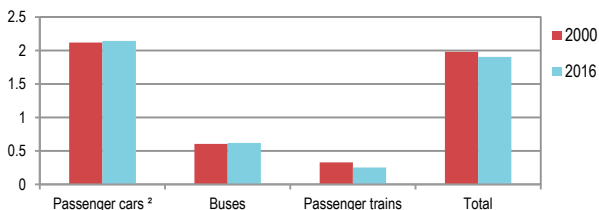
Services and manufacturing in IEA¹: energy per value added
(MJ/2010 USD PPP)



Residential in IEA¹: energy per floor area (GJ/m²)



Passenger transport in IEA¹: energy per passenger-kilometre (MJ/pkm)



1. Refers to 2016 data for 20 IEA countries for which data are available for most end uses: Australia, Austria, Canada, Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, New Zealand, the Netherlands, Portugal, Spain, Switzerland, the United Kingdom and the United States.

2. Passenger cars include cars, sport utility vehicles and personal trucks.

Source: IEA Energy Efficiency Indicators database.

Simplified energy balance table

World energy balance, 1973

(Mtoe)

SUPPLY AND CONSUMPTION	Coal ¹	Crude oil	Oil products	Natural gas	Nuclear	Hydro	Biofuels and waste ²	Other ³	Total
Production	1 474.00	2 938.39	-	991.26	53.04	110.29	636.66	6.13	6 209.77
Imports	140.06	1 561.97	409.58	73.42	-	-	0.13	8.14	2 193.30
Exports	-130.35	-1 613.00	-443.04	-72.58	-	-	-0.19	-8.31	-2 267.47
Stock changes	12.49	-19.68	-16.41	-15.10	-	-	0.06	-	-38.64
TPES	1 496.20	2 867.68	-49.97	977.02	53.04	110.29	636.65	5.96	6 096.86
Transfers	-	-46.76	48.78	-	-	-	-	-	2.02
Statistical diff.	0.98	11.99	-6.00	4.78	-	-	-0.07	-0.71	11.28
Electricity plants	-555.56	-22.91	-318.13	-160.04	-52.94	-110.29	-2.21	503.65	-718.43
CHP plants	-86.40	-	-28.62	-50.85	-0.10	-	-1.11	100.97	-66.11
Heat plants	-7.81	-	-0.90	-0.68	-	-	-0.80	7.11	-3.08
Blast furnaces	-81.57	-	-2.72	-	-	-	-0.06	-	-84.34
Gas works	9.85	-0.60	-9.07	-6.18	-	-	-	-	-6.00
Coke ovens ⁴	-99.53	-	-0.68	-0.19	-	-	-0.02	-	-100.42
Oil refineries	-	-2 782.93	2 762.10	-	-	-	-	-	-20.82
Petchem. plants	-	5.09	-5.37	-	-	-	-	-	-0.28
Liquefaction plants	-0.73	0.23	-	-	-	-	-	-	-0.50
Other transf.	-	-	-0.12	-0.03	-	-	-24.76	-	-24.91
Energy ind. own use	-34.93	-2.59	-158.81	-106.02	-	-	-0.20	-57.67	-360.21
Losses	-9.06	-7.07	-0.27	-6.04	-	-	-0.25	-43.14	-65.83
TFC	631.45	22.14	2 230.22	651.76	-	-	607.32	516.17	4 659.06
Industry	355.71	16.41	432.55	356.39	-	-	86.59	286.87	1 534.52
Transport ⁵	31.88	-	1 020.86	17.72	-	-	0.24	10.59	1 081.30
Other	237.85	0.00	520.37	259.26	-	-	520.49	218.71	1 756.68
Non-energy use	6.01	5.73	256.45	18.38	-	-	-	-	286.56

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

3. Includes geothermal, solar, wind, heat and electricity.

4. Also includes patent fuel, BKB and peat briquette plants.

5. Includes international aviation and international marine bunkers.

Source: [IEA, World Energy Balances, 2019](#).

Simplified energy balance table

World energy balance, 2017

	(Mtoe)								
SUPPLY AND CONSUMPTION	Coal ¹	Crude oil	Oil products	Natural gas	Nuclear	Hydro	Biofuels and waste ²	Other ³	Total
Production	3 773.42	4 477.21	-	3 162.89	687.48	351.03	1 324.11	258.75	14 034.90
Imports	825.07	2 453.09	1 364.75	986.14	-	-	26.28	62.42	5 717.75
Exports	-851.61	-2 381.80	-1 477.49	-1 029.84	-	-	-21.11	-62.74	-5 824.59
Stock changes	43.06	11.76	1.98	-12.39	-	-	-0.22	-	44.19
TPES	3 789.93	4 560.25	-110.76	3 106.80	687.48	351.03	1 329.06	258.44	13 972.24
Transfers	-1.23	-241.79	271.62	-	-	-	-	-	28.60
Statistical diff.	-2.80	10.79	0.40	-8.85	-	-	0.32	0.81	0.66
Electricity plants	-1 708.53	-40.14	-158.92	-878.85	-681.92	-351.03	-124.10	1 649.56	-2 293.92
CHP plants	-643.30	-0.05	-16.67	-320.77	-5.57	-	-63.62	581.42	-468.55
Heat plants	-22.07	-0.49	-9.11	-64.05	-	-	-12.71	98.86	-9.57
Blast furnaces	-191.72	-	-0.03	-0.03	-	-	-0.05	-	-191.82
Gas works	-12.93	-	-2.73	5.59	-	-	-0.51	-	-10.58
Coke ovens ⁴	-90.48	-	-2.43	-0.01	-	-	-0.11	-	-93.03
Oil refineries	-	-4 323.70	4 239.17	-	-	-	-	-	-84.53
Petchem. plants	-	38.62	-37.75	-	-	-	-	-	0.87
Liquefaction plants	-14.47	15.46	-	-14.65	-	-	-	-	-13.66
Other transf.	-0.26	12.20	-0.55	-14.47	-	-	-77.26	-0.70	-81.04
Energy ind. own use	-79.87	-8.86	-201.60	-290.77	-	-	-13.09	-222.63	-816.82
Losses	-2.25	-7.74	-0.45	-17.60	-	-	-0.17	-193.35	-221.56
TFC	1 020.04	14.56	3 970.18	1 502.34	-	-	1 037.76	2 172.41	9 717.29
Industry	817.63	5.85	314.98	567.60	-	-	207.10	907.73	2 820.89
Transport ⁵	0.06	0.00	2 588.51	104.71	-	-	83.59	31.27	2 808.15
Other	151.72	0.01	433.19	644.07	-	-	747.07	1 233.42	3 209.47
Non-energy use	50.62	8.70	633.51	185.96	-	-	-	-	878.79

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

3. Includes geothermal, solar, wind, heat and electricity.

4. Also includes patent fuel, BKB and peat briquette plants.

5. Includes international aviation and international marine bunkers.

Source: [IEA, World Energy Balances, 2019](#).

Simplified energy balance table

OECD energy balance, 1973

	(Mtoe)								
SUPPLY AND CONSUMPTION	Coal ¹	Crude oil	Oil products	Natural gas	Nuclear	Hydro	Biofuels and waste ²	Other ³	Total
Production	819.10	710.51	-	706.42	49.21	78.93	87.30	6.13	2 457.60
Imports	121.92	1 277.50	336.20	62.57	-	-	0.03	7.54	1 805.77
Exports	-111.10	-63.59	-172.72	-50.39	-	-	-0.01	-7.01	-404.82
Intl. marine bunkers	-	-	-73.65	-	-	-	-	-	-73.65
Intl. aviation bunkers	-	-	-24.64	-	-	-	-	-	-24.64
Stock changes	14.55	-10.78	-11.36	-12.07	-	-	0.06	-	-19.61
TPES	844.47	1 913.65	53.83	706.52	49.21	78.93	87.38	6.67	3 740.65
Transfers	-	-41.28	42.49	-	-	-	-	-	1.22
Statistical diff.	14.79	11.29	2.56	-5.61	-	-	-	0.00	23.03
Electricity plants	-387.59	-20.61	-228.38	-108.36	-49.11	-78.93	-1.43	364.63	-509.79
CHP plants	-52.07	-	-7.89	-11.64	-0.10	-	-0.75	30.94	-41.51
Heat plants	-7.81	-	-0.90	-0.68	-	-	-0.80	7.11	-3.08
Blast furnaces	-65.51	-	-2.72	-	-	-	-	-	-68.23
Gas works	11.03	-0.60	-8.72	-6.38	-	-	-	-	-4.67
Coke ovens ⁴	-25.69	-	-0.68	-0.19	-	-	-0.02	-	-26.58
Oil refineries	-	-1 865.97	1868.42	-	-	-	-	-	2.45
Petchem. plants	-	4.88	-5.16	-	-	-	-	-	-0.28
Liquefaction plants	-	0.02	-	-	-	-	-	-	0.02
Other transf.	-	-	-0.12	-0.03	-	-	-	-	-0.15
Energy ind. own use	-24.53	-0.99	-128.88	-72.38	-	-	-0.07	-33.37	-260.22
Losses	-3.80	-	-0.23	-2.63	-	-	-	-30.54	-37.20
TFC	303.29	0.39	1 583.63	498.62	-	-	84.32	345.44	2 815.68
Industry	182.80	0.39	312.91	250.51	-	-	42.26	169.38	958.24
Transport	7.34	-	665.68	17.00	-	-	-	5.30	695.32
Other	110.05	-	393.09	225.53	-	-	42.05	170.76	941.48
Non-energy use	3.10	-	211.95	5.58	-	-	-	-	220.63

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

3. Includes geothermal, solar, wind, heat and electricity.

4. Also includes patent fuel, BKB and peat briquette plants.

Source: [IEA, World Energy Balances, 2019](#).

