

2023 | 72nd edition

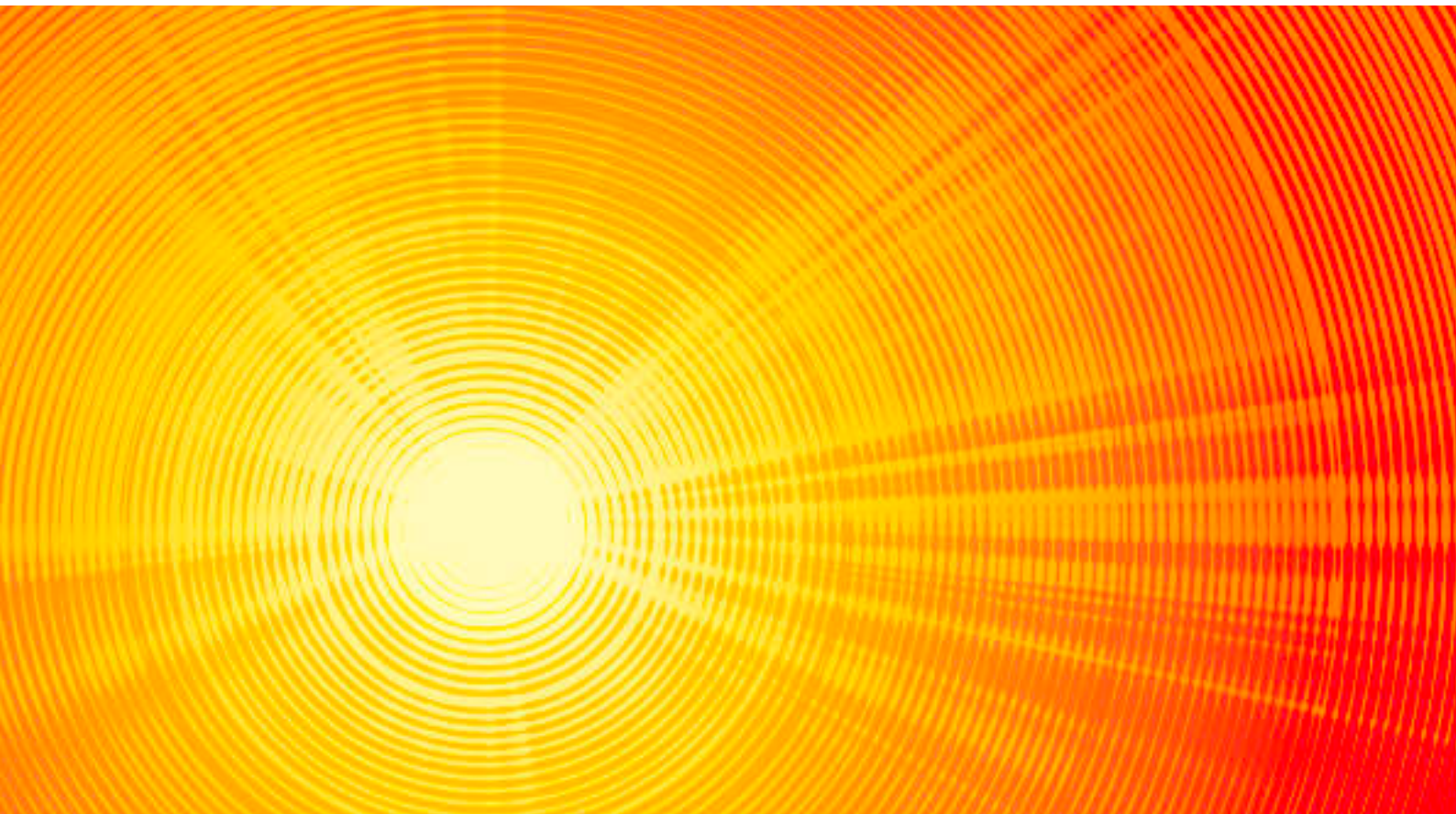
Statistical Review of World Energy

In partnership with



KEARNEY

The Energy Institute (EI) Statistical Review of World Energy™ analyses data on world energy markets from the prior year. The Review has been providing timely, comprehensive and objective data to the energy community since 1952.



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Introduction

- 2** Foreword
- 3** 2022 Key highlights
- 4** 2022 Key charts

P Primary energy

- 8** Consumption
- 9** Consumption by fuel
- 11** Consumption per capita

Carbon

- 12** Carbon dioxide emissions from energy
- 13** Natural gas: flaring
- 14** Carbon dioxide equivalent emissions

Oil

- 15** Production
- 19** Consumption
- 24** Prices
- 25** Refining
- 27** Trade movements

Natural gas

- 30** Production
- 32** Consumption
- 34** Prices
- 37** Trade movements

Coal

- 39** Production
- 40** Trade movements
- 42** Consumption

Nuclear energy

- 43** Consumption

Hydroelectricity

- 44** Consumption

Renewable energy

- 45** Consumption
- 46** Generation
- 47** Generation by source
- 48** Solar capacity
- 49** Wind capacity
- 50** Biofuels production
- 51** Biofuels consumption

Electricity

- 52** Generation
- 53** Generation by fuel

Key minerals

- 54** Production
- 54** Reserves
- 55** Prices

Methodology

- 56** More detail on the methodology

Appendices

- 58** Approximate conversion factors
- 59** Definitions
- 60** More information

Foreword

Publishing the 72nd Statistical Review of World Energy is a significant moment for the Energy Institute (EI).

As the chartered professional membership body for people who work across the world of energy, the EI and its precursor bodies date back more than a century. This major addition to our body of work underpins our determination to bring the best evidence to bear in the vital decisions made by the business community, policy makers and academics in energy.

With our partners KPMG and Kearney, the continuing involvement of Heriot-Watt University and with enormous thanks to bp for seven decades' work building one of the world's most respected energy data sources, we are opening a new chapter in the story of the Statistical Review.

It continues to be **full, first and free**: the fullest, most reliable account of energy production, consumption, trade and emissions; the first data source to provide a complete global picture of the previous year; and completely free to access for users.

This year more than ever, it provides insight into how our energy systems are adapting to escalating environmental and geopolitical crises. The data shed light on a year in energy defined by three crises layered one on top of the other – on **supply, price and climate**.

Just as the world emerged from the huge impact on energy demand caused by the global pandemic, 2022 witnessed energy markets again in crisis, as Russia's invasion of Ukraine upended assumptions about supply and sent out ripples around the world. That in turn precipitated a price crisis and profound cost-of-living pressures across many economies.

This year more than ever, it provides insight into how our energy systems are adapting to escalating environmental and geopolitical crises.

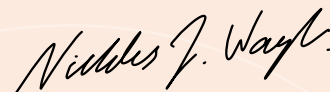
More fundamentally, we have seen further and ever more dangerous impacts of climate change across all continents. And despite broad consensus on the need to reach net zero, global energy-related greenhouse gas emissions are still heading in the wrong direction.

The Statistical Review provides a high level view of the global energy system, of how global markets are faring under these pressures, and how the energy transition is evolving.

At the EI, the Statistical Review has a new, long-term, independent home. Users will find all of the familiar elements – both in print and online. We look forward to working with the user community to ensure it stays relevant as we work together to accelerate the transition to a cleaner, more secure energy future.



Juliet Davenport
OBE HonFEI,
President, Energy Institute



Dr Nick Wayth
CEng FEI FIMechE,
CEO, Energy Institute



2022 Key highlights

Whilst 2022 saw energy demand continue to recover from the COVID-19 pandemic, legacy supply chain issues, along with conflict in Ukraine, continued to impact the global energy sector.

Energy developments

- 2022 saw a 1% increase in total primary energy consumption taking it to around 3% above the 2019 pre-COVID level.
- Renewables' (excluding hydroelectricity) share of primary energy consumption reached 7.5%, an increase of nearly 1% over the previous year.
- Fossil fuel consumption as a percentage of primary energy remained steady at 82%.

Carbon emissions

- Carbon dioxide emissions from energy use, industrial processes, flaring and methane (in carbon dioxide equivalent terms) continued to rise to a new high growing 0.8% in 2022 to 39.3 GtCO₂e, with emissions from energy use rising 0.9% to 34.4 GtCO₂e.
- In contrast, carbon dioxide emissions from flaring decreased by 3.8% and emissions from methane and industrial processes decreased by 0.2%.

Oil

- Brent crude oil prices averaged \$101/bbl in 2022, its highest level since 2013.
- Oil consumption continued to increase, rising by 2.9 million barrels per day (b/d) to 97.3 million barrels per day (b/d), a smaller increase than was seen between 2020 and 2021. Consumption remained 0.7% below 2019 levels.
- Regionally, OECD consumption increased by 1.4 million b/d and non-OECD by 1.5 million b/d. Most of the growth came from jet/kerosene (0.9 million b/d) and diesel/gasoil (0.7 million b/d).
- Global oil production increased by 3.8 million b/d in 2022, with OPEC+ accounting for more than 60% of the increase. Among all countries, Saudi Arabia (1,182,000 b/d) and the US (1,091,000 b/d), saw the largest increases. Nigeria reported the largest decline in production (184,000 b/d) with production in Libya declining by 181,000 b/d too.
- Refining capacity increased slightly by around 534,000 b/d last year driven by an increase in capacity in non-OECD countries.

Natural gas

- Natural gas prices reached record levels in Europe and Asia in 2022, rising nearly threefold in Europe (TTF averaging \$37/mmBtu) and doubling in the Asian LNG spot market (JKM averaging \$34/mmBtu). US Henry Hub prices rose over 50% to average \$6.5/mmBtu in 2022 – their highest annual level since 2008.
- Global natural gas demand declined by 3% in 2022 dropping just below the 4 Tcm mark achieved for the first time in 2021. Its share in primary energy in 2022 decreased slightly to 24% (from 25% in 2021).
- Global gas production remained relatively constant compared to 2021.
- LNG supply grew 5% (26 Bcm) to 542 Bcm in 2022, similar to 2021. LNG supply increases came mostly from North America (10 Bcm) and APAC (8 Bcm). All other regions made a positive contribution to LNG supply growth in 2022 (8 Bcm).
- The increase in global LNG demand was triggered by Europe (62 Bcm) in 2022. Countries in the Asia Pacific region reduced their LNG imports by 24 Bcm and those in South & Central America by 11 Bcm.

- Japan replaced China as the world's largest LNG importer and accounted for close to 60% of global LNG demand growth in 2022. The Asia Pacific region accounted for around 65% of global LNG demand but fell 6.5% compared to 2021 whilst Europe increased its LNG imports by 57%.
- Overall natural gas pipeline net trade fell ~15% globally in 2022 (78 Bcm). European pipeline imports fell by 35% (82 Bcm), almost entirely attributable to supplies from Russia. Overall, Russian total pipeline exports fell 38%. The Middle East increased its pipeline exports by 12%. China increased its pipeline imports by 5 Bcm.

Coal

- Coal prices reached record levels in 2022, with European prices averaging \$294/tonne and the Japan CIF spot price averaging \$225/tonne (increases of 145% and 45% over 2021 respectively).
- Coal consumption continued to increase, rising 0.6% in 2021 to 161 EJ; the highest level of coal consumption since 2014.
- The growth in demand was largely driven by China (1%) and India (4%). Their combined growth of 1.7 EJ was sufficient to offset declines in other regions by 0.6 EJ.
- Coal consumption in both North America and Europe declined by 6.8% and 3.1% respectively. In 2022, OECD consumption was around 10% less than its 2019 pre-COVID level and non-OECD coal consumption over 6% higher.
- Global coal production increased by over 7% compared to 2021, reaching a record high of 175 EJ. China, India, and Indonesia accounted for over 95% of the increase in global production.

Renewables, hydro and nuclear

- Renewable power (excluding hydro) rose 14% in 2022 to reach 40.9 EJ. This was slightly below the previous year's growth rate of 16%.
- Solar and wind capacity continued to grow rapidly in 2022 recording a record increase of 266 GW. Solar accounted for 72% (192 GW) of the capacity additions.
- The largest portion of solar and wind growth was in China accounting for about 37% and 41% of global capacity additions respectively.
- Hydroelectricity generation increased by 1.1% in 2022 whilst output from nuclear fell by 4.4%.

Electricity

- Global electricity generation increased by 2.3% in 2022 which was lower than the previous year's growth rate of 6.2%.
- Wind and solar reached a record high of 12% share of power generation with solar recording 25% and wind power 13.5% growth in output. The combined generation from wind and solar once again surpassed that of nuclear energy.
- Coal remained the dominant fuel for power generation in 2022, with a stable share around 35.4%, marginally down from 35.8% in 2021.
- Natural gas-fired power generation remained stable in 2022 with a share of around 23%.
- Renewables (excluding hydro) met 84% of net electricity demand growth in 2022.

Key minerals

- Lithium carbonate prices rose 335% to average a record high of \$47,000/tonne. Similarly, the price of cobalt increased 24% in 2021 to average \$64,000/tonne.
- Lithium and cobalt production rose sharply by 21%.

2022 Key charts

In 2022, the energy system switched from concerns around demand post-COVID to supply concerns arising from the conflict in Ukraine. These charts summarise some of the key highlights from this year's Statistical Review.

Primary energy

Primary energy demand growth slowed compared to 2021, increasing 1.1% (6.6 EJ) in 2022 versus 5.5% (30.9 EJ) in 2021. Primary energy in 2022 was 16.6 EJ above 2019 pre-COVID levels with consumption increasing in all regions except for Europe (-3.8%) and CIS (-5.8%).

Primary energy consumption in non-OECD countries increased by 20.5 EJ compared to their 2019 pre-COVID levels, driven largely by growth in China (14.6 EJ) accounting for 72% of the increase. Primary energy demand in OECD countries was slightly down against 2019 levels at 234 EJ in 2022 versus 238 EJ in 2019. The increase in primary energy supply between 2019 and 2022 was largely driven by renewable (excluding hydro) energy sources (13.5 EJ) and coal (10.6 EJ), with increased gas production (2.7 EJ) also evident.

Primary energy use in 2022 was 2.8% above 2019 levels.

CO₂ emissions

Emissions from energy continued to rebound strongly reaching a record high of 39.3 billion tonnes of carbon dioxide equivalent representing a 0.8% increase over 2021. Emissions from energy consumption contributed 87% of total global emissions.

Commodity prices

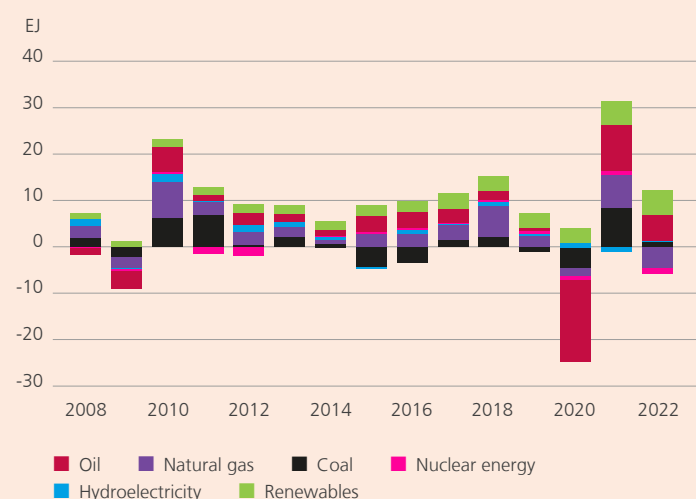
Global energy prices rose sharply in 2022 driven by energy supply concerns.

The most pronounced increase was in the price of lithium carbonate, which increased by over 300% in 2022. Oil prices rose by around 40%, with Brent ending the year averaging around \$101/bbl. Gas (Netherlands TTF) prices increased by over 130% to average around \$37/mmBtu, while coal prices also saw an increase with the Northwest Europe marker price increasing by 141% to \$294/tonne.

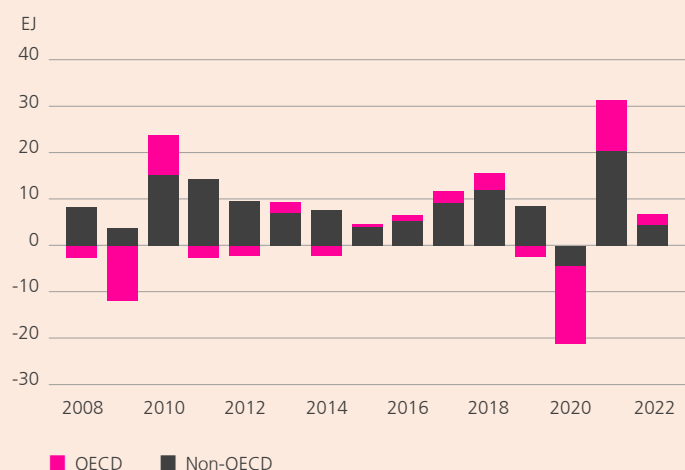
Global greenhouse gas emissions continue to rise, reaching record levels in 2022.

Primary energy in 2022 reached a record level with non-OECD countries accounting for most of the increase.

Change in primary energy by fuel

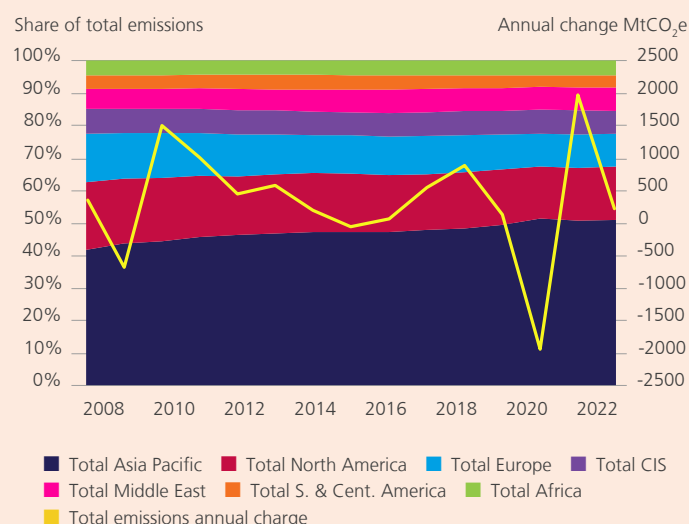


Change in primary energy by geography

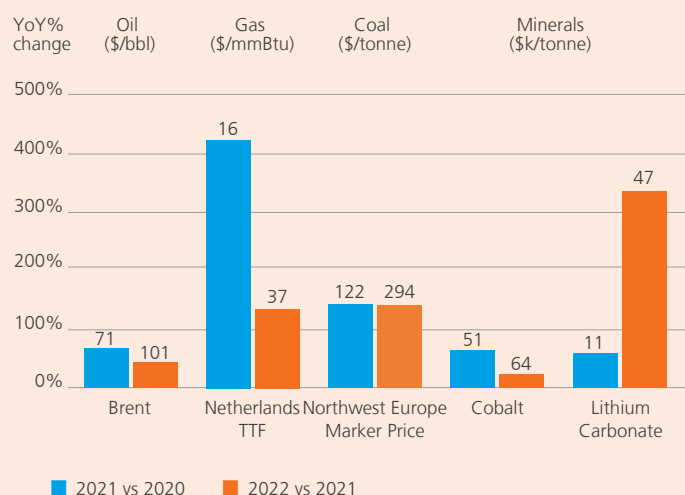


Carbon emissions reached a record high in 2022

Asia Pacific region continues to increase its share of total global emissions



Energy and mineral prices rose sharply in 2022 with gas and lithium carbonate reaching record levels



Natural gas prices reached record levels in Europe and Asia Pacific regions.

Sources:

Brent: S&P Global Platts, ©2023, S&P Global Inc.

TTF: ICIS Heren Energy Ltd

Northwest Europe marker price: S&P Global Platts, ©2023, S&P Global Inc.

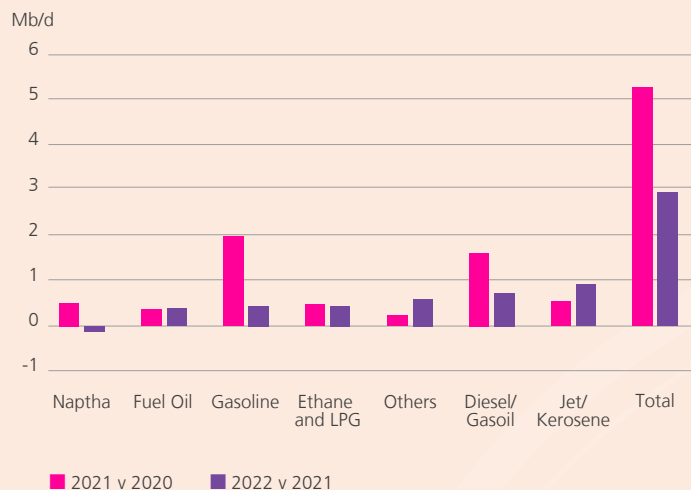
Cobalt: London Metal Exchange

Lithium carbonate: Benchmark Mineral Intelligence

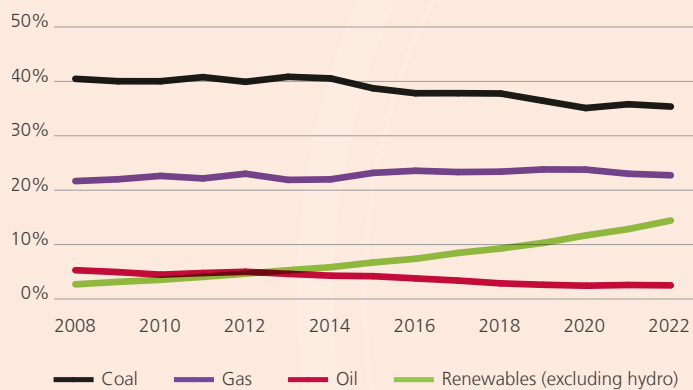
2022 vs 2021 percentage changes use the latest data available as of June 2023

2022 Key charts

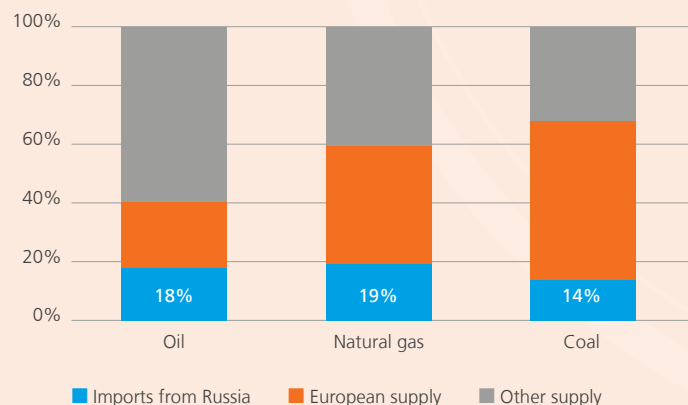
Refined product demand grew in 2022



The share of renewables in global power generation continued to increase



Russian share of European crude oil, natural gas, and coal supply



Russia accounted for around 15% of Europe's gas use in 2022.

Despite a strong recovery, aviation-related oil demand remained below 2019 levels in 2022.

Oil demand

Oil demand in 2022 was 0.65 Mb/d (0.7%) below 2019 levels. Gasoline (25%) and diesel/gasoil (29%) accounted for just over half of total demand.

Although aviation-related oil demand exhibited the strongest growth, it remained more than 1.7 Mb/d below 2019 pre-COVID levels.

Demand for gasoline in 2022 was similar to pre-pandemic levels, whilst demand for naphtha, diesel/gasoil, fuel oil, and other oil products in 2022 were above their pre-pandemic levels.

Naptha demand fell between 2021 and 2022, whilst demand for all other products increased.

Oil, gas and coal trade

Russian natural gas (pipeline and LNG) accounted for around 33% of Europe's total gas imports in 2022.

Crude oil from Russia made up 23% of total European crude oil imports.

Russian coal contributed 30% of Europe's coal imports in 2022.

Power by fuel

The share of renewables (excluding hydro) in global power generation continued its rising trend, driven by record new build of solar and wind. Their share of total global electricity production reached 14% in 2022, higher than that of nuclear energy (9%). The share of coal in the power sector stood at around 35% whilst the share of gas generation in 2022 remained close to its 10-year average level at 23%.

Solar and wind recorded a record increase of 266 GW in 2022 with solar accounting for 72% of the capacity additions.



Exajoules												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	14.06	14.40	14.43	14.52	14.32	14.54	14.67	14.59	13.71	13.84	14.14	2.2%	0.1%	2.3%
Mexico	8.06	8.07	8.02	7.93	8.11	8.26	8.16	8.06	7.43	7.99	8.73	9.2%	0.8%	1.4%
US	90.17	92.62	93.59	92.69	92.60	92.95	96.35	95.67	88.57	93.40	95.91	2.7%	0.6%	15.9%
Total North America	112.30	115.09	116.03	115.14	115.04	115.76	119.18	118.32	109.71	115.23	118.78	3.1%	0.6%	19.7%
Argentina	3.40	3.53	3.53	3.59	3.57	3.57	3.54	3.34	3.13	3.48	3.60	3.7%	0.6%	0.6%
Brazil	12.21	12.51	12.83	12.66	12.36	12.47	12.51	12.72	12.22	12.85	13.41	4.3%	0.9%	2.2%
Chile	1.45	1.49	1.47	1.49	1.56	1.62	1.69	1.71	1.59	1.72	1.79	4.2%	2.1%	0.3%
Colombia	1.70	1.75	1.84	1.74	1.96	1.98	2.01	2.03	1.85	2.07	2.19	6.1%	2.6%	0.4%
Ecuador	0.63	0.65	0.68	0.68	0.67	0.70	0.74	0.76	0.66	0.76	0.79	3.1%	2.3%	0.1%
Peru	0.92	0.95	0.97	1.01	1.08	1.09	1.15	1.18	1.00	1.14	1.21	5.5%	2.7%	0.2%
Trinidad & Tobago	0.81	0.83	0.82	0.80	0.71	0.75	0.71	0.68	0.59	0.61	0.59	-3.1%	-3.1%	0.1%
Venezuela	3.65	3.69	3.54	3.49	3.04	3.06	2.59	2.21	1.82	2.10	2.21	5.2%	-4.9%	0.4%
Other S. & Cent. America	3.86	3.87	3.88	4.07	4.29	4.27	4.35	4.39	3.95	4.20	4.32	2.8%	1.1%	0.7%
Total S. & Cent. America	28.63	29.26	29.57	29.53	29.24	29.52	29.29	29.01	26.81	28.93	30.11	4.1%	0.5%	5.0%
Austria	1.49	1.48	1.42	1.42	1.47	1.50	1.47	1.54	1.44	1.45	1.37	-5.5%	-0.8%	0.2%
Belgium	2.47	2.53	2.34	2.37	2.55	2.58	2.57	2.66	2.39	2.66	2.45	-7.8%	-0.1%	0.4%
Czech Republic	1.80	1.76	1.73	1.69	1.67	1.77	1.76	1.72	1.59	1.68	1.67	-0.5%	-0.7%	0.3%
Finland	1.23	1.23	1.19	1.18	1.20	1.18	1.20	1.18	1.13	1.15	1.18	2.2%	-0.4%	0.2%
France	10.37	10.47	10.03	10.09	9.92	9.84	10.03	9.81	8.84	9.40	8.39	-10.8%	-2.1%	1.4%
Germany	13.54	13.93	13.36	13.61	13.83	14.01	13.66	13.31	12.41	12.78	12.30	-3.8%	-1.0%	2.0%
Greece	1.26	1.18	1.11	1.12	1.11	1.16	1.17	1.14	1.00	1.09	1.14	4.4%	-1.0%	0.2%
Hungary	0.90	0.86	0.86	0.90	0.92	0.97	0.98	0.99	0.97	1.02	0.96	-6.4%	0.6%	0.2%
Italy	7.00	6.69	6.34	6.53	6.56	6.64	6.67	6.55	5.95	6.34	6.14	-3.1%	-1.3%	1.0%
Netherlands	3.94	3.83	3.66	3.72	3.76	3.78	3.69	3.68	3.56	3.65	3.54	-3.1%	-1.1%	0.6%
Norway	2.02	1.90	1.95	1.97	2.00	2.01	1.98	1.86	2.01	2.05	1.90	-7.4%	-0.6%	0.3%
Poland	4.10	4.11	3.96	4.00	4.18	4.34	4.39	4.27	4.08	4.41	4.31	-2.2%	0.5%	0.7%
Portugal	0.96	1.05	1.07	1.05	1.12	1.09	1.11	1.05	0.96	0.96	0.93	-3.2%	-0.3%	0.2%
Romania	1.41	1.32	1.37	1.38	1.38	1.40	1.43	1.39	1.33	1.39	1.30	-6.9%	-0.9%	0.2%
Spain	6.01	5.71	5.60	5.67	5.72	5.79	5.89	5.73	5.18	5.55	5.76	3.6%	-0.4%	1.0%
Sweden	2.35	2.20	2.19	2.26	2.22	2.30	2.25	2.34	2.22	2.27	2.28	0.4%	-0.3%	0.4%
Switzerland	1.26	1.30	1.24	1.21	1.14	1.14	1.16	1.21	1.11	1.08	1.05	-2.4%	-1.8%	0.2%
Türkiye	5.15	5.11	5.26	5.78	6.07	6.43	6.36	6.60	6.49	6.96	7.01	0.7%	3.1%	1.2%
Ukraine	5.19	4.93	4.35	3.61	3.78	3.51	3.64	3.45	3.31	3.36	2.33	-30.7%	-7.7%	0.4%
United Kingdom	8.57	8.54	8.06	8.19	8.11	8.11	8.08	7.91	7.10	7.20	7.31	1.6%	-1.6%	1.2%
Other Europe	6.32	6.40	6.18	6.31	6.49	6.61	6.71	6.54	6.17	6.52	6.50	-0.3%	0.3%	1.1%
Total Europe	87.34	86.51	83.28	84.10	85.20	86.17	86.21	84.93	79.24	82.98	79.81	-3.8%	-0.9%	13.2%
Azerbaijan	0.54	0.56	0.57	0.62	0.61	0.60	0.62	0.65	0.66	0.70	0.70	-0.8%	2.5%	0.1%
Belarus	1.17	1.06	1.06	0.96	0.98	1.00	1.11	1.11	1.03	1.10	1.07	-2.9%	-0.9%	0.2%
Kazakhstan	2.64	2.65	2.78	2.31	2.60	2.80	2.89	2.93	2.71	2.93	3.12	6.4%	1.7%	0.5%
Russian Federation	29.26	28.92	29.01	28.55	29.13	29.31	30.39	30.16	29.07	31.48	28.89	-8.2%	-0.1%	4.8%
Turkmenistan	1.09	0.97	1.00	1.20	1.19	1.17	1.31	1.29	1.52	1.62	1.65	2.1%	4.3%	0.3%
Uzbekistan	1.96	1.96	2.03	1.94	1.85	1.91	1.92	1.91	1.91	2.03	2.11	3.9%	0.8%	0.3%
Other CIS	0.76	0.73	0.74	0.74	0.75	0.78	0.85	0.82	0.82	0.83	0.81	-2.3%	0.7%	0.1%
Total CIS	37.42	36.84	37.19	36.32	37.11	37.57	39.08	38.88	37.72	40.70	38.36	-5.8%	0.2%	6.4%
Iran	9.21	9.53	9.92	9.88	10.36	10.75	11.11	11.73	12.16	12.10	12.16	0.5%	2.8%	2.0%
Iraq	1.54	1.71	1.70	1.69	1.92	2.15	2.18	2.31	1.99	2.08	2.31	10.9%	4.1%	0.4%
Israel	1.02	0.96	0.94	0.99	1.01	1.03	1.05	1.09	1.03	1.04	1.09	4.8%	0.7%	0.2%
Kuwait	1.49	1.53	1.55	1.62	1.60	1.62	1.66	1.51	1.43	1.50	1.60	6.4%	0.7%	0.3%
Oman	1.02	1.14	1.14	1.21	1.22	1.27	1.35	1.34	1.29	1.42	1.50	5.4%	3.9%	0.2%
Qatar	1.59	1.73	1.87	2.13	2.09	2.02	2.02	2.10	1.83	1.93	1.88	-2.4%	1.7%	0.3%
Saudi Arabia	9.77	9.83	10.55	11.00	11.45	11.45	11.17	10.70	10.41	10.76	11.50	6.9%	1.6%	1.9%
United Arab Emirates	3.87	4.08	4.07	4.43	4.60	4.43	4.37	4.47	4.22	4.71	5.05	7.1%	2.7%	0.8%
Other Middle East	2.24	2.16	2.14	2.00	1.96	2.04	2.00	2.00	1.91	1.98	2.05	3.7%	-0.9%	0.3%
Total Middle East	31.75	32.68	33.89	34.96	36.20	36.77	36.91	37.25	36.26	37.52	39.13	4.3%	2.1%	6.5%
Algeria	1.83	1.93	2.11	2.22	2.22	2.25	2.41	2.50	2.34	2.53	2.47	-2.6%	3.0%	0.4%
Egypt	3.51	3.49	3.44	3.50	3.69	3.84	3.84	3.77	3.54	3.79	3.98	5.0%	1.3%	0.7%
Morocco	0.75	0.77	0.78	0.80	0.80	0.84	0.87	0.95	0.87	0.97	0.92	-4.3%	2.1%	0.2%
South Africa	5.12	5.14	5.20	5.10	5.33	5.31	5.11	5.33	4.99	5.00	4.82	-3.6%	-0.6%	0.8%
Other Africa	5.59	5.93	6.21	6.56	6.61	6.90	7.33	7.46	7.23	7.91	8.07	1.9%	3.7%	1.3%
Total Africa	16.80	17.27	17.74	18.18	18.66	19.14	19.56	20.02	18.96	20.20	20.26	0.3%	1.9%	3.4%
Australia	5.53	5.60	5.64	5.77	5.78	5.77	5.85	6.05	5.71	5.73	5.98	4.3%	0.8%	1.0%
Bangladesh	1.06	1.10	1.15	1.39	1.39	1.45	1.55	1.74	1.65	1.73	1.79	4.0%	5.4%	0.3%
China	117.45	121.87	125.03	126.49	127.00	131.94	138.30	144.74	149.45	157.94	159.39	0.9%	3.1%	26.4%
China Hong Kong SAR	1.14	1.17	1.14	1.18	1.21	1.29	1.31	1.24	0.93	0.88	0.79	-10.3%	-3.6%	0.1%
India	24.99	25.82	27.56	28.52	29.80	30.94	32.69	33.52	31.76	34.51	36.44	5.6%	3.8%	6.0%
Indonesia	6.82	6.59	6.67	6.78	6.80	7.04	7.72	8.22	7.61	7.76	9.77	26.0%	3.7%	1.6%
Japan	19.99	19.84	19.34	19.07	18.82	19.05	18.95	18.51	17.15	17.94	17.84	-0.6%	-1.1%	3.0%
Malaysia	3.74	3.91	3.95	4.01	4.22	4.28	4.35	4.47	4.30	4.58	4.84	5.6%	2.6%	0.8%
New Zealand	0.86	0.86	0.90	0.91	0.92	0.94	0.93	0.95	0.86	0.85	0.84	-1.0%	-0.2%	0.1%
Pakistan	2.48	2.71	2.79	2.94	3.20	3.39	3.50	3.54	3.52	3.90	3.60	-7.7%	3.8%	0.6%
Philippines	1.29	1.39	1.46	1.60	1.75	1.92	1.97	2.03	1.84	1.96	2.11	7.3%	5.0%	0.3%
Singapore	2.90	2.92	2.98	3.16	3.34	3.42	3.42	3.35	3.28	3.28	3.16	-3.5%	0.9%	0.5%
South Korea	11.58	11.62	11.72	11.93	12.29	12.41	12.62	12.48	12.00	12.56	12.71	1.2%	0.9%	2.1%
Sri Lanka	0.28	0.29	0.31	0.34	0.38	0.37	0.38	0.39	0.38	0.38	0.34	-10.8%	2.0%	0.1%
Taiwan	4.64	4.74	4.84	4.84	4.87	4.86	4.93	4.84	4.70	4.98	4.78	-4.0%	0.3%	0.8%
Thailand	4.68	4.71	4.86	4.98	5.08	5.17	5.33	5.34	4.97	5.01	5.06	1.1%	0.8%	0.8%
Vietnam	2.25	2.37	2.62	2.99	3.24	3.48	3.91	4.34	4.34	4.34	4.59	5.7%	7.4%	0.8%
Other Asia Pacific	2.05	2.03	2.19	2.29	2.46	2.96	3.10	3.24	3.33	3.50	3.55	1.3%	5.6%	0.6%
Total Asia Pacific	213.72	219.55	225.17	229.17	232.54	240.67	250.82	258.98	257.78	271.84	277.60	2.1%	2.6%	46.0%
Total World	527.96	537.19	542.87	547.39	553.98	565.60	581.05	587.39	566.49	597.41	604.04	1.1%	1.4%	100.0%
of which: OECD	232.37	234.63	232.73	233.30	234.50	236.88	240.39	238.25	22					

