



2024 | 73rd edition

Statistical Review of World Energy

In collaboration with



KEARNEY

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



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Foreword

This 73rd Statistical Review of World Energy is the second under the custodianship of the Energy Institute (EI).

Energy has always been and remains central to human achievement and progress. It is also, increasingly, central to our very survival. With global temperature increases averaging close to 1.5°C, 2023 was the warmest year since records began, and the increasingly severe impacts of climate change were felt across all continents. We also experienced the continuing effects of geopolitical disruption on energy markets, and the economies and livelihoods they support.

As the chartered professional membership body for people working across the world of energy, the Energy Institute is proud to be the home of the Statistical Review of World Energy. Our aim is to provide an objective, independent and comprehensive evidence base for decision makers in governments, businesses and civil society grappling with these profound challenges.

In this second Statistical Review under the Institute's custodianship, we report on another year of highs in our energy hungry world. Record consumption of fossil fuels and record emissions from energy, but also record generation from renewables, driven by increasingly competitive wind and solar energy.

The progress of the transition is slow, but the big picture masks diverse energy stories playing out across different geographies. This year we provide additional visualisations to bring these contrasts to life – from advanced economies where we see signs of demand for fossil fuels peaking,

The progress of the transition is slow, but the big picture masks diverse energy stories playing out across different geographies.

to economies in the Global South for whom economic development and improvements in quality of life continue to drive fossil growth.

This year we also introduce new data sets in areas that will grow in significance over the coming years and decades – in battery storage and battery cells, carbon capture, hydrogen, ammonia, uranium, carbon prices, and additional key minerals and materials. Over the coming months, we'll be engaging with users on further developments, to ensure the way we measure and analyse energy keeps pace and stays relevant as the transition progresses from high to low carbon, from molecule to electron, from supply-led to demand-led.

We are grateful to our co-authors KPMG and Kearney in this vital endeavour, for the support of S&P Global Commodity Insights and bp, and for the data compilation undertaken by Heriot-Watt University. Together we are able to ensure the Statistical Review remains the respected, go-to source of data for the energy community around the world.

Juliet Davenport OBE HonFEI
President, Energy Institute

Dr Nick Wayth CEng FEI FIMechE
CEO, Energy Institute



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KPMG

Businesses worldwide rely on independent and authoritative data to inform their energy transition strategies and investment decisions. The Energy Institute's 2024 Statistical Review of World Energy provides comprehensive insights, which is why KPMG International is proud to collaborate with them on the production of this report.

We saw renewables continuing to scale at pace, with record highs in 2023 and China adding more renewable generation than the rest of the world combined. But fossil fuels grew as well to meet the rising demand for energy globally. As a result, the share of fossil fuels in world energy demand remained stubbornly stuck around the 80% mark.

With record CO₂ emissions as well in 2023, this recent data should serve as a timely reminder for the world to redouble efforts to reduce carbon emissions and reach net zero. In particular, we should do more to provide finance and capacity to support the building of more low-carbon energy sources in the Global South, where demand is growing at a rapid pace.



Simon Virley CB FEI
Vice Chair and Head of Energy and Natural Resources, KPMG in the UK

Kearney

COP28 and rhetoric from world leaders on the energy transition demonstrates the ambition to reduce the world's fossil fuel dependency. However, this ambition is futile unless it is matched with drastic and coordinated actions resulting in real and immediate impact on climate change mitigation.

The Statistical Review of World Energy is the perfect opportunity for us to take a step back and examine the reality of our energy usage to understand just how far we must go on this transitional journey. While progress has been made, 2023 was unfortunately another record year for the consumption of fossil fuels and emissions from energy. With global temperature increases closing in on 1.5°C, we are also seeing a real disconnect with the Paris goals and the progress of the transition is too slow.

We hope that this report will help governments, world leaders and analysts around the world move forward, clear-eyed about the challenge that lies ahead, and ready to take a lead in promoting and enabling the use of clean energy across the world.