Simplified energy balance table

OECD energy balance, 2017

	(Mtoe)								
SUPPLY AND CONSUMPTION	Coal ¹	Crude oil	Oil products	Natural gas	Nuclear	Hydro	Biofuels and waste ²	Other ³	Total
Production	843.75	1 135.51	-	1 128.14	509.58	120.50	312.87	130.73	4 181.07
Imports	365.78	1 472.28	642.81	712.07	-	-	23.83	41.81	3 258.59
Exports	-338.16	-463.85	-714.83	-407.49	-	-	-16.12	-42.73	-1 983.17
Intl. marine bunkers	-	-	-82.62	-0.06	-	-	-0.22	-	-82.91
Intl. aviation bunkers	-	-	-104.72	-	-	-	-	-	-104.72
Stock changes	8.95	17.57	10.73	2.54	-	-	0.36	-	40.16
TPES	880.32	2 161.52	-248.63	1 435.20	509.58	120.50	320.72	129.82	5 309.02
Transfers	-	-103.12	118.14	-	-	-	-	-	15.02
Statistical diff.	3.90	-0.08	13.00	-6.70	-	-	-0.11	3.03	13.04
Electricity plants	-620.08	-1.36	-38.79	-413.43	-504.53	-120.50	-49.10	730.28	-1 017.51
CHP plants	-72.70	-	-11.30	-112.36	-5.05	-	-50.88	151.18	-101.11
Heat plants	-3.66	-	-0.96	-8.95	-	-	-8.12	17.71	-3.97
Blast furnaces	-52.07	-	-0.03	-0.03	-	-	-	-	-52.13
Gas works	-2.15	-	-2.41	3.44	-	-	-0.50	-	-1.62
Coke ovens ⁴	-10.86	-	-0.91	-0.01	-	-	-0.11	-	-11.89
Oil refineries	-	-2 095.01	2 055.15	-	-	-	-	-	-39.86
Petchem. plants	-	34.22	-33.94	-	-	-	-	-	0.28
Liquefaction plants	-1.44	0.95	-	-	-	-	-	-	-0.49
Other transf.	-0.15	9.88	-	-9.42	-	-	-0.28	-0.70	-0.67
Energy ind. own use	-15.49	-0.13	-103.12	-131.72	-	-	-0.94	-76.91	-328.31
Losses	-0.92	-	-0.02	-1.92	-	-	-0.08	-65.41	-68.35
TFC	104.70	6.87	1 746.19	754.10	-	-	210.60	889.00	3 711.46
Industry	83.60	0.04	93.45	272.74	-	-	77.01	288.60	815.44
Transport	0.01	-	1 157.34	26.88	-	-	56.73	9.94	1 250.90
Other	18.21	-	174.46	409.68	-	-	76.86	590.46	1 269.66
Non-energy use	2.88	6.83	320.94	44.80	-	-	-	-	375.45

1. In this table, peat and oil shale are aggregated with coal.

2. Data for biofuels and waste final consumption have been estimated for a number of countries.

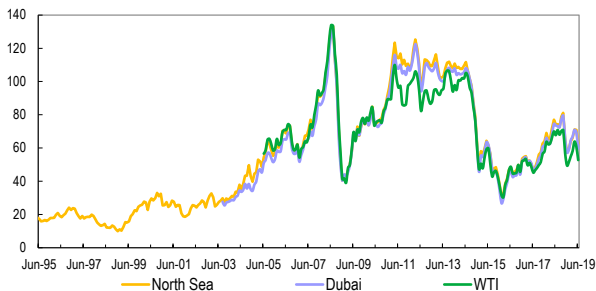
3. Includes geothermal, solar, wind, heat and electricity.

4. Also includes patent fuel, BKB and peat briquette plants.

Source: [IEA, World Energy Balances, 2019](#).

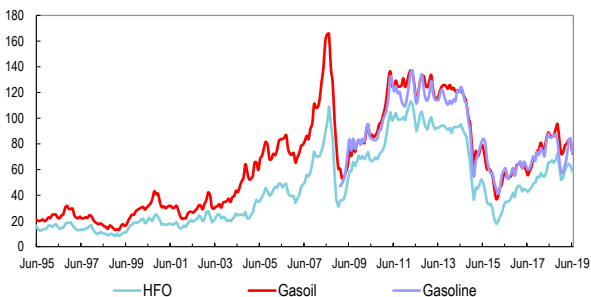
Crude oil

Average key crude oil spot prices in USD/barrel



Oil products

Average Rotterdam oil product spot prices in USD/barrel

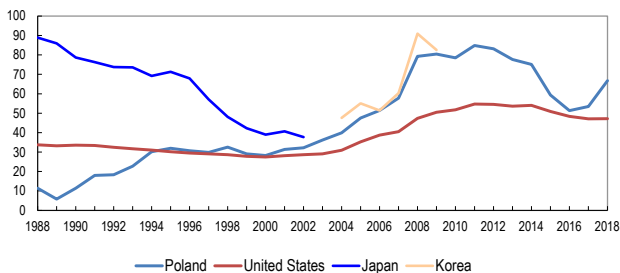


Source for spot prices: Based on Argus. Copyright © 2019 Argus Media Ltd - All rights reserved.

Source: [OECD Energy Prices and Taxes](#); [IEA, World Energy Prices](#)

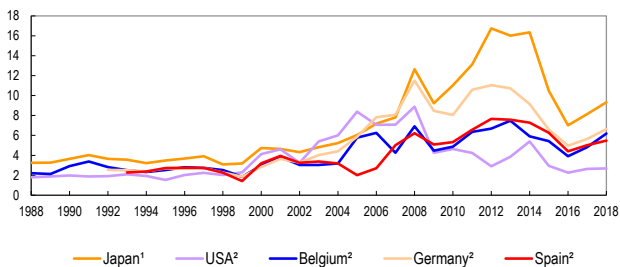
Coal

Average steam coal prices for electricity generation in USD/tonne



Natural gas

Average natural gas import prices in USD/MBtu



1. LNG.

2. Pipeline.

Source: [OECD Energy Prices and Taxes](#); [IEA, Natural Gas Information, 2019](#).

Energy prices¹ in selected OECD countries in USD/unit

Country	Heavy fuel oil for industry ² (tonne)	Light fuel oil for households (1 000 litres)	Automotive diesel oil ³ (litre)	Unleaded premium ⁴ (litre)
Australia	..	..	..	1.02
Austria	537.1	890.2	1.12	1.38
Belgium	443.3	747.9	1.42	1.60
Canada	427.4	759.5	0.73	0.95
Chile	..	964.3	..	1.17
Czech Republic	450.3	840.7	1.14	1.34
Denmark	715.9	1 527.4	1.25	1.74
Estonia	..	1 008.8	1.28	1.58
Finland	..	1 097.5	1.29	1.65
France	634.4	1 051.0	1.35	1.65
Germany	..	780.4	1.24	1.65
Greece	545.5	1 166.0	1.23	1.71
Hungary	533.0	x	1.09	1.26
Iceland	..	..	..	..
Ireland	601.4	796.2	1.21	1.53
Israel	c	1 711.0	c	1.67
Italy	528.9	1 463.6	1.36	1.72
Japan	673.5	808.6	0.94	1.31
Korea	622.8	836.7	..	1.52
Latvia	..	907.8	1.14	1.46
Lithuania	432.6	756.9	1.09	1.39
Luxembourg	..	699.7	1.05	1.30
Mexico	318.5	x	0.95	1.07
Netherlands	836.2	1 266.1	1.26	1.80
New Zealand	470.9	..	0.67	1.48
Norway	..	1 369.9	1.38	1.76
Poland	473.1	874.5	1.08	1.26
Portugal	660.6	1 321.6	1.40	1.63
Slovak Republic	438.2	..	1.17	1.46
Slovenia	721.7	1 050.2	1.15	1.38
Spain	503.8	902.1	1.16	1.51
Sweden	994.0	..	1.34	1.66
Switzerland	..	905.3	1.33	1.55
Turkey	617.1	984.9	1.15	1.19
United Kingdom	c	756.2	1.41	1.56
United States	415.8	830.4	0.80	0.72

1. Prices are for 1st quarter 2019 or latest available quarter for oil products, and annual 2018 for other products.

2. Low sulphur fuel oil; high sulphur fuel oil for Canada, Ireland, Lithuania, Mexico, New Zealand, Turkey and the United States. 3. For commercial purposes. Source: [IEA, World Energy Prices](#).

Energy prices¹ in selected OECD countries in USD/unit

Nat. gas for industry (MWh GCV ⁵)	Nat. gas for households (MWh GCV ⁵)	Steam coal for industry ⁶ (tonne)	Electricity for industry (MWh)	Electricity for households (MWh)	Country
..	..	..	..	248.5	Australia
37.6	82.6	177.8	110.3	230.2	Austria
31.6	69.2	142.2	136.5	328.7	Belgium
15.5	31.9	..	84.0	113.0	Canada
c	117.5	..	158.7	197.0	Chile
32.3	69.9	c	96.4	183.2	Czech Republic
41.8	105.8	..	93.0	358.0	Denmark
36.9	48.7	..	102.7	158.6	Estonia
53.7	..	346.6	78.5	199.2	Finland
43.6	89.7	..	116.4	202.4	France
30.8	77.1	..	145.4	353.3	Germany
..	..	x	104.5	195.8	Greece
31.5	41.6	x	94.4	131.4	Hungary
..	..	..	..	..	Iceland
41.8	88.0	..	128.5	256.8	Ireland
c	x	x	..	..	Israel
39.4	93.3	..	174.4	279.7	Italy
..	..	129.8	160.7	239.0	Japan
43.3	57.7	..	100.3	110.5	Korea
36.3	53.0	..	128.5	188.3	Latvia
44.1	47.4	..	115.9	131.4	Lithuania
33.1	50.7	x	83.5	191.4	Luxembourg
..	..	x	89.5	62.9	Mexico
30.3	95.0	..	93.0	210.9	Netherlands
18.5	99.4	c	..	201.0	New Zealand
x	x	..	68.1	136.1	Norway
30.1	60.6	92.3	95.6	172.1	Poland
33.5	91.0	c	135.3	267.8	Portugal
34.4	56.0	..	141.2	180.1	Slovak Republic
35.2	65.3	c	93.3	187.1	Slovenia
30.2	96.6	..	127.5	311.5	Spain
50.1	140.2	c	69.8	196.0	Sweden
73.5	100.7	117.1	122.1	212.0	Switzerland
23.7	25.6	77.3	84.0	103.9	Turkey
30.4	59.5	125.9	139.1	231.5	United Kingdom
13.9	34.6	69.8	69.3	128.9	United States

4. Unleaded premium gasoline (95 RON); unleaded regular for Japan.

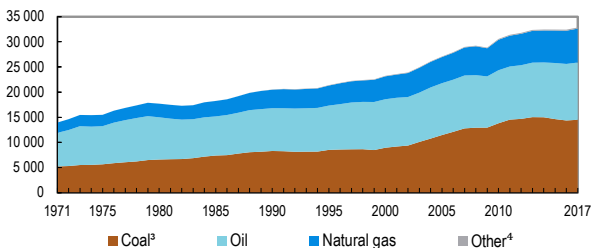
5. Gross calorific value. 6. Brown coal for Turkey.

Note: .. not available; x not applicable; c confidential.