Primary energy Consumption by fuel*

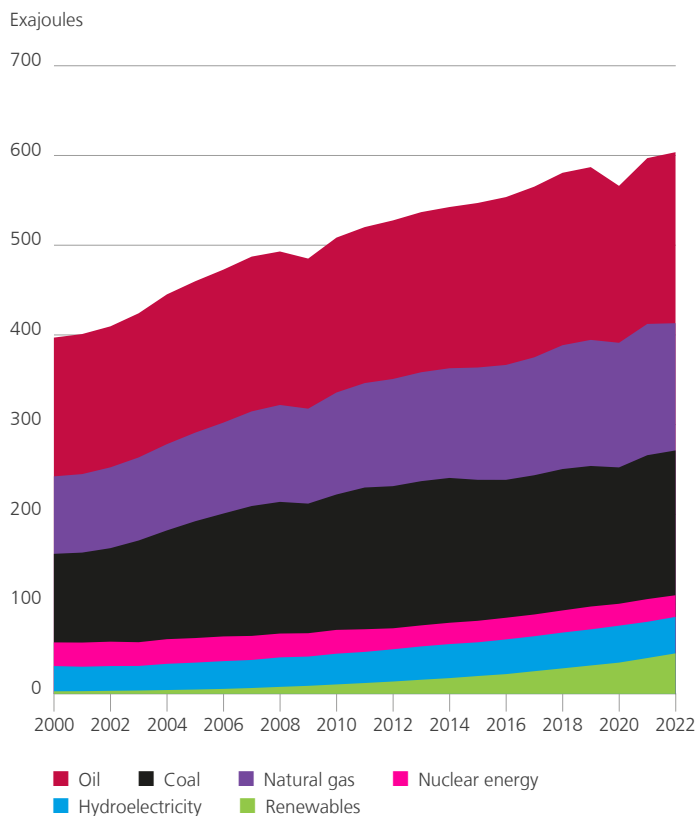
Exajoules	2021							2022						
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total
Canada	4.11	4.21	0.50	0.83	3.61	0.58	13.84	4.27	4.38	0.39	0.78	3.74	0.59	14.14
Mexico	3.39	3.50	0.20	0.11	0.33	0.46	7.99	4.12	3.48	0.25	0.10	0.34	0.45	8.73
US	35.51	30.09	10.57	7.42	2.35	7.47	93.40	36.15	31.72	9.87	7.31	2.43	8.43	95.91
Total North America	43.02	37.80	11.27	8.36	6.28	8.50	115.23	44.53	39.58	10.51	8.19	6.50	9.46	118.78
Argentina	1.29	1.65	0.05	0.09	0.19	0.21	3.48	1.38	1.64	0.05	0.07	0.22	0.24	3.60
Brazil	4.78	1.46	0.71	0.13	3.42	2.36	12.85	5.01	1.15	0.59	0.13	4.01	2.53	13.41
Chile	0.76	0.25	0.29	—	0.17	0.25	1.72	0.80	0.27	0.22	—	0.21	0.29	1.79
Colombia	0.86	0.45	0.11	—	0.57	0.07	2.07	0.96	0.45	0.10	—	0.60	0.07	2.19
Ecuador	0.49	0.02	^	—	0.24	0.01	0.76	0.53	0.02	^	—	0.23	0.01	0.79
Peru	0.48	0.29	0.02	—	0.30	0.05	1.14	0.50	0.35	0.03	—	0.28	0.05	1.21
Trinidad & Tobago	0.05	0.56	—	—	—	^	0.61	0.05	0.54	—	—	—	^	0.59
Venezuela	0.45	1.01	^	—	0.64	^	2.10	0.53	1.05	^	—	0.63	^	2.21
Other S. & Cent. America	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total S. & Cent. America	11.67	6.04	1.41	0.22	6.30	3.28	28.93	12.37	5.82	1.19	0.20	7.00	3.53	30.11
Austria	0.50	0.32	0.11	—	0.37	0.16	1.45	0.48	0.28	0.10	—	0.33	0.17	1.37
Belgium	1.23	0.61	0.11	0.45	^	0.25	2.66	1.16	0.52	0.12	0.39	^	0.26	2.45
Czech Republic	0.41	0.33	0.54	0.28	0.02	0.10	1.68	0.41	0.27	0.59	0.28	0.02	0.10	1.67
Finland	0.33	0.07	0.12	0.21	0.15	0.26	1.15	0.33	0.04	0.12	0.23	0.13	0.32	1.18
France	2.92	1.55	0.23	3.43	0.55	0.72	9.40	2.91	1.38	0.21	2.65	0.42	0.81	8.39
Germany	4.18	3.30	2.24	0.62	0.19	2.25	12.78	4.26	2.78	2.33	0.31	0.16	2.45	12.30
Greece	0.55	0.25	0.07	—	0.06	0.16	1.09	0.62	0.22	0.07	—	0.04	0.18	1.14
Hungary	0.35	0.39	0.06	0.14	^	0.08	1.02	0.35	0.33	0.05	0.14	^	0.09	0.96
Italy	2.35	2.61	0.23	—	0.43	0.72	6.34	2.47	2.35	0.31	—	0.26	0.76	6.14
Netherlands	1.69	1.26	0.23	0.03	^	0.44	3.65	1.78	0.98	0.23	0.04	^	0.51	3.54
Norway	0.38	0.15	0.04	—	1.35	0.13	2.05	0.36	0.14	0.03	—	1.20	0.16	1.90
Poland	1.35	0.81	1.90	—	0.02	0.33	4.41	1.46	0.65	1.81	—	0.02	0.39	4.31
Portugal	0.42	0.21	0.01	—	0.11	0.21	0.96	0.46	0.20	^	—	0.06	0.21	0.93
Romania	0.44	0.42	0.17	0.10	0.16	0.10	1.39	0.45	0.35	0.17	0.10	0.13	0.11	1.30
Spain	2.42	1.24	0.13	0.51	0.28	0.98	5.55	2.66	1.19	0.17	0.53	0.17	1.04	5.76
Sweden	0.50	0.04	0.07	0.48	0.70	0.49	2.27	0.50	0.03	0.07	0.46	0.65	0.56	2.28
Switzerland	0.37	0.13	^	0.17	0.34	0.06	1.08	0.38	0.11	^	0.21	0.28	0.07	1.05
Türkiye	2.02	2.06	1.74	—	0.53	0.62	6.96	2.10	1.84	1.75	—	0.63	0.69	7.01
Ukraine	0.44	0.98	0.95	0.78	0.10	0.11	3.36	0.39	0.69	0.52	0.56	0.10	0.07	2.33
United Kingdom	2.45	2.80	0.24	0.41	0.05	1.24	7.20	2.67	2.59	0.21	0.43	0.05	1.36	7.31
Other Europe	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Europe	27.70	20.63	10.39	7.98	6.17	10.12	82.98	28.72	17.96	10.07	6.68	5.32	11.06	79.81
Azerbaijan	0.23	0.46	^	—	0.01	^	0.70	0.25	0.44	^	—	0.01	^	0.70
Belarus	0.33	0.68	0.04	0.05	^	0.01	1.10	0.31	0.66	0.04	0.04	^	0.01	1.07
Kazakhstan	0.63	0.78	1.40	—	0.09	0.03	2.93	0.78	0.78	1.44	—	0.09	0.04	3.12
Russian Federation	6.88	17.09	3.43	2.01	2.02	0.06	31.48	7.05	14.69	3.19	2.01	1.86	0.08	28.89
Turkmenistan	0.29	1.32	—	—	^	^	1.62	0.30	1.35	—	—	^	^	1.65
Uzbekistan	0.22	1.67	0.09	—	0.05	^	2.03	0.22	1.74	0.10	—	0.05	^	2.11
Other CIS	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total CIS	8.76	22.21	5.05	2.08	2.50	0.11	40.70	9.10	19.84	4.87	2.08	2.33	0.14	38.36
Iran	3.33	8.51	0.07	0.03	0.14	0.02	12.10	3.69	8.24	0.08	0.06	0.07	0.02	12.16
Iraq	1.44	0.61	—	—	0.03	^	2.08	1.59	0.68	—	—	0.03	^	2.31
Israel	0.41	0.42	0.16	—	^	0.05	1.04	0.46	0.41	0.16	—	^	0.07	1.09
Kuwait	0.78	0.71	^	—	—	^	1.50	0.81	0.78	^	—	—	^	1.60
Oman	0.40	1.01	^	—	—	0.01	1.42	0.45	1.03	^	—	—	0.01	1.50
Qatar	0.49	1.44	^	—	—	^	1.93	0.56	1.32	^	—	—	0.01	1.88
Saudi Arabia	6.62	4.12	^	—	—	0.01	10.76	7.15	4.33	^	—	—	0.01	11.50
United Arab Emirates	1.91	2.55	0.10	0.10	—	0.06	4.71	2.19	2.51	0.10	0.18	—	0.07	5.05
Other Middle East	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Middle East	16.40	20.23	0.36	0.13	0.19	0.21	37.52	17.97	20.18	0.37	0.24	0.12	0.26	39.13
Algeria	0.80	1.72	0.01	—	^	0.01	2.53	0.86	1.59	0.01	—	^	0.01	2.47
Egypt	1.27	2.24	0.05	—	0.13	0.10	3.79	1.52	2.19	0.05	—	0.13	0.10	3.98
Morocco	0.56	0.03	0.31	—	0.01	0.07	0.97	0.57	0.01	0.28	—	^	0.06	0.92
South Africa	1.04	0.17	3.51	0.11	0.02	0.15	5.00	1.06	0.16	3.31	0.09	0.03	0.16	4.82
Other Africa	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Africa	7.95	6.06	4.18	0.11	1.44	0.47	20.20	8.39	5.85	3.97	0.09	1.47	0.49	20.26
Australia	1.93	1.44	1.63	—	0.15	0.59	5.73	2.07	1.50	1.55	—	0.16	0.70	5.98
Bangladesh	0.46	1.10	0.15	—	0.01	0.01	1.73	0.55	1.05	0.18	—	0.01	0.01	1.79
China	29.52	13.69	87.54	3.68	12.25	11.27	157.94	28.16	13.53	88.41	3.76	12.23	13.30	159.39
China Hong Kong SAR	0.55	0.17	0.15	—	—	^	0.88	0.47	0.16	0.15	—	—	^	0.79
India	9.25	2.24	19.30	0.40	1.51	1.82	34.51	10.05	2.09	20.09	0.42	1.64	2.15	36.44
Indonesia	2.81	1.33	2.75	—	0.23	0.63	7.76	3.06	1.33	4.38	—	0.26	0.74	9.77
Japan	6.61	3.73	4.93	0.55	0.75	1.37	17.94	6.61	3.62	4.92	0.47	0.70	1.53	17.84
Malaysia	1.48	1.78	0.94	—	0.29	0.08	4.58	1.73	1.78	0.94	—	0.31	0.09	4.84
New Zealand	0.30	0.14	0.07	—	0.23	0.11	0.85	0.30	0.13	0.05	—	0.25	0.11	0.84
Pakistan	1.02	1.62	0.72	0.14	0.35	0.05	3.90	0.99	1.38	0.64	0.20	0.33	0.06	3.60
Philippines	0.81	0.12	0.79	—	0.09	0.16	1.96	0.89	0.11	0.84	—	0.10	0.17	2.11
Singapore	2.77	0.48	0.02	—	—	0.01	3.28	2.66	0.47	0.02	—	—	0.02	3.16
South Korea	5.40	2.25	3.04	1.43	0.03	0.42	12.56	5.47	2.23	2.87	1.59	0.03	0.52	12.71
Sri Lanka	0.23	—	0.07	—	0.07	0.01	0.38	0.20	—	0.06	—	0.07	0.02	0.34
Taiwan	1.92	0.98	1.68	0.25	0.03	0.12	4.98	1.77	1.01	1.58	0.21	0.05	0.16	4.78
Thailand	2.17	1.69	0.78	—	0.04	0.32	5.01	2.39	1.60	0.71	—	0.06	0.31	5.06
Vietnam	0.94	0.26	2.16	—	0.72	0.27	4.34	1.03	0.28	2.05	—	0.90	0.33	4.59
Other Asia Pacific	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Asia Pacific	69.37	33.43	127.78	6.46	17.54	17.27	271.84	69.61	32.65	130.50	6.65	17.94	20.24	277.60
Total World	184.86	146.41	160.43	25.33	40.40	39.97	597.41	190.69	141.89	161.47	24.13	40.68	45.18	604.04
of which: OECD	85.05	65.26	29.94	17.29	13.66	21.17	232.38	87.98	64.68	28.90	16.12	13.22	23.53	234.42
Non-OECD	99.80	81.15	130.49	8.05	26.74	18.79	365.03	102.71	77.21	132.58	8.01	27.46	21.64	369.62
European Union	21.38	14.29	6.84	6.61	3.27	7.88	60.28	22.13	12.36	6.98	5.48	2.60	8.63	58.18

* In this review, primary energy comprises commercially-traded fuels, including modern renewables used to generate electricity.

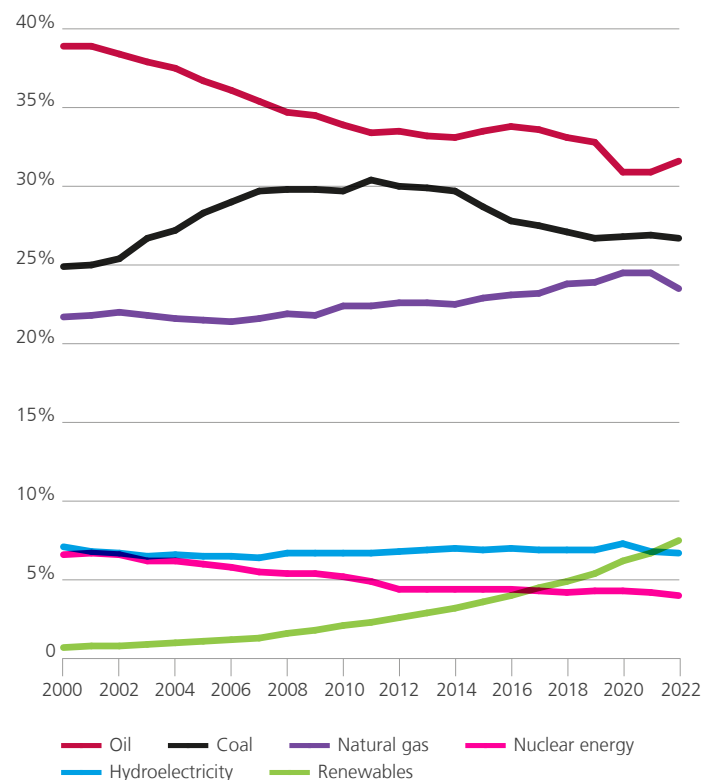
Energy from all sources of non-fossil power generation is accounted for on an input-equivalent basis. See the appendix or <https://www.energyinst.org/statistical-review> for more details on this methodology.

^ Less than 0.005.

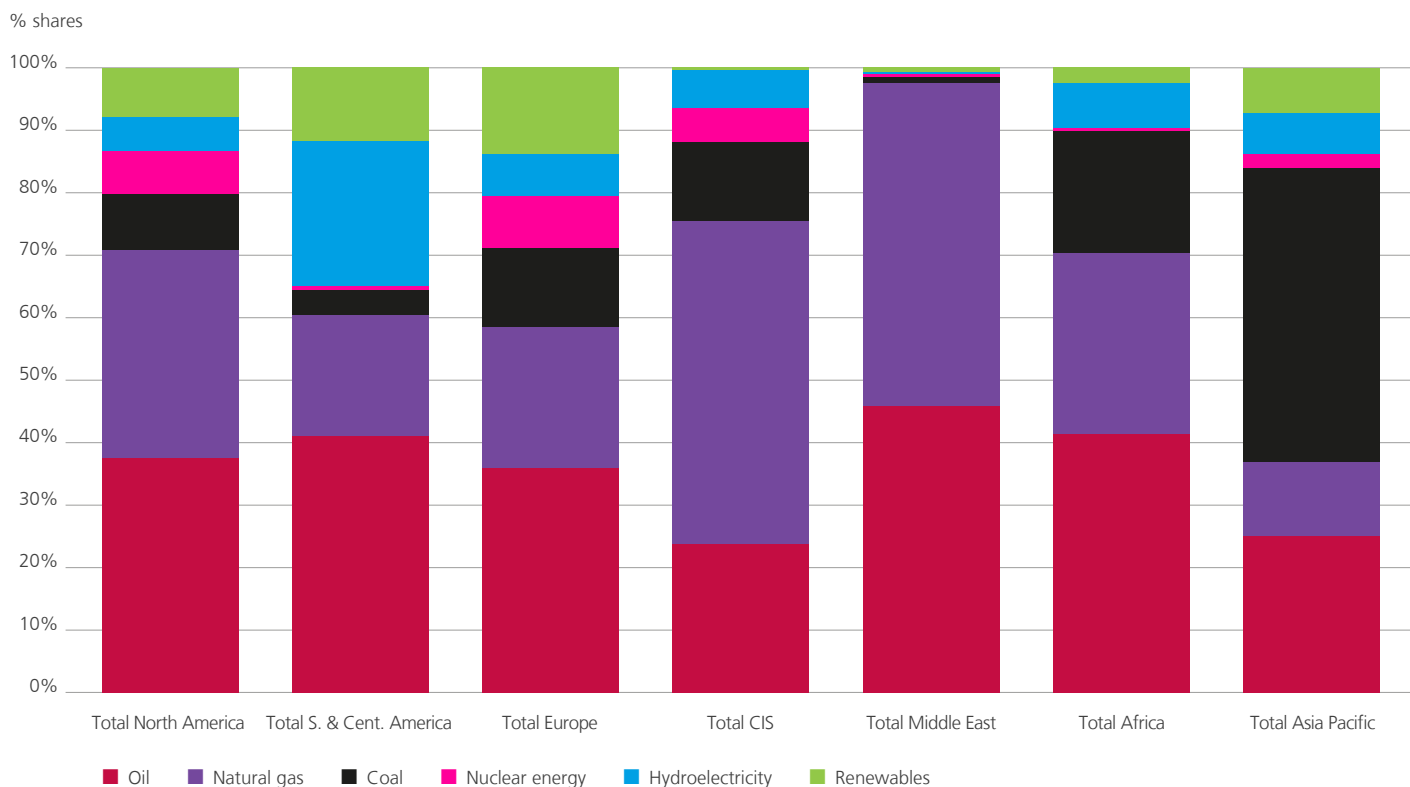
World consumption



Share of global primary energy



Regional consumption pattern 2022



* In this review, primary energy comprises commercially-traded fuels, including modern renewables used to generate electricity.



Carbon Natural gas: flaring

Billion cubic metres												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	1.8	1.6	2.1	1.9	1.4	1.4	1.4	1.1	1.2	1.3	1.1	-9.7%	-4.4%	0.8%
Mexico	1.4	5.1	5.7	6.0	5.8	4.5	4.5	5.3	6.7	7.8	6.8	-13.1%	17.5%	4.6%
US	5.8	9.3	11.4	12.0	9.0	9.6	14.1	17.3	12.4	9.7	8.8	-9.3%	4.2%	6.0%
Total North America	8.9	16.0	19.2	19.9	16.2	15.6	20.1	23.7	20.3	18.8	16.7	-10.9%	6.5%	11.4%
Argentina	0.9	0.8	0.9	0.7	0.6	0.6	0.8	1.0	1.1	1.3	1.2	-7.6%	3.0%	0.8%
Bolivia	0.2	^	^	0.1	^	^	^	^	0.1	^	0.1	17.4%	-13.1%	†
Brazil	1.4	1.5	1.7	1.5	1.7	1.3	1.2	1.3	1.1	1.1	1.0	-7.2%	-3.3%	0.7%
Colombia	0.8	0.9	0.8	0.8	0.6	0.5	0.5	0.4	0.3	0.3	0.3	-23.9%	-10.0%	0.2%
Peru	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	7.1%	-0.7%	0.1%
Trinidad & Tobago	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.4	0.2	0.2	0.2	3.8%	-12.8%	0.1%
Venezuela	11.0	9.8	10.5	9.9	10.2	8.0	9.3	10.5	9.4	9.2	9.8	6.6%	-1.2%	6.7%
Other S. & Cent. America	0.6	1.0	1.3	1.3	1.4	1.3	1.1	1.1	1.5	1.6	1.7	7.4%	11.4%	1.2%
Total S. & Cent. America	15.7	14.5	15.8	14.9	14.9	12.1	13.2	15.0	14.0	13.8	14.3	3.5%	-0.9%	9.8%
Denmark	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	^	-11.2%	-3.6%	†
Germany	–	^	^	^	^	^	^	^	^	^	^	16.7%	–	†
Italy	–	^	0.1	^	0.1	^	^	^	^	^	^	-15.3%	–	†
Netherlands	–	^	^	^	^	^	^	^	^	^	^	24.4%	–	†
Norway	0.7	0.4	0.4	0.4	0.4	0.2	0.2	0.1	0.1	0.2	0.2	-16.3%	-13.7%	0.1%
Poland	–	^	^	^	0.1	^	0.1	^	0.1	0.1	^	-59.2%	–	†
Romania	–	^	0.1	^	^	^	^	^	^	^	^	25.1%	–	†
Ukraine	–	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	-29.9%	–	0.1%
United Kingdom	1.2	1.4	1.4	1.4	1.4	1.4	1.2	1.2	1.1	0.9	0.6	-31.5%	-6.3%	0.4%
Other Europe	–	0.4	0.5	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.4	-15.1%	–	0.2%
Total Europe	1.9	2.8	2.8	2.7	2.8	2.3	2.2	2.1	2.0	1.9	1.4	-24.6%	-3.0%	1.0%
Azerbaijan	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	31.8%	-10.0%	0.2%
Kazakhstan	2.5	3.7	3.8	3.6	2.6	2.4	2.0	1.5	1.5	1.5	1.0	-31.9%	-8.7%	0.7%
Russian Federation	17.8	20.9	19.5	21.1	23.9	21.0	21.2	23.8	25.1	26.4	26.0	-1.4%	3.9%	17.7%
Turkmenistan	0.7	2.2	2.0	1.8	1.8	1.6	1.5	1.4	1.7	1.2	1.1	-8.8%	3.9%	0.7%
Uzbekistan	0.8	1.5	1.3	1.1	1.0	0.8	0.8	0.6	0.5	0.5	0.4	-6.4%	-5.8%	0.3%
Other CIS	–	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.4%	–	†
Total CIS	22.5	28.8	27.0	27.8	29.6	26.1	25.8	27.7	28.9	29.8	28.8	-3.1%	2.5%	19.6%
Bahrain	–	0.1	^	^	0.1	0.1	0.1	0.2	0.3	0.1	0.1	-28.6%	–	0.1%
Iran	17.1	12.0	13.1	12.7	17.0	18.5	18.1	14.6	14.2	18.5	18.4	-0.5%	0.7%	12.5%
Iraq	11.7	13.3	13.8	15.8	17.5	17.5	17.6	17.7	17.2	17.7	17.8	0.3%	4.3%	12.1%
Kuwait	0.2	1.5	1.6	1.0	1.3	0.9	1.0	0.8	0.9	1.0	0.7	-30.3%	12.4%	0.5%
Oman	1.3	2.3	2.5	2.4	2.8	2.6	2.6	2.6	2.5	2.6	2.1	-18.9%	5.1%	1.4%
Qatar	0.7	1.7	1.6	1.4	1.4	1.3	1.3	1.6	1.3	1.4	1.3	-5.3%	6.6%	0.9%
Saudi Arabia	–	2.7	2.5	2.7	3.1	2.9	2.9	2.6	2.8	2.8	2.5	-8.8%	–	1.7%
Syria	0.1	0.4	0.4	0.5	0.6	1.2	0.7	1.0	1.0	1.1	1.1	2.1%	27.2%	0.7%
United Arab Emirates	1.0	1.3	1.1	1.2	1.0	1.1	1.3	1.0	1.1	1.0	1.1	13.2%	1.1%	0.8%
Yemen	0.3	1.1	1.2	0.6	0.3	0.4	0.5	0.7	0.9	0.9	0.7	-22.6%	9.3%	0.5%
Other Middle East	^	^	^	^	^	^	^	^	^	^	^	260.6%	-8.3%	†
Total Middle East	32.4	36.5	37.7	38.4	45.0	46.5	45.9	42.8	42.0	47.0	45.8	-2.7%	3.5%	31.2%
Algeria	3.4	8.8	9.2	9.6	9.7	9.2	9.4	9.7	9.3	8.1	8.5	5.3%	9.6%	5.8%
Egypt	0.4	2.6	3.0	3.0	3.0	2.5	2.4	2.5	2.5	2.3	2.2	-6.1%	18.8%	1.5%
Libya	3.8	4.1	2.9	2.7	2.4	4.0	4.7	5.1	2.5	5.9	5.4	-8.6%	3.6%	3.7%
Nigeria	12.9	9.2	8.3	7.5	7.2	7.5	7.3	7.8	7.0	6.5	5.3	-18.5%	-8.5%	3.6%
Other Africa	12.1	9.3	9.7	10.4	10.4	9.4	8.5	8.2	7.8	7.4	7.9	6.5%	-4.2%	5.4%
Total Africa	32.5	34.1	33.0	33.2	32.8	32.6	32.3	33.3	29.2	30.3	29.3	-3.1%	-1.0%	20.0%
Australia	0.1	0.8	1.1	1.1	0.7	0.7	0.9	1.4	1.0	0.8	0.7	-13.3%	17.0%	0.5%
Bangladesh	–	^	^	^	^	^	^	^	^	^	^	-25.7%	–	†
Brunei	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.1	–	–	^
China	1.9	2.4	2.5	2.5	2.3	1.8	2.0	2.2	2.9	2.7	2.5	-8.0%	2.7%	1.7%
India	1.0	2.2	2.4	2.7	2.4	2.0	1.8	1.8	2.0	1.9	2.0	8.2%	7.1%	1.4%
Indonesia	6.4	3.3	3.2	3.0	2.9	2.4	2.1	2.1	2.0	1.7	1.8	5.4%	-11.7%	1.2%
Malaysia	1.3	3.1	3.6	3.9	3.4	3.1	2.5	2.7	2.7	2.1	1.7	-18.5%	3.3%	1.2%
Myanmar	–	0.1	0.1	0.1	^	^	^	^	^	^	^	-37.4%	–	†
Pakistan	0.1	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	6.9%	11.0%	0.2%
Thailand	–	0.4	0.4	0.5	0.5	0.4	0.3	0.3	0.4	0.4	0.2	-37.0%	–	0.2%
Vietnam	0.6	1.1	1.0	1.0	0.9	1.0	0.8	0.8	0.7	0.6	0.6	1.8%	-0.9%	0.4%
Other Asia Pacific	0.5	0.7	0.9	0.7	0.7	0.5	0.4	0.3	0.3	0.4	0.4	14.7%	-0.6%	0.3%
Total Asia Pacific	12.0	14.8	15.8	16.1	14.6	12.5	11.5	12.3	12.4	11.1	10.4	-5.9%	-1.4%	7.1%
Total World	125.9	147.5	151.3	153.0	156.0	147.6	151.0	156.9	148.8	152.7	146.8	-3.8%	1.6%	100.0%
of which: OECD	11.9	20.3	23.8	24.4	20.3	19.1	23.7	27.7	23.6	21.8	19.1	-12.3%	4.8%	13.0%
Non-OECD	114.0	127.2	127.5	128.6	135.8	128.5	127.4	129.2	125.2	130.9	127.8	-2.4%	1.1%	87.0%
European Union*	0.1	0.7	0.8	0.7	0.7	0.5	0.6	0.6	0.6	0.6	0.5	-17.0%	21.9%	0.3%

Data from 2013 onward: Made utilising VIIRS Nightfire (VNF) nightly data produced by the Earth Observation Group, Payne Institute for Public Policy, Colorado School of Mines. These data include flaring from upstream, downstream oil and gas.

Data before 2013: Cedigaz. These data include flaring from upstream.

As far as possible, the calculation has used flared volumes based on standard cubic metres (measured at 15°C and 1013 mbar); as they are derived directly from measures of energy content using an average conversion factor and have been standardised using a Gross Calorific Value (GCV) of 40 MJ/m³, they do not necessarily equate with gas volumes expressed in the original databases.

^ Less than 0.05.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Notes: Annual changes and shares of total are calculated using exajoules figures.

Thousand barrels daily												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	3740	4000	4271	4388	4464	4813	5244	5372	5130	5414	5576	3.0%	4.1%	5.9%
Mexico	2912	2882	2792	2593	2461	2227	2072	1921	1912	1928	1944	0.9%	-4.0%	2.1%
US	8932	10103	11808	12784	12357	13142	15323	17139	16492	16679	17770	6.5%	7.1%	18.9%
Total North America	15584	16986	18870	19765	19281	20183	22638	24432	23534	24020	25290	5.3%	5.0%	26.9%
Argentina	657	644	638	646	610	590	591	620	601	628	706	12.4%	0.7%	0.8%
Brazil	2145	2110	2341	2525	2607	2731	2691	2890	3030	2990	3107	3.9%	3.8%	3.3%
Colombia	944	1010	990	1006	886	854	865	886	781	736	754	2.4%	-2.2%	0.8%
Ecuador	505	527	557	543	548	531	517	531	479	473	481	1.7%	-0.5%	0.5%
Peru	157	171	175	153	141	136	139	144	131	128	128	0.5%	-2.0%	0.1%
Trinidad & Tobago	117	116	114	109	97	99	87	82	76	77	74	-3.6%	-4.5%	0.1%
Venezuela	2704	2680	2692	2864	2566	2207	1641	1037	660	676	731	8.1%	-12.3%	0.8%
Other S. & Cent. America	148	152	154	146	135	133	128	122	187	226	381	68.5%	9.9%	0.4%
Total S. & Cent. America	7376	7411	7661	7991	7589	7282	6660	6313	5946	5933	6361	7.2%	-1.5%	6.8%
Denmark	204	178	167	158	142	138	116	103	72	66	65	-1.6%	-10.8%	0.1%
Italy	112	114	120	113	78	86	97	89	112	100	92	-7.9%	-1.9%	0.1%
Norway	1917	1838	1886	1946	1997	1972	1851	1763	2006	2028	1901	-6.3%	-0.1%	2.0%
Romania	83	86	84	83	79	76	75	75	72	70	65	-6.2%	-2.4%	0.1%
United Kingdom	947	865	854	964	1015	1005	1092	1118	1049	874	778	-11.0%	-2.0%	0.8%
Other Europe	337	345	340	332	314	304	309	303	290	289	230	-20.5%	-3.7%	0.2%
Total Europe	3600	3426	3451	3596	3624	3581	3539	3450	3601	3427	3131	-8.6%	-1.4%	3.3%
Azerbaijan	882	888	861	851	838	793	796	775	714	726	685	-5.6%	-2.5%	0.7%
Kazakhstan	1662	1720	1701	1672	1637	1813	1900	1903	1796	1805	1769	-2.0%	0.6%	1.9%
Russian Federation	10656	10807	10927	11087	11342	11374	11562	11679	10666	11000	11202	1.8%	0.5%	11.9%
Turkmenistan	244	256	263	271	270	269	259	254	219	242	244	1.0%	†	0.3%
Uzbekistan	72	69	63	60	57	61	64	67	61	63	63	-0.9%	–	0.1%
Other CIS	35	35	35	36	36	37	38	39	39	41	43	4.4%	1.9%	†
Total CIS	13552	13775	13850	13976	14181	14346	14618	14717	13496	13877	14006	0.9%	0.3%	14.9%
Iran	3810	3609	3714	3853	4578	4854	4620	3407	3120	3653	3822	4.6%	†	4.1%
Iraq	3079	3099	3239	3986	4423	4538	4632	4779	4114	4102	4520	10.2%	3.9%	4.8%
Kuwait	3173	3134	3106	3069	3150	3009	3050	2976	2721	2704	3028	12.0%	-0.5%	3.2%
Oman	918	942	943	981	1004	971	978	971	951	971	1064	9.6%	1.5%	1.1%
Qatar	1920	1934	1892	1844	1846	1783	1798	1737	1703	1736	1768	1.8%	-0.8%	1.9%
Saudi Arabia	11622	11393	11519	11998	12406	11892	12261	11832	11039	10954	12136	10.8%	0.4%	12.9%
Syria	171	59	33	27	25	25	24	34	43	96	93	-2.7%	-5.9%	0.1%
United Arab Emirates	3394	3540	3592	3876	4020	3880	3894	3984	3679	3640	4020	10.4%	1.7%	4.3%
Yemen	178	197	153	63	43	71	94	95	88	83	81	-2.4%	-7.6%	0.1%
Other Middle East	184	208	214	213	214	208	207	214	202	208	210	1.2%	1.4%	0.2%
Total Middle East	28448	28116	28405	29910	31709	31231	31558	30029	27661	28147	30743	9.2%	0.8%	32.8%
Algeria	1537	1485	1589	1558	1577	1540	1511	1487	1332	1353	1474	8.9%	-0.4%	1.6%
Angola	1734	1738	1701	1796	1745	1671	1519	1420	1325	1177	1190	1.1%	-3.7%	1.3%
Chad	101	91	89	111	117	98	116	127	126	116	124	6.2%	2.1%	0.1%
Republic of Congo	280	243	253	234	232	270	330	336	307	274	269	-1.7%	-0.4%	0.3%
Egypt	715	710	714	726	691	660	674	653	632	608	613	0.8%	-1.5%	0.7%
Equatorial Guinea	320	282	284	260	223	195	176	160	158	131	119	-9.2%	-9.4%	0.1%
Gabon	221	213	211	214	221	210	193	218	207	181	191	5.4%	-1.5%	0.2%
Libya	1539	1048	518	437	412	929	1165	1228	425	1269	1088	-14.3%	-3.4%	1.2%
Nigeria	2409	2276	2273	2199	1898	1966	2004	2100	1827	1634	1450	-11.2%	-5.0%	1.5%
South Sudan	31	100	155	148	137	147	144	172	165	153	141	-7.6%	16.3%	0.2%
Sudan	103	118	120	109	–	70	74	72	63	64	62	-3.3%	-5.0%	0.1%
Tunisia	73	68	63	57	54	46	44	41	37	45	40	-12.9%	-6.0%	†
Other Africa	208	242	247	276	270	317	315	348	331	293	283	-3.4%	3.1%	0.3%
Total Africa	9271	8612	8218	8123	7576	8121	8267	8361	6937	7298	7043	-3.5%	-2.7%	7.5%
Australia	472	401	420	378	353	322	343	458	454	444	420	-5.2%	-1.2%	0.4%
Brunei	159	135	126	127	121	113	112	121	110	107	92	-13.8%	-5.3%	0.1%
China	4155	4216	4246	4309	3999	3846	3802	3848	3901	3994	4111	2.9%	-0.1%	4.4%
India	926	921	915	904	895	898	893	851	794	766	737	-3.8%	-2.3%	0.8%
Indonesia	917	871	847	838	873	837	808	781	742	692	644	-6.9%	-3.5%	0.7%
Malaysia	663	627	649	696	726	718	713	672	622	577	567	-1.7%	-1.5%	0.6%
Thailand	471	466	464	481	489	486	475	475	421	401	331	-17.5%	-3.5%	0.4%
Vietnam	347	346	325	352	317	284	257	236	207	196	194	-1.2%	-5.7%	0.2%
Other Asia Pacific	288	270	292	293	277	269	230	227	204	198	177	-10.6%	-4.8%	0.2%
Total Asia Pacific	8397	8254	8284	8378	8051	7774	7632	7669	7456	7373	7273	-1.4%	-1.4%	7.7%
Total World	86228	86579	88739	91739	92012	92519	94914	94972	88630	90076	93848	4.2%	0.9%	100.0%
of which: OECD	20457	21669	23590	24608	24011	24811	27247	29084	28235	28493	29514	3.6%	3.7%	31.4%
Non-OECD	65770	64910	65149	67131	68000	67708	67666	65887	60396	61582	64333	4.5%	-0.2%	68.6%
OPEC	35820	34740	34693	36342	37449	37163	36997	34965	30915	31748	34038	7.2%	-0.5%	36.3%
Non-OPEC	50408	51839	54046	55397	54562	55356	57917	60007	57715	58328	59809	2.5%	1.7%	63.7%
European Union*	572	560	553	536	471	465	448	414	393	369	343	-7.0%	-5.0%	0.4%

* Includes crude oil, shale oil, oil sands, condensates (lease condensate or gas condensates that require further refining) and NGLs (natural gas liquids – ethane, LPG and naphtha separated from the production of natural gas).