Dr Romain Debarre
Partner and Managing Director, Energy Transition Institute, Kearney

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2023 Key highlights

2023 was a year of production and consumption records across the board with most markets returning to at least their 2019 pre-COVID long-term trends as supply chain issues finally eased.

Oil consumption in particular rebounded strongly, largely on the back of China relaxing its zero-COVID lockdown policies. Although demand for gas remained flat, consumption of crude oil broke through the 100 million barrels per day level for the first time ever and coal demand beat the previous year's record level. Consumption of renewable energy grew at six times the rate of total primary energy, and electricity demand grew 25% faster than total primary energy consumption.

Energy developments

- Total primary energy consumption increased by 2% over its 2022 level, 0.6% above its ten-year average and over 5% above its 2019 pre-COVID level.
- Renewables' share of total primary energy consumption reached 14.6%, an increase of 0.4% over the previous year. Together with nuclear, they represented over 18% of total primary energy consumption.
- Fossil fuel consumption as a percentage of primary energy dropped 0.4% to 81.5%.

Carbon emissions

- Greenhouse gas emissions from energy use, industrial processes, flaring and methane (in carbon dioxide equivalent terms) increased 2.1% to exceed the record level set in 2022. For the first time ever, energy-related emissions exceeded the 40 GtCO₂e level, with emissions from the direct use of energy breaching 35 GtCO₂e for the first time ever.
- Carbon dioxide emissions from flaring increased by 7% along with emissions from methane and industrial processes that also increased by over 5%.

Oil

- Although Brent crude oil prices fell 18% to average \$83/bbl in 2023, they were still some 29% above their 2019 pre-COVID levels.
- Global oil production increased by 1.8 million b/d to reach a record level of 96 million b/d in 2023. The US remained the largest producer seeing its output grow by over 8%. Overall production from non-OPEC+ countries exceeded global incremental demand growth by 20%.
- In 2022 the combined consumption of oil and biofuel products exceeded 100 million barrels per day for the first time ever. In 2023, consumption of oil products alone exceeded this level.

- Regionally, whilst North America witnessed a modest increase in oil consumption of around 0.8%, demand in Europe fell by nearly 1% to 13.9 million barrels per day. By contrast, the Asia Pacific region saw an increase of over 5% to 38 million barrels per day.
- The ending of China's extended zero-COVID lockdown measures saw demand for gasoline and diesel rebound to 7,179 kbd, 15% above its 2019 pre-COVID levels. Whilst its demand for jet/kerosene grew by 74% in 2023 to 828 kbd, this is still 14% below its 2019 level which was a record year for China.
- China's refining capacity (18,484 kb/d) exceeded the US (18,429 kb/d) for the first time ever making it the largest oil refining market by capacity. However, throughput of refined products from China still lags the US with an overall utilisation of 81.7% versus 86.6%.

Natural gas

- On average natural gas prices in Europe and Asia fell 30% from their record highs recorded in 2022, averaging around \$13/mmBtu. US Henry Hub prices exhibited an even greater fall of 60% to average \$2.5/mmBtu across the year, back to their 2019 pre-COVID level.
- Global gas production remained relatively constant compared to 2022. The US remains the largest producer of gas delivering around a quarter of the world's supply. Output in Europe and the CIS fell by around 7% and 4% respectively. In absolute terms, the Russian Federation saw the largest fall in output with a 5% drop of 32 bcm.
- In 2023 LNG supply grew nearly 2% (10 bcm) to 549 bcm. The US overtook Qatar as the world's largest exporter of LNG, seeing its supply increase nearly 10% versus a 2% drop from Qatar. The Russia Federation saw falls in both its LNG and pipeline exports with LNG dropping nearly 2% (0.8 bcm) and pipeline supplies dropping around 24% (30 bcm).
- Global natural gas demand increased by only 1 bcm in 2023, a rise of only 0.02% and only slightly above its 2019 pre-COVID level. Whilst its share of global fossil fuel consumption remained around the 29% mark, its share of total primary energy consumption fell 0.5% since 2019.
- The global growth in LNG demand was triggered primarily by the Asia Pacific region with China, India, and other non-OECD Asia Pacific countries demand increasing by 11 bcm, 2.6 bcm, and 7.6 bcm respectively. LNG into both Europe and OECD Asia Pacific countries fell by 3 bcm and 11 bcm respectively.