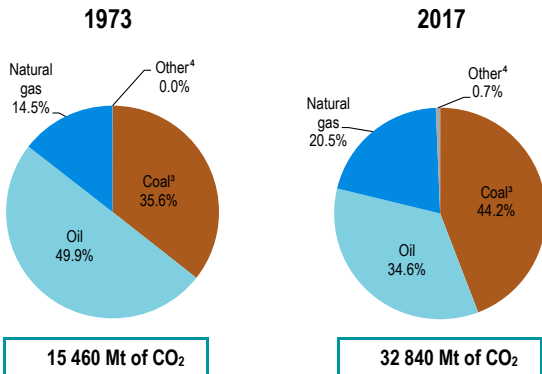
Source: [IEA, World Energy Prices](#).

CO₂ emissions by fuel

World¹ CO₂ emissions from fuel combustion² from 1971 to 2017
by fuel (Mt of CO₂)



1973 and 2017 fuel shares of CO₂ emissions from fuel combustion²



1. World includes international aviation and international marine bunkers.

2. CO₂ emissions from fuel combustion are based on the IEA World Energy Balances and on the 2006 IPCC Guidelines, and exclude emissions from non-energy.

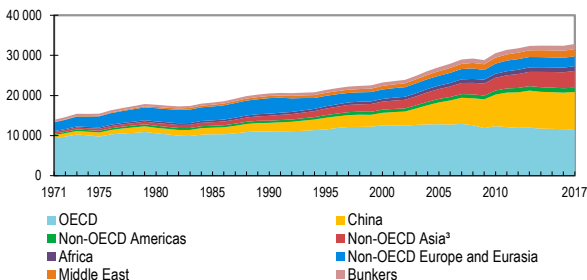
3. In these graphs, peat and oil shale are aggregated with coal.

4. Includes industrial waste and non-renewable municipal waste.

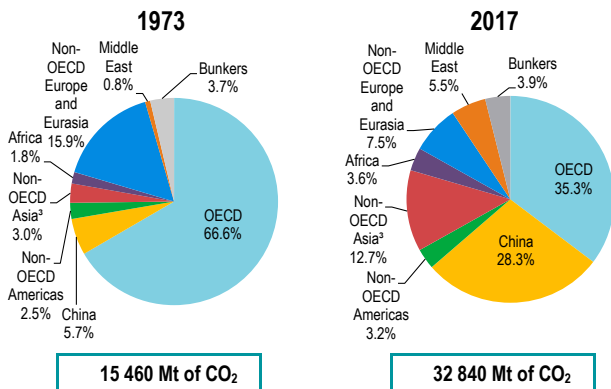
Source: [IEA, CO₂ Emissions from Fuel Combustion, 2019](#).

CO₂ emissions by region

World¹ CO₂ emissions from fuel combustion² from 1971 to 2017
by region (Mt of CO₂)



1973 and 2017 regional shares of CO₂ emissions from fuel combustion²

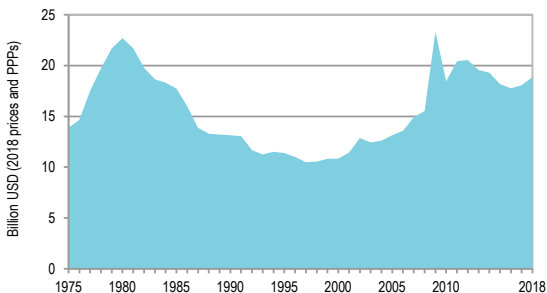


- World includes international aviation and marine bunkers, which are shown together as Bunkers.
- CO₂ emissions from fuel combustion are based on the IEA World Energy Balances and on the 2006 IPCC Guidelines, and exclude emissions from non-energy.
- Non-OECD Asia excludes China.

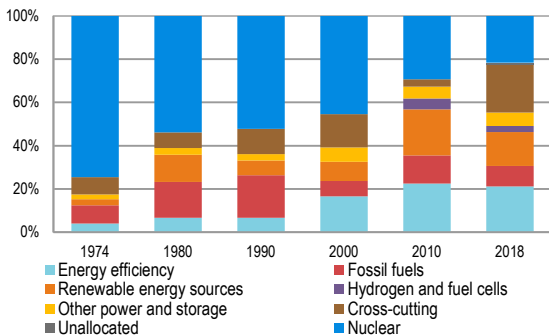
Source: [IEA, CO₂ Emissions from Fuel Combustion, 2019](#).

Research, development and demonstration (RD&D)

IEA total¹ public energy technology RD&D budget



IEA total public energy RD&D budget by technology

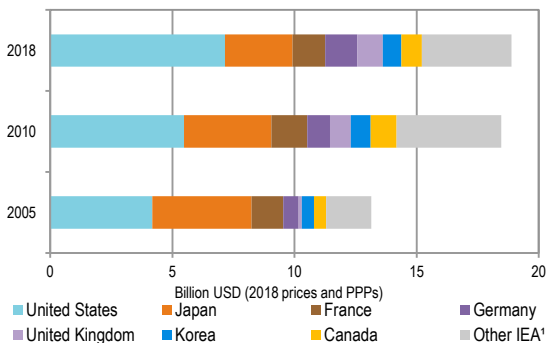


1. Data refer to total public energy RD&D expenditures, converted from current prices in national currencies. All IEA member countries are included, based on available or estimated data. The 2009 peak is mainly the result of the American Recovery and Reinvestment Act (stimulus) spending.

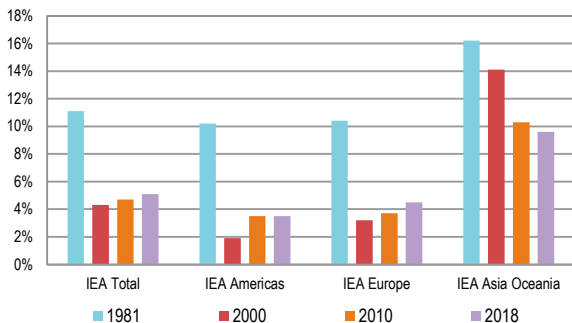
Source: [Energy Technology RD&D Budgets Overview 2019](#), based on [IEA Energy Technology RD&D Budgets database, 2019](#).

Research, development and demonstration (RD&D)

Total public energy RD&D budget for selected countries and years



Share of energy in total R&D² by region

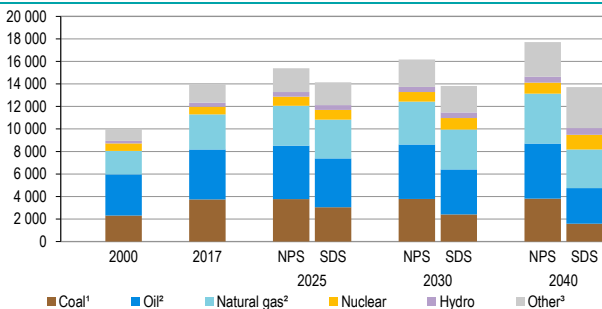


1. All other IEA member countries are included, based on available or estimated data.
2. Includes government budget for R&D and excludes demonstration.

Sources: [OECD Government budget allocations for R&D, 2019](#); [Energy Technology RD&D Budgets Overview 2019](#) based on [IEA Energy Technology RD&D Budgets database, 2019](#).

Outlook for world total primary energy supply (TPES) to 2040

TPES outlook by fuel and scenario to 2040 (Mtoe)



NPS: New Policies Scenario

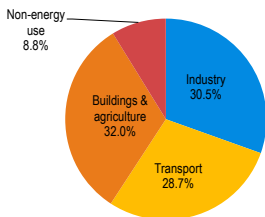
Incorporates existing energy policies as well as an assessment of the results likely to stem from the implementation of announced policy intentions.

SDS: Sustainable Development Scenario⁴

Outlines an integrated approach to achieving internationally agreed objectives on climate change, air quality and universal access to modern energy.

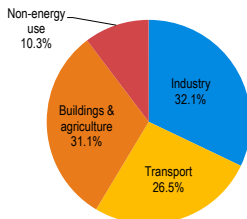
Total final consumption by sector and scenario in 2040

New Policies Scenario



12 581 Mtoe

Sustainable Development Scenario



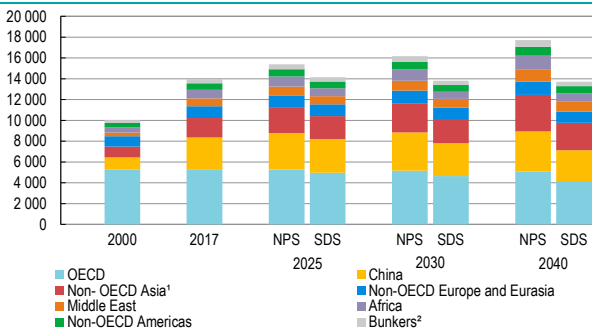
9 958 Mtoe

1. In these graphs, peat and oil shale are aggregated with coal.
2. Includes international aviation and international marine bunkers.
3. Includes biofuels and waste, geothermal, solar, wind, tide, etc.
4. For more information: <http://www.iea.org/geo/wecomodel/sds/>.

Source: [IEA, World Energy Outlook 2018](http://www.iea.org/geo/wecomodel/sds/).

Outlook for world total primary energy supply (TPES) to 2040

TPES outlook by region and scenario to 2040 (Mtoe)

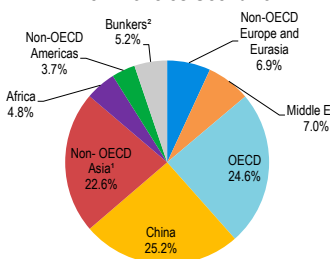


NPS: New Policies Scenario
Incorporates existing energy policies as well as an assessment of the results likely to stem from the implementation of announced policy intentions.

SDS: Sustainable Development Scenario³
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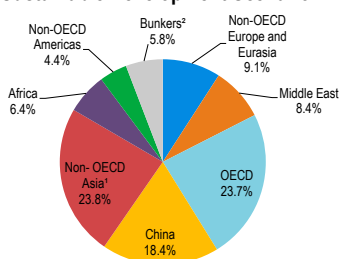
CO₂ emissions⁴ by region and scenario in 2040

New Policies Scenario



35 881 Mt of CO₂

Sustainable Development Scenario



17 647 Mt of CO₂

1. Non-OECD Asia excludes China.
2. Includes international aviation and international marine bunkers.
3. For more information: <http://www.iea.org/weo/wecmodel/sds/>.
4. CO₂ emissions are from fossil fuel combustion only.

Source: [IEA, World Energy Outlook 2018](#).