Excludes liquid fuels from other sources such as biofuels and synthetic derivatives of coal and natural gas. This also excludes liquid fuel adjustment factors such as refinery processing gain.

Excludes oil shales/kerosen extracted in solid form.

^ Less than 0.05.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Note: Annual changes and shares of total are calculated using thousand barrels daily figures.

Million tonnes												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	182.9	195.4	209.8	216.1	218.8	236.6	257.7	263.5	252.0	266.6	274.0	2.8%	4.1%	6.2%
Mexico	143.9	142.1	137.3	127.7	121.5	109.6	102.4	95.0	95.1	96.5	97.7	1.2%	-3.8%	2.2%
US	395.3	448.7	524.7	567.1	542.8	574.3	669.7	751.2	713.3	715.2	759.5	6.2%	6.7%	17.2%
Total North America	722.1	786.2	871.8	911.0	883.1	920.5	1029.8	1109.6	1060.4	1078.3	1131.1	4.9%	4.6%	25.7%
Argentina	30.8	30.2	29.8	30.0	28.6	27.2	27.5	28.8	27.7	29.1	32.8	12.8%	0.6%	0.7%
Brazil	112.4	110.2	122.5	132.2	136.7	142.6	140.6	151.2	159.3	156.9	163.1	4.0%	3.8%	3.7%
Colombia	49.9	53.2	52.2	53.0	46.8	45.0	45.6	46.7	41.3	38.8	39.7	2.4%	-2.3%	0.9%
Ecuador	27.1	28.2	29.8	29.1	29.5	28.5	27.7	28.5	25.8	25.3	25.8	1.7%	-0.5%	0.6%
Peru	6.9	7.3	7.5	6.5	5.8	5.7	5.9	6.1	5.5	5.3	5.4	1.6%	-2.4%	0.1%
Trinidad & Tobago	5.2	5.1	5.1	4.8	4.3	4.4	3.9	3.7	3.4	3.5	3.4	-3.0%	-4.2%	0.1%
Venezuela	139.3	137.8	138.5	147.6	132.6	113.6	84.3	52.7	33.6	34.4	37.3	8.6%	-12.3%	0.8%
Other S. & Cent. America	7.5	7.6	7.7	7.4	6.8	6.7	6.4	6.2	9.4	11.3	19.0	68.2%	9.8%	0.4%
Total S. & Cent. America	379.0	379.6	393.1	410.7	391.2	373.7	341.9	323.9	305.9	304.6	326.5	7.2%	-1.5%	7.4%
Denmark	10.0	8.7	8.1	7.7	6.9	6.7	5.6	5.0	3.5	3.2	3.2	-1.6%	-10.8%	0.1%
Italy	5.4	5.5	5.8	5.5	3.8	4.1	4.7	4.3	5.4	4.8	4.5	-7.9%	-1.9%	0.1%
Norway	87.0	82.9	85.0	87.6	90.3	88.9	83.3	79.8	92.1	93.9	89.0	-5.2%	0.2%	2.0%
Romania	4.0	4.1	4.1	4.0	3.8	3.6	3.6	3.6	3.5	3.3	3.1	-6.0%	-2.4%	0.1%
United Kingdom	44.6	40.6	39.9	45.3	47.4	46.6	50.9	51.8	49.0	40.9	36.2	-11.3%	-2.0%	0.8%
Other Europe	16.7	17.1	17.0	16.6	15.7	15.1	15.3	15.0	14.4	14.3	11.6	-19.1%	-3.6%	0.3%
Total Europe	167.7	159.0	159.8	166.7	167.9	165.1	163.4	159.5	167.9	160.5	147.6	-8.1%	-1.3%	3.3%
Azerbaijan	43.7	43.8	42.5	42.0	41.4	39.1	39.2	38.0	35.0	35.3	33.3	-5.5%	-2.7%	0.8%
Kazakhstan	79.2	81.8	80.8	79.5	78.0	86.2	90.4	90.6	85.7	85.9	84.1	-2.0%	0.6%	1.9%
Russian Federation	526.7	532.2	537.4	544.6	558.5	558.5	567.9	573.4	524.4	538.8	548.5	1.8%	0.4%	12.4%
Turkmenistan	12.0	12.5	12.9	13.2	13.2	13.1	12.5	12.2	10.4	11.6	11.6	0.3%	-0.3%	0.3%
Uzbekistan	3.3	3.2	2.9	2.7	2.6	2.8	2.9	3.0	2.8	2.9	2.8	-0.8%	-1.6%	0.1%
Other CIS	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1	4.4%	1.9%	†
Total CIS	666.8	675.2	678.2	683.8	695.5	701.5	714.7	719.1	660.2	676.4	682.6	0.9%	0.2%	15.5%
Iran	180.5	169.7	174.0	180.2	216.1	231.9	219.6	158.6	144.4	168.8	176.5	4.6%	-0.2%	4.0%
Iraq	151.3	151.9	158.8	195.6	217.6	222.4	227.0	234.2	202.0	200.8	221.3	10.2%	3.9%	5.0%
Kuwait	154.0	151.4	150.2	148.2	152.7	145.0	146.8	143.4	131.2	129.9	145.7	12.2%	-0.5%	3.3%
Oman	45.0	46.1	46.2	48.0	49.3	47.6	47.8	47.3	46.1	46.8	51.4	9.9%	1.3%	1.2%
Qatar	81.9	81.7	79.9	77.4	77.6	74.8	75.1	72.3	71.7	72.8	74.1	1.7%	-1.0%	1.7%
Saudi Arabia	549.2	538.4	543.8	568.0	586.7	559.3	576.8	556.6	519.6	515.0	573.1	11.3%	0.4%	13.0%
Syria	8.1	2.7	1.5	1.2	1.1	1.1	1.1	1.5	2.0	4.6	4.6	-0.8%	-5.6%	0.1%
United Arab Emirates	154.9	161.6	162.9	175.1	181.6	174.9	176.0	179.9	165.9	163.4	181.1	10.8%	1.6%	4.1%
Yemen	8.1	9.0	6.9	2.6	1.6	3.0	4.1	4.1	3.8	3.5	3.4	-2.7%	-8.3%	0.1%
Other Middle East	9.0	10.3	10.5	10.5	10.6	10.2	10.2	10.4	9.9	10.2	10.3	1.1%	1.3%	0.2%
Total Middle East	1342.1	1322.8	1334.8	1406.9	1495.0	1470.2	1484.4	1408.3	1296.5	1315.9	1441.6	9.5%	0.7%	32.7%
Algeria	67.2	64.8	68.8	67.2	68.4	66.6	65.3	64.3	57.6	58.2	63.6	9.4%	-0.5%	1.4%
Angola	85.3	85.2	83.3	88.2	85.8	81.6	74.1	69.1	64.6	57.1	57.8	1.1%	-3.8%	1.3%
Chad	5.3	4.8	4.7	5.8	6.1	5.2	6.1	6.7	6.6	6.1	6.5	6.2%	2.0%	0.1%
Republic of Congo	14.2	12.3	12.9	11.9	11.9	13.8	16.9	17.2	15.8	14.0	13.8	-1.7%	-0.3%	0.3%
Egypt	34.7	34.4	35.1	35.4	33.8	32.2	32.8	31.8	31.1	29.6	29.9	1.1%	-1.5%	0.7%
Equatorial Guinea	15.2	13.2	13.3	12.1	10.3	9.0	8.1	7.4	7.4	6.1	5.5	-9.8%	-9.7%	0.1%
Gabon	11.1	10.7	10.5	10.7	11.0	10.5	9.7	10.9	10.4	9.0	9.5	5.4%	-1.5%	0.2%
Libya	72.6	49.4	24.4	20.5	19.3	43.8	54.9	57.8	20.0	59.6	51.0	-14.5%	-3.5%	1.2%
Nigeria	116.4	109.4	109.2	105.7	91.3	94.4	96.3	101.1	88.4	78.4	69.0	-12.0%	-5.1%	1.6%
South Sudan	1.5	4.9	7.7	7.3	6.8	7.3	7.1	8.4	8.1	7.5	6.9	-7.6%	16.3%	0.2%
Sudan	5.1	5.8	5.9	5.4	–	3.4	3.7	3.6	3.1	3.2	3.1	-3.3%	-5.0%	0.1%
Tunisia	3.4	3.1	2.9	2.6	2.5	2.1	2.0	1.9	1.7	2.1	1.8	-13.2%	-6.0%	†
Other Africa	10.3	12.0	12.2	13.7	13.5	15.7	15.5	17.1	16.3	14.4	13.8	-3.7%	2.9%	0.3%
Total Africa	442.3	409.9	390.8	386.4	360.7	385.5	392.6	397.3	331.1	345.3	332.3	-3.8%	-2.8%	7.5%
Australia	21.2	17.6	18.6	16.8	15.4	13.9	14.7	19.3	19.1	18.4	17.5	-5.0%	-1.9%	0.4%
Brunei	7.8	6.6	6.2	6.2	5.9	5.5	5.4	5.9	5.4	5.2	4.5	-13.8%	-5.4%	0.1%
China	207.5	210.0	211.4	214.6	199.7	191.5	189.3	191.6	194.8	198.9	204.7	2.9%	-0.1%	4.6%
India	42.5	42.2	41.6	41.2	40.6	40.4	39.5	37.5	35.1	34.0	33.0	-2.8%	-2.5%	0.7%
Indonesia	44.6	42.4	41.0	40.6	42.6	40.9	39.5	38.2	36.4	33.8	31.4	-7.0%	-3.4%	0.7%
Malaysia	30.1	28.7	29.8	32.2	33.3	32.9	32.5	30.6	28.3	26.0	25.5	-2.0%	-1.6%	0.6%
Thailand	17.3	17.1	16.9	17.6	18.1	17.6	17.0	16.9	15.1	14.1	11.6	-17.6%	-3.9%	0.3%
Vietnam	17.0	16.9	15.9	17.2	15.5	13.9	12.4	11.4	10.0	9.5	9.3	-1.2%	-5.8%	0.2%
Other Asia Pacific	12.6	11.9	13.0	13.1	12.4	12.0	10.3	10.1	9.2	8.9	8.0	-10.6%	-4.5%	0.2%
Total Asia Pacific	400.5	393.4	394.4	399.4	383.5	368.6	360.7	361.5	353.4	348.7	345.6	-0.9%	-1.5%	7.8%
Total World	4120.5	4126.1	4222.9	4364.8	4377.0	4384.9	4487.6	4479.2	4175.5	4229.8	4407.2	4.2%	0.7%	100.0%
of which: OECD	953.7	1008.4	1095.3	1140.5	1106.6	1138.1	1246.7	1328.1	1282.1	1289.5	1331.8	3.3%	3.4%	30.2%
Non-OECD	3166.8	3117.7	3127.6	3224.2	3270.4	3246.8	3240.9	3151.0	2893.4	2940.2	3075.4	4.6%	-0.3%	69.8%
OPEC	1711.1	1655.8	1650.7	1731.1	1785.4	1766.8	1755.9	1653.2	1460.8	1494.8	1605.3	7.4%	-0.6%	36.4%
Non-OPEC	2409.3	2470.3	2572.2	2633.7	2591.6	2618.2	2731.7	2826.0	2714.7	2734.9	2801.9	2.4%	1.5%	63.6%
European Union*	28.0	27.4	27.0	26.1	23.1	22.7	21.9	20.2	19.2	18.0	16.7	-7.1%	-5.0%	0.4%

* Includes crude oil, shale oil, oil sands, condensates (lease condensate or gas condensates that require further refining) and NGLs (natural gas liquids – ethane, LPG and naphtha separated from the production of natural gas).

Excludes liquid fuels from other sources such as biofuels and synthetic derivatives of coal and natural gas. This also excludes liquid fuel adjustment factors such as refinery processing gain.

Excludes oil shales/kerosen extracted in solid form.

^ Less than 0.05.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Notes: Annual changes and shares of total are calculated using million tonnes figures. Growth rates are adjusted for leap years.



oil Crude oil and condensate production in thousands of barrels per day*

												Growth rate per annum		Share
Thousand barrels daily	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012-22	2022
Canada	3250	3486	3758	3863	3868	4216	4596	4690	4470	4745	4868	2.6%	4.1%	6.0%
Mexico	2548	2522	2429	2267	2154	1948	1833	1701	1705	1756	1785	1.6%	-3.5%	2.2%
US	6524	7497	8793	9442	8848	9359	10953	12315	11318	11254	11887	5.6%	6.2%	14.6%
Total North America	12322	13505	14980	15571	14869	15524	17383	18706	17493	17755	18539	4.4%	4.2%	22.8%
Argentina	549	540	532	532	511	480	489	509	481	514	582	13.4%	0.6%	0.7%
Brazil	2061	2024	2255	2437	2510	2622	2587	2788	2940	2905	3022	4.0%	3.9%	3.7%
Colombia	944	1010	990	1006	886	854	865	886	781	736	754	2.4%	-2.2%	0.9%
Ecuador	504	526	557	543	548	531	517	531	479	473	481	1.7%	-0.5%	0.6%
Peru	112	118	121	104	91	88	92	95	84	82	86	4.5%	-2.6%	0.1%
Trinidad & Tobago	82	81	81	79	71	72	63	59	57	60	58	-2.4%	-3.3%	0.1%
Venezuela	2580	2564	2578	2747	2461	2103	1553	958	608	627	684	9.1%	-12.4%	0.8%
Other S. & Cent. America	131	135	139	133	123	119	114	109	174	213	368	73.2%	10.9%	0.5%
Total S. & Cent. America	6963	6999	7254	7581	7200	6869	6281	5935	5604	5609	6036	7.6%	-1.4%	7.4%
Denmark	204	178	167	158	142	138	116	103	72	66	65	-1.6%	-10.8%	0.1%
Italy	112	114	120	113	78	86	97	89	112	100	92	-7.9%	-1.9%	0.1%
Norway	1612	1532	1562	1608	1647	1620	1516	1462	1715	1776	1704	-4.0%	0.6%	2.1%
Romania	79	83	82	80	76	73	72	71	68	66	62	-5.8%	-2.4%	0.1%
United Kingdom	885	810	791	903	933	913	1002	1019	961	807	711	-11.9%	-2.2%	0.9%
Other Europe	318	328	325	318	298	285	290	286	275	273	222	-18.8%	-3.5%	0.3%
Total Europe	3210	3046	3046	3180	3174	3115	3093	3030	3203	3089	2857	-7.5%	-1.2%	3.5%
Azerbaijan	872	877	849	840	826	781	783	762	702	707	668	-5.5%	-2.6%	0.8%
Kazakhstan	1662	1720	1701	1672	1637	1813	1900	1903	1796	1805	1769	-2.0%	0.6%	2.2%
Russian Federation	10395	10528	10479	10617	10863	10898	11083	11186	10192	10455	10669	2.0%	0.3%	13.1%
Turkmenistan	231	239	246	254	250	248	236	228	189	215	213	-0.6%	-0.8%	0.3%
Uzbekistan	72	69	63	60	57	61	64	67	61	63	63	-0.9%	-1.3%	0.1%
Other CIS	35	35	35	36	36	37	38	39	39	41	43	4.4%	1.9%	0.1%
Total CIS	13267	13468	13373	13478	13670	13839	14104	14185	12980	13287	13424	1.0%	0.1%	16.5%
Iran	3398	3192	3273	3392	4090	4490	4242	3023	2734	3184	3313	4.1%	-0.3%	4.1%
Iraq	3037	3058	3198	3945	4375	4473	4568	4712	4049	4032	4446	10.2%	3.9%	5.5%
Kuwait	2890	2847	2830	2782	2860	2704	2737	2678	2438	2415	2707	12.1%	-0.7%	3.3%
Oman	918	942	943	981	1004	971	978	971	951	971	1064	9.6%	1.5%	1.3%
Qatar	1484	1463	1426	1374	1373	1333	1328	1266	1276	1297	1318	1.6%	-1.2%	1.6%
Saudi Arabia	9987	9875	9941	10420	10688	10175	10533	10145	9430	9394	10509	11.9%	0.5%	12.9%
Syria	146	45	23	19	17	17	16	25	33	86	84	-2.8%	-5.4%	0.1%
United Arab Emirates	2915	3058	3053	3262	3366	3250	3293	3345	3072	3016	3364	11.5%	1.4%	4.1%
Yemen	154	173	128	38	16	44	67	67	60	55	53	-3.6%	-10.1%	0.1%
Other Middle East	173	199	204	203	204	198	196	196	184	193	195	0.8%	1.2%	0.2%
Total Middle East	25102	24850	25019	26416	27994	27655	27957	26427	24228	24643	27051	9.8%	0.8%	33.3%
Algeria	1320	1275	1329	1290	1316	1287	1259	1239	1099	1105	1220	10.4%	-0.8%	1.5%
Angola	1714	1716	1672	1780	1722	1632	1479	1373	1278	1130	1144	1.2%	-4.0%	1.4%
Chad	101	91	89	111	117	98	116	127	126	116	124	6.2%	2.1%	0.2%
Republic of Congo	268	234	245	227	225	263	323	329	300	267	262	-1.7%	-0.2%	0.3%
Egypt	649	643	667	662	631	603	617	597	587	561	568	1.3%	-1.3%	0.7%
Equatorial Guinea	299	261	266	242	204	174	157	144	143	119	107	-10.1%	-9.8%	0.1%
Gabon	221	213	211	214	221	210	193	218	207	181	191	5.4%	-1.5%	0.2%
Libya	1499	1025	510	422	397	909	1144	1201	410	1230	1048	-14.7%	-3.5%	1.3%
Nigeria	2330	2193	2188	2119	1822	1890	1922	2014	1765	1556	1350	-13.3%	-5.3%	1.7%
South Sudan	31	100	155	148	137	147	144	172	165	153	141	-7.6%	16.3%	0.2%
Sudan	103	118	120	109	–	70	74	72	63	64	62	-3.3%	-5.0%	0.1%
Tunisia	69	62	58	52	49	42	41	38	34	43	37	-13.6%	-5.9%	†
Other Africa	208	242	247	276	270	317	315	347	328	286	272	-4.8%	2.7%	0.3%
Total Africa	8813	8173	7756	7651	7109	7642	7784	7870	6507	6811	6526	-4.2%	-3.0%	8.0%
Australia	405	335	353	322	290	263	284	361	351	335	319	-4.8%	-2.4%	0.4%
Brunei	146	122	114	115	109	101	100	110	100	98	85	-13.8%	-5.3%	0.1%
China	4155	4216	4246	4309	3999	3846	3802	3848	3901	3994	4111	2.9%	-0.1%	5.1%
India	786	785	778	772	752	744	719	677	636	619	609	-1.5%	-2.5%	0.8%
Indonesia	859	825	789	786	829	801	772	745	708	659	612	-7.1%	-3.3%	0.8%
Malaysia	598	588	610	662	667	660	653	610	556	511	502	-1.7%	-1.7%	0.6%
Thailand	239	241	233	248	258	240	228	228	202	177	143	-19.1%	-5.0%	0.2%
Vietnam	339	337	315	342	308	275	243	225	195	185	182	-1.3%	-6.0%	0.2%
Other Asia Pacific	243	233	257	261	246	237	204	202	184	181	161	-10.8%	-4.0%	0.2%
Total Asia Pacific	7770	7681	7695	7816	7457	7167	7005	7006	6834	6758	6724	-0.5%	-1.4%	8.3%
Total World	77447	77722	79123	81693	81475	81811	83606	83158	76849	77952	81157	4.1%	0.5%	100.0%
of which: OECD	16735	17740	19225	19942	19090	19630	21490	22848	21698	21789	22386	2.7%	3.0%	27.6%
Non-OECD	60711	59982	59897	61752	62385	62181	62116	60311	55150	56163	58771	4.6%	-0.3%	72.4%
OPEC	32459	31511	31294	32841	33746	33560	33403	31378	27534	28255	30343	7.4%	-0.7%	37.4%
Non-OPEC	44988	46212	47829	48852	47729	48250	50203	51780	49314	49697	50814	2.2%	1.2%	62.6%
European Union	556	546	540	523	457	451	436	403	383	359	334	-7.0%	-5.0%	0.4%

* Includes crude oil, shale/tight oil, oil sands, lease condensate or gas condensates that require further refining. Excludes liquid fuels from other sources such as biomass and synthetic derivatives of coal and natural gas.
† Less than 0.05%.

Note: Annual changes and shares of total are calculated using thousand barrels daily figures.



Oil Natural gas liquids production in thousands of barrels per day*

Thousand barrels daily												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012-22	2022
Canada	490	514	513	525	595	597	647	682	660	669	708	5.9%	3.8%	5.6%
Mexico	364	360	363	326	307	279	238	220	206	171	160	-6.6%	-7.9%	1.3%
US	2408	2606	3015	3342	3509	3783	4369	4824	5175	5425	5883	8.4%	9.3%	46.4%
Total North America	3262	3480	3890	4194	4412	4659	5255	5726	6041	6265	6751	7.8%	7.5%	53.2%
Argentina	107	104	105	114	99	110	102	112	120	114	123	7.8%	1.4%	1.0%
Brazil	84	86	87	88	97	110	104	102	90	84	85	1.0%	0.2%	0.7%
Colombia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ecuador	1	1	-	-	-	-	-	-	-	-	-	-	-100.0%	-
Peru	45	54	54	49	50	48	47	49	48	46	43	-6.6%	-0.7%	0.3%
Trinidad & Tobago	35	34	33	30	25	27	24	23	20	17	15	-7.9%	-7.9%	0.1%
Venezuela	124	116	114	117	105	104	88	80	52	49	47	-5.0%	-9.3%	0.4%
Other S. & Cent. America	16	17	14	13	12	15	14	13	13	13	12	-7.0%	-2.9%	0.1%
Total S. & Cent. America	413	412	407	411	389	414	379	378	342	323	325	0.6%	-2.4%	2.6%
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	306	305	324	338	349	352	335	300	292	252	196	-22.0%	-4.3%	1.5%
Romania	4	3	3	3	4	3	3	4	4	4	3	-12.9%	-1.2%	†
United Kingdom	62	55	62	60	82	92	90	99	88	67	67	-0.8%	0.8%	0.5%
Other Europe	19	17	15	15	16	19	19	17	15	16	8	-48.6%	-7.9%	0.1%
Total Europe	390	380	405	416	451	466	447	420	399	339	275	-18.9%	-3.5%	2.2%
Azerbaijan	10	11	12	11	11	11	12	13	12	19	18	-6.0%	5.4%	0.1%
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Russian Federation	260	278	448	470	479	476	479	493	474	544	533	-2.0%	7.4%	4.2%
Turkmenistan	14	17	17	17	20	21	23	27	30	27	31	14.1%	8.6%	0.2%
Uzbekistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other CIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total CIS	284	307	477	498	510	508	514	533	516	590	582	-1.4%	7.4%	4.6%
Iran	412	418	441	461	488	364	378	384	386	469	509	8.5%	2.1%	4.0%
Iraq	42	41	40	41	48	64	64	68	64	70	74	5.8%	6.0%	0.6%
Kuwait	283	287	276	288	290	305	313	299	283	289	321	11.4%	1.3%	2.5%
Oman	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	437	471	466	470	473	450	471	470	427	439	450	2.5%	0.3%	3.5%
Saudi Arabia	1635	1518	1577	1578	1718	1717	1728	1687	1609	1560	1628	4.3%	†	12.8%
Syria	25	14	10	8	8	8	8	9	10	10	10	-1.8%	-8.9%	0.1%
United Arab Emirates	479	482	539	614	654	630	600	639	608	625	656	5.0%	3.2%	5.2%
Yemen	24	24	25	26	26	27	28	28	28	28	28	-	1.5%	0.2%
Other Middle East	10	10	10	10	10	10	11	19	18	15	16	6.5%	4.2%	0.1%
Total Middle East	3346	3266	3386	3494	3715	3575	3602	3602	3433	3504	3691	5.4%	1.0%	29.1%
Algeria	216	210	260	268	261	254	252	247	233	248	254	2.3%	1.6%	2.0%
Angola	20	22	30	16	23	39	40	47	47	47	47	-0.9%	8.9%	0.4%
Chad	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Congo	12	9	8	7	7	7	7	7	7	7	7	-	-4.8%	0.1%
Egypt	66	67	47	64	60	57	58	56	44	47	44	-4.3%	-3.9%	0.4%
Equatorial Guinea	20	21	19	17	19	21	19	17	15	12	12	-0.7%	-5.2%	0.1%
Gabon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Libya	40	22	8	15	15	20	21	27	15	40	40	1.1%	†	0.3%
Nigeria	79	82	86	80	76	77	82	85	61	78	100	29.2%	2.4%	0.8%
South Sudan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	5	6	5	5	5	4	4	3	3	2	2	-	-6.4%	†
Other Africa	-	-	-	-	-	-	1	1	3	7	11	54.7%	-	0.1%
Total Africa	458	440	462	472	467	479	483	491	429	488	518	6.2%	1.2%	4.1%
Australia	67	66	67	56	64	59	60	97	103	109	101	-6.7%	4.2%	0.8%
Brunei	13	13	12	11	12	13	12	12	10	8	7	-13.8%	-5.5%	0.1%
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-
India	140	136	136	133	143	153	174	174	158	147	128	-13.1%	-0.8%	1.0%
Indonesia	58	46	58	52	44	36	36	35	34	33	32	-2.7%	-5.7%	0.3%
Malaysia	65	39	39	35	59	58	60	62	67	66	64	-1.6%	-0.1%	0.5%
Thailand	232	225	231	233	231	247	247	246	219	224	188	-16.2%	-2.1%	1.5%
Vietnam	8	10	10	9	10	9	13	12	12	11	12	0.7%	3.5%	0.1%
Other Asia Pacific	45	38	36	33	31	32	26	26	21	17	16	-8.1%	-10.1%	0.1%
Total Asia Pacific	628	572	589	561	594	607	627	664	622	616	548	-10.9%	-1.3%	4.3%
Total World	8781	8857	9616	10046	10537	10708	11307	11813	11782	12124	12690	4.7%	3.8%	100.0%
of which: OECD	3722	3929	4364	4667	4922	5181	5757	6237	6536	6705	7128	6.3%	6.7%	56.2%
Non-OECD	5059	4928	5252	5379	5615	5527	5550	5577	5245	5419	5562	2.6%	1.0%	43.8%
OPEC	3362	3230	3398	3501	3704	3602	3594	3587	3381	3493	3695	5.8%	0.9%	29.1%
Non-OPEC	5420	5628	6218	6545	6833	7106	7714	8226	8401	8631	8995	4.2%	5.2%	70.9%
European Union	17	14	13	13	14	14	12	11	10	10	10	-7.3%	-5.3%	0.1%

Source: Includes data from FGE Iran Service, ICIS Heren Energy Ltd.

* Includes ethane, LPG and naphtha separated from the production of natural gas. Excludes condensates.

^ Less than 0.05.

† Less than 0.05%.

Note: Annual changes and shares of total are calculated using thousand barrels daily figures.

Exajoules												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	4.63	4.60	4.59	4.60	4.58	4.54	4.68	4.67	3.97	4.11	4.27	3.7%	-1.2%	2.2%
Mexico	4.37	4.23	4.04	3.92	4.02	3.93	3.68	3.50	3.02	3.39	4.12	21.3%	-2.5%	2.2%
US	34.10	34.66	34.90	35.61	35.86	36.21	37.08	37.02	32.52	35.51	36.15	1.8%	0.4%	19.0%
Total North America	43.10	43.49	43.52	44.12	44.47	44.67	45.44	45.19	39.51	43.02	44.53	3.5%	†	23.4%
Argentina	1.30	1.38	1.37	1.40	1.35	1.34	1.28	1.16	1.04	1.29	1.38	6.9%	-0.1%	0.7%
Brazil	5.16	5.30	5.51	5.17	4.90	4.95	4.71	4.69	4.42	4.78	5.01	4.7%	-0.8%	2.6%
Chile	0.71	0.70	0.70	0.68	0.72	0.73	0.76	0.76	0.69	0.76	0.80	4.7%	0.8%	0.4%
Colombia	0.65	0.68	0.72	0.65	0.79	0.78	0.79	0.79	0.67	0.86	0.96	12.0%	2.8%	0.5%
Ecuador	0.47	0.50	0.53	0.51	0.48	0.47	0.51	0.49	0.40	0.49	0.53	6.8%	0.4%	0.3%
Peru	0.40	0.42	0.41	0.44	0.47	0.48	0.49	0.51	0.39	0.48	0.50	3.8%	1.8%	0.3%
Trinidad & Tobago	0.09	0.10	0.09	0.09	0.10	0.09	0.09	0.05	0.05	0.05	0.05	1.4%	-5.6%	†
Venezuela	1.59	1.71	1.52	1.42	1.08	1.00	0.82	0.69	0.40	0.45	0.53	18.4%	-11.9%	0.3%
Central America	0.77	0.78	0.80	0.88	0.91	0.94	0.93	1.01	0.86	0.98	1.04	6.5%	2.4%	0.5%
Other Caribbean	1.31	1.23	1.23	1.29	1.33	1.28	1.30	1.28	1.10	1.06	1.10	3.6%	-2.1%	0.6%
Other South America	0.39	0.40	0.40	0.40	0.43	0.44	0.45	0.46	0.38	0.48	0.48	1.8%	2.1%	0.3%
Total S. & Cent. America	12.82	13.19	13.27	12.95	12.58	12.50	12.13	11.88	10.40	11.67	12.37	6.0%	-0.9%	6.5%
Austria	0.51	0.53	0.50	0.50	0.52	0.53	0.53	0.55	0.48	0.50	0.48	-2.5%	-0.3%	0.3%
Belgium	1.22	1.25	1.22	1.25	1.27	1.29	1.38	1.29	1.11	1.23	1.16	-5.9%	0.1%	0.6%
Bulgaria	0.17	0.16	0.17	0.19	0.20	0.20	0.20	0.21	0.19	0.20	0.22	9.8%	1.7%	0.1%
Croatia	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.14	0.12	0.13	0.14	11.0%	-0.4%	0.1%
Cyprus	0.11	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.09	0.10	0.10	6.2%	-1.3%	0.1%
Czech Republic	0.38	0.37	0.39	0.38	0.35	0.42	0.42	0.42	0.37	0.41	0.41	1.7%	0.5%	0.2%
Denmark	0.30	0.30	0.30	0.31	0.31	0.30	0.31	0.31	0.25	0.27	0.28	4.1%	-1.0%	0.1%
Estonia	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	-7.9%	-1.8%	†
Finland	0.40	0.41	0.39	0.39	0.41	0.40	0.40	0.39	0.35	0.33	0.33	1.5%	-1.8%	0.2%
France	3.34	3.29	3.19	3.19	3.17	3.18	3.17	3.14	2.68	2.92	2.91	-0.2%	-1.3%	1.5%
Germany	4.70	4.80	4.67	4.67	4.76	4.87	4.63	4.66	4.22	4.18	4.26	1.9%	-1.2%	2.2%
Greece	0.64	0.59	0.59	0.61	0.61	0.63	0.62	0.64	0.52	0.55	0.62	12.5%	-1.6%	0.3%
Hungary	0.26	0.25	0.28	0.30	0.30	0.33	0.35	0.35	0.32	0.35	0.35	-0.8%	3.0%	0.2%
Iceland	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.04	0.03	0.03	0.04	36.5%	-1.4%	†
Ireland	0.28	0.29	0.28	0.29	0.31	0.31	0.32	0.32	0.27	0.29	0.32	7.2%	0.4%	0.2%
Italy	2.78	2.54	2.42	2.56	2.54	2.57	2.63	2.55	2.11	2.35	2.47	5.2%	-1.7%	1.3%
Latvia	0.07	0.07	0.07	0.07	0.08	0.08	0.07	0.08	0.07	0.07	0.07	4.3%	0.4%	†
Lithuania	0.11	0.11	0.11	0.12	0.13	0.13	0.14	0.14	0.13	0.13	0.13	1.2%	1.8%	0.1%
Luxembourg	0.12	0.12	0.11	0.11	0.11	0.12	0.12	0.13	0.10	0.11	0.10	-7.9%	-1.0%	0.1%
Netherlands	2.00	1.91	1.87	1.85	1.86	1.87	1.82	1.78	1.69	1.69	1.78	5.4%	-1.7%	0.9%
North Macedonia	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.04	0.05	0.05	10.3%	1.3%	†
Norway	0.42	0.44	0.41	0.41	0.40	0.40	0.41	0.39	0.37	0.38	0.36	-5.2%	-1.0%	0.2%
Poland	1.11	1.04	1.04	1.09	1.20	1.30	1.33	1.36	1.29	1.35	1.46	7.7%	2.0%	0.8%
Portugal	0.46	0.48	0.49	0.48	0.49	0.49	0.49	0.50	0.41	0.42	0.46	8.3%	-0.9%	0.2%
Romania	0.38	0.35	0.38	0.38	0.40	0.42	0.43	0.45	0.42	0.44	0.45	1.6%	1.4%	0.2%
Slovakia	0.15	0.15	0.14	0.15	0.16	0.18	0.18	0.17	0.17	0.18	0.18	3.2%	1.7%	0.1%
Slovenia	0.11	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.09	0.10	0.11	16.2%	-1.2%	0.1%
Spain	2.62	2.47	2.46	2.54	2.63	2.64	2.69	2.70	2.21	2.42	2.66	9.6%	-0.8%	1.4%
Sweden	0.60	0.59	0.58	0.57	0.59	0.58	0.55	0.59	0.53	0.50	0.50	-0.5%	-1.8%	0.3%
Switzerland	0.49	0.51	0.46	0.47	0.44	0.45	0.43	0.44	0.37	0.37	0.38	3.1%	-2.7%	0.2%
Türkiye	1.41	1.51	1.55	1.86	1.98	2.07	2.00	2.01	1.89	2.02	2.10	4.1%	3.6%	1.1%
Ukraine	0.58	0.55	0.48	0.43	0.45	0.45	0.47	0.46	0.44	0.44	0.39	-12.9%	-2.6%	0.2%
United Kingdom	3.04	2.96	2.96	3.05	3.14	3.18	3.14	3.07	2.37	2.45	2.67	8.8%	-2.1%	1.4%
Other Europe	0.65	0.64	0.63	0.65	0.70	0.73	0.73	0.75	0.70	0.68	0.71	4.5%	0.5%	0.4%
Total Europe	29.69	29.13	28.62	29.36	29.99	30.62	30.49	30.38	26.47	27.70	28.72	3.7%	-0.7%	15.1%
Azerbaijan	0.19	0.20	0.20	0.20	0.20	0.20	0.21	0.20	0.20	0.23	0.25	7.6%	1.9%	0.1%
Belarus	0.44	0.33	0.34	0.28	0.30	0.30	0.35	0.36	0.34	0.33	0.31	-4.4%	-2.8%	0.2%
Kazakhstan	0.59	0.60	0.62	0.58	0.60	0.62	0.66	0.67	0.59	0.63	0.78	23.1%	0.7%	0.4%
Russian Federation	6.41	6.43	6.75	6.52	6.64	6.62	6.70	6.83	6.52	6.88	7.05	2.6%	0.7%	3.7%
Turkmenistan	0.26	0.27	0.28	0.28	0.28	0.28	0.28	0.29	0.29	0.29	0.30	2.1%	1.2%	0.2%
Uzbekistan	0.18	0.17	0.16	0.16	0.17	0.17	0.18	0.18	0.19	0.22	0.22	0.4%	1.8%	0.1%
Other CIS	0.15	0.15	0.15	0.15	0.17	0.16	0.19	0.17	0.16	0.18	0.19	2.9%	2.0%	0.1%
Total CIS	8.22	8.15	8.49	8.18	8.37	8.35	8.58	8.70	8.31	8.76	9.10	3.9%	0.6%	4.8%
Iran	3.54	3.78	3.46	3.05	3.05	3.09	3.24	3.41	3.27	3.33	3.69	10.9%	-0.6%	1.9%
Iraq	1.27	1.41	1.40	1.41	1.53	1.72	1.63	1.56	1.28	1.44	1.59	10.7%	1.3%	0.8%
Israel	0.56	0.42	0.39	0.42	0.43	0.45	0.45	0.46	0.40	0.41	0.46	12.0%	-3.0%	0.2%
Kuwait	0.86	0.88	0.90	0.88	0.82	0.86	0.89	0.84	0.78	0.78	0.81	2.7%	-0.9%	0.4%
Oman	0.31	0.36	0.37	0.38	0.39	0.43	0.45	0.44	0.35	0.40	0.45	12.8%	2.6%	0.2%
Qatar	0.38	0.46	0.48	0.57	0.59	0.53	0.55	0.59	0.44	0.49	0.56	14.3%	2.4%	0.3%
Saudi Arabia	6.37	6.41	7.05	7.43	7.65	7.52	7.12	6.70	6.33	6.62	7.15	8.0%	0.4%	3.7%
United Arab Emirates	1.51	1.67	1.70	1.78	1.93	1.91	1.90	1.86	1.73	1.91	2.19	14.2%	2.4%	1.1%
Other Middle East	1.43	1.34	1.33	1.15	1.09	1.16	1.15	1.10	0.99	1.02	1.07	5.4%	-3.4%	0.6%
Total Middle East	16.22	16.72	17.09	17.06	17.48	17.67	17.39	16.95	15.58	16.40	17.97	9.5%	0.1%	9.4%
Algeria	0.74	0.77	0.80	0.85	0.83	0.81	0.82	0.85	0.76	0.80	0.86	7.9%	0.8%	0.5%
Egypt	1.52	1.54	1.62	1.66	1.71	1.62	1.45	1.37	1.18	1.27	1.52	19.4%	-1.8%	0.8%
Morocco	0.56	0.56	0.54	0.52	0.54	0.57	0.55	0.56	0.49	0.56	0.57	2.3%	†	0.3%
South Africa	1.13	1.15	1.13	1.25	1.19	1.19	1.19	1.18	0.96	1.04	1.06	2.2%	-0.8%	0.6%
Eastern Africa	0.97	1.02	1.06	1.16	1.20	1.28	1.32	1.35	1.23	1.34	1.37	2.0%	3.3%	0.7%
Middle Africa	0.48	0.54	0.58	0.56	0.52	0.47	0.47	0.50	0.43	0.45	0.42	-6.7%	-0.5%	0.2%
Western Africa	1.15	1.19	1.11	1.12	1.25	1.37	1.57	1.63	1.59	1.72	1.80	4.7%	4.1%	0.9%
Other Northern Africa	0.69	0.72	0.73	0.65	0.60	0.62	0.63	0.63	0.54	0.66	0.66	1.3%	-0.5%	0.3%
Other Southern Africa	0.10	0.11	0.11	0.12	0.12	0.11	0.12	0.12	0.11	0.11	0.12	4.4%	0.8%	0.1%
Total Africa	7.33	7.60	7.68	7.89	7.95	8.04	8.12	8.19	7.29	7.95	8.39	5.5%	0.8%	4.4%
Australia	2.02	2.08	2.07	2.05	2.06	2.16	2.20	2.18	1.88	1.93	2.07	7.2%	-0.5%	1.1%
Bangladesh	0.25	0.25	0.28	0.34	0.34	0.39	0.45	0.44	0.37	0.46	0.55	19.5%	6.5%	0.3%
China	20.36	21.27	22.11	23.80	24.56	25.86	27.12	28.49	28.74	29.52	28.16	-4.6%	3.8%	14.8%
China Hong Kong SAR	0.74	0.75	0.71	0.78	0.81	0.92	0.93	0.87	0.61	0.				