- China regained its position as the world's largest LNG importing country followed by Japan and South Korea. Together, they accounted for around 45% of global LNG trade.
- Overall natural gas pipeline net trade fell by around 8% (or 35 bcm) in 2023. European pipeline imports fell by 26% (40 bcm), almost entirely attributable to supplies from Russia which accounted for 91% of the drop.

Coal

- From the record levels recorded in 2022, coal prices fell 46% on average with European delivered prices settling around \$130/tonne and delivered prices in Asia averaging around \$125/tonne.
- Global coal production reached its highest ever level (179 EJ), beating the previous high set the year before. The Asia Pacific region accounted for nearly 80% of global output with activity concentrated in just four countries, Australia, China, India, and Indonesia.
- Global coal consumption continued to increase and breached 164 EJ for the first time ever. The increase of 1.6% over 2022 was seven times higher than the previous ten-year average growth rate.
- Whilst China is by far the largest consumer of coal (it beat its own record set in 2022 and now accounts for 56% of the world's total consumption), in 2023 India exceeded the combined consumption of Europe and North America for the first time ever. Coal consumption in both Europe and North America fell below 10 EJ each and has been in constant decline over the past 10 years.

Electricity

- Global electricity generation increased by 2.5% in 2023 to reach a record level of 29,925 TWh. Whilst electricity demand in Asia Pacific and the Middle East increased by around 5%, demand in both Europe and North America fell by 2.4% and 1% respectively.
- For fossil fuels, coal retained its position as the dominant fuel for power generation in 2023 with a stable share around 35%. Natural gas' share of the generation fleet also remained stable at around 23%. Oil-fired plant contributed just over 2% of total electrical output.
- Renewables share of total power generation rose from 29% to 30%. At a regional level, Southern & Central America recorded the highest contribution from renewables at 72%. In Brazil, responsible for over 40% of electricity demand in the region, wind and solar increased by 17% and 71% respectively.

- The share of nuclear remained flat at around 9% with new build in China and returns to service of plant in France and Japan being offset by the closure of Germany's remaining plant.
- In 2023, grid-scale battery electricity storage system (BESS) capacity stood at 55.7 GW, nearly 50% of which was installed in China.

Wind and Solar

- Solar and wind capacity continued to grow rapidly in 2023 beating the previous year's record of 276 GW by around 186 GW, a 67% increase.
- Solar accounted for 75% (346 GW) of the capacity additions with China responsible for around a quarter of the growth. Europe installed just over 56 GW of solar, representing 16% of total solar capacity additions.
- Wind achieved a record year for new build with over 115 GW coming online. Nearly 66% of capacity additions were in China and its total installed capacity is now equal to North America and Europe combined. Although Europe has the highest share of offshore in its wind portfolio (12%), China has 37 GW compared to Europe's 32 GW.