Selected indicators for 2017

Region / Country / Economy	Population (million)	GDP (billion 2010 USD)	GDP (PPP) (billion 2010 USD)	Energy prod. (Mtoe)	Net imports (Mtoe)	TPES (Mtoe)	Elec. cons. ¹ (TWh)	CO ₂ emissions ² (Mt of CO ₂)
World	7 519	80 079	113 555	14 035	-	13 972 ⁽³⁾	23 696	32 840 ⁽⁴⁾
OECD	1 295	51 133	50 410	4 181	1 275	5 309	10 352	11 579
Middle East	237	2 368	5 344	2 032	-1 243	750	979	1 785
Non-OECD Europe and Eurasia	340	2 759	5 641	1 924	-757	1 122	1 559	2 464
China	1 394	10 441	21 201	2 450	663	3 077	6 349	9 302
Non-OECD Asia	2 501	6 619	18 743	1 521	440	1 877	2 712	4 179
Non-OECD Americas	497	4 329	6 509	792	-177	612	1 024	1 064
Africa	1 255	2 430	5 708	1 135	-309	812	721	1 185
Albania	2.9	14.0	32.9	1.6	0.9	2.4	6.2	4.3
Algeria	41.3	199.2	562.7	152.9	-96.5	55.5	64.8	130.5
Angola	29.8	101.7	176.6	91.9	-76.3	14.7	9.5	18.0
Argentina	44.3	460.3	821.2	74.3	12.6	85.3	133.1	183.4
Armenia	2.9	12.4	25.2	1.0	2.3	3.2	6.0	5.2
Australia	24.6	1574.1	1142.6	405.2	-268.8	127.0	244.1	384.6
Austria	8.8	432.8	387.9	12.1	22.2	33.5	74.5	64.9
Azerbaijan	9.9	57.3	153.1	54.4	-39.4	14.3	20.9	30.8
Bahrain	1.5	33.0	63.3	22.4	-8.3	14.0	27.8	29.8
Bangladesh	164.7	180.0	568.6	33.7	7.3	40.5	66.1	78.3
Belarus	9.5	62.0	159.8	3.9	21.7	25.5	34.2	54.1
Belgium	11.3	525.7	474.4	15.1	48.0	55.3	88.9	90.4
Benin	11.2	9.6	22.7	2.7	2.4	5.1	1.1	6.8
Bolivia	11.1	27.9	74.6	21.0	-12.0	8.9	8.8	21.9
Bosnia and Herzegovina	3.5	19.5	39.4	4.6	2.3	6.8	13.3	22.3
Botswana	2.3	17.2	34.7	1.8	1.0	2.8	3.7	7.7
Brazil	209.3	2 278.9	2 892.0	292.7	3.6	290.2	527.7	427.6
Brunei Darussalam	0.4	13.5	30.2	15.6	-12.1	3.6	3.7	6.7
Bulgaria	7.1	59.0	128.6	11.8	7.5	18.7	36.7	42.8
Cambodia	16.0	18.2	57.3	4.7	3.4	8.1	7.1	10.8
Cameroon	24.1	36.4	79.7	11.3	-2.0	9.3	6.5	6.2
Canada	36.5	1873.4	1 579.8	509.6	-217.1	289.1	521.5	547.8
Chile	18.5	272.4	386.3	13.0	26.2	38.3	75.2	86.1

1. Electricity consumption = Gross production + imports – exports – losses.

2. CO₂ emissions from fuel combustion only. Emissions are calculated using the IEA World Energy Balances and the Revised 2006 IPCC Guidelines, and exclude emissions from non-energy.

3. TPES for world includes international aviation and international marine bunkers as well as electricity and heat trade.

4. CO₂ emissions for world include emissions from international aviation and international marine bunkers.

Selected indicators for 2017

TPES/ pop. (toe/capita)	TPES/ GDP (toe/000 2010 USD)	TPES/ GDP(PPP) (toe/000 2010 USD)	Elec. cons./pop. (kWh/ capita)	CO ₂ / TPES (tCO ₂ /toe)	CO ₂ / pop. (tCO ₂ / capita)	CO ₂ / GDP (kgCO ₂ / 2010 USD)	CO ₂ /GDP (PPP) (kgCO ₂ / 2010 USD)	Region / Country / Economy
1.86	0.17	0.12	3 152	2.35	4.37	0.41	0.29	World
4.10	0.10	0.11	7 992	2.18	8.94	0.23	0.23	OECD
3.17	0.32	0.14	4 132	2.38	7.53	0.75	0.33	Middle East
3.30	0.41	0.20	4 581	2.20	7.24	0.89	0.44	Non-OECD Europe and Eurasia
2.21	0.29	0.15	4 555	3.02	6.67	0.89	0.44	China
0.75	0.28	0.10	1 085	2.23	1.67	0.63	0.22	Non-OECD Asia
1.23	0.14	0.09	2 060	1.74	2.14	0.25	0.16	Non-OECD Americas
0.65	0.33	0.14	574	1.46	0.94	0.49	0.21	Africa
0.82	0.17	0.07	2 146	1.84	1.51	0.31	0.13	Albania
1.34	0.28	0.10	1 568	2.35	3.16	0.66	0.23	Algeria
0.49	0.14	0.08	319	1.23	0.61	0.18	0.10	Angola
1.93	0.19	0.10	3 007	2.15	4.14	0.40	0.22	Argentina
1.09	0.26	0.13	2 040	1.62	1.76	0.42	0.20	Armenia
5.16	0.08	0.11	9 922	3.03	15.63	0.24	0.34	Australia
3.81	0.08	0.09	8 474	1.94	7.38	0.15	0.17	Austria
1.45	0.25	0.09	2 119	2.15	3.12	0.54	0.20	Azerbaijan
9.39	0.43	0.22	18 653	2.13	19.97	0.90	0.47	Bahrain
0.25	0.23	0.07	402	1.93	0.48	0.43	0.14	Bangladesh
2.68	0.41	0.16	3 600	2.12	5.69	0.87	0.34	Belarus
4.87	0.11	0.12	7 835	1.64	7.96	0.17	0.19	Belgium
0.46	0.53	0.23	102	1.33	0.61	0.70	0.30	Benin
0.81	0.32	0.12	794	2.46	1.98	0.79	0.29	Bolivia
1.93	0.35	0.17	3 778	3.30	6.37	1.14	0.57	Bosnia and Herzegovina
1.21	0.16	0.08	1 629	2.78	3.37	0.45	0.22	Botswana
1.39	0.13	0.10	2 521	1.47	2.04	0.19	0.15	Brazil
8.42	0.27	0.12	8 569	1.86	15.64	0.50	0.22	Brunei Darussalam
2.65	0.32	0.15	5 180	2.28	6.05	0.73	0.33	Bulgaria
0.51	0.44	0.14	446	1.33	0.67	0.59	0.19	Cambodia
0.39	0.25	0.12	271	0.66	0.26	0.17	0.08	Cameroon
7.91	0.15	0.18	14 273	1.90	14.99	0.29	0.35	Canada
2.07	0.14	0.10	4 060	2.25	4.65	0.32	0.22	Chile

Selected indicators for 2017

Region / Country / Economy	Population (million)	GDP (billion 2010 USD)	GDP (PPP) (billion 2010 USD)	Energy prod. (Mtoe)	Net imports (Mtoe)	TPES (Mtoe)	Elec. cons. ¹ (TWh)	CO ₂ emissions ² (Mt of CO ₂)
China (People's Rep. of)	1 386.4	10 161.0	20 794.6	2 449.5	631.9	3 063.4	6 302.3	9 257.9
Colombia	49.1	373.5	633.7	123.5	-101.7	38.4	73.5	75.3
Republic of the Congo	5.3	13.8	25.6	16.6	-13.6	3.0	2.7	2.8
Costa Rica	4.9	48.1	74.8	2.4	2.9	5.0	10.0	7.6
Côte d'Ivoire	24.3	39.5	85.3	10.4	0.3	10.5	6.8	10.2
Croatia	4.1	63.2	89.8	4.2	4.8	8.7	17.2	16.2
Cuba	11.5	75.6	234.7	5.1	6.1	10.7	17.4	26.2
Curaçao ³	0.2	1.8	1.7	0.0	3.3	1.7	0.7	3.7
Cyprus ³	0.9	25.8	27.8	0.1	2.7	2.2	4.8	6.4
Czech Republic	10.6	241.1	336.7	27.7	16.2	43.3	69.6	101.7
DPR Korea	25.5	27.4	102.9	15.4	-0.2	15.2	12.8	19.6
Dem. Rep. of the Congo	81.3	33.3	64.4	30.2	-0.3	29.8	8.7	2.2
Denmark	5.8	359.5	266.3	15.6	2.2	17.0	33.9	31.3
Dominican Republic	10.8	77.0	154.0	1.2	8.1	8.7	16.6	21.4
Ecuador	16.6	87.4	171.9	30.0	-15.5	14.5	25.6	34.3
Egypt	97.6	271.7	1 008.5	78.3	15.2	92.8	165.5	209.2
El Salvador	6.4	22.1	45.6	2.1	2.2	4.1	6.2	5.7
Eritrea	5.1	2.9	8.4	0.7	0.2	0.9	0.4	0.6
Estonia	1.3	25.4	37.4	5.8	0.3	5.7	9.4	16.0
Ethiopia	105.0	57.7	177.9	38.4	4.6	42.3	9.6	13.1
Finland	5.5	262.0	219.6	18.2	15.0	33.3	85.2	42.6
France	67.1	2 875.3	2 540.1	129.8	125.2	247.1	483.4	306.1
Gabon	2.0	19.0	32.7	14.3	-9.1	5.0	2.2	3.4
Georgia	3.7	15.9	35.4	1.3	3.6	4.8	11.4	8.7
Germany	82.7	3 883.9	3 642.4	115.0	207.2	311.2	574.3	718.8
Ghana	28.8	50.6	115.6	13.5	-4.4	9.2	10.9	13.8
Gibraltar	0.0	1.4	1.2	0.0	4.4	0.3	0.3	0.7
Greece	10.8	247.9	259.3	7.2	18.9	23.3	60.4	63.2
Guatemala	16.9	52.8	123.0	9.4	4.9	13.7	10.5	15.7
Haiti	11.0	8.0	17.8	3.4	1.1	4.5	0.4	3.3
Honduras	9.3	20.5	41.2	3.0	3.1	6.0	8.3	9.4