US dollars per barrel	Dubai \$/bbl *	Brent \$/bbl †	Nigerian Forcados \$/bbl	West Texas Intermediate \$/bbl‡
2002	23.60	25.02	25.04	26.16
2003	26.75	28.83	28.68	31.06
2004	33.51	38.27	38.13	41.49
2005	46.78	54.52	55.69	56.59
2006	61.48	65.14	67.07	66.04
2007	67.92	72.39	74.48	72.20
2008	94.28	97.26	101.43	100.06
2009	61.14	61.67	63.35	61.92
2010	77.78	79.50	81.05	79.45
2011	105.93	111.26	113.65	95.04
2012	109.06	111.67	114.21	94.13
2013	105.47	108.66	111.95	97.99
2014	97.02	98.95	101.35	93.28
2015	51.22	52.39	54.41	48.71
2016	41.02	43.73	44.54	43.34
2017	53.02	54.19	54.31	50.79
2018	70.15	71.31	72.47	65.20
2019	63.71	64.21	64.95	57.03
2020	42.41	41.84	42.31	39.25
2021	68.91	70.91	69.76	68.10
2022	96.38	101.32	101.40	94.58

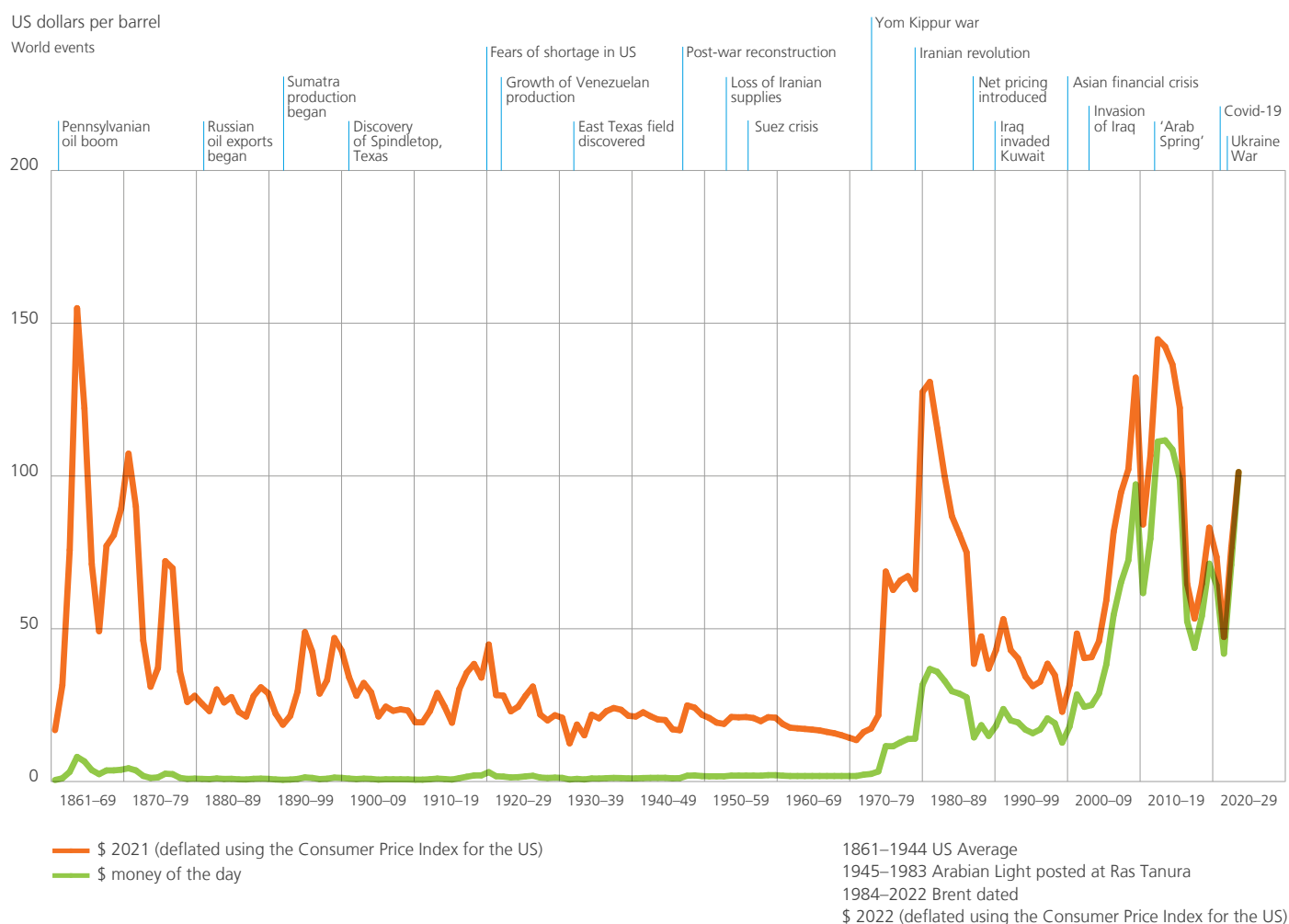
Source: S&P Global Platts, ©2023, S&P Global Inc.

* 1972 – 1985 Arabian Light, 1986 – 2021 Dubai dated.

† 1976 – 1983 Forties, 1984 – 2021 Brent dated.

‡ 1976 – 1983 Posted WTI prices, 1984 – 2021 Spot WTI (Cushing) prices.

Crude oil prices 1862-2022



												Growth rate per annum		Share
Thousand barrels daily	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Imports														
US	10587	9859	9241	9451	10056	10147	9928	9142	7865	8475	8330	-1.7%	-2.4%	12.1%
Europe	12721	12920	12957	14005	14337	14968	14338	14324	12817	12929	14383	11.2%	1.2%	20.9%
China	6675	6978	7398	8333	9215	10241	11028	11873	13032	12724	12156	-4.5%	6.2%	17.7%
India	4168	4370	4155	4396	4945	4920	5196	5394	4898	5302	5752	8.5%	3.3%	8.4%
Japan	4743	4637	4383	4332	4180	4142	3940	3780	3310	3350	3465	3.4%	-3.1%	5.0%
Rest of World	17812	20012	21193	22915	28418	25625	25580	25694	23064	23776	24729	4.0%	3.3%	35.9%
Total World	56706	58776	59328	63431	71151	70043	70009	70207	64986	66557	68815	3.4%	2.0%	100.0%
Exports														
Canada	3056	3296	3536	3837	3889	4233	4498	4666	4418	4663	4699	0.8%	4.4%	6.8%
Mexico	1366	1347	1293	1321	1405	1283	1302	1252	1247	1216	1172	-3.6%	-1.5%	1.7%
US	2682	3563	4033	4562	5082	5881	7039	8010	8138	7959	8761	10.1%	12.6%	12.7%
S. & Cent. America	3830	3790	3939	4103	5736	3993	3711	3457	3503	3003	2959	-1.5%	-2.5%	4.3%
Europe	2181	2545	2467	3065	4834	3384	3349	3225	2822	2983	2684	-10.0%	2.1%	3.9%
Russia	7457	7948	7792	8434	8811	8981	8026	8090	7398	7816	7948	1.7%	0.6%	11.5%
Other CIS	1962	2166	2092	2045	2097	2232	2051	2107	2070	2110	1976	-6.3%	0.1%	2.9%
Saudi Arabia	8468	8365	7911	8008	8729	8352	8462	8349	8011	7780	8874	14.1%	0.5%	12.9%
Middle East (ex Saudi Arabia)	11742	12242	12699	13977	15902	16208	16038	14943	13685	14160	15387	8.7%	2.7%	22.4%
North Africa	2602	2127	1743	1747	1736	2594	2765	2794	1837	2335	2073	-11.2%	-2.2%	3.0%
West Africa	4724	4590	4849	4889	4458	4490	4516	4743	4243	3921	3557	-9.3%	-2.8%	5.2%
Asia Pacific (ex Japan)	6299	6307	6450	5895	6348	6549	6440	6603	6150	6625	6548	-1.2%	0.4%	9.5%
Rest of World	338	491	524	1549	2124	1863	1811	1968	1463	1986	2177	9.6%	20.5%	3.2%
Total World	56706	58776	59328	63431	71151	70043	70009	70207	64986	66557	68815	3.4%	2.0%	100.0%

Notes: Unless otherwise stated, this table shows inter-regional trade based on the regional classification in the table 'Oil trade in 2019 and 2020'.

Does not include biofuels trade. Bunker fuel use is not included as exports.

Annual changes and shares of total are calculated using thousand barrels daily figures.

oil Trade in 2021 and 2022

Million tonnes	2021				2022			
	Crude imports	Product imports	Crude exports	Product exports	Crude imports	Product imports	Crude exports	Product exports
Canada	24.0	30.6	197.6	33.3	23.7	27.9	200.3	32.3
Mexico	†	58.6	52.8	7.4	†	59.6	49.4	8.6
US	304.4	112.9	139.6	246.6	312.6	98.2	172.9	253.0
S. & Cent. America	22.1	104.3	124.8	23.8	24.4	115.8	117.2	28.9
Europe	448.2	187.9	36.8	107.4	501.3	206.5	19.6	109.5
Russia	†	1.9	244.1	139.4	0.1	1.7	264.7	125.9
Other CIS	15.9	6.5	87.1	17.3	16.2	7.6	85.7	12.2
Iraq	†	10.2	176.0	14.4	†	9.0	191.0	12.5
Kuwait	†	3.1	92.3	20.8	†	2.5	90.3	29.8
Saudi Arabia	0.1	15.9	323.5	61.4	0.9	12.9	364.8	74.1
United Arab Emirates	7.2	27.9	144.2	81.7	5.0	39.8	172.9	89.5
Other Middle East	18.1	19.7	99.4	68.7	16.3	22.5	92.2	79.4
North Africa	9.9	30.6	88.5	26.7	8.3	34.1	76.5	25.7
West Africa	0.5	42.6	186.7	8.2	0.7	53.1	169.7	7.1
East & S. Africa	12.1	45.8	4.4	4.3	6.8	53.6	1.7	1.9
Australasia	14.9	29.0	9.2	5.4	10.3	48.1	8.9	4.3
China	526.0	103.4	1.6	60.5	508.2	93.3	1.3	54.1
India	213.7	48.3	0.1	75.1	231.2	53.1	†	83.3
Japan	122.1	43.0	0.4	11.0	132.5	38.5	0.4	16.9
Singapore	47.0	91.8	1.2	68.9	44.4	72.5	0.5	72.3
Other Asia Pacific	261.9	202.3	38.1	134.0	286.3	196.5	49.0	125.1
Total World	2048.2	1216.2	2048.2	1216.2	2129.1	1246.6	2129.1	1246.6

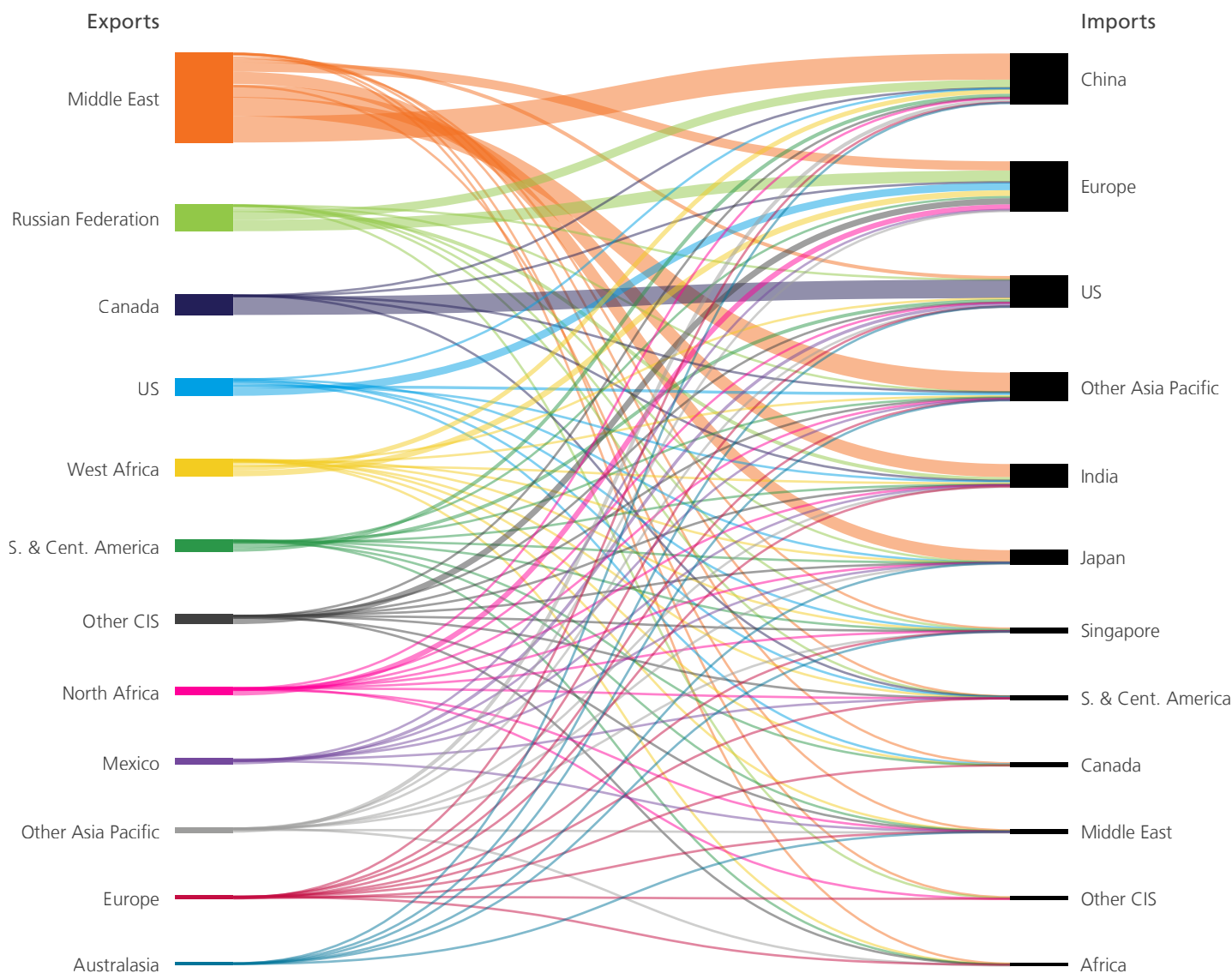
Thousand barrels daily	2021				2022			
	Crude imports	Product imports	Crude exports	Product exports	Crude imports	Product imports	Crude exports	Product exports
Canada	482	639	3967	695	475	583	4023	676
Mexico	†	1226	1060	155	†	1247	992	181
US	6114	2361	2804	5155	6278	2052	3472	5289
S. & Cent. America	443	2180	2506	497	491	2421	2354	605
Europe	9001	3928	738	2245	10068	4316	394	2290
Russia	†	39	4903	2913	1	36	5315	2633
Other CIS	320	135	1748	361	325	158	1721	256
Iraq	†	212	3534	302	†	189	3836	261
Kuwait	†	64	1854	434	†	53	1814	623
Saudi Arabia	3	333	6496	1284	19	270	7325	1549
United Arab Emirates	144	583	2895	1709	100	831	3471	1871
Other Middle East	364	411	1997	1435	326	471	1852	1660
North Africa	198	640	1776	559	166	713	1536	536
West Africa	10	891	3749	172	14	1110	3408	148
East & S. Africa	243	958	88	90	137	1120	34	39
Australasia	300	606	186	112	207	1005	180	90
China	10562	2162	31	1266	10206	1950	27	1131
India	4293	1010	1	1570	4642	1109	†	1741
Japan	2451	899	8	229	2661	804	9	354
Singapore	944	1920	23	1441	891	1516	10	1512
Other Asia Pacific	5260	4228	765	2801	5749	4107	983	2616
Total World	41132	25424	41132	25424	42756	26059	42756	26059

† Less than 0.05.

‡ Less than 0.5.

Notes: Does not include biofuels trade. Bunker fuel use is not included as exports. Intra-area movements (for example, between countries within Europe) are excluded.

Crude imports and exports include condensates.



International trade of crude oil was 2.1 billion tonnes in 2022, an increase of around 4% over 2021. The Middle East dominated exports accounting for 43% of the total followed by Russia at 12%. On the import side, the Asia Pacific

region accounted for nearly 60% of the total. China, India, and Japan were responsible for nearly 75% of the regions' total. At 0.5 billion tonnes, Europe was the second largest destination, representing around 24% of the total.

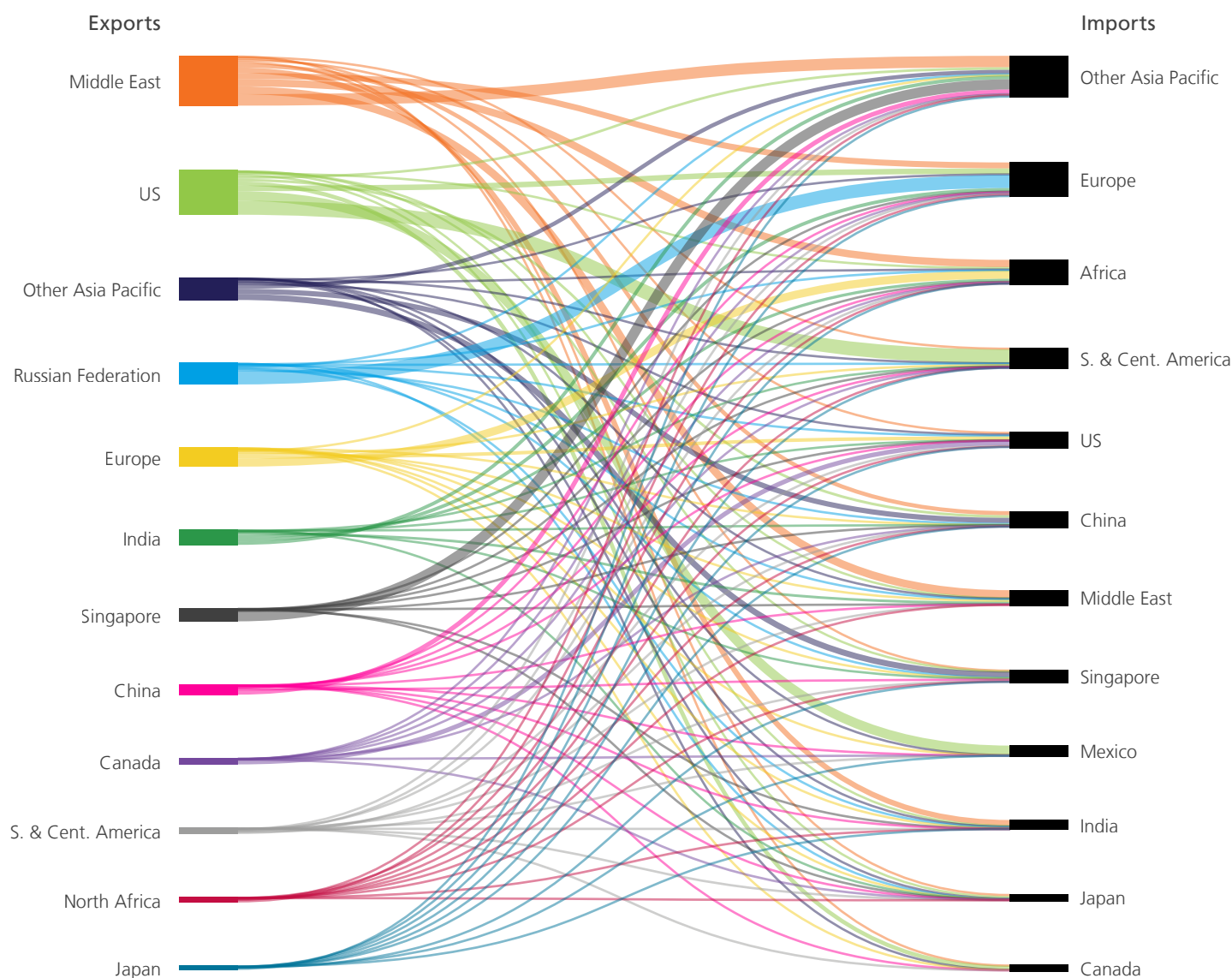
Oil Inter-area movements 2022 – Crude trade

Crude (million tonnes)	To															
From	Canada	Mexico	US	S. & Cent. America	Europe	Russia	Other CIS	Middle East	Africa	Australasia	China	India	Japan	Singapore	Other Asia Pacific	Total
Canada	–	–	188.9	0.3	6.3	–	–	†	†	–	4.0	0.2	–	†	0.5	200.3
Mexico	–	–	31.7	0.1	6.1	–	–	0.1	–	–	–	5.1	0.6	–	5.7	49.4
US	16.8	–	–	10.6	77.7	–	†	–	†	1.1	7.9	16.9	1.3	10.6	30.0	172.9
S. & Cent. America	0.6	†	35.1	–	22.8	†	–	2.6	0.6	–	37.3	6.9	2.8	3.5	5.0	117.2
Europe	0.3	†	2.9	0.6	–	†	0.1	0.1	0.2	–	8.2	4.2	–	0.8	2.1	19.6
Russia	–	–	1.0	0.7	116.9	–	15.9	–	†	0.4	86.2	37.0	1.9	0.1	4.4	264.7
Other CIS	†	–	1.1	0.3	62.7	†	–	3.8	0.7	0.2	6.0	0.8	0.1	0.2	9.7	85.7
Iraq	–	–	12.2	–	53.4	†	†	0.2	1.3	–	55.5	52.4	–	1.3	14.7	191.0
Kuwait	†	–	1.3	–	†	–	–	†	3.2	–	33.3	11.7	11.2	†	29.6	90.3
Saudi Arabia	4.0	–	22.7	4.7	38.8	–	0.1	11.7	5.4	–	87.5	40.2	52.5	5.3	91.9	364.8
UAE	–	–	0.6	†	1.5	†	–	†	0.1	1.2	42.8	22.5	49.2	12.4	42.6	172.9
Other Middle East	†	–	0.1	†	0.6	–	†	1.6	†	–	48.7	7.2	11.5	4.5	18.1	92.2
North Africa	–	–	4.8	1.1	54.1	–	0.1	0.3	†	1.1	3.9	4.0	0.1	0.6	6.5	76.5
West Africa	2.0	–	10.0	6.0	59.5	†	†	1.3	4.1	0.5	46.5	19.4	0.1	1.0	19.3	169.7
East & S. Africa	†	–	†	†	0.7	†	–	†	†	–	0.4	–	0.1	0.1	0.3	1.7
Australasia	–	–	0.1	†	†	–	–	0.2	†	–	2.0	–	0.3	2.5	3.8	8.9
China	–	–	–	–	–	–	–	–	–	–	–	–	–	†	1.3	1.3
India	†	–	–	†	†	–	–	†	†	†	–	–	–	†	†	†
Japan	†	–	–	†	†	–	–	–	†	–	†	–	–	–	0.4	0.4
Singapore	–	–	–	†	†	–	–	†	†	–	0.1	†	–	–	0.4	0.5
Other Asia Pacific	†	–	0.2	†	0.1	–	–	0.2	0.1	5.8	37.9	2.5	0.8	1.4	–	49.0
Total imports	23.7	†	312.6	24.4	501.3	0.1	16.2	22.2	15.8	10.3	508.2	231.2	132.5	44.4	286.3	2129.1

† Less than 0.05.

Notes: Does not include biofuels trade. Bunker fuel use is not included as exports. Intra-area movements (for example, between countries within Europe) are excluded. Crude imports and exports include condensates.

Oil Inter-area movements 2022 – Refined product



At 1.2 billion tonnes, international trade of refined product was around 40% that of crude oil in terms of volume and only 2.5% higher than it recorded in 2021. Between them, the Middle East and the US accounted for 45% of the total exports at 0.29 and 0.25 billion tonnes respectively. At 0.5

billion tonnes, Asia Pacific region accounted for around 40% of total imports. Europe was the second largest importer of refined products at 0.2 billion tonnes, 60% below Asia Pacific region.

Oil Inter-area movements 2022 – Refined product

Product (million tonnes)	To															Total
From	Canada	Mexico	US	S. & Cent. America	Europe	Russia	Other CIS	Middle East	Africa	Australasia	China	India	Japan	Singapore	Other Asia Pacific	Total
Canada	–	0.1	26.8	1.0	0.6	†	†	†	0.1	†	0.7	†	2.0	†	1.1	32.3
Mexico	–	–	8.1	0.1	0.1	–	†	†	0.1	†	†	†	†	0.1	†	8.6
US	24.1	55.8	–	81.4	32.2	†	†	2.0	9.7	0.9	15.5	5.7	11.0	0.6	13.9	253.0
S. & Cent. America	0.1	0.5	7.1	–	4.9	†	†	0.6	3.2	†	3.3	0.6	0.9	6.0	1.6	28.9
Europe	2.9	2.0	20.5	11.8	–	0.4	1.5	9.4	47.0	0.1	2.0	2.5	0.8	4.1	4.6	109.5
Russia	†	†	6.1	3.7	76.4	–	5.6	6.5	2.6	†	9.6	7.3	0.2	1.7	6.3	125.9
Other CIS	†	†	0.6	0.1	7.6	0.9	–	0.3	1.0	†	0.4	†	–	0.4	1.0	12.2
Iraq	–	–	3.2	†	2.4	†	†	0.5	0.1	–	0.5	2.1	–	0.5	3.2	12.5
Kuwait	0.3	–	0.8	0.4	5.1	–	†	3.9	2.9	0.2	1.4	3.4	2.0	0.1	9.4	29.8
Saudi Arabia	†	–	4.9	1.8	13.3	†	†	14.5	16.4	†	2.1	9.1	1.4	1.6	8.8	74.1
UAE	†	–	1.3	3.0	6.9	†	†	8.8	16.2	0.1	11.0	9.5	4.8	5.4	22.5	89.5
Other Middle East	†	†	1.7	0.8	7.1	†	0.2	17.9	7.2	0.2	8.8	7.3	4.2	1.5	22.4	79.4
North Africa	†	–	2.3	0.8	11.7	†	†	0.7	0.4	†	1.4	0.1	0.7	1.0	6.7	25.7
West Africa	†	†	0.9	1.2	2.1	†	†	†	0.8	†	1.0	†	–	0.1	0.9	7.1
East & S. Africa	†	†	†	0.1	0.3	†	†	0.3	0.6	†	†	†	†	0.3	0.1	1.9
Australasia	†	†	–	0.1	0.9	†	†	0.1	†	–	0.6	†	1.5	0.3	0.9	4.3
China	0.1	0.5	0.3	4.2	6.3	0.2	0.1	1.5	5.1	2.3	–	0.6	0.6	7.7	24.5	54.1
India	†	†	3.3	2.8	20.3	†	†	15.2	16.9	4.7	0.5	–	0.5	3.3	15.7	83.3
Japan	†	0.5	1.3	0.8	0.9	†	†	†	0.1	3.4	1.1	0.1	–	3.1	5.5	16.9
Singapore	†	†	1.0	0.7	1.9	†	†	1.0	2.3	12.5	3.1	2.1	0.6	–	47.1	72.3
Other Asia Pacific	0.2	0.3	8.0	0.9	5.5	0.1	0.2	3.5	7.9	23.7	30.3	2.5	7.3	34.7	–	125.1
Total imports	27.9	59.6	98.2	115.8	206.5	1.7	7.6	86.8	140.8	48.1	93.3	53.1	38.5	72.5	196.5	1246.6

† Less than 0.05

Notes: Does not include biofuels trade. Bunker fuel use is not included as exports. Intra-area movements (for example, between countries within Europe) are excluded.

Crude imports and exports include condensates.



Natural gas Production in billion cubic metres*

Billion cubic metres												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	150.3	151.9	159.0	160.8	165.0	171.3	176.8	169.6	165.6	172.3	185.0	7.4%	2.1%	4.6%
Mexico	50.9	52.5	51.3	47.9	43.7	38.3	37.9	36.7	35.5	38.4	40.4	5.2%	-2.3%	1.0%
US	649.1	655.7	704.7	740.3	727.4	746.2	840.9	928.1	916.1	944.1	978.6	3.6%	4.2%	24.2%
Total North America	850.3	860.1	915.0	949.0	936.0	955.7	1055.6	1134.4	1117.2	1154.9	1203.9	4.2%	3.5%	29.8%
Argentina	36.7	34.6	34.5	35.5	37.3	37.1	39.4	41.6	38.3	38.6	41.6	7.7%	1.3%	1.0%
Bolivia	16.9	19.6	20.4	20.1	18.9	18.6	17.3	15.1	14.7	15.1	13.4	-11.5%	-2.3%	0.3%
Brazil	19.8	21.9	23.3	23.8	24.1	27.2	25.2	25.7	24.2	24.3	23.0	-5.6%	1.5%	0.6%
Colombia	11.5	13.2	12.3	11.6	12.0	11.8	12.4	12.6	12.5	12.6	12.4	-1.1%	0.8%	0.3%
Peru	12.0	12.4	13.1	12.7	14.0	13.0	12.8	13.5	12.2	11.5	13.8	20.5%	1.5%	0.3%
Trinidad & Tobago	38.5	38.7	38.1	36.0	31.3	31.9	34.0	34.6	29.5	24.7	26.0	5.1%	-3.9%	0.6%
Venezuela	31.9	30.6	31.8	36.1	37.2	38.6	31.6	25.6	21.6	28.1	29.2	4.0%	-0.9%	0.7%
Other S. & Cent. America	3.0	2.7	2.6	2.9	3.1	3.1	3.0	3.2	2.7	2.6	2.6	3.2%	-1.2%	0.1%
Total S. & Cent. America	170.3	173.8	176.2	178.6	178.0	181.3	175.7	171.9	155.5	157.5	162.0	2.9%	-0.5%	4.0%
Denmark	6.0	5.0	4.8	4.8	4.7	5.1	4.3	3.2	1.4	1.5	1.5	0.2%	-13.1%	†
Germany	9.5	8.6	8.1	7.5	6.9	6.4	5.5	5.3	4.5	4.5	4.3	-6.2%	-7.7%	0.1%
Italy	8.2	7.4	6.8	6.4	5.5	5.3	5.2	4.6	3.9	3.2	3.2	-0.8%	-9.1%	0.1%
Netherlands	68.4	72.4	60.4	45.9	44.3	37.9	32.5	27.7	20.1	18.0	15.1	-16.5%	-14.0%	0.4%
Norway	113.9	107.9	107.5	116.1	115.9	123.7	121.3	114.3	111.5	114.3	122.8	7.5%	0.8%	3.0%
Poland	4.5	4.4	4.3	4.3	4.1	4.0	4.0	4.0	3.9	3.9	4.0	3.0%	-1.3%	0.1%
Romania	10.1	10.0	10.2	10.2	9.1	10.0	10.0	9.6	8.6	8.6	8.8	2.3%	-1.3%	0.2%
Ukraine	19.4	20.2	20.2	18.8	19.0	19.4	19.7	19.4	19.1	18.7	17.5	-6.6%	-1.0%	0.4%
United Kingdom	39.2	37.0	37.4	40.7	41.7	41.9	40.6	39.3	39.6	32.8	38.2	16.4%	-0.3%	0.9%
Other Europe	8.4	7.2	6.3	6.1	8.7	9.0	8.4	7.4	6.3	5.4	5.1	-5.5%	-4.9%	0.1%
Total Europe	287.5	280.0	266.1	260.8	259.9	262.7	251.5	234.8	218.9	211.0	220.4	4.5%	-2.6%	5.4%
Azerbaijan	16.8	17.5	18.4	18.8	18.3	17.8	18.8	23.9	25.9	31.8	34.1	7.3%	7.3%	0.8%
Kazakhstan	29.0	30.4	32.8	27.1	30.9	36.4	39.2	33.5	30.6	26.7	26.0	-2.8%	-1.1%	0.6%
Russian Federation	601.9	614.5	591.2	584.4	589.3	635.6	669.1	679.0	638.4	702.1	618.4	-11.9%	0.3%	15.3%
Turkmenistan	59.0	59.0	63.5	65.9	63.2	58.7	61.5	63.2	66.0	79.3	78.3	-1.3%	2.9%	1.9%
Uzbekistan	56.5	55.9	56.3	53.6	53.1	53.6	58.3	57.5	47.1	50.9	48.9	-4.0%	-1.4%	1.2%
Other CIS	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-10.7%	-1.1%	†
Total CIS	763.5	777.6	762.4	750.2	755.1	802.3	847.2	857.4	808.4	891.2	805.9	-9.6%	0.5%	19.9%
Bahrain	13.1	14.0	14.7	14.6	14.4	14.5	14.6	16.3	16.4	17.2	17.1	-0.7%	2.7%	0.4%
Iran	156.9	157.5	175.5	183.5	199.3	213.9	224.9	232.9	249.5	256.7	259.4	1.1%	5.2%	6.4%
Iraq	6.3	7.1	7.5	7.3	9.9	10.1	10.6	11.0	7.0	9.1	9.4	3.5%	4.0%	0.2%
Kuwait	14.7	15.5	14.3	16.1	16.4	16.2	16.9	13.3	12.2	12.1	13.4	10.4%	-1.0%	0.3%
Oman	28.3	30.8	29.3	30.7	31.5	32.3	36.3	36.7	36.9	40.2	42.1	4.6%	4.0%	1.0%
Qatar	162.5	167.9	169.4	175.9	174.8	170.5	175.2	177.2	174.9	177.0	178.4	0.8%	0.9%	4.4%
Saudi Arabia	94.4	95.0	97.3	99.2	105.3	109.3	112.1	111.2	113.1	114.5	120.4	5.2%	2.5%	3.0%
Syria	6.1	5.0	4.6	4.1	3.5	3.5	3.5	3.3	2.9	3.1	3.1	-0.2%	-6.6%	0.1%
United Arab Emirates	52.9	53.2	52.9	58.6	59.5	54.3	52.9	56.2	50.6	58.3	58.0	-0.6%	0.9%	1.4%
Yemen	7.6	10.4	9.8	2.9	0.5	0.3	0.1	0.1	0.1	0.1	0.1	–	-33.4%	†
Other Middle East	2.5	6.3	7.3	8.1	9.0	9.5	10.1	10.3	15.0	17.9	20.0	11.4%	23.0%	0.5%
Total Middle East	545.5	562.6	582.6	600.9	624.3	634.4	657.2	668.3	678.8	706.2	721.3	2.1%	2.8%	17.8%
Algeria	78.4	79.3	80.2	81.4	91.4	93.0	93.8	87.0	81.4	101.1	98.2	-2.9%	2.3%	2.4%
Egypt	58.6	54.0	47.0	42.6	40.3	48.8	58.6	64.9	58.5	67.8	64.5	-4.9%	1.0%	1.6%
Libya	11.6	12.2	11.8	14.7	14.8	13.6	13.2	13.5	12.4	14.5	14.8	2.4%	2.5%	0.4%
Nigeria	39.2	33.1	40.0	47.6	42.6	47.2	48.3	49.3	49.4	45.2	40.4	-10.6%	0.3%	1.0%
Other Africa	18.9	20.5	20.7	21.8	22.8	27.0	27.9	28.4	29.8	30.4	31.1	2.1%	5.1%	0.8%
Total Africa	206.7	199.0	199.6	208.1	211.9	229.5	241.8	243.0	231.4	259.0	249.0	-3.9%	1.9%	6.2%
Australia	58.3	60.6	65.3	74.3	94.1	110.3	127.4	146.1	145.9	148.2	152.8	3.1%	10.1%	3.8%
Bangladesh	21.3	22.0	23.0	25.9	26.5	26.6	26.6	25.3	23.7	23.6	23.3	-1.5%	0.9%	0.6%
Brunei	12.3	11.9	12.7	13.3	12.9	12.9	12.6	13.0	12.6	11.5	10.6	-8.2%	-1.4%	0.3%
China	111.5	121.8	131.2	135.7	137.9	149.2	161.4	176.7	194.0	209.2	221.8	6.0%	7.1%	5.5%
India	37.3	31.1	29.4	28.1	26.6	27.7	27.5	26.9	23.8	28.5	29.8	4.4%	-2.2%	0.7%
Indonesia	78.3	77.6	76.4	76.2	75.1	72.7	72.8	67.6	59.5	59.3	57.7	-2.7%	-3.0%	1.4%
Malaysia	69.3	72.6	72.2	76.8	76.7	79.6	76.1	77.5	72.2	78.0	82.4	5.7%	1.8%	2.0%
Myanmar	12.5	12.9	16.5	19.2	18.3	17.8	17.0	18.5	17.5	17.2	16.9	-1.7%	3.0%	0.4%
Pakistan	36.6	35.6	35.0	35.0	34.7	34.7	34.2	32.7	30.6	32.7	28.7	-12.2%	-2.4%	0.7%
Thailand	38.4	38.9	39.1	37.5	37.3	35.9	34.7	35.8	32.7	31.5	25.6	-18.7%	-4.0%	0.6%
Vietnam	9.0	9.4	9.9	10.3	10.2	9.5	9.7	9.8	8.8	7.2	7.8	8.3%	-1.5%	0.2%
Other Asia Pacific	17.7	18.2	23.1	27.9	29.0	29.2	26.9	28.7	29.0	26.8	23.8	-11.0%	3.0%	0.6%
Total Asia Pacific	502.4	512.5	533.7	560.2	579.2	606.0	626.8	658.5	650.4	673.8	681.3	1.1%	3.1%	16.8%
Total World	3326.2	3365.7	3435.6	3507.8	3544.5	3671.9	3855.8	3968.4	3860.6	4053.4	4043.8	-0.2%	2.0%	100.0%
of which: OECD	1187.3	1196.8	1242.5	1281.2	1289.8	1328.2	1434.5	1516.9	1488.7	1523.5	1589.1	4.3%	3.0%	39.3%
Non-OECD	2138.8	2168.9	2193.1	2226.7	2254.7	2343.7	2421.3	2451.6	2371.9	2529.9	2454.7	-3.0%	1.4%	60.7%
European Union*	113.9	113.9	99.9	84.3	82.3	76.8	69.0	61.0	47.8	44.3	41.1	-7.2%	-9.7%	1.0%

Source: Includes data from Cedigaz. FGE MENAgas service.

* Excludes gas flared or recycled. Includes natural gas produced for Gas-to-Liquids transformation.

^ Less than 0.05.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as they are derived directly from measures of energy content using an average conversion factor and have been standardised using a Gross Calorific Value (GCV) of 40 MJ/m³, they do not necessarily equate with gas volumes expressed in specific national terms.

Annual changes and shares of total are calculated using billion cubic metres figures.

Exajoules												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	5.41	5.47	5.72	5.79	5.94	6.17	6.36	6.11	5.96	6.20	6.66	7.4%	2.1%	4.6%
Mexico	1.83	1.89	1.85	1.73	1.57	1.38	1.36	1.32	1.28	1.38	1.45	5.2%	-2.3%	1.0%
US	23.37	23.60	25.37	26.65	26.18	26.86	30.27	33.41	32.98	33.99	35.23	3.6%	4.2%	24.2%
Total North America	30.61	30.96	32.94	34.16	33.70	34.41	38.00	40.84	40.22	41.57	43.34	4.2%	3.5%	29.8%
Argentina	1.32	1.24	1.24	1.28	1.34	1.34	1.42	1.50	1.38	1.39	1.50	7.7%	1.3%	1.0%
Bolivia	0.61	0.70	0.74	0.72	0.68	0.67	0.62	0.54	0.53	0.55	0.48	-11.5%	-2.3%	0.3%
Brazil	0.71	0.79	0.84	0.86	0.87	0.98	0.91	0.93	0.87	0.88	0.83	-5.6%	1.5%	0.6%
Colombia	0.41	0.48	0.44	0.42	0.43	0.42	0.45	0.45	0.45	0.45	0.45	-1.1%	0.8%	0.3%
Peru	0.43	0.45	0.47	0.46	0.50	0.47	0.46	0.49	0.44	0.41	0.50	20.5%	1.5%	0.3%
Trinidad & Tobago	1.39	1.39	1.37	1.29	1.13	1.15	1.22	1.24	1.06	0.89	0.94	5.1%	-3.9%	0.6%
Venezuela	1.15	1.10	1.14	1.30	1.34	1.39	1.14	0.92	0.78	1.01	1.05	4.0%	-0.9%	0.7%
Other S. & Cent. America	0.11	0.10	0.09	0.10	0.11	0.11	0.11	0.12	0.10	0.09	0.10	3.2%	-1.2%	0.1%
Total S. & Cent. America	6.13	6.26	6.34	6.43	6.41	6.53	6.33	6.19	5.60	5.67	5.83	2.9%	-0.5%	4.0%
Denmark	0.22	0.18	0.17	0.17	0.17	0.18	0.15	0.12	0.05	0.05	0.05	0.2%	-13.1%	†
Germany	0.34	0.31	0.29	0.27	0.25	0.23	0.20	0.19	0.16	0.16	0.15	-6.2%	-7.7%	0.1%
Italy	0.30	0.27	0.25	0.23	0.20	0.19	0.19	0.17	0.14	0.11	0.11	-0.8%	-9.1%	0.1%
Netherlands	2.46	2.61	2.17	1.65	1.59	1.37	1.17	1.00	0.72	0.65	0.54	-16.5%	-14.0%	0.4%
Norway	4.10	3.89	3.87	4.18	4.17	4.45	4.37	4.11	4.01	4.12	4.42	7.5%	0.8%	3.0%
Poland	0.16	0.16	0.16	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14	3.0%	-1.3%	0.1%
Romania	0.36	0.36	0.37	0.37	0.33	0.36	0.36	0.35	0.31	0.31	0.32	2.3%	-1.3%	0.2%
Ukraine	0.70	0.73	0.73	0.68	0.68	0.70	0.71	0.70	0.69	0.67	0.63	-6.6%	-1.0%	0.4%
United Kingdom	1.41	1.33	1.35	1.46	1.50	1.51	1.46	1.41	1.42	1.18	1.37	16.4%	-0.3%	0.9%
Other Europe	0.30	0.26	0.23	0.22	0.31	0.32	0.30	0.27	0.23	0.19	0.18	-5.5%	-4.9%	0.1%
Total Europe	10.35	10.08	9.58	9.39	9.36	9.46	9.05	8.45	7.88	7.59	7.93	4.5%	-2.6%	5.4%
Azerbaijan	0.61	0.63	0.66	0.68	0.66	0.64	0.68	0.86	0.93	1.15	1.23	7.3%	7.3%	0.8%
Kazakhstan	1.04	1.10	1.18	0.98	1.11	1.31	1.41	1.21	1.10	0.96	0.93	-2.8%	-1.1%	0.6%
Russian Federation	21.67	22.12	21.28	21.04	21.21	22.88	24.09	24.44	22.98	25.28	22.26	-11.9%	0.3%	15.3%
Turkmenistan	2.12	2.12	2.29	2.37	2.28	2.11	2.21	2.27	2.38	2.85	2.82	-1.3%	2.9%	1.9%
Uzbekistan	2.03	2.01	2.03	1.93	1.91	1.93	2.10	2.07	1.70	1.83	1.76	-4.0%	-1.4%	1.2%
Other CIS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-10.7%	-1.1%	†
Total CIS	27.49	27.99	27.45	27.01	27.19	28.88	30.50	30.87	29.10	32.08	29.01	-9.6%	0.5%	19.9%
Bahrain	0.47	0.50	0.53	0.53	0.52	0.52	0.53	0.59	0.59	0.62	0.62	-0.7%	2.7%	0.4%
Iran	5.65	5.67	6.32	6.61	7.18	7.70	8.10	8.38	8.98	9.24	9.34	1.1%	5.2%	6.4%
Iraq	0.23	0.25	0.27	0.26	0.36	0.36	0.38	0.39	0.25	0.33	0.34	3.5%	4.0%	0.2%
Kuwait	0.53	0.56	0.51	0.58	0.59	0.58	0.61	0.48	0.44	0.44	0.48	10.4%	-1.0%	0.3%
Oman	1.02	1.11	1.06	1.11	1.13	1.16	1.31	1.32	1.33	1.45	1.52	4.6%	4.0%	1.0%
Qatar	5.85	6.04	6.10	6.33	6.29	6.14	6.31	6.38	6.30	6.37	6.42	0.8%	0.9%	4.4%
Saudi Arabia	3.40	3.42	3.50	3.57	3.79	3.93	4.04	4.00	4.07	4.12	4.33	5.2%	2.5%	3.0%
Syria	0.22	0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.11	0.11	0.11	-0.2%	-6.6%	0.1%
United Arab Emirates	1.91	1.92	1.90	2.11	2.14	1.95	1.91	2.02	1.82	2.10	2.09	-0.6%	0.9%	1.4%
Yemen	0.27	0.37	0.35	0.10	0.02	0.01	^	^	^	^	^	-	-33.4%	†
Other Middle East	0.09	0.23	0.26	0.29	0.33	0.34	0.36	0.37	0.54	0.65	0.72	11.4%	23.0%	0.5%
Total Middle East	19.64	20.25	20.97	21.63	22.47	22.84	23.66	24.06	24.44	25.42	25.97	2.1%	2.8%	17.8%
Algeria	2.82	2.86	2.89	2.93	3.29	3.35	3.38	3.13	2.93	3.64	3.53	-2.9%	2.3%	2.4%
Egypt	2.11	1.94	1.69	1.53	1.45	1.76	2.11	2.34	2.10	2.44	2.32	-4.9%	1.0%	1.6%
Libya	0.42	0.44	0.43	0.53	0.53	0.49	0.47	0.49	0.44	0.52	0.53	2.4%	2.5%	0.4%
Nigeria	1.41	1.19	1.44	1.71	1.53	1.70	1.74	1.77	1.78	1.63	1.45	-10.6%	0.3%	1.0%
Other Africa	0.68	0.74	0.74	0.78	0.82	0.97	1.01	1.02	1.07	1.10	1.12	2.1%	5.1%	0.8%
Total Africa	7.44	7.17	7.19	7.49	7.63	8.26	8.70	8.75	8.33	9.32	8.96	-3.9%	1.9%	6.2%
Australia	2.10	2.18	2.35	2.67	3.39	3.97	4.59	5.26	5.25	5.34	5.50	3.1%	10.1%	3.8%
Bangladesh	0.77	0.79	0.83	0.93	0.95	0.96	0.96	0.91	0.85	0.85	0.84	-1.5%	0.9%	0.6%
Brunei	0.44	0.43	0.46	0.48	0.47	0.46	0.45	0.47	0.46	0.42	0.39	-8.2%	-1.4%	0.3%
China	4.01	4.39	4.72	4.88	4.97	5.37	5.81	6.36	6.98	7.53	7.99	6.0%	7.1%	5.5%
India	1.34	1.12	1.06	1.01	0.96	1.00	0.99	0.97	0.86	1.03	1.07	4.4%	-2.2%	0.7%
Indonesia	2.82	2.79	2.75	2.74	2.70	2.62	2.62	2.43	2.14	2.13	2.08	-2.7%	-3.0%	1.4%
Malaysia	2.49	2.61	2.60	2.77	2.76	2.86	2.74	2.79	2.60	2.81	2.97	5.7%	1.8%	2.0%
Myanmar	0.45	0.46	0.60	0.69	0.66	0.64	0.61	0.67	0.63	0.62	0.61	-1.7%	3.0%	0.4%
Pakistan	1.32	1.28	1.26	1.26	1.25	1.25	1.23	1.18	1.10	1.18	1.03	-12.2%	-2.4%	0.7%
Thailand	1.38	1.40	1.41	1.35	1.34	1.29	1.25	1.29	1.18	1.13	0.92	-18.7%	-4.0%	0.6%
Vietnam	0.32	0.34	0.35	0.37	0.37	0.34	0.35	0.35	0.32	0.26	0.28	8.3%	-1.5%	0.2%
Other Asia Pacific	0.64	0.66	0.83	1.01	1.04	1.05	0.97	1.03	1.04	0.96	0.86	-11.0%	3.0%	0.6%
Total Asia Pacific	18.09	18.45	19.21	20.17	20.85	21.82	22.57	23.71	23.41	24.26	24.53	1.1%	3.1%	16.8%
Total World	119.74	121.16	123.68	126.28	127.60	132.19	138.81	142.86	138.98	145.92	145.58	-0.2%	2.0%	100.0%
of which: OECD	42.74	43.08	44.73	46.12	46.43	47.81	51.64	54.61	53.59	54.85	57.21	4.3%	3.0%	39.3%
Non-OECD	77.00	78.08	78.95	80.16	81.17	84.37	87.17	88.26	85.39	91.08	88.37	-3.0%	1.4%	60.7%
European Union*	4.10	4.10	3.60	3.03	2.96	2.76	2.48	2.19	1.72	1.60	1.48	-7.2%	-9.7%	1.0%

Source: Includes data from Cedigaz. FGE MENAgas service.

* Excludes gas flared or recycled. Includes natural gas produced for Gas-to-Liquids transformation.

^ Less than 0.005.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Notes: Annual changes and shares of total are calculated using exajoules figures.

US dollars per million Btu	LNG		Natural gas				
	Japan CIF ¹	Japan Korea Marker (JKM) ²	Average German Import price ³	UK NBP (ICIS NBP Index) ⁴	Netherlands TTF (DA ICIS – Heren TTF index) ⁴	US Henry Hub	Canada (Alberta) ⁵
1984	5.10	–	4.00	–	–	–	–
1985	5.23	–	4.25	–	–	–	–
1986	4.10	–	3.93	–	–	–	–
1987	3.35	–	2.55	–	–	–	–
1988	3.34	–	2.22	–	–	–	–
1989	3.28	–	2.00	–	–	1.70	–
1990	3.64	–	2.78	–	–	1.64	1.05
1991	3.99	–	3.23	–	–	1.49	0.89
1992	3.62	–	2.70	–	–	1.77	0.98
1993	3.52	–	2.51	–	–	2.12	1.69
1994	3.18	–	2.35	–	–	1.92	1.45
1995	3.46	–	2.43	–	–	1.69	0.89
1996	3.66	–	2.50	1.87	–	2.76	1.12
1997	3.91	–	2.66	1.96	–	2.53	1.36
1998	3.05	–	2.33	1.86	–	2.08	1.42
1999	3.14	–	1.86	1.58	–	2.27	2.00
2000	4.72	–	2.91	2.71	–	4.23	3.75
2001	4.64	–	3.67	3.17	–	4.07	3.61
2002	4.27	–	3.21	2.37	–	3.33	2.57
2003	4.77	–	4.06	3.33	–	5.63	4.83
2004	5.18	–	4.30	4.46	–	5.85	5.03
2005	6.05	–	5.83	7.38	6.07	8.79	7.25
2006	7.13	–	7.87	7.87	7.46	6.76	5.83
2007	7.73	–	7.99	6.01	5.93	6.95	6.17
2008	12.55	–	11.60	10.79	10.66	8.85	7.99
2009	9.06	5.28	8.53	4.85	4.96	3.89	3.38
2010	10.93	7.72	8.03	6.56	6.77	4.39	3.69
2011	14.77	14.02	10.49	9.04	9.26	4.01	3.47
2012	16.75	15.12	10.93	9.46	9.45	2.76	2.27
2013	16.17	16.56	10.73	10.64	9.75	3.71	2.93
2014	16.33	13.86	9.11	8.25	8.14	4.35	3.87
2015	10.27	7.45	6.72	6.53	6.44	2.60	2.01
2016	6.93	5.72	4.93	4.69	4.54	2.46	1.55
2017	8.10	7.13	5.62	5.80	5.72	2.96	1.58
2018	10.07	9.76	6.64	8.06	7.90	3.12	1.18
2019	9.94	5.49	5.03	4.47	4.45	2.51	1.27
2020	7.78	4.39	4.06	3.42	3.07	1.99	1.58
2021	10.07	18.60	8.94	15.80	16.02	3.84	2.75
2022	n/a	33.98	24.17	25.10	37.48	6.45	n/a

¹ Source: EDMC Energy Trend, bp analysis.

² Source: S&P Global Platts ©2023, S&P Global Inc.

³ Source: 1986-1990 German Federal Statistical Office, 1991-2022 German Federal Office of Economics and Export Control (BAFA).

⁴ Source: ICIS Heren Energy Ltd.

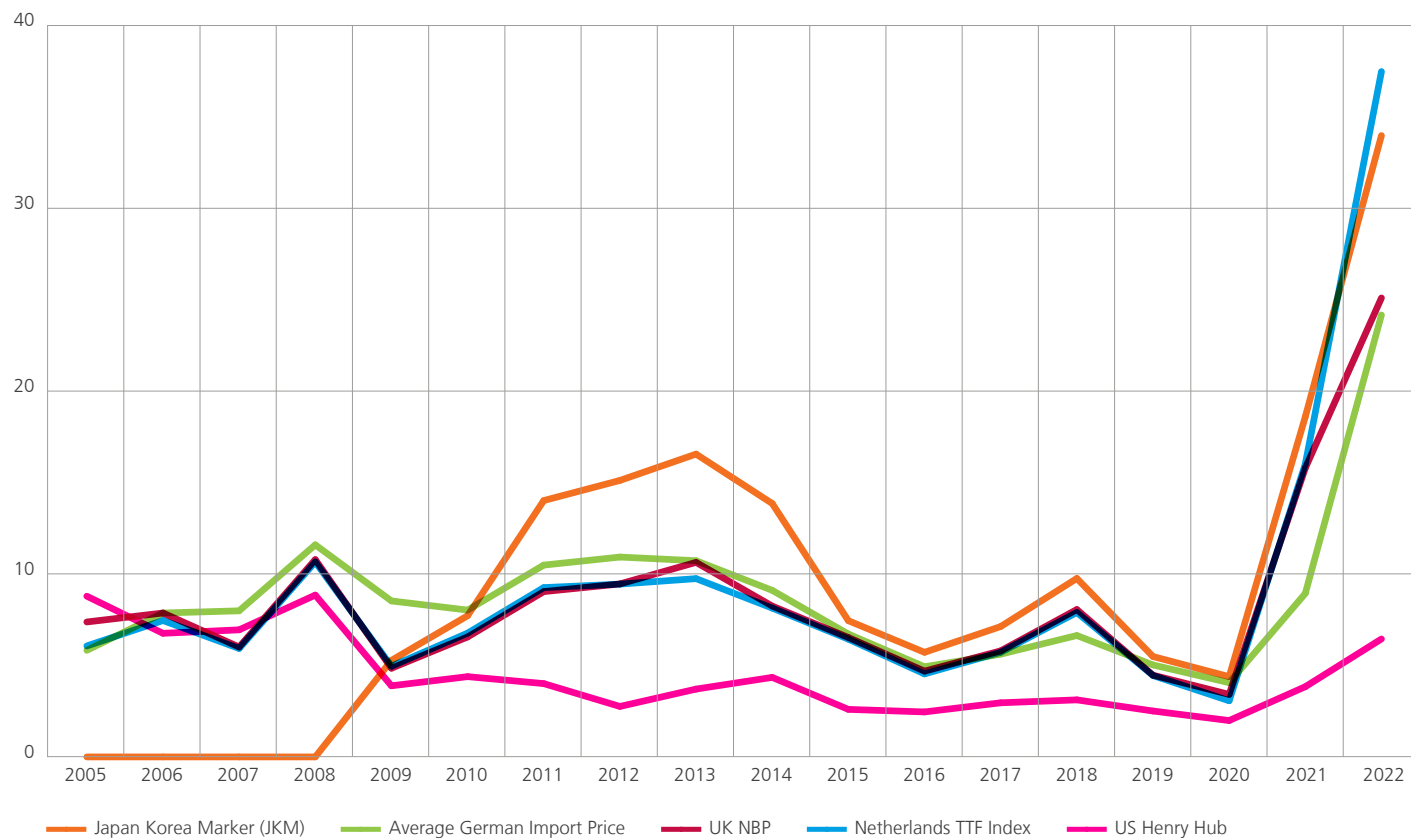
⁵ Source: Energy Intelligence Group, Natural gas Week.

Note: cif = cost+insurance+freight (average prices).

n/a: not available.

Prices

\$/mmBTU



Natural gas LNG imports

Billion cubic metres	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Growth rate per annum		Share
												2022	2012–22	2022
Canada	1.6	1.0	0.5	0.6	0.3	0.4	0.6	0.5	0.8	0.7	0.1	-85.0%	-23.7%	†
Mexico	4.9	7.8	9.3	6.8	5.6	6.6	6.9	6.6	2.5	0.9	0.6	-38.2%	-19.5%	0.1%
US	4.9	2.7	1.7	2.5	2.4	2.2	2.1	1.5	1.3	0.6	0.7	11.1%	-18.2%	0.1%
Total North America	11.4	11.4	11.5	10.0	8.3	9.2	9.6	8.6	4.6	2.2	1.3	-40.4%	-19.4%	0.2%
Argentina	4.7	6.3	6.2	5.6	5.1	4.6	3.6	1.8	1.8	3.7	2.3	-38.8%	-7.0%	0.4%
Brazil	3.5	5.2	7.1	6.8	2.6	1.7	2.9	3.2	3.3	10.1	2.3	-77.2%	-4.1%	0.4%
Chile	4.0	3.8	3.5	3.7	4.5	4.4	4.3	3.3	3.7	4.5	3.3	-25.1%	-1.7%	0.6%
Other S. & Cent. America	2.4	2.8	2.8	2.8	3.0	2.8	3.7	4.8	5.1	6.1	5.5	-9.1%	8.6%	1.0%
Total S. & Cent. America	14.6	18.1	19.6	18.9	15.2	13.5	14.5	13.1	13.9	24.4	13.5	-44.8%	-0.8%	2.5%
Belgium	4.1	3.1	2.9	3.6	2.4	1.3	3.3	7.3	6.4	5.5	12.4	127.8%	11.8%	2.3%
France	9.8	8.3	6.9	6.4	9.1	10.9	12.7	23.2	19.1	17.6	35.1	99.7%	13.6%	6.5%
Italy	7.1	5.8	4.5	5.9	5.9	8.3	8.2	13.5	12.5	9.5	14.3	50.0%	7.3%	2.6%
Spain	21.4	15.7	16.2	13.7	13.8	16.6	15.0	22.0	20.9	20.4	28.8	41.2%	3.0%	5.3%
Türkiye	7.6	5.9	7.1	7.5	7.6	10.9	11.4	12.9	14.8	13.9	15.1	8.3%	7.1%	2.8%
United Kingdom	13.9	9.2	11.2	13.7	10.7	6.6	7.2	17.1	18.6	14.9	25.3	69.7%	6.2%	4.7%
Other European Union	4.4	3.7	3.3	5.2	6.9	10.2	13.4	23.5	23.8	25.6	39.1	53.0%	24.5%	7.2%
Rest of Europe	‡	–	‡	–	‡	0.1	†	‡	0.1	0.1	0.1	-27.6%	45.0%	†
Total Europe	68.2	51.8	52.1	56.0	56.4	64.8	71.2	119.4	116.2	107.5	170.2	58.4%	9.6%	31.4%
Egypt	–	–	–	3.9	10.7	8.3	3.2	–	–	–	–	–	–	–
Kuwait	2.8	2.3	3.6	4.3	4.7	4.8	4.3	5.1	5.7	7.7	8.4	10.0%	11.7%	1.6%
United Arab Emirates	1.4	1.6	1.6	2.9	4.2	3.0	1.0	1.6	1.5	1.7	0.9	-46.0%	-4.1%	0.2%
Other Middle East & Africa	–	0.5	0.1	2.7	4.8	5.3	4.0	2.7	1.9	0.2	0.1	-61.4%	–	†
Total Middle East & Africa	4.2	4.3	5.3	13.7	24.5	21.4	12.5	9.4	9.1	9.6	9.4	-1.6%	8.5%	1.7%
China	20.1	25.1	27.3	27.0	36.8	52.9	73.5	84.7	94.0	109.9	93.2	-15.2%	16.6%	17.2%
India	18.4	18.0	19.1	20.0	24.3	26.0	30.5	32.4	36.6	33.5	28.4	-15.4%	4.4%	5.2%
Japan	119.8	120.4	121.8	115.9	113.6	113.9	113.0	105.5	101.7	101.3	98.3	-3.0%	-2.0%	18.1%
Malaysia	–	2.0	2.2	2.2	1.5	2.0	1.8	3.3	3.6	2.4	3.8	57.1%	–	0.7%
Pakistan	–	–	–	1.5	4.0	6.1	9.4	11.8	10.6	12.2	9.7	-20.6%	–	1.8%
Singapore	–	1.3	2.6	3.0	3.2	4.1	4.5	5.0	5.7	5.0	5.2	4.6%	–	1.0%
South Korea	49.7	55.3	51.8	45.8	46.3	51.4	60.2	55.6	55.4	64.1	63.9	-0.4%	2.6%	11.8%
Taiwan	17.1	17.2	18.6	19.6	20.4	22.7	22.9	22.8	24.3	26.7	27.4	2.6%	4.8%	5.1%
Thailand	1.4	2.0	1.9	3.6	3.9	5.2	6.0	6.7	7.5	9.2	11.4	24.3%	23.7%	2.1%
Other Asia Pacific	0.1	–	–	–	–	–	0.8	5.7	6.6	7.6	6.7	-11.8%	54.7%	1.2%
Total Asia Pacific	226.6	241.2	245.2	238.5	253.9	284.5	322.6	333.6	346.2	372.0	347.9	-6.5%	4.4%	64.1%
Total World	324.9	326.8	333.6	337.1	358.3	393.3	430.4	484.2	490.0	515.7	542.4	5.2%	5.3%	100.0%

Source: statistics are taken from national statistical agencies, international organisations, and other proprietary sources. Includes data from GIIGNL, S&P Global.

Gross LNG trade.

‡ Less than 0.05.

† Less than 0.05%.

Natural gas LNG exports

												Growth rate per annum		Share
Billion cubic metres	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
US	0.8	0.2	0.4	0.7	4.0	17.1	28.6	47.4	61.3	94.7	104.3	10.2%	63.3%	19.2%
Peru	5.1	5.7	5.7	5.0	5.5	5.5	4.8	5.3	5.0	3.5	4.2	21.8%	-1.9%	0.8%
Trinidad & Tobago	18.3	18.4	17.6	16.4	14.3	13.5	16.6	17.1	14.3	9.1	10.9	19.7%	-5.0%	2.0%
Other Americas*	0.5	0.1	0.2	†	0.6	0.3	0.1	0.1	0.5	0.7	‡	-94.4%	-23.2%	†
Total Americas	24.7	24.3	23.9	22.1	24.5	36.5	50.1	69.9	81.2	107.9	119.5	10.7%	17.1%	22.0%
Russia	14.3	14.5	13.6	14.6	14.6	15.4	24.9	39.1	41.8	39.5	40.2	1.6%	10.9%	7.4%
Norway	4.6	3.8	4.6	5.6	6.1	5.4	6.8	6.9	4.3	0.2	3.7	2103.0%	-1.9%	0.7%
Other Europe*	3.6	5.2	8.4	5.4	4.5	2.5	5.0	1.9	2.7	3.7	3.8	2.4%	0.6%	0.7%
Total Europe & CIS	22.4	23.5	26.6	25.6	25.3	23.4	36.7	47.9	48.8	43.4	47.7	9.9%	7.9%	8.8%
Oman	11.1	11.5	10.6	10.2	11.0	11.4	13.6	14.1	13.2	14.1	15.0	6.1%	3.0%	2.8%
Qatar	104.0	105.8	103.6	105.6	107.3	103.6	104.9	105.8	106.5	106.9	114.1	6.7%	0.9%	21.0%
United Arab Emirates	8.1	7.9	8.6	7.6	7.7	7.3	7.4	7.7	7.6	8.8	7.6	-13.3%	-0.6%	1.4%
Yemen	7.1	9.9	9.4	1.9	–	–	–	–	–	–	–	–	-100.0%	–
Total Middle East	130.3	135.2	132.2	125.4	126.0	122.3	125.9	127.5	127.3	129.7	136.6	5.3%	0.5%	25.2%
Algeria	14.9	15.0	17.4	16.6	15.5	16.4	13.1	16.8	14.6	15.6	14.4	-7.6%	-0.4%	2.7%
Angola	–	0.4	0.4	–	0.9	5.0	5.2	5.8	6.1	4.7	4.1	-13.1%	–	0.7%
Egypt	6.9	3.9	0.4	–	0.8	1.2	2.0	4.7	1.8	9.0	8.9	-0.8%	2.7%	1.6%
Nigeria	27.9	22.5	26.1	26.9	24.6	28.3	27.8	28.8	28.4	23.4	19.6	-16.1%	-3.5%	3.6%
Other Africa	4.6	5.2	5.0	5.0	4.4	4.8	5.4	5.6	5.1	5.4	7.0	28.8%	4.3%	1.3%
Total Africa	54.2	47.0	49.5	48.5	46.2	55.7	53.5	61.6	56.0	58.0	53.9	-7.0%	-0.1%	9.9%
Australia	28.3	30.5	32.0	39.9	60.4	76.6	91.8	104.7	106.0	108.5	112.3	3.5%	14.8%	20.7%
Brunei	9.2	9.5	8.6	8.7	8.6	9.1	8.5	8.8	8.4	7.5	6.4	-14.8%	-3.5%	1.2%
Indonesia	24.4	23.1	21.7	21.6	22.4	21.7	20.8	16.5	16.8	14.6	15.5	5.6%	-4.5%	2.8%
Malaysia	31.4	33.6	34.0	34.3	33.6	36.1	33.0	35.2	32.5	33.5	37.4	11.8%	1.8%	6.9%
Papua New Guinea	–	–	5.0	10.1	10.9	11.1	9.5	11.6	11.5	11.5	11.4	-1.2%	–	2.1%
Other Asia Pacific*	–	0.1	0.2	0.8	0.5	0.8	0.6	0.5	1.4	1.0	1.7	72.4%	–	0.3%
Total Asia Pacific	93.3	96.8	101.5	115.5	136.4	155.4	164.3	177.2	176.8	176.6	184.7	4.5%	7.1%	34.0%
Total LNG exports	324.9	326.8	333.6	337.1	358.3	393.3	430.4	484.2	490.0	515.7	542.4	5.2%	5.3%	100.0%

Source: Includes GIIGNL, IHS.

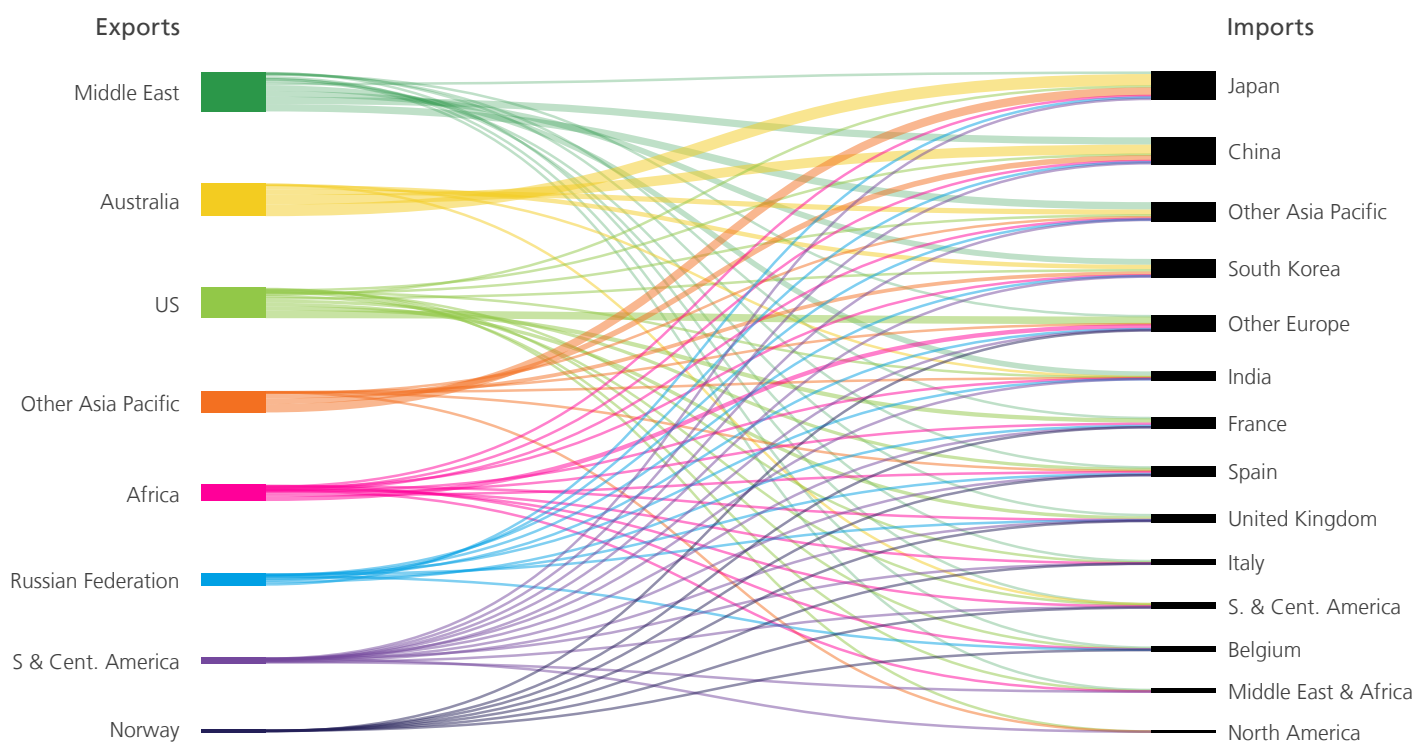
Gross LNG trade.

* Largely consists of re-exports.

‡ Less than 0.05.

† Less than 0.05%.

Natural gas Major trade movements 2022 – LNG



In 2022, international trade of natural gas as liquified natural gas (LNG) represented 56% of all inter-regional traded gas. At a total of 542 Bcm, it was up 5% on the previous year. The Middle East was the largest exporter of LNG and, together with Australia and the US, represented 65% of total

LNG exports. At 98 Bcm, Japan was the largest importer of LNG. Along with China, it accounted for 35% of total global imports. As a region, Asia Pacific imported around 65% of total LNG, followed by Europe at just over 30%.