1. Electricity consumption = Gross production + imports – exports – losses.

2. CO₂ emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines, and exclude emissions from non-energy.

3. Please refer to geographical coverage section for more detail.

Selected indicators for 2017

TPES/ pop. (toe/capita)	TPES/ GDP (toe/000 2010USD)	TPES/ GDP(PPP) (toe/000 2010 USD)	Elec. cons./pop. (kWh/ capita)	CO ₂ / TPES (tCO ₂ /toe)	CO ₂ / pop. (tCO ₂ / capita)	CO ₂ / GDP (kgCO ₂ / 2010USD)	CO ₂ /GDP (PPP) (kgCO ₂ / 2010USD)	Region / Country / Economy
2.21	0.30	0.15	4 546	3.02	6.68	0.91	0.45	China (People's Rep. of)
0.78	0.10	0.06	1 498	1.96	1.53	0.20	0.12	Colombia
0.56	0.22	0.12	513	0.96	0.54	0.21	0.11	Republic of the Congo
1.02	0.10	0.07	2 043	1.51	1.55	0.16	0.10	Costa Rica
0.43	0.26	0.12	279	0.98	0.42	0.26	0.12	Côte d'Ivoire
2.12	0.14	0.10	4 162	1.85	3.92	0.26	0.18	Croatia
0.93	0.14	0.05	1 513	2.46	2.28	0.35	0.11	Cuba
10.46	0.91	1.02	4 651	2.23	23.28	2.03	2.27	Curaçao ¹
2.59	0.09	0.08	5 586	2.87	7.45	0.25	0.23	Cyprus ¹
4.09	0.18	0.13	6 576	2.35	9.60	0.42	0.30	Czech Republic
0.60	0.56	0.15	501	1.29	0.77	0.71	0.19	DPR Korea
0.37	0.89	0.46	107	0.07	0.03	0.07	0.03	Dem. Rep. of the Congo
2.95	0.05	0.06	5 883	1.84	5.42	0.09	0.12	Denmark
0.81	0.11	0.06	1 538	2.46	1.99	0.28	0.14	Dominican Republic
0.87	0.17	0.08	1 541	2.36	2.06	0.39	0.20	Ecuador
0.95	0.34	0.09	1 697	2.26	2.14	0.77	0.21	Egypt
0.65	0.19	0.09	978	1.39	0.90	0.26	0.13	El Salvador
0.17	0.30	0.10	73	0.72	0.12	0.22	0.08	Eritrea
4.34	0.22	0.15	7 135	2.80	12.14	0.63	0.43	Estonia
0.40	0.73	0.24	92	0.31	0.12	0.23	0.07	Ethiopia
6.04	0.13	0.15	15 465	1.28	7.73	0.16	0.19	Finland
3.68	0.09	0.10	7 209	1.24	4.56	0.11	0.12	France
2.48	0.26	0.15	1 073	0.67	1.66	0.18	0.10	Gabon
1.29	0.30	0.14	3 078	1.81	2.35	0.55	0.25	Georgia
3.77	0.08	0.09	6 947	2.31	8.70	0.19	0.20	Germany
0.32	0.18	0.08	379	1.49	0.48	0.27	0.12	Ghana
7.42	0.19	0.22	7 823	2.79	20.70	0.52	0.60	Gibraltar
2.16	0.09	0.09	5 616	2.71	5.88	0.25	0.24	Greece
0.81	0.26	0.11	619	1.15	0.93	0.30	0.13	Guatemala
0.41	0.56	0.25	39	0.73	0.30	0.41	0.19	Haiti
0.65	0.29	0.15	892	1.56	1.02	0.46	0.23	Honduras

1. Please refer to geographical coverage section for more detail.

Selected indicators for 2017

Region / Country / Economy	Population (million)	GDP (billion 2010 USD)	GDP (PPP) (billion 2010 USD)	Energy prod. (Mtoe)	Net imports (Mtoe)	TPES (Mtoe)	Elec. cons. ¹ (TWh)	CO ₂ emissions ² (Mt of CO ₂)
Hong Kong, China	7.4	280.3	406.0	0.1	31.6	14.0	46.5	44.0
Hungary	9.8	153.6	252.7	11.3	16.7	26.6	42.3	45.8
Iceland	0.3	17.5	16.1	4.8	1.1	5.5	18.6	2.2
India	1 339.2	2 630.9	8 436.9	554.4	330.1	881.9	1 268.7	2 161.6
Indonesia	264.0	1 090.5	2 894.0	448.4	-201.4	244.1	234.5	496.4
Islamic Rep. of Iran	81.2	560.9	1 509.5	422.8	-162.6	261.6	269.9	567.1
Iraq	38.3	208.6	577.2	238.7	-176.7	61.5	46.4	139.9
Ireland	4.8	358.4	318.6	4.9	9.9	13.6	28.0	35.7
Israel ³	8.7	300.5	282.5	9.0	16.1	23.0	59.6	63.8
Italy	60.5	2 120.6	2 070.8	34.0	124.6	153.4	314.9	321.5
Jamaica	2.9	14.0	23.3	0.4	2.9	2.7	3.2	7.0
Japan	126.7	6 141.4	4 827.7	41.3	400.8	432.0	1 027.7	1 132.4
Jordan	9.7	31.4	79.3	0.4	9.3	9.3	18.7	25.6
Kazakhstan	18.0	196.0	425.5	180.0	-95.3	85.0	92.4	255.8
Kenya	49.7	58.1	145.7	21.7	6.1	27.0	8.2	16.3
Korea	51.4	1 345.9	1 850.4	49.1	249.3	282.3	548.1	600.0
Kosovo ³	1.8	7.4	17.5	1.8	0.8	2.6	5.0	8.2
Kuwait	4.1	138.8	265.6	162.2	-128.3	34.0	64.9	89.4
Kyrgyzstan	6.2	6.6	20.6	2.1	1.9	3.8	11.5	8.9
Latvia ³	1.9	30.2	46.8	2.6	2.1	4.4	7.0	6.7
Lebanon	6.1	43.2	78.6	0.2	9.1	9.0	18.1	26.9
Libya	6.4	46.6	111.7	53.9	-40.3	13.3	29.7	41.5
Lithuania ³	2.8	47.6	79.8	2.0	5.7	7.5	12.0	10.8
Luxembourg	0.6	63.5	51.8	0.2	4.1	3.8	8.3	8.6
Malaysia	31.6	364.6	831.1	95.8	-8.0	84.8	152.0	211.0
Malta	0.5	12.6	16.7	0.0	3.0	0.7	2.4	1.5
Mauritius	1.3	12.9	25.2	0.2	2.1	1.4	3.0	4.2
Mexico	123.4	1 284.9	2 114.9	164.9	20.9	180.1	278.5	446.0
Moldova	3.6	7.7	18.1	0.8	3.1	3.9	5.5	7.5
Mongolia	3.1	12.4	35.5	25.1	-18.9	5.1	6.8	19.3
Montenegro	0.6	4.9	10.0	0.6	0.4	1.0	3.1	2.2

1. Electricity consumption = Gross production + imports – exports – losses.

2. CO₂ emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines, and exclude emissions from non-energy.

3. Please refer to geographical coverage section for more detail.

Selected indicators for 2017

TPES/ pop. (toe/capita)	TPES/ GDP (toe/000 2010USD)	TPES/ GDP(PPP) (toe/000 2010USD)	Elec. cons./pop. (kWh/ capita)	CO ₂ / TPES (tCO ₂ /toe)	CO ₂ / pop. (tCO ₂ / capita)	CO ₂ / GDP (kgCO ₂ / 2010 USD)	CO ₂ /GDP (PPP) (kgCO ₂ / 2010 USD)	Region / Country / Economy
1.90	0.05	0.03	6 293	3.14	5.96	0.16	0.11	Hong Kong, China
2.72	0.17	0.11	4 321	1.72	4.68	0.30	0.18	Hungary
15.95	0.31	0.34	54 366	0.40	6.34	0.12	0.13	Iceland
0.66	0.34	0.10	947	2.45	1.61	0.82	0.26	India
0.92	0.22	0.08	888	2.03	1.88	0.46	0.17	Indonesia
3.22	0.47	0.17	3 326	2.17	6.99	1.01	0.38	Islamic Rep. of Iran
1.61	0.29	0.11	1 212	2.27	3.65	0.67	0.24	Iraq
2.84	0.04	0.04	5 834	2.62	7.44	0.10	0.11	Ireland
2.64	0.08	0.08	6 848	2.77	7.32	0.21	0.23	Israel ¹
2.53	0.07	0.07	5 202	2.10	5.31	0.15	0.16	Italy
0.94	0.19	0.12	1 117	2.57	2.41	0.50	0.30	Jamaica
3.41	0.07	0.09	8 111	2.62	8.94	0.18	0.23	Japan
0.96	0.30	0.12	1 930	2.76	2.63	0.81	0.32	Jordan
4.71	0.43	0.20	5 120	3.01	14.18	1.30	0.60	Kazakhstan
0.54	0.47	0.19	166	0.60	0.33	0.28	0.11	Kenya
5.49	0.21	0.15	10 654	2.13	11.66	0.45	0.32	Korea
1.40	0.35	0.15	2 711	3.18	4.46	1.10	0.47	Kosovo ¹
8.22	0.25	0.13	15 680	2.63	21.61	0.64	0.34	Kuwait
0.62	0.58	0.19	1 847	2.32	1.44	1.34	0.43	Kyrgyzstan
2.27	0.15	0.09	3 603	1.52	3.44	0.22	0.14	Latvia ¹
1.49	0.21	0.11	2 980	2.98	4.43	0.62	0.34	Lebanon
2.09	0.29	0.12	4 661	3.11	6.51	0.89	0.37	Libya
2.67	0.16	0.09	4 235	1.43	3.83	0.23	0.14	Lithuania ¹
6.32	0.06	0.07	13 831	2.29	14.46	0.14	0.17	Luxembourg
2.68	0.23	0.10	4 808	2.49	6.67	0.58	0.25	Malaysia
1.46	0.05	0.04	5 122	2.23	3.26	0.12	0.09	Malta
1.12	0.11	0.06	2 348	2.95	3.31	0.32	0.17	Mauritius
1.46	0.14	0.09	2 258	2.48	3.62	0.35	0.21	Mexico
1.08	0.50	0.21	1 557	1.95	2.12	0.98	0.42	Moldova
1.67	0.41	0.14	2 199	3.76	6.27	1.55	0.54	Mongolia
1.64	0.21	0.10	4 969	2.17	3.55	0.45	0.22	Montenegro