Natural gas Trade movements 2022 as LNG*

From																								
Billion cubic metres	US	Peru	Trinidad & Tobago	Other Americas*	Norway	Other Europe*	Russian Federation	Oman	Qatar	United Arab Emirates	Yemen	Algeria	Angola	Egypt	Nigeria	Other Africa	Australia	Brunei	Indonesia	Malaysia	Papua New Guinea	Other Asia Pacific*	Total imports	
Canada	†	0.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1	
Mexico	0.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.4	–	–	–	0.6	
US	–	–	0.6	†	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.7	
North America	0.1	0.1	0.6	†	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.4	–	–	–	1.3	
Argentina	1.8	–	0.1	–	0.1	–	–	–	0.1	–	–	0.1	–	–	–	0.2	–	–	–	–	–	–	2.3	
Brazil	1.9	–	–	–	–	0.1	–	–	–	–	–	–	–	–	0.1	0.1	–	–	–	–	–	–	2.3	
Chile	0.8	–	1.1	–	–	–	–	–	–	–	–	–	–	–	–	1.2	0.3	–	–	–	–	–	3.3	
Other S. & Cent. America	1.9	–	2.8	†	–	0.2	–	0.2	–	–	–	–	–	–	0.4	–	–	–	–	–	–	–	5.5	
S. & Cent. America	6.5	–	3.9	†	0.1	0.3	–	0.2	0.2	–	–	0.1	–	–	0.5	1.5	0.3	–	–	–	–	–	13.5	
Belgium	2.3	–	–	–	0.1	0.1	2.9	–	6.8	–	–	0.1	–	0.1	–	–	–	–	–	–	–	–	12.4	
France	15.5	0.1	0.4	–	1.3	0.1	7.4	–	2.2	–	–	4.8	1.0	0.8	1.3	0.2	–	–	–	–	–	–	35.1	
Italy	3.1	–	0.3	–	0.1	0.9	–	0.1	7.1	–	–	1.5	–	0.6	0.2	0.4	–	–	–	–	–	–	14.3	
Spain	11.6	0.2	1.2	–	0.1	†	5.0	0.5	1.4	–	–	0.4	0.3	1.4	5.7	0.9	†	–	†	–	–	0.1	28.8	
Türkiye	5.3	–	0.4	–	–	0.2	0.3	0.1	0.1	–	–	5.4	0.1	2.2	0.8	0.1	–	–	0.1	–	–	–	15.1	
United Kingdom	12.4	2.2	0.2	–	0.2	0.1	0.5	†	8.0	–	–	0.6	0.6	0.1	0.5	–	–	–	–	–	–	–	25.3	
Other European Union	21.8	–	1.7	–	1.8	0.9	3.4	–	2.5	–	–	0.7	0.9	1.4	3.5	0.7	–	–	–	–	–	–	39.1	
Rest of Europe	–	–	–	–	–	0.1	†	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1	
Europe	72.1	2.4	4.1	–	3.7	2.4	19.6	0.8	28.0	–	–	13.4	2.9	6.5	12.0	2.2	†	–	0.1	†	–	0.1	170.2	
Egypt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Kuwait	1.5	–	0.4	–	–	0.2	–	0.2	3.9	0.4	–	0.1	–	0.2	1.5	–	–	–	–	–	–	–	8.4	
United Arab Emirates	–	–	–	–	–	–	–	–	0.9	–	–	–	–	–	–	–	–	–	–	–	–	–	0.9	
Other Middle East & Africa	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1	–	–	–	–	–	–	–	–	0.1	
Middle East & Africa	1.5	–	0.4	–	–	0.2	–	0.2	4.8	0.4	–	0.1	–	0.3	1.5	–	–	–	–	–	–	–	9.4	
China	2.6	0.3	0.6	–	–	0.2	6.1	0.9	24.8	0.3	–	0.1	–	0.4	0.6	1.5	35.0	0.5	5.1	10.2	3.2	0.8	93.2	
India	3.3	–	0.2	–	–	0.4	0.6	1.3	14.7	3.8	–	0.3	0.9	0.2	1.3	0.7	0.6	–	0.1	0.1	–	–	28.4	
Japan	5.6	0.3	0.1	–	–	–	9.2	3.4	3.9	1.8	–	0.2	–	0.2	1.3	0.2	41.9	4.4	3.5	16.3	5.4	0.4	98.3	
Malaysia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.8	1.0	–	–	–	–	3.8	
Pakistan	0.1	–	–	–	–	–	–	–	8.6	0.2	–	0.1	0.1	0.1	0.4	–	–	–	–	0.1	–	–	9.7	
Singapore	0.6	–	0.1	–	–	†	0.1	–	0.5	–	–	–	0.1	0.1	†	0.1	3.4	–	0.1	0.1	–	–	5.2	
South Korea	7.8	0.9	0.2	–	–	0.2	2.7	6.9	13.4	0.6	–	0.1	–	0.7	0.8	0.4	15.9	0.3	4.4	7.5	0.8	0.4	63.9	
Taiwan	2.9	0.2	–	–	–	–	1.5	0.5	7.2	0.3	–	–	–	–	0.4	0.2	10.1	0.1	1.5	0.8	1.8	–	27.4	
Thailand	0.7	–	0.7	–	–	0.1	0.1	0.9	3.2	0.2	–	–	0.1	0.2	0.5	0.1	1.9	0.3	0.1	2.2	†	–	11.4	
Other Asia Pacific	0.4	–	–	–	–	–	0.3	–	4.8	–	–	0.1	–	0.1	0.4	0.1	0.4	–	0.1	0.1	–	–	6.7	
Asia Pacific	24.1	1.7	1.9	–	–	0.9	20.6	13.8	81.1	7.1	–	0.8	1.2	2.2	5.6	3.2	112.0	6.4	14.9	37.4	11.4	1.6	347.9	
Total exports	104.3	4.2	10.9	†	3.7	3.8	40.2	15.0	114.1	7.6	–	14.4	4.1	8.9	19.6	7.0	112.3	6.4	15.5	37.4	11.4	1.7	542.4	

Source: Includes data from GIIGNL, IHS.

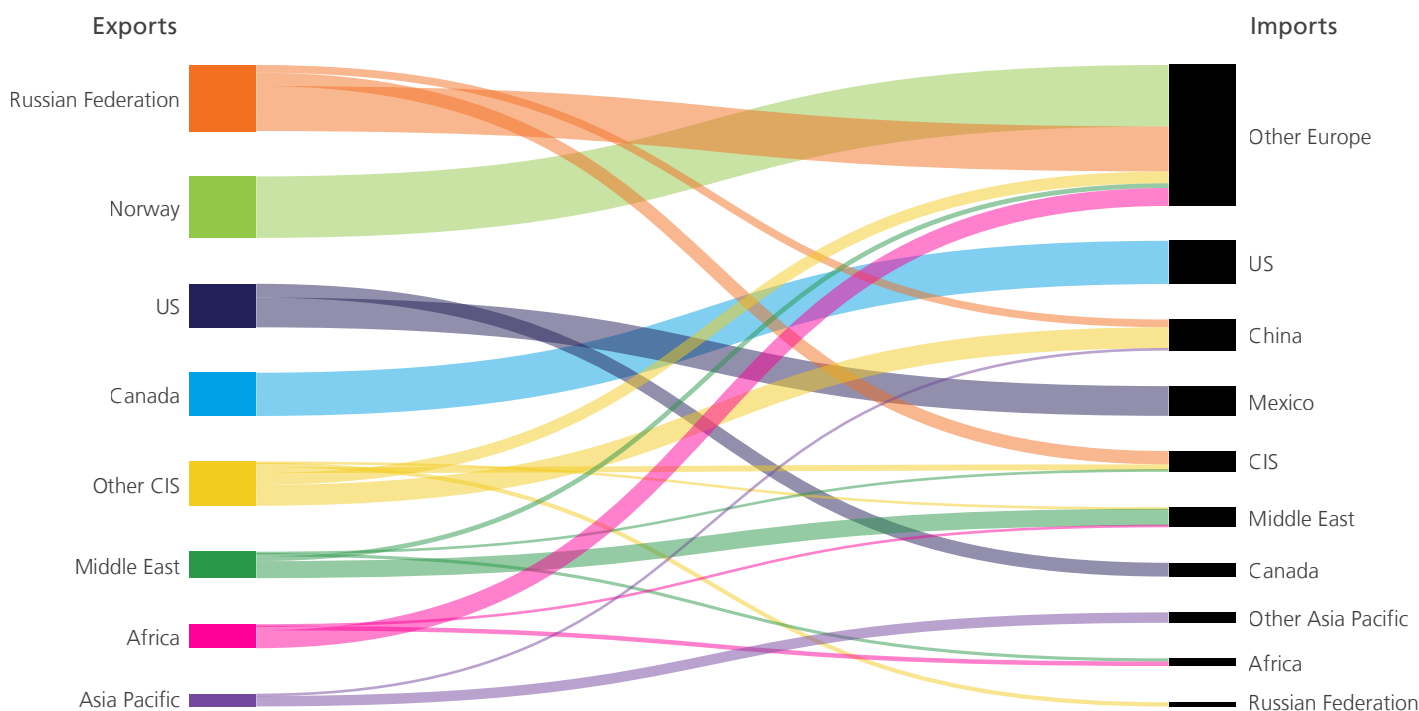
* Includes re-exports.

† Less than 0.05.

Note: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardised using a gross calorific value (GCV) of 40 MJ/m³.



Natural gas Major trade movements 2022 – pipeline



Unlike LNG trade that grew in 2022, international trade of natural gas via pipelines declined by around 15%, falling 78 Bcm compared to 2021. Over the past 10 years Russia has, on average, been responsible for around 43% of total

global gas exports via pipelines. In 2022, its share of total global pipeline exports fell to 29%, a drop of around 76 Bcm. Despite this, it still ranked highest at 25% of total global exports, followed by Norway at 23%.



Natural gas Trade movements 2022 by pipeline

Billion cubic metres	From																				Total imports
	Canada	Mexico	US	Bolivia	Other S. & Cent. America	European Union	Norway	Other Europe	Azerbaijan	Kazakhstan	Russian Federation	Turkmenistan	Uzbekistan	Iran	Qatar	Other Middle East	Algeria	Libya	Other Africa	Indonesia	
Canada	–	–	26.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	26.2
Mexico	–	–	56.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	56.5
US	82.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	82.1
North America	82.1	–	82.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	164.8
Argentina	–	–	–	3.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.7
Brazil	–	–	–	6.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6.1
Other S. & Cent. America	–	–	–	–	1.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.9
S. & Cent. America	–	–	–	9.8	1.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11.7
European Union	–	–	–	–	–	13.9	86.3	91.4	11.5	–	61.5	–	–	–	–	–	31.5	2.5	–	–	298.6
Rest of Europe	–	–	–	–	–	0.3	30.5	5.3	10.9	–	23.9	–	–	9.1	–	–	–	–	–	–	79.9
Europe	–	–	–	–	–	14.2	116.8	96.7	22.4	–	85.4	–	–	9.1	–	–	31.5	2.5	–	–	378.5
Belarus	–	–	–	–	–	–	–	–	–	–	18.5	–	–	–	–	–	–	–	–	–	18.5
Kazakhstan	–	–	–	–	–	–	–	–	–	–	2.0	0.3	–	–	–	–	–	–	–	–	2.4
Russian Federation	–	–	–	–	–	–	–	–	–	3.4	–	4.7	–	–	–	–	–	–	–	–	8.1
Other CIS	–	–	–	–	–	–	–	–	–	–	4.8	2.8	–	0.4	–	–	–	–	–	–	8.0
CIS	–	–	–	–	–	–	–	–	–	3.4	25.3	7.8	–	0.4	–	–	–	–	–	–	37.0
United Arab Emirates	–	–	–	–	–	–	–	–	–	–	–	–	–	–	18.5	–	–	–	–	–	18.5
Other Middle East	–	–	–	–	–	–	–	–	0.2	–	–	–	–	9.4	1.6	2.8	–	–	0.9	–	14.8
Middle East	–	–	–	–	–	–	–	–	0.2	–	–	–	–	9.4	20.1	2.8	–	–	0.9	–	33.4
South Africa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.6	–	3.6
Other Africa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.0	–	11.2
Africa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.6	–	14.8
Australia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.8
China	–	–	–	–	–	–	–	–	–	4.4	14.7	32.9	2.5	–	–	–	–	–	–	–	58.4
Malaysia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.2
Singapore	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6.0	8.2
Thailand	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6.6
Asia Pacific	–	–	–	–	–	–	–	–	–	–	–	32.9	2.5	–	–	–	–	–	–	6.3	78.2
Total exports	82.1	–	82.7	9.8	1.9	14.2	116.8	96.9	22.5	7.8	125.3	40.7	2.5	18.9	20.1	8.8	35.5	2.5	5.5	6.3	718.4

Source: Includes data from FGE MENAgas service, IHS.

Note: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardised using a gross calorific value (GCV) of 40 MJ/m³.

												Growth rate per annum		Share
Million tonnes	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	67.3	68.4	68.3	62.4	62.4	60.6	55.0	53.2	46.1	47.6	45.1	-5.3%	-3.9%	0.6%
Mexico	15.2	14.6	14.9	12.3	11.4	12.9	11.9	9.8	7.7	5.5	5.5	0.1%	-9.6%	0.1%
US	922.1	893.4	907.2	813.7	660.8	702.7	686.0	640.8	485.7	523.8	539.4	3.0%	-5.2%	6.4%
Total North America	1004.6	976.5	990.4	888.3	734.5	776.2	752.9	703.7	539.6	577.0	590.0	2.3%	-5.2%	7.1%
Brazil	8.2	9.5	9.4	8.0	7.5	5.8	6.4	5.8	7.1	8.0	7.5	-6.8%	-0.9%	0.1%
Colombia	89.8	86.0	89.4	86.5	91.2	91.3	86.4	85.4	53.6	59.0	57.5	-2.5%	-4.3%	0.7%
Venezuela	1.9	1.2	0.8	0.8	0.7	0.7	0.7	0.4	0.3	0.2	0.2	-12.0%	-20.3%	†
Other S. & Cent. America	1.0	3.2	4.5	3.4	2.8	1.8	1.6	1.1	0.4	0.2	0.3	32.0%	-12.9%	†
Total S. & Cent. America	100.9	99.9	104.0	98.8	102.2	99.7	95.1	92.8	61.4	67.4	65.4	-3.0%	-4.2%	0.8%
Bulgaria	33.4	28.6	31.3	35.9	31.3	34.3	30.6	28.3	22.6	28.4	35.6	25.2%	0.7%	0.3%
Czech Republic	55.2	49.1	47.1	46.5	45.5	44.9	43.8	41.0	31.6	31.5	35.2	11.7%	-4.4%	0.4%
Germany	196.2	190.6	185.8	184.3	175.4	175.1	168.8	131.3	107.4	126.3	132.5	4.9%	-3.8%	1.5%
Greece	63.0	53.9	50.8	46.2	32.6	37.7	36.5	27.4	14.1	12.4	14.0	13.3%	-13.9%	0.2%
Hungary	9.3	9.6	9.6	9.3	9.2	8.0	7.9	6.8	6.1	5.0	4.9	-1.2%	-6.1%	0.1%
Poland	144.1	142.9	137.1	135.8	131.0	127.1	122.4	112.4	100.7	107.6	107.5	-0.2%	-2.9%	1.3%
Romania	33.9	24.7	23.6	25.5	23.0	25.8	23.7	21.7	15.0	17.7	18.2	2.4%	-6.0%	0.2%
Serbia	38.2	40.3	29.8	37.8	38.5	39.8	37.6	38.9	39.7	36.4	35.1	-3.5%	-0.8%	0.4%
Spain	6.2	4.4	3.9	3.1	1.7	3.0	2.4	0.1	0.1	0.1	0.1	–	-34.4%	†
Türkiye	71.5	60.4	65.2	58.4	73.0	74.1	83.9	87.1	74.7	86.5	96.1	11.1%	3.0%	1.1%
Ukraine	66.2	64.9	45.7	30.4	32.2	24.7	26.8	26.1	24.4	24.9	16.5	-33.7%	-12.9%	0.3%
United Kingdom	17.0	12.8	11.6	8.6	4.2	3.0	2.8	2.6	1.7	1.1	0.7	-38.2%	-27.8%	†
Other Europe	65.6	70.7	67.2	64.5	61.7	65.1	92.2	56.8	50.2	47.6	49.5	4.1%	-2.7%	0.6%
Total Europe	799.6	752.8	708.8	686.3	659.4	662.6	679.4	580.5	488.3	525.5	545.9	3.9%	-3.7%	6.4%
Kazakhstan	120.5	119.6	114.0	107.3	103.1	112.3	118.5	115.0	113.4	116.2	118.0	1.5%	-0.2%	1.4%
Russian Federation	358.3	355.2	357.4	372.5	386.6	411.0	441.3	440.7	399.8	434.1	439.0	1.1%	2.1%	5.3%
Uzbekistan	3.8	4.1	4.4	3.5	3.9	4.0	4.2	4.0	4.1	5.1	5.4	5.9%	3.6%	0.1%
Other CIS	4.3	4.2	4.1	4.0	4.6	5.7	7.7	7.9	6.2	6.6	8.4	27.4%	7.0%	0.1%
Total CIS	486.8	483.1	479.9	487.3	498.1	533.0	571.6	567.6	523.5	561.9	570.7	1.6%	1.6%	6.9%
Total Middle East	1.5	1.5	1.5	1.6	1.8	1.8	2.2	2.0	2.1	2.2	4.4	98.2%	11.7%	†
South Africa	258.6	256.3	261.4	252.2	249.7	252.3	250.0	254.4	246.2	229.8	225.9	-1.7%	-1.3%	2.8%
Zimbabwe	1.6	3.1	5.8	4.3	2.7	2.9	3.3	2.6	2.7	3.2	3.9	21.7%	9.5%	†
Other Africa	7.1	8.3	9.4	9.7	9.2	15.9	20.0	14.6	12.3	15.7	21.2	35.3%	11.6%	0.2%
Total Africa	267.3	267.7	276.6	266.2	261.6	271.2	273.4	271.7	261.2	248.7	251.1	1.0%	-0.6%	3.0%
Australia	448.2	472.8	505.3	503.7	502.1	487.2	502.2	505.6	470.0	460.3	443.4	-3.7%	-0.1%	5.6%
China	3945.1	3974.3	3873.9	3746.5	3410.6	3523.6	3697.7	3846.3	3901.6	4125.8	4560.0	10.5%	1.5%	50.6%
India	605.6	608.5	646.2	674.2	689.8	711.7	760.4	753.9	760.2	812.3	910.9	12.1%	4.2%	10.0%
Indonesia	386.1	474.4	458.1	461.6	456.2	461.2	557.8	616.2	563.7	614.0	687.4	12.0%	6.0%	7.5%
Japan	1.3	1.2	1.3	1.2	1.3	1.4	1.0	0.8	0.8	0.7	0.7	3.3%	-6.2%	†
Mongolia	31.1	33.3	24.4	24.1	35.1	49.5	54.6	57.1	43.1	32.3	39.3	21.7%	2.4%	0.4%
New Zealand	4.9	4.6	4.0	3.4	2.9	2.9	3.2	3.0	2.8	2.9	2.6	-8.0%	-6.0%	†
Pakistan	3.0	3.0	3.4	3.3	4.1	4.2	4.4	7.1	9.5	10.2	9.9	-3.0%	12.6%	0.1%
South Korea	2.1	1.8	1.7	1.8	1.7	1.5	1.2	1.1	1.0	0.9	0.8	-8.7%	-8.9%	†
Thailand	18.1	18.1	18.0	15.2	17.0	16.3	14.9	14.1	13.3	14.2	13.6	-4.1%	-2.7%	0.2%
Vietnam	42.1	41.1	41.1	41.7	38.7	38.4	42.4	46.4	44.6	48.3	49.8	3.2%	1.7%	0.6%
Other Asia Pacific	39.6	39.8	40.4	44.9	61.4	54.2	52.6	39.5	54.1	54.8	57.2	4.3%	3.8%	0.7%
Total Asia Pacific	5527.3	5673.0	5617.8	5521.6	5221.0	5352.0	5692.3	5891.0	5864.6	6176.8	6775.8	9.7%	2.1%	75.7%
Total World	8188.0	8254.5	8179.1	7950.0	7478.7	7696.5	8066.9	8109.2	7740.8	8159.5	8803.4	7.9%	0.8%	100.0%
of which: OECD	2150.3	2111.8	2147.7	2016.4	1842.0	1871.9	1854.7	1737.9	1426.2	1491.6	1507.2	1.0%	-3.5%	18.3%
Non-OECD	6037.6	6142.7	6031.3	5933.5	5636.7	5824.6	6212.2	6371.3	6314.6	6667.9	7296.2	9.4%	1.9%	81.7%
European Union*	575.9	543.9	527.3	521.3	481.6	492.2	473.4	397.3	318.8	348.9	368.6	5.6%	-4.3%	4.3%

* Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Includes coal produced for Coal-to-Liquids and Coal-to-Gas transformations.

^ Less than 0.05.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Notes: Annual changes and shares of total are calculated using million tonnes figures.

Exajoules												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	1.49	1.53	1.51	1.36	1.37	1.33	1.22	1.20	1.15	1.21	1.18	-2.7%	-2.3%	0.7%
Mexico	0.31	0.30	0.30	0.29	0.25	0.31	0.28	0.23	0.19	0.14	0.14	0.1%	-7.8%	0.1%
US	20.72	20.05	20.33	17.99	14.70	15.66	15.40	14.29	10.73	11.62	12.07	3.9%	-5.2%	6.9%
Total North America	22.53	21.87	22.15	19.64	16.33	17.30	16.90	15.72	12.07	12.97	13.39	3.2%	-5.0%	7.7%
Brazil	0.12	0.15	0.15	0.12	0.11	0.09	0.10	0.09	0.10	0.12	0.11	-11.3%	-1.2%	0.1%
Colombia	2.58	2.47	2.57	2.49	2.62	2.63	2.48	2.46	1.54	1.70	1.65	-2.5%	-4.3%	0.9%
Venezuela	0.06	0.04	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	^	-12.0%	-22.5%	†
Other S. & Cent. America	0.02	0.07	0.12	0.10	0.08	0.05	0.05	0.03	0.01	0.01	0.01	30.6%	-9.8%	†
Total S. & Cent. America	2.78	2.73	2.87	2.73	2.84	2.79	2.65	2.59	1.66	1.83	1.77	-3.0%	-4.4%	1.0%
Bulgaria	0.23	0.20	0.21	0.25	0.21	0.24	0.22	0.20	0.16	0.20	0.25	24.5%	0.6%	0.1%
Czech Republic	0.85	0.74	0.71	0.71	0.67	0.64	0.62	0.56	0.43	0.44	0.48	9.3%	-5.5%	0.3%
Germany	2.00	1.89	1.85	1.79	1.66	1.65	1.58	1.19	0.98	1.15	1.21	4.9%	-4.9%	0.7%
Greece	0.34	0.28	0.27	0.24	0.17	0.19	0.18	0.13	0.07	0.06	0.07	13.3%	-14.7%	†
Hungary	0.07	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.03	-1.2%	-7.1%	†
Poland	2.42	2.39	2.26	2.22	2.18	2.08	1.98	1.87	1.68	1.76	1.70	-3.2%	-3.4%	1.0%
Romania	0.27	0.19	0.19	0.20	0.18	0.19	0.17	0.16	0.11	0.13	0.13	2.4%	-6.9%	0.1%
Serbia	0.31	0.32	0.24	0.30	0.30	0.30	0.28	0.29	0.30	0.26	0.25	-3.5%	-1.8%	0.1%
Spain	0.10	0.07	0.07	0.05	0.03	0.05	0.04	^	^	^	^	-	-33.3%	†
Türkiye	0.71	0.65	0.68	0.54	0.65	0.63	0.69	0.73	0.66	0.75	0.83	10.9%	1.6%	0.5%
Ukraine	1.64	1.60	1.09	0.72	0.76	0.57	0.61	0.60	0.53	0.54	0.36	-33.7%	-14.0%	0.2%
United Kingdom	0.42	0.32	0.29	0.21	0.11	0.08	0.08	0.07	0.05	0.03	0.02	-38.2%	-27.0%	†
Other Europe	0.60	0.66	0.64	0.59	0.59	0.60	0.78	0.52	0.46	0.44	0.45	3.2%	-2.8%	0.3%
Total Europe	9.95	9.39	8.57	7.88	7.58	7.28	7.26	6.36	5.47	5.80	5.79	-0.1%	-5.2%	3.3%
Kazakhstan	2.16	2.15	2.09	1.65	1.53	1.67	1.76	1.70	1.75	1.78	1.81	1.5%	-1.7%	1.0%
Russian Federation	7.05	7.25	7.39	7.80	8.12	8.62	9.23	9.23	8.42	9.25	9.35	1.1%	2.9%	5.4%
Uzbekistan	0.04	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	5.9%	3.8%	†
Other CIS	0.05	0.06	0.06	0.07	0.07	0.09	0.12	0.12	0.11	0.11	0.14	22.9%	9.6%	0.1%
Total CIS	9.31	9.51	9.60	9.56	9.77	10.42	11.15	11.10	10.32	11.20	11.36	1.4%	2.0%	6.5%
Total Middle East	0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.04	0.04	0.04	0.05	25.8%	5.2%	†
South Africa	6.14	6.08	6.20	5.96	6.01	5.97	6.01	6.02	5.83	5.44	5.35	-1.7%	-1.3%	3.1%
Zimbabwe	0.04	0.08	0.16	0.12	0.07	0.08	0.09	0.07	0.07	0.09	0.11	21.7%	9.5%	0.1%
Other Africa	0.18	0.21	0.24	0.25	0.24	0.41	0.52	0.38	0.31	0.40	0.55	35.6%	11.7%	0.3%
Total Africa	6.36	6.38	6.59	6.33	6.32	6.47	6.62	6.47	6.22	5.93	6.00	1.2%	-0.6%	3.4%
Australia	11.13	11.97	12.81	12.80	12.83	12.50	13.10	13.18	12.14	11.89	11.46	-3.6%	0.3%	6.6%
China	78.44	79.32	78.05	76.59	70.82	73.17	76.87	79.76	80.51	83.44	92.22	10.5%	1.7%	52.8%
India	10.68	10.71	11.28	11.77	11.89	11.99	12.80	12.60	12.59	13.38	15.02	12.2%	3.5%	8.6%
Indonesia	8.56	10.44	10.15	10.19	9.87	9.69	11.44	12.84	11.78	12.68	13.95	10.0%	5.0%	8.0%
Japan	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	3.3%	-5.1%	†
Mongolia	0.59	0.64	0.47	0.46	0.67	0.94	1.04	1.09	0.82	0.62	0.75	21.7%	2.4%	0.4%
New Zealand	0.13	0.12	0.10	0.09	0.07	0.07	0.08	0.07	0.07	0.07	0.07	-6.4%	-6.3%	†
Pakistan	0.06	0.06	0.06	0.06	0.08	0.08	0.08	0.13	0.18	0.19	0.19	-3.0%	12.6%	0.1%
South Korea	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	-8.7%	-8.5%	†
Thailand	0.20	0.20	0.19	0.16	0.18	0.17	0.16	0.15	0.14	0.15	0.14	-4.1%	-3.3%	0.1%
Vietnam	0.99	0.96	0.96	0.98	0.91	0.90	0.99	1.09	1.05	1.13	1.17	3.2%	1.7%	0.7%
Other Asia Pacific	0.96	0.98	0.99	1.06	1.33	1.14	1.06	0.71	1.12	1.15	1.20	5.0%	2.4%	0.7%
Total Asia Pacific	111.80	115.45	115.15	114.20	108.70	110.72	117.67	121.66	120.43	124.73	136.21	9.2%	2.0%	78.0%
Total World	162.75	165.37	164.96	160.37	151.58	155.01	162.30	163.95	156.22	162.50	174.56	7.4%	0.7%	100.0%
of which: OECD	43.71	43.40	44.41	41.32	37.85	38.32	38.20	36.36	29.98	31.09	31.15	0.2%	-3.3%	17.8%
Non-OECD	119.04	121.97	120.55	119.05	113.74	116.69	124.10	127.59	126.24	131.41	143.41	9.1%	1.9%	82.2%
European Union*	6.59	6.22	5.97	5.82	5.47	5.42	5.16	4.42	3.68	3.96	4.07	2.7%	-4.7%	2.3%

* Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Includes coal produced for Coal-to-Liquids and Coal-to-Gas transformations.

^ Less than 0.005.

† Less than 0.05%.

Excludes Estonia, Latvia and Lithuania prior to 1985 and Croatia and Slovenia prior to 1990.

Notes: Annual changes and shares of total are calculated using exajoules figures.

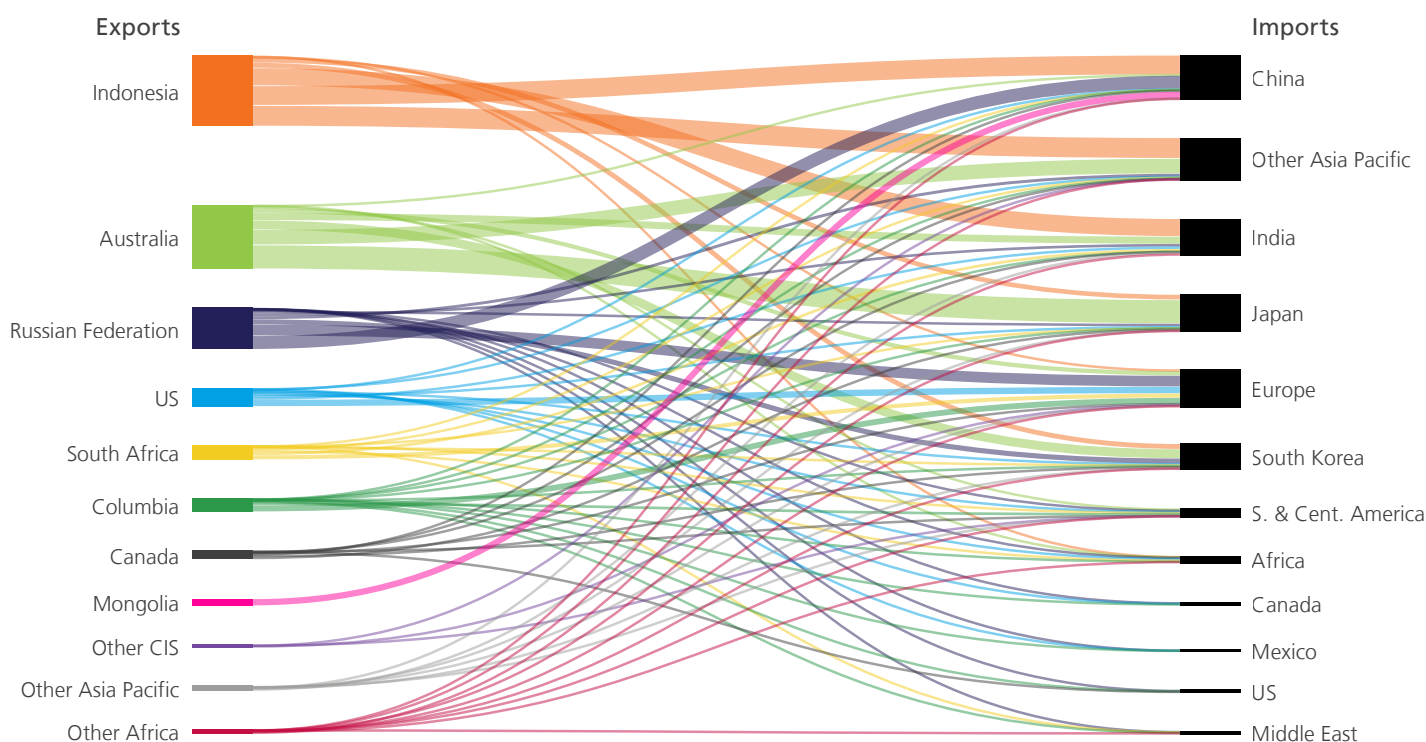
Coal Inter-area movements 2022

From	To													
Exajoules	Canada	Mexico	US	S. & Cent. America	Europe	CIS	Middle East	Africa	China	India	Japan	South Korea	Other Asia Pacific	Total
Canada	—	^	0.04	0.02	0.09	^	^	^	0.22	0.05	0.27	0.22	0.07	0.97
US	0.13	0.02	—	0.24	0.89	^	^	0.16	0.12	0.29	0.26	0.13	0.01	2.25
Colombia	0.03	0.01	0.10	0.38	0.81	^	0.12	0.02	0.01	0.01	0.04	0.05	0.02	1.59
Europe	^	^	^	0.01	—	^	^	0.02	^	0.08	^	0.01	0.02	0.16
Russia	0.01	0.01	0.01	0.08	1.48	0.04	0.01	0.14	1.79	0.37	0.31	0.71	0.41	5.36
Other CIS	—	—	—	0.01	0.17	0.44	^	^	^	^	^	^	0.02	0.64
South Africa	^	—	^	0.01	0.57	^	0.04	0.27	0.03	0.39	0.03	0.17	0.24	1.75
Other Africa	^	—	^	0.02	0.05	—	0.01	0.08	0.01	0.17	0.01	0.04	0.01	0.40
Australia	^	^	^	0.25	0.60	^	^	0.02	0.08	0.97	3.21	1.24	2.02	8.39
China	^	0.01	0.01	0.03	0.03	^	0.01	0.01	—	0.02	0.04	0.02	0.14	0.32
Indonesia	—	—	^	^	0.12	—	^	0.01	2.61	2.37	0.65	0.68	2.76	9.19
Mongolia	—	—	—	—	^	^	—	—	0.87	—	—	^	—	0.87
Other Asia Pacific	^	^	^	0.01	0.03	^	^	^	0.07	0.23	0.03	0.07	—	0.44
Rest of World	^	^	^	0.01	0.03	^	0.01	^	0.02	0.05	^	0.01	0.01	0.15
Total imports	0.17	0.05	0.16	1.07	4.87	0.49	0.22	0.73	5.83	5.01	4.82	3.34	5.72	32.47

^ Less than 0.05.

Notes: Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Intra-area movements (for example, between countries in Europe) are excluded.

Coal Trade movements



Notes: Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Intra-area movements (for example, between countries in Europe) are excluded.

International coal trade fell by nearly 4% in 2022, its lowest level since 2017. Together Indonesia, Australia, and Russia were responsible for just over 71% of total global exports. Within this, Russia's coal exports fell by 12% relative to 2022. China was the largest importer of coal at nearly 6 EJ and,

whilst its imports from Indonesia fell by 0.5 EJ, it increased its imports from Russia and Mongolia by 1.5 EJ and 0.5 EJ respectively. Whilst Asia Pacific accounted for 74% of global coal imports, Europe was the second largest region seeing its coal imports increase by 10% over 2021.

Coal Trade movements

Exajoules												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Imports														
Canada	0.22	0.26	0.22	0.19	0.22	0.23	0.22	0.21	0.17	0.19	0.17	-10.9%	-2.4%	0.5%
Mexico	0.20	0.22	0.23	0.21	0.34	0.22	0.20	0.24	0.13	0.05	0.05	4.5%	-13.2%	0.2%
US	0.24	0.28	0.28	0.25	0.19	0.27	0.24	0.17	0.15	0.14	0.16	18.2%	-3.6%	0.5%
S. & Cent. America	1.06	1.06	1.00	1.06	1.23	0.88	1.06	1.12	1.04	1.29	1.07	-16.8%	0.1%	3.3%
Europe	5.85	6.09	6.03	5.40	5.86	6.09	5.85	5.10	3.91	4.43	4.87	10.0%	-1.8%	15.0%
CIS	0.56	0.56	0.53	0.48	0.60	0.53	0.56	0.70	0.66	0.64	0.49	-23.6%	-1.3%	1.5%
Middle East	0.44	0.49	0.38	0.34	0.37	0.49	0.44	0.32	0.36	0.33	0.22	-33.5%	-6.8%	0.7%
Africa	0.81	0.37	0.44	0.50	0.63	0.31	0.81	0.92	0.53	0.71	0.73	2.8%	-1.1%	2.2%
China	7.63	6.62	4.69	5.65	5.87	6.71	7.63	6.40	6.61	6.67	5.83	-12.6%	-2.7%	18.0%
India	3.66	4.65	4.92	6.46	5.25	3.09	3.66	4.70	4.79	4.69	5.01	6.7%	3.2%	15.4%
Japan	5.06	5.00	5.05	5.01	5.06	4.87	5.06	4.90	4.56	4.84	4.82	-0.5%	-0.5%	14.8%
South Korea	3.32	3.43	3.54	3.53	3.89	3.30	3.32	3.73	3.28	3.35	3.34	-0.3%	0.1%	10.3%
Other Asia Pacific	3.61	2.73	3.96	4.60	5.00	3.65	3.61	5.26	6.39	6.33	5.72	-9.7%	4.7%	17.6%
Total World	32.65	31.76	31.27	33.69	34.50	30.61	32.65	33.78	32.59	33.65	32.47	-3.5%	-0.1%	100.0%
Exports														
Canada	0.99	1.13	1.00	0.86	0.94	0.99	1.13	1.02	0.95	0.97	0.97	0.7%	-0.1%	3.0%
US	3.02	2.88	2.38	1.89	2.39	3.02	2.88	2.21	1.74	2.18	2.25	2.9%	-2.9%	6.9%
Colombia	2.25	2.05	2.27	2.19	2.48	2.25	2.05	2.08	1.82	1.69	1.59	-5.7%	-3.4%	4.9%
Europe	0.20	0.68	0.13	0.10	0.19	0.20	0.68	0.24	0.22	0.25	0.16	-35.0%	-2.0%	0.5%
Russia	3.23	3.55	3.78	4.11	5.09	3.23	3.55	5.79	5.67	6.09	5.36	-12.1%	5.2%	16.5%
Other CIS	0.50	0.51	0.51	0.48	0.51	0.50	0.51	0.55	0.60	0.60	0.64	7.6%	2.5%	2.0%
South Africa	2.22	2.10	2.18	2.30	2.71	2.22	2.10	1.42	1.76	1.69	1.75	3.6%	-2.4%	5.4%
Other Africa	0.13	0.11	0.18	0.26	0.66	0.13	0.11	0.28	0.28	0.32	0.40	24.6%	12.0%	1.2%
Australia	7.96	9.19	9.12	9.95	9.70	7.96	9.19	9.63	9.35	9.65	8.39	-13.0%	0.5%	25.8%
China	0.28	0.28	0.36	0.45	0.42	0.28	0.28	0.34	0.18	0.28	0.32	12.8%	1.3%	1.0%
Indonesia	8.16	8.57	8.42	7.48	8.08	8.16	8.57	8.50	8.79	9.00	9.19	2.1%	1.2%	28.3%
Mongolia	0.63	0.49	0.53	0.41	0.95	0.63	0.49	1.04	0.83	0.49	0.87	76.9%	3.3%	2.7%
Other Asia Pacific	0.90	0.92	0.77	0.65	0.32	0.90	0.92	0.60	0.34	0.37	0.44	18.2%	-6.9%	1.4%
Rest of World	0.15	0.19	0.14	0.14	0.06	0.15	0.19	0.07	0.06	0.08	0.15	81.2%	0.1%	0.5%
Total World	30.61	32.65	31.76	31.27	34.50	30.61	32.65	33.78	32.59	33.65	32.47	-3.5%	0.6%	100.0%

^ Less than 0.005.

† Less than 0.05.

Notes: Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Intra-area movements (for example between countries in Europe) are excluded.



Renewable energy Solar – Installed photovoltaic (PV) power*

Megawatts												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	766	1210	1843	2519	2665	2932	3095	3327	3342	3630	4401	21.3%	19.1%	0.4%
Mexico	73	109	174	287	633	1126	2582	4742	6709	8171	9026	10.5%	61.9%	0.9%
US	8613	12326	18112	24237	35434	43770	51987	61587	76441	95391	113015	18.5%	29.4%	10.7%
Total North America	9452	13645	20129	27043	38731	47828	57664	69656	86492	107192	126442	18.0%	29.6%	12.0%
Argentina	6	8	8	9	9	9	191	442	764	1071	1104	3.0%	67.8%	0.1%
Brazil	7	13	21	46	128	1207	2435	4635	8291	14197	24079	69.6%	127.1%	2.3%
Chile	2	15	221	576	1125	1809	2137	2654	3205	4468	6250	39.9%	123.6%	0.6%
Honduras	5	5	5	396	417	454	514	518	525	529	529	0.0%	58.9%	0.1%
Other S. & Cent. America	342	434	543	926	1148	1798	2210	2808	3178	4112	4798	16.7%	30.2%	0.5%
Total S. & Cent. America	362	475	798	1952	2827	5277	7487	11057	15963	24377	36760	50.8%	58.7%	3.5%
Austria	337	626	785	937	1096	1269	1455	1702	2043	2783	3548	27.5%	26.5%	0.3%
Belgium	2647	2902	3015	3132	3329	3621	4000	4637	5573	6012	6898	14.7%	10.1%	0.7%
Bulgaria	922	1039	1029	1028	1030	1031	1033	1044	1100	1275	1948	52.8%	7.8%	0.2%
Czech Republic	2022	2064	2067	2075	2068	2075	2081	2111	2172	2246	2627	17.0%	2.7%	0.2%
Denmark	402	571	607	782	851	906	998	1080	1304	1704	2490	46.1%	20.0%	0.2%
France	4359	5277	6034	7138	7702	8610	9672	10817	12065	14819	17419	17.5%	14.9%	1.7%
Germany	34077	36710	37900	39224	40679	42293	45158	48914	53671	59373	66554	12.1%	6.9%	6.3%
Greece	1536	2579	2596	2604	2604	2606	2652	2834	3288	4277	5557	29.9%	13.7%	0.5%
Hungary	12	35	89	172	235	344	728	1400	2131	2968	2988	0.7%	73.6%	0.3%
Italy	16790	18190	18600	18907	19289	19688	20114	20871	21656	22600	25083	11.0%	4.1%	2.4%
Netherlands	287	650	1007	1526	2135	2911	4608	7226	11108	14911	22590	51.5%	54.7%	2.1%
Poland	1	2	27	108	187	287	562	1539	3955	7416	11167	50.6%	147.4%	1.1%
Portugal	238	296	415	447	513	579	667	901	1100	1646	2536	54.1%	26.7%	0.2%
Romania	41	761	1293	1326	1372	1374	1386	1398	1383	1394	1414	1.4%	42.5%	0.1%
Slovakia	513	533	533	533	533	528	472	590	535	537	537	0.0%	0.5%	0.1%
Spain	6569	6994	7001	7008	7017	7027	7068	11111	12440	16019	20518	28.1%	12.1%	1.9%
Sweden	24	43	60	104	153	244	428	714	1107	1606	2606	62.3%	59.8%	0.2%
Switzerland	437	756	1061	1394	1664	1906	2173	2498	2973	3449	4134	19.9%	25.2%	0.4%
Türkiye	12	19	41	250	834	3422	5064	5996	6668	7817	9426	20.6%	95.3%	0.9%
Ukraine	372	748	819	841	955	1200	2003	5936	7331	8062	8062	0.0%	36.0%	0.8%
United Kingdom	1754	2937	5528	9601	11914	12760	13059	13224	13462	13799	14412	4.4%	23.4%	1.4%
Other Europe	293	476	622	710	799	958	1131	1569	2238	3092	4443	43.7%	31.2%	0.4%
Total Europe	73644	84207	91131	99847	106958	115639	126511	148112	169305	197804	236957	19.8%	12.4%	22.5%
Russian Federation	^	1	5	61	76	225	535	1276	1428	1661	1816	9.3%	169.5%	0.2%
Other CIS	1	2	9	13	78	116	213	246	310	543	897	65.3%	97.4%	0.1%
Total CIS	1	3	14	74	154	341	748	1522	1737	2204	2713	23.1%	118.6%	0.3%
Israel	286	446	656	796	906	1006	1346	2138	2652	3591	4411	22.8%	31.5%	0.4%
Jordan	^	^	^	6	287	397	700	1186	1448	1521	1914	25.9%	177.8%	0.2%
United Arab Emirates	13	126	133	134	141	355	598	1918	2061	2733	3040	11.3%	72.3%	0.3%
Other Middle East	17	61	95	167	277	479	817	1019	1271	1837	3517	91.4%	70.0%	0.3%
Total Middle East	317	633	884	1103	1610	2236	3461	6261	7433	9681	12882	33.1%	44.8%	1.2%
Algeria	25	25	28	91	330	423	448	448	448	448	460	2.7%	33.8%	0.0%
Egypt	35	35	35	36	59	180	764	1647	1643	1663	1724	3.7%	47.7%	0.2%
Morocco	35	35	40	200	202	204	734	734	774	854	858	0.5%	37.6%	0.1%
South Africa	12	262	1164	1353	2176	3451	4805	4908	5995	6316	6326	0.2%	87.6%	0.6%
Other Africa	290	359	443	562	688	941	1399	1755	1960	2347	3272	39.4%	27.4%	0.3%
Total Africa	397	716	1709	2242	3455	5200	8150	9493	10819	11628	12641	8.7%	41.4%	1.2%
Australia	3799	4568	5287	5946	6689	7354	8626	12970	17986	22870	26792	17.1%	21.6%	2.5%
China	6719	17759	28399	43549	77819	130833	175263	205060	254055	307068	393127	28.0%	50.2%	37.3%
India	982	1599	3773	5693	9979	18252	27453	35203	39385	49684	63146	27.1%	51.6%	6.0%
Japan	6632	13599	23339	34150	42040	49500	56162	63192	69764	74191	78833	6.3%	28.1%	7.5%
Malaysia	32	139	205	266	344	394	545	894	1483	1787	1933	8.2%	50.9%	0.2%
Pakistan	46	101	165	266	590	655	680	755	854	1077	1243	15.4%	39.1%	0.1%
Philippines	2	3	28	173	784	908	917	982	1058	1377	1625	18.0%	95.2%	0.2%
South Korea	1024	1555	2481	3615	4502	5835	8099	11952	14575	18161	20975	15.5%	35.2%	2.0%
Taiwan	231	410	636	884	1245	1768	2738	4150	5817	7700	9724	26.3%	45.3%	0.9%
Thailand	382	829	1304	1425	2451	2702	2967	2988	2988	3065	3065	0.0%	23.2%	0.3%
Viet Nam	5	5	5	5	5	8	105	4993	16660	16660	18474	10.9%	129.7%	1.8%
Other Asia Pacific	186	268	425	686	898	1216	1728	3005	4055	5012	5783	15.4%	41.0%	0.5%
Total Asia Pacific	20039	40834	66047	96658	147347	219426	285284	346144	428680	508652	624720	22.8%	41.1%	59.3%
Total World	104212	140515	180712	228920	301082	395947	489306	592245	720429	861537	1053115	22.2%	26.0%	100.0%

Source: IRENA (2023), Renewable Energy Statistics 2023, The International Renewable Energy Agency, Abu Dhabi.

* End of year.

^ Less than 0.05.



Renewable energy Wind – Installed wind turbine capacity*

Terawatt-hours												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	6201	7801	9694	11214	11973	12250	12816	13413	13627	14304	15295	6.9%	9.4%	1.7%
Mexico	1815	2122	2569	3271	4051	4180	5887	6073	6504	7154	7312	2.2%	15.0%	0.8%
US	59453	60198	64430	72767	81502	87831	94666	103836	118664	133019	140862	5.9%	9.0%	15.7%
Total North America	67469	70121	76693	87252	97526	104261	113369	123322	138795	154477	163469	5.8%	9.3%	18.2%
Argentina	137	190	215	187	187	227	750	1609	2624	3292	3309	0.5%	37.5%	0.4%
Brazil	1894	2202	4888	7633	10129	12304	14843	15438	17198	21161	24163	14.2%	29.0%	2.7%
Chile	202	301	736	910	1039	1305	1524	1620	2149	3137	3830	22.1%	34.2%	0.4%
Costa Rica	144	144	193	272	365	378	408	411	394	394	390	-0.8%	10.5%	0.0%
Uruguay	53	59	481	857	1211	1511	1511	1514	1514	1514	1514	0.0%	39.9%	0.2%
Other S. & Cent. America	636	765	985	1365	1537	1604	1816	2043	2122	2249	2301	2.3%	13.7%	0.3%
Total S. & Cent. America	3065	3661	7499	11224	14469	17329	20852	22636	26000	31747	35507	11.8%	27.8%	4.0%
Austria	1337	1675	2110	2489	2730	2887	3133	3224	3226	3408	3736	9.6%	10.8%	0.4%
Belgium	1367	1769	1933	2181	2334	2779	3305	3864	4673	4948	5251	6.1%	14.4%	0.6%
Bulgaria	677	683	699	699	699	698	699	703	703	704	704	0.0%	0.4%	0.1%
Denmark	4162	4819	4886	5077	5245	5489	6123	6111	6267	7021	7088	1.0%	5.5%	0.8%
Finland	257	447	627	1005	1565	2044	2041	2284	2586	3257	5614	72.4%	36.1%	0.6%
France	7608	8156	9201	10298	11567	13499	14900	16427	17514	18740	21120	12.7%	10.8%	2.3%
Germany	30979	33477	38614	44580	49435	55580	58721	60742	62201	63833	66315	3.9%	7.9%	7.4%
Greece	1753	1809	1978	2091	2370	2624	2878	3589	4119	4649	4879	4.9%	10.8%	0.5%
Ireland	1704	1923	2283	2451	2802	3319	3674	4126	4307	4339	4619	6.5%	10.5%	0.5%
Italy	8102	8542	8683	9137	9384	9737	10230	10679	10871	11254	11780	4.7%	3.8%	1.3%
Netherlands	2433	2713	2865	3391	4257	4202	4393	4484	6648	7769	9309	19.8%	14.4%	1.0%
Norway	705	818	859	867	883	1207	1710	2914	4030	5049	5134	1.7%	22.0%	0.6%
Poland	2564	3429	3836	4886	5747	5759	5766	5837	6298	6967	7987	14.6%	12.0%	0.9%
Portugal	4412	4610	4857	4937	5124	5124	5172	5223	5122	5427	5455	0.5%	2.1%	0.6%
Romania	1822	2773	3244	3130	3025	3030	3032	3038	3013	3015	3015	0.0%	5.2%	0.3%
Spain	22789	22958	22925	22943	22990	23124	23405	25590	26819	27908	29308	5.0%	2.5%	3.3%
Sweden	3606	4194	5088	5819	6435	6611	7300	8681	9976	12116	14557	20.1%	15.0%	1.6%
Türkiye	2261	2760	3630	4503	5751	6516	7005	7591	8832	10607	11396	7.4%	17.6%	1.3%
Ukraine	248	362	514	514	526	553	621	1258	1402	1761	1761	0.0%	21.7%	0.2%
United Kingdom	9030	11282	13074	14306	16126	19585	21605	23882	24485	25730	28537	10.9%	12.2%	3.2%
Other Europe	1633	1723	1912	2192	2440	2691	2974	3323	3519	3974	4269	7.4%	10.1%	0.5%
Total Europe	109448	120922	133818	147495	161434	177059	188688	203569	216611	232477	251836	8.3%	8.7%	28.0%
Russian Federation	10	10	10	11	11	11	52	102	945	1955	2218	13.5%	71.6%	0.2%
Other CIS	10	13	15	34	82	113	195	217	223	255	283	11.1%	40.2%	0.0%
Total CIS	20	23	25	45	93	123	247	319	1168	2210	2501	13.2%	62.4%	0.3%
Iran	106	108	149	153	191	259	282	305	308	310	342	10.3%	12.4%	0.0%
Jordan	1	1	1	118	198	198	280	373	518	622	614	-1.2%	83.7%	0.1%
Other Middle East	8	13	14	14	34	47	47	97	97	97	97	0.1%	28.7%	0.0%
Total Middle East	115	122	165	286	423	504	609	775	923	1029	1053	2.4%	24.8%	0.1%
Egypt	555	555	555	755	755	755	1130	1132	1380	1640	1643	0.2%	11.5%	0.2%
Morocco	255	495	797	797	902	1022	1225	1225	1435	1471	1556	5.8%	19.8%	0.2%
South Africa	10	257	569	1079	1473	2094	2094	2094	2516	2956	3103	5.0%	77.2%	0.3%
Tunisia	173	200	233	240	240	240	245	245	245	245	245	0.0%	3.5%	0.0%
Other Africa	134	235	245	449	461	467	778	833	939	1059	1139	7.6%	23.8%	0.1%
Total Africa	1128	1742	2399	3320	3831	4578	5472	5529	6515	7370	7685	4.3%	21.2%	0.9%
Australia	2561	3221	3797	4181	4324	4812	5442	6279	8603	8951	10134	13.2%	14.7%	1.1%
China	61597	76731	96819	131048	148517	164375	184666	209583	282113	328974	365965	11.2%	19.5%	40.7%
India	17300	18420	22465	25088	28700	32848	35288	37505	38559	40067	41930	4.6%	9.3%	4.7%
Japan	2562	2646	2753	2808	3247	3483	3498	3954	4367	4467	4577	2.5%	6.0%	0.5%
New Zealand	622	622	681	688	689	689	689	689	689	912	912	0.0%	3.9%	0.1%
Pakistan	56	106	206	308	591	789	1186	1236	1236	1335	1435	7.5%	38.3%	0.2%
Philippines	33	33	337	427	427	427	427	443	443	443	443	0.0%	29.7%	0.0%
South Korea	464	576	612	847	1067	1215	1420	1494	1636	1708	1893	10.8%	15.1%	0.2%
Taiwan	571	614	637	647	682	692	713	845	937	1033	1581	53.0%	10.7%	0.2%
Thailand	112	223	225	234	507	628	1103	1507	1507	1545	1545	0.0%	30.0%	0.2%
Other Asia Pacific	166	245	335	449	500	610	846	1158	1555	5425	6359	17.2%	44.0%	0.7%
Total Asia Pacific	86043	103437	128867	166725	189251	210569	235277	264693	341644	394861	436774	10.6%	17.6%	48.6%
Total World	267289	300027	349466	416347	467029	514423	564513	620841	731656	824171	898824	9.1%	12.9%	100.0%

Source: IRENA (2023), Renewable Energy Statistics 2023, The International Renewable Energy Agency, Abu Dhabi.

* End of year.

^ Less than 0.05.

Note: Capacity figures in this table include both onshore and offshore wind and are on an AC basis.



Renewable energy Biofuels production*

Thousand barrels of oil equivalent per day												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012-22	2022
Canada	17	19	22	22	23	22	21	23	22	22	21	-1.8%	2.1%	1.1%
Mexico	—	—	—	—	0	0	0	0	0	1	1	16.7%	—	†
US	534	562	597	614	655	678	701	693	632	685	728	6.3%	3.2%	38.1%
Total North America	551	580	618	637	679	701	723	717	655	708	750	6.0%	3.1%	39.2%
Argentina	43	38	49	38	53	58	51	46	27	40	45	11.7%	0.4%	2.3%
Brazil	268	313	329	353	331	334	401	429	411	391	409	4.6%	4.3%	21.4%
Colombia	12	12	13	13	13	12	14	13	12	15	15	0.9%	2.7%	0.8%
Other S. & Cent. America	3	4	6	6	7	6	7	9	8	9	9	-6.6%	9.6%	0.5%
Total S. & Cent. America	326	368	397	409	403	410	474	497	458	456	478	4.9%	3.9%	25.0%
Austria	6	6	7	8	7	7	7	7	7	7	6	-16.2%	-0.6%	0.3%
Belgium	8	8	11	7	7	8	8	8	9	8	9	12.5%	0.8%	0.5%
Finland	5	6	7	8	2	6	6	7	7	7	7	0.3%	4.1%	0.4%
France	49	46	47	49	45	44	50	46	43	36	35	-3.5%	-3.4%	1.8%
Germany	54	58	64	59	60	61	63	66	63	66	62	-6.1%	1.3%	3.2%
Italy	6	9	10	10	10	12	13	15	17	21	19	-9.5%	12.4%	1.0%
Netherlands	24	28	33	32	28	37	35	38	37	39	39	0.2%	5.1%	2.0%
Poland	12	13	14	15	17	17	17	18	18	19	20	3.5%	5.2%	1.0%
Portugal	5	5	6	6	6	6	6	7	6	5	6	13.1%	1.6%	0.3%
Spain	11	14	19	21	22	35	40	39	33	31	31	1.3%	10.6%	1.6%
Sweden	4	4	4	4	4	3	7	8	8	9	10	5.5%	8.9%	0.5%
United Kingdom	6	9	7	6	10	14	13	11	10	10	11	2.9%	6.6%	0.6%
Other Europe	24	26	26	28	30	32	35	40	39	39	43	9.0%	5.8%	2.2%
Total Europe	215	232	255	254	249	282	300	310	297	299	298	-0.4%	3.3%	15.6%
Total CIS	1	0	0	0	0	0	0	0	^	^	^	-	-42.8%	†
Total Middle East	0	0	0	0	0	-	-	-	-	-	-	-	-100.0%	-
Total Africa	2	2	2	2	2	2	2	2	2	2	2	0.1%	-0.5%	0.1%
Australia	4	5	5	4	2	2	2	3	2	2	2	6.4%	-6.9%	0.1%
China	38	42	47	40	39	31	44	53	56	58	66	14.4%	5.7%	3.5%
India	5	5	5	10	12	11	19	21	23	35	43	24.5%	24.8%	2.3%
Indonesia	33	41	59	24	54	50	91	124	126	151	174	15.6%	18.2%	9.1%
South Korea	7	7	7	8	8	8	13	13	13	11	12	5.5%	5.8%	0.6%
Thailand	24	30	34	36	33	36	40	44	44	39	36	-8.5%	4.4%	1.9%
Other Asia Pacific	21	28	33	37	33	31	35	53	46	48	52	8.4%	9.2%	2.7%
Total Asia Pacific	132	158	189	159	180	170	243	312	311	344	386	12.1%	11.4%	20.2%
Total World	1226	1340	1462	1462	1513	1565	1742	1837	1723	1808	1914	5.8%	4.6%	100.0%
of which: OECD	786	832	895	912	946	1000	1047	1048	972	1027	1068	3.9%	3.1%	55.8%
Non-OECD	440	508	567	550	567	565	695	789	750	781	846	8.4%	6.8%	44.2%
European Union	208	220	246	245	235	264	282	294	283	285	283	-0.7%	3.1%	14.8%

Biofuels production by fuel type

Thousand barrels of oil equivalent per day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012-22	2022
Biogasoline														
Canada & Mexico	16	16	17	16	17	17	17	18	16	16	17	3.5%	0.5%	1.6%
US	475	479	516	534	554	575	580	569	501	542	554	2.3%	1.5%	51.9%
Brazil	228	269	278	294	275	270	322	341	315	291	317	8.8%	3.3%	29.7%
Other S. & Cent. America	9	12	15	17	18	19	21	21	17	21	21	2.4%	9.2%	2.0%
Europe	46	52	51	52	52	55	56	54	50	55	58	5.9%	2.3%	5.4%
CIS	—	^	^	^	^	^	^	^	^	^	^	—	—	†
Middle East	0	0	0	0	0	—	—	—	—	—	—	—	-100.0%	—
Africa	2	2	2	2	2	2	2	2	2	2	2	0.1%	-0.4%	0.1%
Asia Pacific	40	47	53	57	52	58	69	80	76	88	98	12.5%	9.3%	9.2%
Total World	817	878	933	973	970	996	1066	1085	977	1014	1067	5.3%	2.7%	100.0%
of which: OECD	543	554	591	608	628	652	660	647	572	618	633	2.5%	1.5%	59.4%
Non-OECD	273	324	342	365	342	345	406	438	405	396	433	9.5%	4.7%	40.6%
European Union	44	46	45	48	46	48	50	50	47	52	55	5.8%	2.1%	5.1%
Biodiesel														
Canada & Mexico	1	2	5	6	7	6	5	5	7	6	5	-14.0%	13.8%	0.6%
US	58	82	80	80	101	104	121	124	131	144	174	21.1%	11.6%	20.6%
Brazil	40	43	51	58	56	64	79	88	95	100	93	-7.5%	8.7%	11.0%
Other S. & Cent. America	49	43	53	40	54	57	52	47	30	43	47	8.6%	-0.4%	5.5%
Europe	169	180	204	202	197	227	244	256	248	244	240	-1.8%	3.5%	28.3%
CIS	1	0	0	0	0	0	0	0	—	—	—	—	-100.0%	—
Middle East	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Africa	^	^	^	0	0	^	^	^	^	^	^	0.3%	-15.8%	†
Asia Pacific	91	111	136	102	128	112	174	231	236	257	288	12.0%	12.2%	34.0%
Total World	410	463	529	489	543	569	676	752	746	794	847	6.6%	7.5%	100.0%
of which: OECD	243	278	304	303	318	349	387	401	400	410	434	6.0%	6.0%	51.3%
Non-OECD	167	185	225	186	225	221	289	350	346	385	412	7.2%	9.5%	48.7%
European Union	164	174	201	198	189	216	233	244	236	233	228	-2.1%	3.4%	26.9%

Source: Includes data from F.O. Lichts; US Energy Information Administration (March 2021).

* Includes biogasoline (such as ethanol) and biodiesel. Volumes have been adjusted for energy content.

† Less than 0.05%.

Notes: Annual changes and shares of total are calculated using thousand barrels a day oil equivalent figures.



Renewable energy Biofuels consumption*

Thousand barrels of oil equivalent per day												Growth rate per annum		Share
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Canada	35	35	36	34	32	38	39	40	37	40	38	-4.9%	0.7%	2.0%
Mexico	2	2	3	3	3	4	4	4	5	4	4	7.2%	8.7%	0.2%
US	518	573	581	608	658	661	652	670	608	670	699	4.3%	3.1%	36.2%
Total North America	555	609	620	645	693	703	695	715	650	714	742	3.8%	2.9%	38.4%
Argentina	17	19	22	24	26	30	28	29	16	17	22	33.7%	3.0%	1.2%
Brazil	237	278	305	357	324	332	385	426	396	392	390	-0.6%	5.1%	20.2%
Colombia	12	12	13	13	13	12	15	16	13	15	15	2.4%	2.7%	0.8%
Other S. & Cent. America	14	15	15	17	18	19	19	19	17	20	19	-3.2%	3.5%	1.0%
Total S. & Cent. America	279	324	356	411	380	393	447	490	442	444	447	0.7%	4.8%	23.1%
Austria	10	8	10	12	10	9	9	9	8	8	8	-4.4%	-2.1%	0.4%
Belgium	6	6	8	5	8	9	9	9	12	13	14	8.0%	8.3%	0.7%
Finland	3	4	8	8	3	7	6	7	7	12	22	87.8%	20.5%	1.1%
France	48	49	52	53	53	54	53	55	50	56	67	18.9%	3.5%	3.5%
Germany	56	50	53	50	50	51	53	52	63	56	56	-0.6%	-0.1%	2.9%
Italy	28	24	20	25	25	25	26	15	21	22	20	-11.6%	-3.5%	1.0%
Netherlands	6	6	7	6	5	6	10	13	15	15	16	4.5%	9.6%	0.8%
Poland	14	14	13	12	8	11	17	18	19	20	20	2.3%	3.6%	1.0%
Portugal	5	5	5	7	5	5	5	5	5	6	5	-18.5%	-0.1%	0.3%
Spain	39	17	18	18	21	24	31	31	26	26	25	-2.5%	-4.4%	1.3%
Sweden	12	12	16	19	25	28	27	27	25	29	33	13.1%	10.7%	1.7%
United Kingdom	17	19	22	17	18	17	24	31	29	26	33	28.8%	7.1%	1.7%
Other Europe	31	38	36	37	42	49	51	60	61	62	64	2.9%	7.6%	3.3%
Total Europe	276	252	269	270	272	295	322	334	340	352	383	8.8%	3.4%	19.8%
Total CIS	1	^	^	^	1	2	2	3	3	5	6	35.2%	27.3%	0.3%
Total Middle East	^	^	^	^	^	1	1	1	1	1	1	17.4%	17.5%	0.1%
Total Africa	1	1	1	1	1	1	2	1	1	2	2	1.1%	6.4%	0.1%
Australia	5	5	5	4	3	3	3	2	2	2	2	7.8%	-7.7%	0.1%
China	42	57	60	42	46	42	55	49	37	45	45	-1.2%	0.8%	2.3%
India	19	19	22	23	28	25	33	37	36	51	58	14.9%	11.6%	3.0%
Indonesia	11	17	28	15	46	39	56	95	125	139	156	12.3%	30.0%	8.1%
South Korea	7	10	9	8	8	8	13	13	13	11	14	24.5%	7.6%	0.7%
Thailand	18	24	28	30	31	34	37	42	42	38	34	-10.2%	6.6%	1.7%
Other Asia Pacific	13	16	18	21	24	25	26	31	33	39	44	11.9%	13.3%	2.3%
Total Asia Pacific	114	148	170	144	185	177	224	270	287	325	353	8.6%	11.9%	18.2%
Total World	1226	1336	1417	1472	1533	1570	1692	1813	1726	1842	1933	4.9%	4.7%	100.0%
of which: OECD	852	887	915	939	989	1021	1047	1075	1015	1090	1151	5.6%	3.1%	59.5%
Non-OECD	374	449	502	532	544	549	645	737	711	752	782	4.0%	7.7%	40.5%
European Union	255	223	241	246	245	263	284	286	298	313	336	7.6%	2.8%	17.4%

Biofuels production by fuel type

Thousand barrels of oil equivalent per day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022	2012–22	2022
Biogasoline														
Canada & Mexico	463	477	485	503	516	522	520	525	456	503	504	0.3%	0.9%	47.0%
US	28	28	30	30	30	32	34	34	31	32	35	7.4%	2.2%	3.2%
Brazil	197	236	255	299	268	269	305	339	301	291	296	1.7%	4.2%	27.7%
Other S. & Cent. America	15	18	20	23	25	27	28	30	24	28	29	3.4%	6.9%	2.7%
Europe	55	52	52	53	51	54	56	61	58	67	78	16.1%	3.6%	7.3%
CIS	^	^	^	^	^	1	1	2	2	3	4	45.3%	^	0.4%
Middle East	^	^	^	^	^	^	^	^	^	^	^	2.5%	-7.8%	^
Africa	1	1	1	1	1	1	2	1	1	2	2	1.1%	6.4%	0.2%
Asia Pacific	61	66	74	79	89	84	98	100	95	117	124	5.7%	7.4%	11.5%
Total World	820	878	917	988	981	990	1044	1092	969	1044	1072	2.7%	2.7%	100.0%
of which: OECD	556	566	577	597	609	621	623	633	558	614	630	2.6%	1.3%	58.7%
Non-OECD	264	312	339	391	371	369	421	458	411	430	442	2.8%	5.3%	41.3%
European Union	48	43	42	43	41	44	46	50	50	56	63	11.8%	2.8%	5.9%
Biodiesel														
Canada & Mexico	54	96	96	105	141	138	132	145	152	167	195	16.6%	13.7%	22.6%
US	9	8	8	7	6	9	10	10	11	12	8	-34.2%	-1.7%	0.9%
Brazil	41	43	50	59	56	63	80	88	95	101	94	-7.4%	8.7%	10.9%
Other S. & Cent. America	27	28	30	31	32	34	34	34	22	24	28	18.7%	0.4%	3.3%
Europe	220	200	217	217	221	241	266	272	282	285	305	7.1%	3.3%	35.4%
CIS	1	^	^	^	1	1	1	1	1	2	2	20.0%	14.9%	0.3%
Middle East	^	^	^	^	^	^	1	1	1	1	1	19.1%	^	0.1%
Africa	^	^	^	^	^	^	^	^	^	^	^	^	^	^
Asia Pacific	53	82	97	65	96	93	125	169	192	208	229	10.2%	15.7%	26.6%
Total World	405	458	500	484	552	580	648	721	757	798	861	7.8%	7.8%	100.0%
of which: OECD	296	321	337	342	380	400	424	442	457	476	521	9.5%	5.8%	60.5%
Non-OECD	110	137	163	141	173	180	224	279	300	322	340	5.5%	12.0%	39.5%
European Union	207	180	199	203	203	219	239	236	248	256	273	6.6%	2.8%	31.7%

Source: Includes data from F.O. Lichts; US Energy Information Administration (March 2021).

* Includes biogasoline (such as ethanol) and biodiesel. Volumes have been adjusted for energy content.

^ Less than 0.5.

† Less than 0.05%.

Notes: Annual changes and shares of total are calculated using thousand barrels a day oil equivalent figures.

Terawatt-hours	2021							Total	2022							Total
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renew-ables	Other†		Oil	Natural Gas	Coal	Nuclear energy	Hydro-electricity	Renew-ables	Other†	
Canada	2.9	80.1	34.4	92.0	382.8	49.8	4.8	646.8	2.7	81.0	34.1	86.6	398.4	52.1	4.7	659.6
Mexico	32.9	189.5	13.6	11.9	34.9	47.3	^	330.0	34.2	191.8	21.9	10.8	35.7	46.2	-	340.7
US	20.6	1698.1	977.8	820.7	249.0	622.0	12.7	4400.9	25.1	1816.6	904.2	812.1	258.6	719.5	11.5	4547.7
Total North America	56.5	1967.6	1025.8	924.6	666.6	719.1	17.5	5377.7	62.0	2089.4	960.2	909.6	692.7	817.8	16.2	5548.0
Argentina	13.1	89.9	2.4	10.2	19.6	17.4	0.5	153.2	16.7	80.4	2.1	7.5	23.9	19.4	0.8	150.8
Brazil	20.2	87.0	24.2	14.7	362.8	144.8	2.4	656.1	10.1	42.1	16.5	14.6	427.1	164.5	2.3	677.2
Other S. & Cent. America	65.7	106.7	46.9	-	286.3	64.1	-	569.7	66.3	114.0	38.0	-	295.2	68.8	-	582.4
Total S. & Cent. America	99.0	283.6	73.5	24.9	668.7	226.3	2.9	1378.9	93.1	236.5	56.6	22.0	746.2	252.8	3.1	1410.4
France	2.0	35.3	4.1	379.4	58.7	61.4	6.8	547.6	2.3	46.9	3.1	294.7	44.6	68.0	8.1	467.7
Germany	4.6	90.3	164.7	69.1	19.7	214.4	26.5	589.3	4.4	79.8	180.6	34.7	17.5	236.5	23.8	577.3
Italy	12.0	144.0	16.0	-	45.4	68.2	3.5	289.1	9.7	156.3	17.6	-	28.2	72.0	3.6	287.3
Netherlands	1.3	56.7	17.3	3.8	0.1	40.4	2.5	122.1	1.6	47.8	17.3	4.2	0.1	48.3	2.7	122.0
Poland	2.0	15.8	129.8	-	2.3	28.2	1.4	179.6	1.7	11.6	127.4	-	2.0	34.7	1.7	179.1
Spain	10.0	71.5	6.0	56.6	29.6	96.1	4.5	274.3	10.1	89.3	9.4	58.6	18.2	103.3	4.9	293.7
Türkiye	0.3	111.2	103.4	-	55.9	64.0	^	334.7	3.1	71.8	112.8	-	67.2	71.4	-	326.2
Ukraine	0.8	10.3	36.8	86.2	10.4	11.0	-	155.5	0.5	7.2	24.8	62.1	11.1	7.0	-	112.7
United Kingdom	1.8	123.2	6.5	45.9	5.5	116.7	9.1	308.7	2.1	125.3	5.6	47.7	5.3	129.5	10.5	326.0
Other Europe	17.8	141.7	146.9	241.3	426.9	242.6	25.5	1242.8	17.1	132.0	151.4	239.5	372.8	269.4	26.6	1208.8
Total Europe	52.7	799.9	631.5	882.3	654.5	942.9	79.8	4043.6	52.6	768.0	650.0	741.5	566.9	1040.1	81.9	3900.9
Kazakhstan	0.1	27.1	75.2	-	9.2	3.4	0.2	115.1	0.1	23.7	76.8	-	9.2	4.2	-	114.0
Russian Federation	8.1	519.9	181.2	222.4	214.5	5.7	5.2	1157.1	6.7	533.9	192.3	223.7	197.7	7.4	5.3	1166.9
Other CIS	4.6	156.9	6.4	7.8	41.2	1.2	0.6	218.7	4.0	159.8	6.2	7.5	40.9	1.6	0.6	220.7
Total CIS	12.8	703.9	262.8	230.2	265.0	10.3	6.0	1490.9	10.7	717.3	275.4	231.2	247.8	13.3	5.8	1501.6
Iran	33.8	290.6	0.8	3.5	14.9	1.8	-	345.3	31.2	300.2	0.8	6.6	7.5	2.0	-	348.1
Saudi Arabia	157.9	234.2	-	-	-	0.8	-	392.9	131.4	269.4	-	-	-	0.8	-	401.6
United Arab Emirates	^	132.2	-	10.5	-	6.3	-	149.0	^	127.7	-	20.1	-	7.0	-	154.7
Other Middle East	135.4	283.8	17.2	-	5.0	13.6	0.2	455.1	134.8	285.8	17.8	-	4.9	17.2	0.2	460.6
Total Middle East	327.1	940.9	17.9	14.1	19.9	22.4	0.2	1342.4	297.3	983.0	18.5	26.7	12.4	27.0	0.2	1365.1
Egypt	10.9	174.0	-	-	14.3	10.5	-	209.7	17.6	159.3	-	-	13.8	10.2	-	200.8
South Africa	3.2	-	206.1	12.4	2.0	15.9	4.7	244.3	3.6	-	197.2	10.1	3.1	16.3	4.5	234.8
Other Africa	45.0	202.0	36.9	-	136.1	22.5	0.5	442.9	49.4	203.9	39.2	-	139.8	24.3	0.5	457.1
Total Africa	59.1	376.0	243.1	12.4	152.4	48.8	5.2	896.9	70.6	363.2	236.4	10.1	156.7	50.8	5.0	892.7
Australia	4.7	47.6	137.4	-	15.9	61.3	0.4	267.5	5.0	46.3	130.9	-	17.1	73.7	0.5	273.6
China	11.8	287.1	5328.8	407.5	1300.0	1148.7	50.3	8534.3	11.9	290.6	5397.8	417.8	1303.1	1367.0	60.4	8848.7
India	2.3	59.8	1274.1	43.9	160.3	173.2	1.1	1714.8	2.5	47.0	1380.1	46.2	174.9	205.9	1.3	1858.0
Indonesia	6.6	56.3	190.0	-	24.7	31.5	0.3	309.4	6.1	56.1	205.3	-	27.3	38.0	0.6	333.4
Japan	34.0	326.1	301.9	61.2	79.6	136.4	80.6	1019.7	40.6	319.7	309.0	51.8	74.9	152.1	85.4	1033.6
Malaysia	1.3	60.9	78.0	-	30.9	3.7	-	174.7	1.8	68.4	76.4	-	32.5	3.9	-	182.9
South Korea	7.2	178.1	211.7	158.0	3.1	39.8	4.2	601.9	6.9	173.3	208.7	176.1	3.5	47.7	4.2	620.3
Taiwan	5.3	108.3	128.9	27.8	3.5	12.2	5.0	291.0	4.5	111.8	121.2	23.8	5.8	16.2	4.9	288.1
Thailand	0.7	113.1	36.1	-	4.5	21.9	-	176.4	1.7	114.6	35.5	-	6.6	21.9	^	180.4
Vietnam	0.2	26.2	114.2	-	75.9	28.3	^	244.9	0.7	27.8	100.8	-	96.0	34.8	-	260.0
Other Asia Pacific	52.3	230.1	155.5	15.7	163.3	37.8	0.7	655.4	60.5	218.2	154.4	22.3	169.7	41.5	1.0	667.6
Total Asia Pacific	126.4	1493.7	7956.4	714.1	1861.7	1694.8	142.5	13989.7	142.2	1473.9	8120.1	737.9	1911.5	2002.6	158.3	14546.4
Total World	733.5	6565.6	10211.1	2802.5	4288.8	3664.6	254.2	28520.2	728.6	6631.4	10317.2	2679.0	4334.2	4204.3	270.5	29165.1
of which: OECD	153.5	3370.9	2247.8	1912.2	1450.2	1916.1	181.3	11232.0	163.0	3454.1	2197.3	1789.3	1408.2	2157.8	187.5	11357.3
Non-OECD	580.0	3194.6	7963.3	890.4	2838.5	1748.5	72.9	17288.2	565.6	3177.3	8119.8	889.7	2926.0	2046.6	83.0	17807.9
European Union	47.3	548.7	439.8	731.7	347.3	725.5	64.3	2904.6	43.9	556.2	461.2	608.6	276.9	801.7	63.5	2812.0

† Includes electricity generated from: geothermal, biomass and other sources of renewable energy (not already itemized).