1. Please refer to geographical coverage section for more detail.

Selected indicators for 2017

Region / Country / Economy	Population (million)	GDP (billion 2010USD)	GDP (PPP) (billion 2010USD)	Energy prod. (Mtoe)	Net imports (Mtoe)	TPES (Mtoe)	Elec. cons. ¹ (TWh)	CO ₂ emissions ² (Mt of CO ₂)
Morocco	35.7	119.3	265.8	1.9	19.5	20.5	33.0	58.1
Mozambique	29.7	15.4	33.0	19.7	-8.8	10.6	14.5	7.6
Myanmar	53.4	79.5	293.4	28.8	-6.0	22.8	18.1	30.4
Namibia	2.5	14.8	23.6	0.5	1.6	2.0	4.1	4.0
Nepal	29.3	21.5	70.5	10.2	3.5	13.5	5.8	10.1
Netherlands	17.1	923.7	816.6	41.8	46.6	74.2	115.4	155.6
New Zealand	4.8	180.6	167.5	16.0	5.8	20.7	41.3	32.2
Nicaragua	6.2	12.5	32.4	2.2	1.8	4.0	3.9	5.1
Niger	21.5	8.5	19.5	3.2	0.0	3.2	1.2	2.0
Nigeria	190.9	460.5	1 000.8	249.3	-90.8	157.1	27.4	86.0
North Macedonia (Rep. of)	2.1	10.9	27.2	1.2	1.5	2.7	6.6	7.4
Norway	5.3	482.6	318.7	215.0	-185.5	30.0	125.0	34.8
Oman	4.6	74.9	172.4	77.9	-50.1	26.4	32.8	65.5
Pakistan	197.0	240.9	971.9	65.4	39.8	104.5	110.7	183.4
Panama	4.1	47.2	89.5	1.0	8.4	4.6	9.3	9.6
Paraguay	6.8	36.3	79.5	8.3	-1.3	7.1	12.1	7.7
Peru	32.2	198.5	385.6	24.8	0.5	24.6	47.4	49.7
Philippines	104.9	303.4	781.2	28.4	30.6	58.1	86.1	126.5
Poland	38.4	601.0	1 004.0	64.2	40.3	103.8	162.8	305.8
Portugal	10.3	238.9	289.5	5.3	19.8	22.8	51.6	50.8
Qatar	2.6	173.4	302.4	225.2	-179.5	43.1	42.9	80.1
Romania	19.6	216.3	447.1	25.5	7.9	33.3	54.4	70.8
Russian Federation	144.5	1 680.0	3 225.9	1 429.2	-664.1	732.2	978.4	1 536.9
Saudi Arabia	32.9	684.2	1 580.9	646.7	-425.4	211.3	315.4	532.2
Senegal	15.9	23.0	48.8	1.6	2.9	4.3	4.1	8.3
Serbia	7.0	42.1	93.9	10.5	5.3	15.6	33.1	46.1
Singapore	5.6	310.0	470.3	0.7	93.2	36.7	51.7	47.4
Slovak Republic	5.4	108.1	162.6	6.6	11.2	17.4	29.5	32.2
Slovenia	2.1	52.9	62.7	3.7	3.5	6.9	14.9	13.4
South Africa	56.7	426.8	683.2	158.0	-22.0	132.2	227.1	421.7
South Sudan	12.6	0.1	3.8	5.7	-5.0	0.7	0.5	1.5

1. Electricity consumption = Gross production + imports – exports – losses.

2. CO₂ emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines, and exclude emissions from non-energy.

Selected indicators for 2017

TPES/ pop. (toe/capita)	TPES/ GDP (toe/000 2010 USD)	TPES/ GDP(PPP) (toe/000 2010 USD)	Elec. cons./pop. (kWh/ capita)	CO ₂ / TPES (tCO ₂ /toe)	CO ₂ / pop. (tCO ₂ / capita)	CO ₂ / GDP (kgCO ₂ / 2010USD)	CO ₂ /GDP (PPP) (kgCO ₂ / 2010USD)	Region / Country / Economy
0.57	0.17	0.08	924	2.83	1.63	0.49	0.22	Morocco
0.36	0.69	0.32	489	0.72	0.26	0.50	0.23	Mozambique
0.43	0.29	0.08	340	1.33	0.57	0.38	0.10	Myanmar
0.80	0.14	0.09	1 601	2.00	1.59	0.27	0.17	Namibia
0.46	0.63	0.19	197	0.75	0.35	0.47	0.14	Nepal
4.33	0.08	0.09	6 734	2.10	9.08	0.17	0.19	Netherlands
4.28	0.11	0.12	8 548	1.56	6.67	0.18	0.19	New Zealand
0.64	0.32	0.12	620	1.29	0.82	0.41	0.16	Nicaragua
0.15	0.37	0.16	54	0.65	0.10	0.24	0.11	Niger
0.82	0.34	0.16	143	0.55	0.45	0.19	0.09	Nigeria
1.31	0.25	0.10	3 158	2.73	3.57	0.68	0.27	North Macedonia (Rep. of)
5.68	0.06	0.09	23 695	1.16	6.59	0.07	0.11	Norway
5.70	0.35	0.15	7 076	2.48	14.13	0.88	0.38	Oman
0.53	0.43	0.11	562	1.76	0.93	0.76	0.19	Pakistan
1.13	0.10	0.05	2 267	2.07	2.35	0.20	0.11	Panama
1.04	0.19	0.09	1 769	1.08	1.12	0.21	0.10	Paraguay
0.76	0.12	0.06	1 474	2.02	1.54	0.25	0.13	Peru
0.55	0.19	0.07	821	2.18	1.21	0.42	0.16	Philippines
2.70	0.17	0.10	4 236	2.95	7.96	0.51	0.30	Poland
2.21	0.10	0.08	5 014	2.23	4.93	0.21	0.18	Portugal
16.35	0.25	0.14	16 241	1.86	30.36	0.46	0.26	Qatar
1.70	0.15	0.07	2 778	2.12	3.61	0.33	0.16	Romania
5.07	0.44	0.23	6 771	2.10	10.64	0.91	0.48	Russian Federation
6.42	0.31	0.13	9 576	2.52	16.16	0.78	0.34	Saudi Arabia
0.27	0.19	0.09	256	1.93	0.52	0.36	0.17	Senegal
2.22	0.37	0.17	4 709	2.96	6.57	1.10	0.49	Serbia
6.53	0.12	0.08	9 219	1.29	8.45	0.15	0.10	Singapore
3.20	0.16	0.11	5 425	1.85	5.92	0.30	0.20	Slovak Republic
3.34	0.13	0.11	7 220	1.94	6.49	0.25	0.21	Slovenia
2.33	0.31	0.19	4 004	3.19	7.43	0.99	0.62	South Africa
0.05	4.52	0.17	41	2.32	0.12	10.47	0.41	South Sudan

Selected indicators for 2017

Region / Country / Economy	Population (million)	GDP (billion 2010 USD)	GDP (PPP) (billion 2010 USD)	Energy prod. (Mtoe)	Net imports (Mtoe)	TPES (Mtoe)	Elec. cons. ¹ (TWh)	CO ₂ emissions ² (Mt of CO ₂)
Spain	46.5	1 509.7	1 568.0	33.6	101.9	126.0	257.8	253.4
Sri Lanka	21.4	82.5	245.6	5.0	7.3	12.0	15.3	23.1
Sudan	40.5	79.4	177.4	17.4	1.6	18.7	11.3	18.8
Suriname	0.6	4.5	7.6	1.0	-0.6	0.4	1.8	1.9
Sweden	10.1	569.4	454.7	36.0	14.2	49.2	136.7	37.6
Switzerland	8.5	654.6	465.6	11.0	14.3	23.7	64.1	37.1
Syrian Arab Republic	18.3	13.2	29.2	4.1	4.9	8.9	15.3	23.0
Chinese Taipei	23.6	528.0	1 029.7	8.4	106.0	110.1	259.6	268.9
Tajikistan	8.9	9.1	25.4	2.5	0.7	3.2	13.9	5.8
Tanzania	57.3	50.1	146.3	18.0	2.5	20.4	6.8	10.1
Thailand	69.0	422.9	1 101.1	75.6	68.8	138.1	198.0	244.3
Togo	7.8	5.1	11.6	2.9	0.9	3.6	1.3	2.1
Trinidad and Tobago	1.4	21.0	38.6	32.6	-14.9	16.7	10.8	18.0
Tunisia	11.5	49.6	122.6	5.5	5.9	11.3	17.0	26.2
Turkey	80.3	1 206.0	1 969.2	36.9	116.2	146.8	262.0	378.6
Turkmenistan	5.8	42.1	92.5	76.9	-48.8	27.6	16.4	69.0
Ukraine	44.8	127.3	329.1	58.9	33.2	89.5	134.1	171.3
United Arab Emirates	9.4	387.3	619.8	229.4	-136.8	67.6	122.7	196.5
United Kingdom	66.0	2 818.7	2 597.5	120.2	66.3	175.9	327.0	358.7
United States	326.0	17 348.6	17 348.6	1 992.6	174.1	2 155.2	4 098.6	4 761.3
Uruguay	3.5	49.6	69.6	3.2	2.0	5.1	10.5	5.9
Uzbekistan	32.4	65.8	198.4	50.7	-16.9	33.8	51.3	81.2
Venezuela	32.0	283.9	339.8	150.6	-99.8	49.8	72.7	113.7
Viet Nam	95.5	175.3	577.7	66.4	14.4	78.2	185.4	191.2
Yemen	28.3	19.6	65.6	1.8	1.6	3.3	4.1	8.9
Zambia	17.1	28.0	61.4	10.6	1.5	12.1	12.5	6.0
Zimbabwe	16.5	18.0	35.8	10.2	1.3	11.3	8.0	9.7

1. Electricity consumption = Gross production + imports – exports – losses.

2. CO₂ emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 2006 IPCC Guidelines, and exclude emissions from non-energy.

Selected indicators for 2017

TPES/ pop. (toe/capita)	TPES/ GDP (toe/000 2010 USD)	TPES/ GDP(PPP) (toe/000 2010 USD)	Elec. cons./pop. (kWh/ capita)	CO ₂ / TPES (tCO ₂ /toe)	CO ₂ / pop. (tCO ₂ / capita)	CO ₂ / GDP (kgCO ₂ / 2010 USD)	CO ₂ /GDP (PPP) (kgCO ₂ / 2010 USD)	Region / Country / Economy
2.71	0.08	0.08	5 541	2.01	5.45	0.17	0.16	Spain
0.56	0.15	0.05	712	1.92	1.08	0.28	0.09	Sri Lanka
0.46	0.24	0.11	278	1.00	0.46	0.24	0.11	Sudan
0.63	0.08	0.05	3 210	5.47	3.42	0.42	0.25	Suriname
4.89	0.09	0.11	13 588	0.77	3.74	0.07	0.08	Sweden
2.80	0.04	0.05	7 582	1.57	4.39	0.06	0.08	Switzerland
0.49	0.67	0.30	838	2.59	1.26	1.74	0.79	Syrian Arab Republic
4.66	0.21	0.11	10 987	2.44	11.38	0.51	0.26	Chinese Taipei
0.36	0.36	0.13	1 560	1.80	0.66	0.64	0.23	Tajikistan
0.36	0.41	0.14	120	0.50	0.18	0.20	0.07	Tanzania
2.00	0.33	0.13	2 868	1.77	3.54	0.58	0.22	Thailand
0.46	0.72	0.31	170	0.57	0.27	0.41	0.18	Togo
12.22	0.80	0.43	7 904	1.08	13.15	0.86	0.47	Trinidad and Tobago
0.98	0.23	0.09	1 478	2.31	2.27	0.53	0.21	Tunisia
1.83	0.12	0.07	3 263	2.58	4.71	0.31	0.19	Turkey
4.79	0.66	0.30	2 855	2.50	11.98	1.64	0.75	Turkmenistan
2.00	0.70	0.27	2 991	1.91	3.82	1.35	0.52	Ukraine
7.20	0.17	0.11	13 057	2.90	20.91	0.51	0.32	United Arab Emirates
2.66	0.06	0.07	4 951	2.04	5.43	0.13	0.14	United Kingdom
6.61	0.12	0.12	12 573	2.21	14.61	0.27	0.27	United States
1.48	0.10	0.07	3 032	1.15	1.70	0.12	0.08	Uruguay
1.04	0.51	0.17	1 585	2.40	2.51	1.23	0.41	Uzbekistan
1.56	0.18	0.15	2 272	2.28	3.56	0.40	0.33	Venezuela
0.82	0.45	0.14	1 941	2.45	2.00	1.09	0.33	Viet Nam
0.12	0.17	0.05	147	2.74	0.32	0.46	0.14	Yemen
0.70	0.43	0.20	733	0.50	0.35	0.21	0.10	Zambia
0.68	0.63	0.32	486	0.86	0.59	0.54	0.27	Zimbabwe

Sources: Energy data: [IEA, World Energy Balances, 2019](#). Population, GDP and GDP(PPP) (in 2010 USD): OECD/World Bank/Base CHELEM-PIB, CEPIL Bureau van Dijk.

Conversion factors and unit abbreviations

General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
TJ	1	2.388×10^2	2.388×10^{-5}	9.478×10^2	2.778×10^{-1}
Gcal	4.187×10^{-3}	1	1.000×10^{-7}	3.968	1.163×10^{-3}
Mtoe	4.187×10^4	1.000×10^7	1	3.968×10^7	1.163×10^4
MBtu	1.055×10^{-3}	2.520×10^{-1}	2.520×10^{-8}	1	2.931×10^{-4}
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.	bbbl	ft ³	l	m ³
From:	multiply by:					
U.S. gallon (gal)	1	8.327×10^{-1}	2.381×10^{-2}	1.337×10^{-1}	3.785	3.785×10^{-3}
U.K. gallon (gal)	1.201	1	2.859×10^{-2}	1.605×10^{-1}	4.546	4.546×10^{-3}
barrel (bbbl)	4.200×10^1	3.497×10^1	1	5.615	1.590×10^2	1.590×10^{-1}
cubic foot (ft ³)	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 (m ³)	2.642×10^2	2.200×10^2	6.290	3.531×10^1	1.000×10^3	1

Conversion factors and unit abbreviations

Selected country-specific net calorific values

Steam coal

Top-ten producers in 2018	toe/tonne
People's Rep. of China	0.503
India	0.383
United States	0.535
Indonesia	0.537
Australia	0.596
South Africa	0.564
Russian Federation	0.603
Kazakhstan	0.444
Colombia	0.650
Poland	0.543

Crude oil¹

Top-ten producers in 2018	toe/tonne
Russian Federation	1.005
Saudi Arabia	1.016
United States	1.019
Iraq	1.023
Islamic Republic of Iran	1.019
People's Rep. of China	1.000
Canada	1.022
United Arab Emirates	1.018
Kuwait	1.016
Brazil	1.020

Default net calorific values

Oil products

	OECD Europe ²	OECD Americas	OECD Asia Oceania	Non-OECD
	toe/tonne			
Refinery gas	1.182	1.149	1.149	1.149
Ethane	1.182	1.180	1.180	1.180
Liquefied petroleum gases	1.099	1.130	1.139	1.130
Motor gasoline excl. biofuels	1.051	1.070	1.065	1.070
Aviation gasoline	1.051	1.070	1.065	1.070
Gasoline type jet fuel	1.027	1.070	1.065	1.070
Kerosene type jet fuel	1.027	1.065	1.063	1.065
Kerosene	1.027	1.046	1.025	1.046
Gas/diesel oil excl. biofuels	1.017	1.017	1.017	1.034
Fuel oil	0.955	0.960	1.017	0.960
Naphtha	1.051	1.075	1.032	1.075
White spirit	1.041	1.027	1.027	1.027
Lubricants	1.003	1.003	1.025	1.003
Bitumen	0.931	0.955	0.927	0.931
Paraffin waxes	0.955	0.955	0.955	0.955
Petroleum coke	0.764	0.764	0.807	0.764
Non-specified oil products	0.955	0.955	0.955	0.955

1. Excludes NGL, feedstocks, additives and other hydrocarbons.

2. Defaults for OECD Europe were also applied to non-OECD Europe and Eurasia countries.

Conversion factors and unit abbreviations

Selected country-specific gross calorific values

Natural gas

Top-ten producers in 2018	kJ/m ³
United States	38 639
Russian Federation	38 879
Islamic Rep. of Iran	39 356
Canada	39 030
Qatar	41 400
People's Rep. of China	38 931
Norway	39 263
Australia	38 825
Algeria	39 565
Saudi Arabia	38 000

Note: To calculate the net calorific value, the gross calorific value is multiplied by 0.9.

Conventions for electricity

Figures for electricity production, trade, and final consumption are calculated using the energy content of the electricity (i.e. at a rate of 1 TWh = 0.086 Mtoe). Hydro-electricity production (excluding pumped storage) and electricity produced by other non-thermal means (wind, tide/wave/ocean, photovoltaic, etc.) are accounted for similarly using 1 TWh = 0.086 Mtoe. However, the primary energy equivalent of nuclear electricity is calculated from the gross generation by assuming a 33% conversion efficiency, i.e. 1 TWh = (0.086 ÷ 0.33) Mtoe. For geothermal and solar thermal, if no country-specific information is reported, the primary energy equivalent is calculated as follows:

- 10 % for geothermal electricity
- 50 % for geothermal heat
- 33 % for solar thermal electricity
- 100 % for solar thermal heat.

Unit abbreviations

bcm	billion cubic metres	MBtu	million British thermal units
Gcal	gigacalorie	Mt	million tonnes
GCV	gross calorific value	Mtoe	million tonnes of oil equivalent
GW	gigawatt	MWh	megawatt hour
GWh	gigawatt hour	PPP	purchasing power parity
kb/cd	thousand barrels per calendar day	t	metric ton = tonne = 1 000 kg
kcal	kilocalorie	TJ	terajoule
kg	kilogramme	toe	tonne of oil equivalent = 10 ⁷ kcal
kJ	kilojoule	TWh	terawatt hour
kWh	kilowatt hour	USD	United States dollar

Definitions

Coal

Coal includes all coal, both primary (including coking coal, steam coal and lignite) and derived fuels (including patent fuel, coke oven coke, gas coke, BKB, gas works gas, coke oven gas, blast furnace gas and other recovered gases). For presentational purposes, peat (including peat products) and oil shale are also included in this category, where applicable.

Steam coal

Steam coal comprises anthracite, other bituminous coal and sub-bituminous coal.

Crude oil

Crude oil comprises crude oil, natural gas liquids, refinery feedstocks and additives as well as other hydrocarbons.

Oil products

Oil products comprises refinery gas, ethane, LPG, aviation gasoline, motor gasoline, jet fuels, kerosene, gas/diesel oil, fuel oil, naphtha, white spirit, lubricants, bitumen, paraffin waxes, petroleum coke and other oil products.

Natural gas

Natural gas includes both "associated" and "non-associated" gas, excluding natural gas liquids.

Nuclear

Nuclear shows the primary heat equivalent of the electricity produced by a nuclear power plant with an average thermal efficiency of 33%.

Renewables

Renewables includes hydro, geothermal, solar PV, solar thermal, tide/wave/ocean, wind, municipal waste (renewable), primary solid biofuels, biogases, biogasoline, biodiesel, other liquid biofuels, non-specified primary biofuels and waste and charcoal.

Hydro

Hydro shows the energy content of the electricity produced in hydro power plants. Hydro output excludes output from pumped storage plants.

Solar photovoltaic (PV)

Solar PV electricity refers to electricity produced from solar photovoltaics, i.e. by the direct conversion of solar radiation through photovoltaic processes in semiconductor devices (solar cells), including concentrating photovoltaic systems.

Wind

Wind electricity refers to electricity produced from devices driven by wind.

Biofuels and waste

Biofuels and waste comprises solid biofuels, liquid biofuels, biogases, industrial waste and municipal waste. Biofuels are defined as any plant matter used directly as fuel or converted into fuels (e.g. charcoal) or electricity and/or heat. Included here are wood, vegetal waste (including wood waste and crops used for energy production), ethanol, animal materials/wastes and sulphite lyes. Municipal waste comprises wastes produced by residential, commercial and public services, that are collected by local authorities for disposal in a central location for the production of heat and/or power.

Definitions

Other (Energy source)

Other includes geothermal, solar, wind, tide/wave/ocean energy, electricity and heat. Unless the actual efficiency of geothermal and solar thermal is known, the quantity of geothermal and solar energy entering electricity generation is inferred from the electricity/heat production at geothermal and solar plants assuming an average thermal efficiency of:

- 10% for geothermal electricity
- 50% for geothermal heat
- 33% for solar thermal electricity
- 100% for solar thermal heat.

For solar PV, wind and tide/wave/ocean energy, the quantities entering electricity generation are equal to the electrical energy generated. Direct use of geothermal and solar heat is also included here. Electricity is accounted for at the same heat value as electricity in final consumption (i.e. 1 GWh = 0.000086 Mtoe). Heat includes heat that is produced for sale and is accounted for in the transformation sector.

Production

Production is the production of primary energy, i.e. coking coal, steam coal, lignite, peat, oil shale, crude oil, NGLs, natural gas, biofuels and waste, nuclear, hydro, geothermal, solar, wind and the heat from heat pumps that is extracted from the ambient environment. Production is calculated after removal of impurities (e.g. sulphur from natural gas).