* Based on gross output. Includes uncategorised generation, statistical differences and sources not specified elsewhere e.g. pumped hydro, non-renewable waste and heat from chemical sources.

^ Less than 0.05.

Key minerals Production and reserves

Cobalt production and reserves

Mine production

Thousand tonnes	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Reserves				
												Growth rate per annum	Share	at end of	Share	R/P ratio
												2022	2012–22	2022	2022	
Australia	5.9	6.4	6.2	6.0	5.5	5.8	4.9	5.7	5.6	5.3	5.9	11.4%	†	3.5%	1500	17.6%
Canada	3.7	4.0	3.9	4.3	4.2	3.7	3.5	3.3	4.5	4.4	3.9	-10.6%	0.5%	2.3%	220	2.6%
China	2.2	2.6	2.8	2.6	2.3	2.5	2.0	2.5	2.2	2.2	2.2	–	–	1.3%	140	1.6%
DR Congo	86.4	76.6	76.5	84.4	69.0	90.3	109.4	78.0	86.6	93.0	111.3	19.7%	2.6%	67.0%	4000	46.9%
Cuba	4.7	4.0	3.7	4.0	3.9	3.9	3.5	3.8	3.8	4.0	3.8	-4.5%	-2.1%	2.3%	500	5.9%
Madagascar	0.6	2.4	3.4	4.0	3.8	3.1	2.9	2.9	0.8	2.0	2.4	20.0%	14.9%	1.4%	100	1.2%
Morocco	2.0	2.0	2.2	2.3	2.7	2.5	2.1	2.3	2.3	2.3	2.3	–	1.4%	1.4%	13	0.2%
New Caledonia	2.7	3.2	4.0	3.6	3.2	2.8	2.1	1.7	2.2	1.5	2.0	30.0%	-3.1%	1.2%	57	0.7%
Papua New Guinea	0.5	1.0	2.1	2.5	2.2	3.3	3.3	2.9	2.9	3.0	3.0	1.6%	20.4%	1.8%	47	0.6%
Philippines	2.7	2.8	4.6	4.3	4.0	4.6	4.8	5.1	4.9	4.3	4.7	7.4%	5.6%	2.8%	260	3.0%
Russian Federation	6.3	6.3	6.3	6.2	5.5	5.9	6.1	6.3	9.7	8.0	8.9	11.2%	3.5%	5.4%	250	2.9%
South Africa	2.5	3.0	3.0	2.9	2.3	2.3	2.3	2.1	1.8	1.2	1.0	-16.5%	-8.8%	0.6%	38	0.4%
Zambia	5.4	5.9	4.6	3.0	5.0	2.6	1.6	0.4	0.3	0.2	0.2	–	-26.6%	0.1%	270	3.2%
Rest of World	9.9	11.4	7.5	7.1	4.8	4.0	2.8	3.0	3.7	6.5	14.7	127.0%	4.1%	8.8%	1138	13.3%
Total World	135.4	131.6	130.7	137.2	118.4	137.3	151.2	119.9	131.4	137.8	166.2	20.6%	2.1%	100.0%	8532.7	100.0%

Sources: Includes data from US Geological Survey, British Geological Survey ©UKRI and World Mining Data.

† less than 0.05%.

Rest of World is the sum of only recorded reserves.

Lithium production and reserves

Thousand tonnes of Lithium content

Thousand tonnes	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Reserves				
												Growth rate per annum	Share	at end of	Share	R/P ratio
												2022	2012–22	2022	2022	
Argentina	2.7	2.5	3.2	3.6	5.8	5.7	6.4	6.3	5.9	6.0	6.2	3.9%	8.7%	4.8%	2700	11.7%
Australia	12.7	10.1	12.4	11.9	14.0	21.3	57.0	45.0	39.7	55.3	61.0	10.3%	17.0%	46.8%	6200	26.9%
Brazil	0.2	0.4	0.2	0.1	0.2	0.3	1.0	2.2	1.4	1.7	2.2	29.4%	30.8%	1.7%	250	1.1%
Chile	12.3	10.5	10.8	9.8	13.6	14.2	17.0	19.2	21.6	28.3	39.0	37.8%	12.2%	29.9%	9300	40.4%
China	4.5	4.7	2.3	2.0	2.3	6.8	7.1	10.8	13.3	14.0	19.0	35.7%	15.5%	14.6%	2000	8.7%
Portugal	0.3	0.3	0.3	0.3	0.4	0.8	1.2	0.9	0.3	0.9	0.6	-33.3%	6.8%	0.5%	60	0.3%
US	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	–	-0.6%	0.7%	1000	4.3%
Zimbabwe	1.1	1.0	0.9	0.9	1.0	0.8	1.6	1.2	0.4	0.7	0.8	12.7%	-2.8%	0.6%	310	1.3%
Rest of World	–	–	–	–	–	0.1	3.0	0.4	0.1	0.1	0.6	420.8%	–	0.5%	1204	5.2%
Total World	34.7	30.4	31.0	29.5	38.2	50.9	95.1	86.9	83.7	107.9	130.4	20.8%	14.1%	100.0%	23024	100.0%

Sources: Includes data from US Geological Survey, British Geological Survey ©UKRI and World Mining Data.

^ less than 0.05.

Rest of World is the sum of only recorded reserves.

Natural Graphite

Thousand tonnes

Thousand tonnes	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Reserves				
												Growth rate per annum	Share	at end of	Share	R/P ratio
												2022	2012–22	2022	2022	
Brazil ¹	88.1	91.9	87.0	75.1	61.7	79.8	95.0	96.0	95.0	95.0	95.0	–	0.8%	6.8%	74000	20.8%
Canada	24.0	20.0	30.0	30.0	21.0	14.0	11.0	11.0	7.6	12.0	15.0	25.0%	-4.6%	1.1%	570	0.2%
China	820.0	750.0	780.0	725.0	625.0	625.0	693.0	700.0	762.0	820.0	850.0	3.7%	0.4%	61.1%	52000	14.6%
India ²	134.7	146.4	116.7	134.6	137.3	46.4	44.5	30.5	31.8	57.3	57.3	–	-8.2%	4.1%	8000	2.2%
Madagascar	2.9	4.3	5.3	8.1	9.2	13.3	48.1	53.4	48.5	91.1	88.2	-3.2%	40.8%	6.3%	26000	7.3%
Mexico	7.5	7.0	9.2	6.5	3.8	1.7	4.1	1.6	1.5	1.8	1.7	-2.9%	-13.7%	0.1%	3100	0.9%
Mozambique	–	–	–	–	–	0.3	104.0	153.0	12.0	72.0	163.0	126.4%	–	11.7%	25000	7.0%
Norway	7.0	6.2	8.3	9.2	9.6	9.6	12.0	9.8	5.5	6.3	10.4	64.9%	4.0%	0.7%	600	0.2%
Russian Federation	14.3	20.2	17.6	15.9	19.4	19.5	11.9	17.5	12.9	15.3	14.3	-6.3%	†	1.0%	25661	7.2%
Sri Lanka	4.2	3.1	4.0	4.2	4.0	3.5	4.0	4.0	4.0	3.0	3.0	–	-3.2%	0.2%	1500	0.4%
Türkiye	31.5	28.7	3.9	–	–	–	16.8	10.0	15.2	28.3	28.3	–	-1.1%	2.0%	90000	25.3%
Ukraine	7.0	2.0	8.0	7.9	6.1	13.9	12.2	1.5	4.1	3.2	3.0	-5.8%	-8.1%	0.2%	13761	3.9%
Rest of World ³	52.2	45.7	57.8	56.5	59.0	59.4	56.6	51.1	53.5	53.9	61.8	14.7%	1.7%	4.4%	35500	10.0%
Total World	1193.5	1125.6	1127.8	1073.0	956.2	886.4	1113.1	1139.4	1053.6	1259.1	1391.0	10.5%	1.5%	100%	355692	100%

Sources: Includes data from US Geological Survey, British Geological Survey ©UKRI and World Mining Data.

¹ Including beneficiated and directly shipped material.

² Run of the mine.

³ Rest of World is the sum of only recorded reserves.

Rare Earth metals: Production and Reserves

Thousand tonnes of Lithium content

Thousand tonnes ¹	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Reserves				
												Growth rate per annum	Share	at end of	Share	R/P ratio
												2022	2012–22	2022	2022	
Argentina	3.2	1.3	6.2	11.9	13.9	17.3	18.6	17.6	21.1	22.5	16.0	-29.1%	17.4%	5.3%	4200	3.3%
Australia	1.6	0.3	–	0.9	2.7	1.7	1.2	0.7	0.6	0.5	0.1	-84.0%	-26.0%	†	21000	16.7%
Brazil	93.8	93.8	105.0	105.0	105.0	105.0	120.0	132.0	140.0	168.0	210.0	25.0%	8.4%	70.3%	44000	35.0%
Chile	–	0.3	1.7	1.0	1.1	1.4	2.1	2.5	2.5	2.6	2.6	–	–	0.9%	6900	5.5%
China	–	–	–	–	–	–	2.0	4.0	2.8	4.1	1.0	-76.6%	–	0.3%	180	0.1%
Portugal	2.1	1.4	2.1	2.3	3.1	2.5	2.6	2.6	2.6	2.6	2.6	–	2.0%	0.9%	21000	16.7%
US	0.1	0.1	1.9	0.8	1.6	1.3	1.0	1.9	3.6	8.2	7.1	-13.4%	50.4%	2.4%	0	0.0%
Zimbabwe	3.0	5.5	5.4	5.9	–	–	18.0	28.0	39.0	42.0	43.0	2.4%	30.5%	14.4%	2300	1.8%
Rest of World ²	0.3	0.3	0.2	0.9	4.8	15.4	25.5	26.6	32.1	35.6	16.3	-54.2%	49.1%	5.5%	26040	20.7%
Total World	104.2	103.0	122.6	128.6	132.2	144.6	191.0	215.9	244.3	286.2	298.6	4.4%	11.1%	100%	125620	100%

Sources: Includes data from US Geological Survey, British Geological Survey ©UKRI and World Mining Data.

^ less than 0.05.

† less than 0.05%.

¹ Thousand tonnes of rare earth oxide equivalent.

² Rest of World is the sum of only recorded reserves.

Cobalt and lithium prices

Thousand US dollars per tonne	Cobalt*	Lithium carbonate†
2000	33.42	4.47
2001	23.26	1.49
2002	15.23	1.59
2003	23.37	1.55
2004	52.76	1.72
2005	35.19	1.46
2006	37.96	2.32
2007	67.35	3.53
2008	86.00	4.44
2009	39.38	5.16
2010	45.97	4.30
2011	39.66	4.29
2012	31.02	4.45
2013	27.07	4.75
2014	30.79	4.68
2015	28.46	5.11
2016	25.47	8.84
2017	55.79	12.07
2018	72.79	14.66
2019	33.20	11.31
2020	31.44	6.80
2021	51.39	10.76
2022	63.52	46.82

* 2000-2012 spot grade for cathodes, source US Geological Survey. Data from 2013 onwards: min purity 99.8%, source London Metal Exchange.

† 2000-2008 unit value, data series 140, source US Geological Survey. Data from 2009 onwards: FOB South America, source Benchmark Mineral Intelligence.

Methodology

The Statistical Review provides a globally consistent data time series. Here we outline the definitions, conversion factors and calculations we use to produce the report.

Primary energy

Traditionally, in the Statistical Review of World Energy, the primary energy of non-fossil based electricity (nuclear, hydro, wind, solar, geothermal, biomass in power and other renewables sources) has been calculated on an 'input-equivalent' basis – i.e. based on the equivalent amount of fossil fuel input required to generate that amount of electricity in a standard thermal power plant. For example, if nuclear power output for a country was 100 TWh, and the efficiency of a standard thermal power plant was 38%, the input equivalent primary energy would be $100/0.38 = 263$ TWh or about 0.95 EJ.

For many years, the efficiency of this standard power plant has been assumed to be 38%. However, in reality, the world average efficiency of fossil fuel-based power changes over time and has risen from around 36% in 2000 to over 40% today. Moreover, given the much higher efficiency of the most modern power plant (e.g. the thermal efficiency of a modern gas turbine plant is above 55%), the global average is expected to increase in the future.

Therefore, to better assess primary energy trends, we use a time-dependent thermal equivalence model. The conversion factor used each year to calculate the 'input-equivalent' consumption for a given level of generation is based on a simplified representation of measured average efficiency levels:

1965-2000: assumed constant efficiency of 36%

2000-2017: a linear increase from 36% to 40% based on observed data

2018 onwards: the annual rate of efficiency improvement is based on the simplified assumption that efficiency will increase linearly to 45% by 2050.

The table below quantifies these assumptions (rounded to 1 decimal place):

Thermal equivalent efficiency factors used to convert non-fossil electricity (excluding biomass powered electricity) to primary energy.

Thermal equivalent efficiency factors used to convert non-fossil electricity to primary energy

Year(s)	Efficiency factor	Year(s)	Efficiency factor
2001	36.2%	2012	38.8%
2002	36.5%	2013	39.1%
2003	36.7%	2014	39.3%
2004	36.9%	2015	39.5%
2005	37.2%	2016	39.8%
2006	37.4%	2017	40.0%
2007	37.6%	2018	40.2%
2008	37.9%	2019	40.4%
2009	38.1%	2020	40.5%
2010	38.4%	2021	40.6%
2011	38.6%	2022	40.7%

*1965-2000 = 36.0%

In this year's Statistical Review, we use the updated thermal equivalent efficiency factor to convert electricity generation from biomass to primary energy equivalent. Prior to 2022, the same factor was used for biomass as for all non-fossil electricity. From 2022 onwards, we assume a constant efficiency of 32% for biomass power to better reflect the actual efficiency of biomass power plants.

Primary energy consumption is reported in net terms. The gross calorific value to net calorific value adjustment is fuel-specific.

Fuels used as inputs for conversion technologies (gas-to-liquids, coal-to-liquids and coal-to-gas) are counted as production for the source fuel and the outputs are counted as consumption for the converted fuel.

Oil

Oil reserves

Total proved reserves of oil are generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and geological conditions.

The data series for proved oil reserves in this year's review does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance as published by the US Securities and Exchange Commission nor does it necessarily represent the EI's view of proved reserves by country. Rather the data series has been compiled using a combination of primary official sources and third-party data.

Oil reserves include field condensate and natural gas liquids as well as crude oil. This inclusive approach helps to develop consistency with the oil production numbers published in the Review, which also include these categories of oil. The reserves and R/P ratio for Canada includes Canadian oil sands and the reserves and R/P ratio for Venezuela includes the Orinoco Belt.

Liquid hydrocarbon fuels from non-hydrocarbon sources, such as ethanol from corn or sugar or synthetic oil derived from natural gas (so-called GTL or gas-to-liquids), are not included in either the reserves or production series.

We have provided a detailed explanatory note on reserves clarifying current definitions and terminology.

R/P ratios represent the length of time that those remaining reserves would last if production were to continue at the previous year's rate. They are calculated by dividing remaining reserves at the end of the year by the production in that year.

Reserves-to-production (R/P) ratios are available by country and feature in the table of oil reserves. There is a time series of crude oil reserves from 1980, which can be found in the Excel workbook. Data are measured in thousand million barrels.

Please note that these reserves tables have not been updated this year.

Oil production

Oil production data includes crude oil, shale oil, oil sands, condensates (lease condensate or gas condensates that require further refining) and NGLs (natural gas liquids – ethane, LPG and naphtha separated from the production of natural gas). Excludes liquid fuels from other sources such as biofuels and synthetic derivatives of coal and natural gas. This also excludes liquid fuel adjustment factors such as refinery processing gain. Excludes oil shales/kerogen extracted in solid form.

The split of crude/condensate and natural gas liquids figures are available. The crude condensate table includes crude oil, shale/tight oil, oil sands, lease condensate or gas condensates that require further refining. Excludes liquid fuels from other sources such as biomass and synthetic derivatives of coal and natural gas. The NGL's table includes ethane, LPG and naphtha separated from the production of

natural gas. Excludes condensates.

World oil production tables are available in both thousand barrels daily and million tonnes.

Liquids, oil and oil product consumption

Oil consumption as defined in previous Statistical Reviews (i.e. including biofuels) has been renamed 'liquids' consumption and a table is still included on this original basis. In addition, more granularity has been included on the product split of both oil products and biofuels (breaking out ethane & LPG and naphtha in oil products and the ethanol/biodiesel split of biofuels).

Total liquids consumption comprises inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of biogasoline (such as ethanol), biodiesel and derivatives of coal and natural gas are also included.

Oil consumption figures include inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of biogasoline (such as ethanol), biodiesel and derivatives of coal and natural gas are excluded. Derivatives of coal and natural gas are included.

Oil product consumption – Gasoline includes motor and aviation gasoline, gasolines and light distillate feedstock (LDF). Diesel/gasoil includes marine gasoil. 'Fuel oil' includes marine bunkers and crude oil used directly for fuel. 'Others' consists of refinery gas, solvents, petroleum coke, lubricants, bitumen, wax, other refined products and refinery fuel and loss.

Data are supplied in both exajoules and thousand barrels daily figures.

Oil prices

The key crudes quoted are Brent, West Texas Intermediate (WTI), Nigerian Focados and Dubai in US\$ per barrel.

The spot crude price history from 1972 and annual crude price history from 1861 are available in the historical data Excel workbook.

Using S&P Global Platts data

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Refining

The refinery capacity data presented in this Review represents the sum of reported atmospheric crude distillation and condensate splitting capacity. Capacity should comprise the amount of input that a distillation facility can process under usual operating conditions, taking into account scheduled downtime. Figures are in thousand barrels daily at year end per calendar day.

Refinery throughputs are based on the quantity of crude and condensate processed in atmospheric distillation units and condensate splitters. Figures are in thousands of barrels per day.

The refining margins presented are benchmark margins for three major global refining centres: US Gulf Coast (USGC), North West Europe (NWE – Rotterdam) and Singapore. In each case they are based on a single crude oil appropriate for that region and have optimised product yields based on a generic refinery configuration (cracking, hydrocracking or coking), again appropriate for that region. The margins are on a semi-variable basis, i.e. the margin after all variable costs and fixed energy costs.

Methodology

Oil trade movements

The tables exclude the intra-area movements of oil (for example, crude oil and products moving between countries within Europe). They do not include biofuels. Bunkers fuel is not included as exports. Crude imports and exports include condensates. Saudi Arabian exports from 1980 are also available in the oil trade movements table in the Excel workbook. The split of crude oil and products are detailed. Data in the tables are in million tonnes and thousand barrels per day.

Natural gas

Natural gas reserves

Total proved reserves of natural gas are generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions.

The data series for proved natural gas reserves in this year's Review does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance as published by the US Securities and Exchange Commission nor does it necessarily represent the EI's view of proved reserves by country. Rather, the data series has been compiled using a combination of primary official sources and third-party data.

Although every effort is made to come up with a consistent series for reserves based on a common definition, different countries use different methodologies and the data have varying levels of reliability.

R/P ratios represent the length of time that those remaining reserves would last if production were to continue at the previous year's rate. They are calculated by dividing remaining reserves at the end of the year by the production in that year.

As far as possible, the data represents standard cubic metres (measured at 15°C and 1013 mbar) and have been standardised using a gross calorific value (GCV) of 40 MJ/m³.

There is a time series of natural gas reserves, which can be found in the Excel workbook. Data are measured in billion cubic metres.

Please note that these reserves tables have not been updated this year.

Natural gas production

Gas production comprises marketed production and excludes gas flared or recycled gas. Includes natural gas produced for gas-to-liquids transformation.

As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as they are derived directly from tonnes of oil equivalent using an average conversion factor and have been standardised using a gross calorific value (GCV) of 40 MJ/m³, they do not necessarily equate with gas volumes expressed in specific national terms.

Natural gas production is provided in three different units of measurement to accommodate regional customary usage. World natural gas production PDF tables are in both billion cubic metres, and exajoules. Data in the Excel workbook are also in billion cubic feet per day (bcf/d).

Natural gas consumption

Natural gas consumption excludes natural gas converted to liquid fuels but includes derivatives

of coal as well as natural gas consumed in gas-to-liquids transformation.

As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as they are derived directly from tonnes of oil equivalent using an average conversion factor and have been standardised using a gross calorific value (GCV) of 40 MJ/m³ they do not necessarily equate with gas volumes expressed in specific national terms. The difference between these world consumption figures and the world production statistics is due to variations in stocks at storage facilities and liquefaction plants, together with unavoidable disparities in the definition, measurement or conversion of gas supply and demand data.

Consumption data in the PDF data table is in billion cubic meters (bcm) and exajoules, data in billion cubic feet per day (bcf/d) can be found in the Excel workbook.

Natural gas prices

Annual prices are given for benchmark natural gas hubs together with contracted pipeline and LNG imports. The benchmark hub prices incorporate US (Henry Hub), Canada (Alberta), Netherlands TTF index and the UK (NBP). Contract prices are represented by LNG imports into Japan, the Japan Korea Marker (JKM) and Average German Import Prices.

The prices for LNG and European border are calculated as CIF prices, where CIF = cost + insurance + freight (average freight prices) in US dollars per million British thermal units (Btu).

Natural gas trade movements

Trade flows are on a contractual basis and may not correspond to physical gas flows in all cases. The data illustrates the flow of pipeline natural gas and LNG between sources of production and the regions of consumption. LNG trade. As far as possible, the data represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardised using a gross calorific value (GCV) of 40 MJ/m³.

Coal

Coal reserves

Total proved reserves of coal are generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known deposits under existing economic and operating conditions.

Total proved coal reserves are shown for anthracite and bituminous (including brown coal) and sub-bituminous and lignite.

Reserves-to-production (R/P) ratios represent the length of time that those remaining reserves would last if production were to continue at the previous year's rate. They are calculated by dividing remaining reserves at the end of the year by the production in that year. The R/P ratios are calculated excluding other solid fuels in reserves and production.

R/P ratios are available by country and feature in the table of coal reserves. R/P ratios for the region and the world are depicted in the chart above and the Energy charting tool.

Coal reserve data is in million tonnes.

Please note that these reserves tables have not been updated this year.

Coal production

Coal production includes data for commercial solid fuels only. Included in the hard coal

category are bituminous and anthracite (hard coal). The sub-bituminous coal includes lignite and brown coal. Other commercial solid fuels are also included. The data includes coal produced for coal-to-liquids and coal-to-gas transformations.

In the coal production PDF table, the units are in exajoules. The data can also be downloaded from the Excel workbook in million tonnes.

Coal consumption

Coal consumption includes data for solid fuels only. Included in the hard coal category are bituminous and anthracite. The sub-bituminous coal includes lignite and brown coal. Other commercial solid fuels are also included. The figures exclude coal converted to liquid or gaseous fuels, but includes coal consumed in transformation processes.

Differences between world consumption figures and the world production statistics are accounted for by stock changes, and unavoidable disparities in the definition, measurement or conversion of coal supply and demand data.

Coal prices

Annual prices quoted include the Northwest Europe marker price, Japan steam spot CIF price, China Qinhuangdao spot price and the US Central Appalachian coal spot price index. Coal prices except for the US Central Appalachian price are calculated as CIF prices, where CIF = cost + insurance + freight (average freight prices). The US Central Appalachian price is FOB = free on board. All prices are quoted in US dollars per tonne.

IHS Northwest Europe prices for 1996-2000 are the average of the monthly marker, 2001-2017 the average of weekly prices. IHS Japan prices basis = 6,000 kilocalories per kilogram NAR CIF. Chinese prices are the average monthly price for 2000-2005, weekly prices 2006-2017, 5,500 kilocalories per kilogram NAR, including cost and freight (CFR).

Coal trade movements

Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Intra-area movements (for example, between countries in Europe, Other CIS, Other Africa, Other Asia Pacific) are excluded.

Nuclear energy

The data are based on gross generation and not accounting for cross-border electricity supply. 'Input-equivalent' energy is the amount of fuel that would be required by thermal power stations to generate the reported electricity output. Details on thermal efficiency assumptions are available online.

Data for the units are in exajoules in the PDF. The data are available in the Excel workbook in terawatt-hours (TWh).

Hydroelectricity

The data are based on gross generation and not accounting for cross-border electricity supply. 'Input-equivalent' energy is the amount of fuel that would be required by thermal power stations to generate the reported electricity output.

Details on thermal efficiency assumptions are available online.

In the hydroelectricity consumption PDF table, the units are in exajoules. The data are available in the Excel workbook in terawatt-hours (TWh).

Methodology

Renewable energy

The data are based on gross generation and not accounting for cross-border electricity supply. ‘Input-equivalent’ energy is the amount of fuel that would be required by thermal power stations to generate the reported electricity output. Details on thermal efficiency assumptions are available online.

Renewable power is based on gross generation from renewable sources including wind, geothermal, solar, biomass and waste, and not accounting for cross-border electricity supply.

Biofuels production and consumption

The data includes biogasoline (such as ethanol) and biodiesel. Volumes have been adjusted for energy content.

The biofuels PDF tables are in thousand barrels of oil equivalent per day figures. The data are available in additional units in the Excel workbook.

Electricity

Electricity generation is based on gross output.

Carbon

Carbon emissions from primary energy use are estimated by applying the Default CO₂ Emission Factors for Combustion to the consumption of each energy product type (coal, natural gas and various oil products) from the list of IPCC emission factors. Biofuels are considered as not emitting CO₂, consistent with the practice of the IEA. Second, the revised method takes account of fuel consumption used for non-combustion purposes, such as the use of oil products and natural gas in the petrochemicals industry or of oil to produce bitumen for road construction. Estimates of the share of non-combusted fossil

fuels taken from the IEA’s energy balances are subtracted from the total consumption of fossil fuels before applying the relevant emission factors.

Carbon emissions from flared natural gas are calculated using data series on volumes of gas flared from two sources: Cedigaz up to 2012, and the Payne Institute for Public Policy, Colorado School of Mines, from 2013 onward. Payne Institute’s data include flaring from upstream, downstream oil and gas, while Cedigaz include flaring from upstream only. Volumes of gas flared have been standardised using a Gross Calorific Value (GCV) of 40 MJ/m³. The IPCC Default CO₂ Emission Factor for Combustion for natural gas (56,100 kg CO₂ per TJ) is used and perfect combustion has been assumed. These emissions represent around 1% of total CO₂ emissions.

Data for methane emissions associated with the production, transportation and distribution of fossil fuels for 1990-2020 are sourced, where available, from IEA (2021, 2022) Greenhouse Gas Emissions from Energy (all rights reserved). For a selected number of fossil fuel-producing countries where methane emission data is not currently available, an estimate of historical methane emissions has been derived using regional average methane intensity of production. For 2021, methane emission estimates are derived for all countries using methane intensity of fossil fuel production in 2020. Total methane emissions at a global and regional level show a discrepancy with IEA data due to non-inclusion of residual emissions i.e. emissions which have not been allocated to named countries. There is a wide range of uncertainty with respect to both current estimates of methane emissions and the global

warming potential of methane emissions. To ensure alignment with financial and government reporting standards, the methane to CO₂e factor is a 100-year Global Warming Potential (GWP) of 25, recommended by the IPCC in AR4.

Carbon emissions from industrial processes refer only to non-energy CO₂ emissions from cement production and are sourced for 1990-2021 from Andrew, R. M. (2019) Global CO₂ emissions from cement production, 1928-2018. Earth System Science Data 11, 1675-1710, (updated dataset May 2022).

Minerals

Total proved reserves of minerals are generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known resources under existing economic and geological conditions.

The data series for mineral reserves in this year’s review does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level nor does it necessarily represent the EI’s view of proved reserves by country. Rather the data series has been compiled using a combination of primary official sources and third-party data.

Revisions and corrections

Each year revisions are made to historical data when updated or more reliable data sources become available. Corrections are also made when errors are identified in data. In this Statistical Review corrections have been made to the emissions, biofuels, historic oil prices and oil refinery throughput tables.

Appendices Approximate conversion factors

Crude oil*					
From	To				
	tonnes (metric)	kilolitres	barrels	US gallons	tonnes per year
Multiply by					
Tonnes (metric)	1	1.165	7.33	307.86	–
Kilolitres	0.8581	1	6.2898	264.17	–
Barrels	0.1364	0.159	1	42	–
US gallons	0.00325	0.0038	0.0238	1	–
Barrels/day	–	–	–	–	49.8

*Based on worldwide average gravity.

Oil products						
From	To convert					
	barrels to tonnes	tonnes to barrels	kilolitres to tonnes	tonnes to kilolitres	tonnes to gigajoules	tonnes to barrels oil equivalent
Multiply by						
Ethane	0.059	16.850	0.373	2.679	49.400	8.073
Liquefied petroleum gas (LPG)	0.086	11.600	0.541	1.849	46.150	7.542
Gasoline	0.120	8.350	0.753	1.328	44.750	7.313
Kerosene	0.127	7.880	0.798	1.253	43.920	7.177
Gas oil/diesel	0.134	7.460	0.843	1.186	43.380	7.089
Residual fuel oil	0.157	6.350	0.991	1.010	41.570	6.793
Product basket	0.124	8.058	0.781	1.281	43.076	7.039

*Based on worldwide average gravity.

Natural gas (NG) and liquefied natural gas (LNG)						
From	To convert					
	billion cubic metres NG	billion cubic feet NG	petajoules NG	million toe	million tonnes LNG	tonnes to barrels oil equivalent
Multiply by						
1 billion m ³ NG	1.000	35.315	36.000	0.860	0.735	5.883
1 billion ft ³ NG	0.028	1.000	1.019	0.024	0.021	0.167
1 petajoule NG	0.028	0.981	1.000	0.024	0.021	0.164
1 million toe	1.163	41.071	41.868	1.000	0.855	6.842
1 million tonnes LNG	1.360	48.028	48.747	1.169	1.000	8.001
1 trillion Btu	0.029	1.035	1.050	0.025	0.022	0.172
1 million boe	0.170	6.003	6.093	0.146	0.125	1.000

Units	
1 metric tonne	= 2204.62 lb. = 1.1023 short tons
1 kilolitre	= 6.2898 barrels
1 kilolitre	= 1 cubic metre
1 kilocalorie (kcal)	= 4.1868 kJ = 3.968 Btu
1 kilojoule (kJ)	= 1,000 joules = 0.239 kcal = 0.948 Btu
1 petajoule (PJ)	= 1 quadrillion joules (1 x 10 ¹⁵)
1 exajoule (EJ)	= 1 quintillion joules (1 x 10 ¹⁸)
1 British thermal unit (Btu)	= 0.252 kcal = 1.055 kJ
1 barrel of oil equivalent (boe)	= 5.8 million Btu = 6.119 million kJ
1 kilowatt-hour (kWh)	= 860 kcal = 3600 kJ = 3412 Btu

Calorific equivalents	
One exajoule equals approximately:	
Heat units	239 trillion kilocalories 948 trillion Btu
Solid fuels	40 million tonnes of hard coal 95 million tonnes of lignite and sub-bituminous coal
Gaseous fuels	See Natural gas and LNG table
Electricity	278 terawatt-hours

All fuel energy content is net or lower heating value (i.e., net of heat of vaporisation of water generated from combustion).

1 barrel of ethanol = 0.58 barrels of oil equivalent
1 barrel of biodiesel = 0.86 barrels of oil equivalent
1 tonne of ethanol = 0.68 tonne of oil equivalent
1 tonne of biodiesel = 0.88 tonne of oil equivalent

Other terms
Tonnes: Metric equivalent of tons

Percentages
Calculated before rounding of actuals.

Rounding differences
Because of rounding, some totals may not agree exactly with the sum of their component parts.

Definitions

Regional definitions

Country groupings are made purely for statistical purposes and are not intended to imply any judgment about political or economic standings.

North America

US (excluding US territories), Canada, Mexico.

Caribbean

Atlantic islands between the US Gulf Coast and South America, including Puerto Rico, US Virgin Islands and Bermuda.

Central America

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama.

South and Central America

Caribbean (including Puerto Rico and US Virgin Islands), Bermuda, Central and South America.

Europe

European members of the OECD plus Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Georgia, Gibraltar, Latvia, Lithuania, Malta, Montenegro, North Macedonia, Romania, Serbia and Ukraine.

Commonwealth of Independent States (CIS)

Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Uzbekistan.

Middle East

Arabian Peninsula, Iran, Iraq, Israel, Jordan, Lebanon, Syria.

Northern Africa

Territories on the north coast of Africa from Egypt to Western Sahara.

Eastern Africa

Territories on the east coast of Africa from Sudan to Mozambique. Also Madagascar, Malawi, Uganda, Zambia, Zimbabwe.

Middle Africa

Angola, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Republic of Congo, Equatorial Guinea, Gabon, Sao Tome & Principe.

Western Africa

Territories on the west coast of Africa from Mauritania to Nigeria, including Burkina Faso, Cape Verde, Mali and Niger.

Southern Africa

Botswana, Eswatini, Lesotho, Namibia, South Africa.

Asia Pacific

Brunei, Cambodia, China[†], China Hong Kong SAR*, China Macau SAR*, Indonesia, Japan, Laos, Malaysia, Mongolia, North Korea, Philippines, Singapore, South Asia (Afghanistan, Bangladesh, India, Myanmar, Nepal, Pakistan and Sri Lanka), South Korea, Taiwan, Thailand, Vietnam, Australia, New Zealand, Papua New Guinea and Oceania.

† Mainland China

* Special Administrative Region

Australasia

Australia, New Zealand.

OECD members (Organization For Economic Co-operation and Development)

Europe: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye, UK.

Other member countries: Australia, Canada, Chile, Colombia, Costa Rica, Israel, Japan, Mexico, New Zealand, South Korea, US.

OPEC members (Organization of the Petroleum Exporting Countries)

Middle East: Iran, Iraq, Kuwait, Saudi Arabia, United Arab Emirates.

North Africa: Algeria, Libya.

West Africa: Angola, Equatorial Guinea, Gabon, Nigeria, Republic of Congo.

South America: Venezuela.

European Union members

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Republic of Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Non-OECD (Organization for Economic Co-operation and Development)

All countries that are not members of the OECD.

More information

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61 New Cavendish Street
London W1G 7AR
statisticalreview@energyinst.org

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Acknowledgements

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