Imports and exports

Imports and exports comprise amounts having crossed the national territorial boundaries of the country, whether or not customs clearance has taken place.

a) Oil and natural gas

Quantities of crude oil and oil products imported or exported under processing agreements (i.e. refining on account) are included. Quantities of oil in transit are excluded. Crude oil, NGL and natural gas are reported as coming from the country of origin; refinery feedstocks and oil products are reported as coming from the country of last consignment. Re-exports of oil imported for processing within bonded areas are shown as exports of product from the processing country to the final destination.

b) Coal

Imports and exports comprise the amount of fuels obtained from or supplied to other countries, whether or not there is an economic or customs union between the relevant countries. Coal in transit is not included.

c) Electricity

Amounts are considered as imported or exported when they have crossed the national territorial boundaries of the country.

International marine bunkers

International marine bunkers covers those quantities delivered to ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Consumption by ships engaged in domestic navigation is excluded. The domestic/international split is determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Consumption by fishing vessels and by military forces is also excluded.

Definitions

International aviation bunkers

International aviation bunkers covers deliveries of aviation fuels to aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split should be determined on the basis of departure and landing locations and not by the nationality of the airline. For many countries this incorrectly excludes fuel used by domestically owned carriers for their international departures.

Stock changes

Stock changes reflects the difference between opening stock levels on the first day of the year and closing levels on the last day of the year of stocks on national territory held by producers, importers, energy transformation industries and large consumers. A stock build is shown as a negative number, and a stock draw as a positive number.

Total primary energy supply (TPES)

Total primary energy supply (TPES) is made up of production + imports – exports – international marine bunkers – international aviation bunkers ± stock changes. For the world total, international marine bunkers and international aviation bunkers are not subtracted from TPES.

Transfers

Transfers includes both interproduct transfers, products transferred and recycled products (e.g. used lubricants which are reprocessed).

Statistical differences

Statistical differences are essentially the difference between supply and demand. They include the sum of the unexplained statistical differences for individual fuels, as they appear in the basic energy statistics. They also include the statistical differences that arise because of the variety of conversion factors in the coal and oil columns.

Electricity plants

Electricity plants refers to plants which are designed to produce electricity only. If one or more units of the plant is a CHP unit (and the inputs and outputs cannot be distinguished on a unit basis) then the whole plant is designated as a CHP plant. Both main activity producers and autoproducer plants are included here.

Oil refineries

Oil refineries shows the use of primary energy for the manufacture of finished oil products and the corresponding output. Thus, the total reflects transformation losses. In certain cases the data in the total column are positive numbers. This can be due to either problems in the primary refinery balance or to the fact that the IEA uses regional net calorific values for oil products.

Other transformation

Other transformation covers non-specified transformation not shown elsewhere, such as the transformation of primary solid biofuels into charcoal.

Energy industry own use

Energy industry own use contains the primary and secondary energy consumed by transformation industries for heating, pumping, traction and lighting purposes [ISIC 05, 06, 19 and 35, Group 091 and Classes 0892 and 0721].

Definitions

Losses

Losses include losses in energy distribution, transmission and transport.

Total final consumption (TFC)

Total final consumption (TFC) is the sum of consumption by the different end-use sectors also includes non-energy use. Backflows from the petrochemical industry are not included in final consumption.

Industry

Industry consumption is specified by sub-sector as listed below. Energy used for transport by industry is not included here but is reported under transport. *Non-energy use* in industry is excluded from *industry* and reported separately:

- Mining (excluding fuels) and quarrying [ISIC Divisions 07 and 08 and Group 099]
- Construction [ISIC Divisions 41 to 43]
- Iron and steel industry [ISIC Group 241 and Class 2431]
- Chemical and petrochemical industry [ISIC Divisions 20 and 21] excluding petrochemical feedstocks
- Non-ferrous metals basic industries [ISIC Group 242 and Class 2432]
- Non-metallic minerals such as glass, ceramic, cement, etc. [ISIC Division 23]
- Transport equipment [ISIC Divisions 29 and 30]
- Machinery comprises fabricated metal products. machinery and equipment other than transport equipment [ISIC Divisions 25 to 28]
- Food and tobacco [ISIC Divisions 10 to 12]
- Paper, pulp and printing [ISIC Divisions 17 and 18]
- Wood and wood products (other than pulp and paper) [ISIC Division 16]
- Textile and leather [ISIC Divisions 13 to 15]
- Non-specified (any manufacturing industry not included above) [ISIC Divisions 22, 31 and 32].

Transport

Transport includes all fuels used for transport [ISIC Divisions 49 to 51]. It includes transport in industry and covers domestic aviation, road, rail, pipeline transport, domestic navigation and non-specified transport. Fuel used for ocean, coastal and inland fishing (included under fishing) and military consumption (included in other non-specified) are excluded from transport. Please note that international marine and international aviation bunkers are also included here for world total. *Non-energy use* in transport is excluded from *transport* and reported separately.

Other (Energy final consumption)

Other covers residential, commercial and public services [ISIC Divisions 33, 36-39, 45-47, 52, 53, 55, 56, 58-66, 68-75, 77-82, 84 (excluding Class 8422), 85-88, 90-99], agriculture/forestry [ISIC Divisions 01 and 02], fishing [ISIC Division 03] and non-specified consumption.

Non-energy use

Non-energy use covers those fuels that are used as raw materials in the different sectors and are not consumed as a fuel or transformed into another fuel. Non-energy use also includes petrochemical feedstocks. Non-energy use is shown separately in final consumption under the heading non-energy use.

Geographical coverage

World

OECD¹ Total, Africa, Non-OECD Americas, Non-OECD Asia (excluding China), China (People's Republic of China and Hong Kong, China), Non-OECD Europe and Eurasia, Middle East, World aviation bunkers and World marine bunkers. It is also the sum of Africa, Americas, Asia, Europe, Oceania, World aviation bunkers and World marine bunkers.

Africa

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, the Republic of the Congo (Congo), Côte d'Ivoire, the Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, the Kingdom of Eswatini (Eswatini), Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Réunion (until 2010), Rwanda, Sao Tome and Principe, Senegal, the Seychelles, Sierra Leone, Somalia, South Africa, South Sudan (from 2012), Sudan, the United Republic of Tanzania (Tanzania), Togo, Tunisia, Uganda, Zambia, Zimbabwe.

Americas

Antigua and Barbuda, Argentina, Aruba, the Bahamas, Barbados, Belize, Bermuda, the Plurinational State of Bolivia (Bolivia), Bonaire (from 2012), the British Virgin Islands, Brazil, Canada, the Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Curaçao², Dominica, the Dominican Republic, Ecuador, El Salvador, the Falkland Islands (Malvinas), Guatemala, French Guiana (until 2010), Grenada, Guadeloupe (until 2010), Guyana, Haiti, Honduras, Jamaica, Martinique (until 2010), Mexico, Montserrat, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Saba (from 2012), Saint Kitts and Nevis, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Sint Eustatius (from 2012), Sint Maarten (from 2012), Suriname, Trinidad and Tobago, the Turks and Caicos Islands, the United States, Uruguay, the Bolivarian Republic of Venezuela (Venezuela).

Asia (from 1990)

Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, the People's Republic of China, Cyprus³, Georgia, Hong Kong (China), India, Indonesia, the Islamic Republic of Iran, Iraq, Israel⁴, Japan, Jordan, the Democratic People's Republic of Korea, Korea, Kazakhstan, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Lebanon, Macau, China, Malaysia, the Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, the Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, the Syrian Arab Republic, Tajikistan, Chinese Taipei, Thailand, Timor-Leste, Turkey, Turkmenistan, the United Arab Emirates, Uzbekistan, Viet Nam, and Yemen.

Europe (from 1990)

Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France⁵, Germany, Gibraltar, Greece, Hungary, Iceland, Ireland, Italy, Kosovo⁶, Latvia, Lithuania, Luxembourg, Malta, the Republic of Moldova (Moldova), Montenegro, the Netherlands, the Republic of North Macedonia (North Macedonia), Norway, Poland, Portugal, Romania, the Russian Federation, Serbia⁷, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine, the United Kingdom.

Oceania

Australia, New Zealand, Cook Islands, Fiji, French Polynesia, Kiribati, New Caledonia, Palau, Papua New Guinea, Samoa, the Solomon Islands, Tonga, Vanuatu.

Geographical coverage

OECD¹

Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel⁴, Italy, Japan, Korea, Latvia⁷, Lithuania⁹, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States.

OECD Americas

Canada, Chile, Mexico, the United States.

OECD Asia Oceania

Australia, Israel⁴, Japan, Korea, New Zealand.

OECD Europe

Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia⁸, Lithuania⁹, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom.

The IEA and Accession/Association countries

IEA member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States; Accession country: Chile; Association countries: Brazil, the People's Republic of China, India, Indonesia, Morocco, Singapore, South Africa, Thailand.

Middle East

Bahrain, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen.

Non-OECD Europe and Eurasia

Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus³, Georgia, Gibraltar, Kazakhstan, Kosovo⁶, Kyrgyzstan, Malta, The Republic of Moldova, Montenegro, the Republic of North Macedonia, Romania, Russian Federation, Serbia⁷, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, the Former Soviet Union and the Former Yugoslavia.

China

People's Republic of China and Hong Kong (China).

Non-OECD Asia excluding China

Bangladesh, Brunei Darussalam, Cambodia (from 1995), India, Indonesia, Democratic People's Republic of Korea, Malaysia, Mongolia (from 1985), Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Chinese Taipei, Thailand, Viet Nam and Other non-OECD Asia.

Non-OECD Americas

Argentina, the Plurinational State of Bolivia (Bolivia), Brazil, Colombia, Costa Rica, Cuba, Curaçao², Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Suriname (from 2000), Trinidad and Tobago, Uruguay, the Bolivarian Republic of Venezuela (Venezuela) and Other non-OECD Americas.

Geographical coverage

1. OECD includes Estonia, Latvia, Lithuania and Slovenia starting in 1990. Prior to 1990, Estonia, Latvia and Lithuania are included in Former Soviet Union and Slovenia is included in Former Yugoslavia.

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

3. 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 United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

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.

4. 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.

5. Data for the overseas departments are included in Europe starting with 2011, and in other regions as appropriate (America or Africa) until 2010.

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

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

8. Latvia is included in the OECD zone aggregates starting in 1990. Prior to 1990, data for Latvia are included in Former Soviet Union.

9. Lithuania became an OECD Member in July 2018. Accordingly, Lithuania appears in the list of OECD Members and is included in the zone aggregates for data starting in 1990, starting with the 2019 edition.

Note: The countries listed above are those for which the IEA Secretariat has direct statistics contacts. 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 the case may be.

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