Biofuels

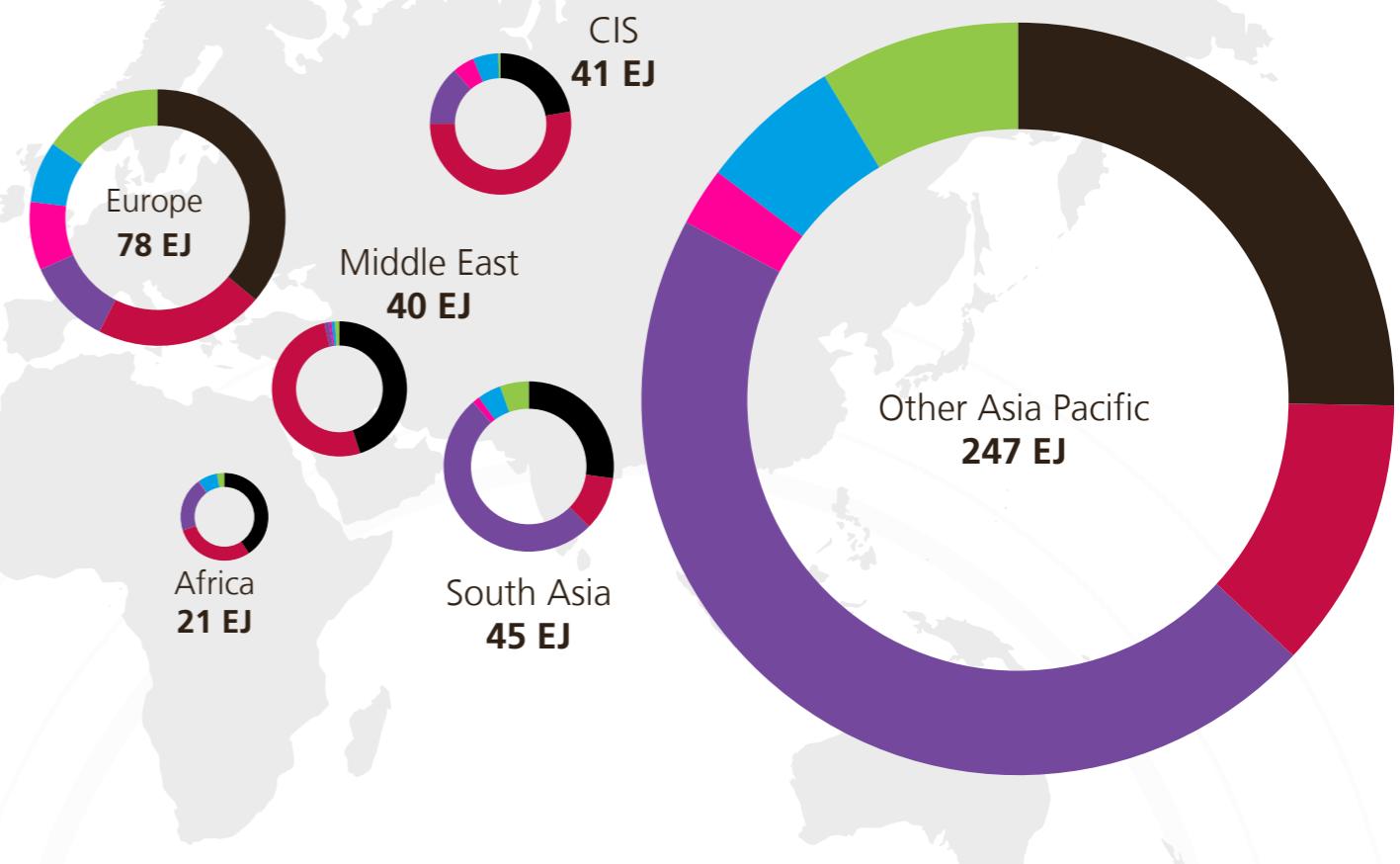
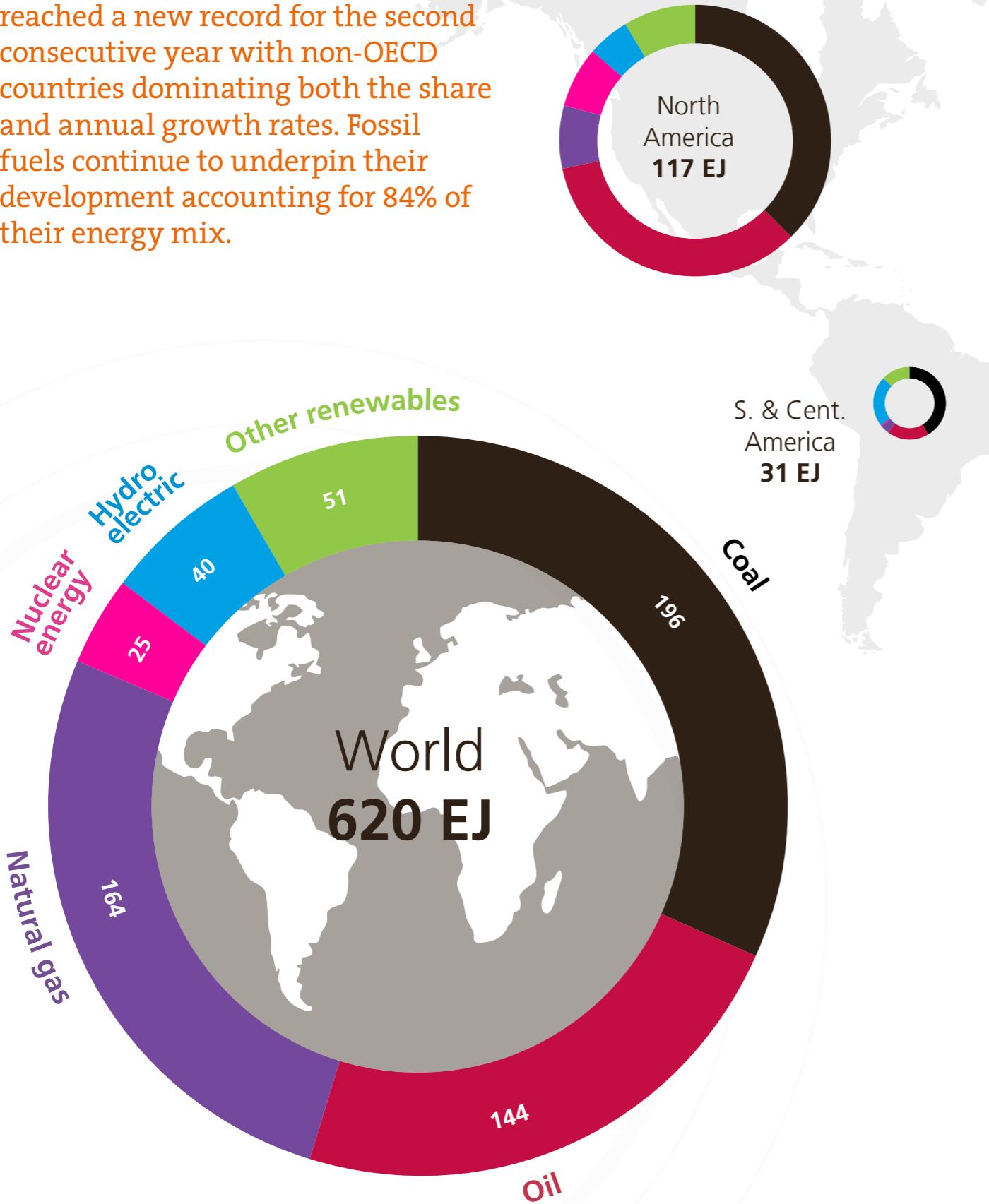
- Global biofuels' production grew by over 8% in 2023 with the biggest increases seen in the US (75 mboe/d) and Brazil (65 mboe/d). Indonesia was responsible for around 46% of Asia Pacific region's production of 422 mboe/d.
- The production split in 2023 was 54% biogasoline and 46% biodiesel.
- The US, Brazil, and Europe were responsible for around three-quarters of all biofuels consumed globally.

Key minerals

- Across the board, prices for key metals and materials fell by around 26% in 2023. The biggest declines were in cobalt (-47%), pet needle coke (-36%), and lithium carbonate (-32%). Prices for copper and natural graphite fell by only 4% and 15% respectively.
- Africa was responsible for nearly 75% of the world's cobalt production. Within this, the Democratic Republic of Congo was responsible for around 96% (or 56% of the global total).

2023 Regional overview – access to energy and sustainability

Global primary energy consumption reached a new record for the second consecutive year with non-OECD countries dominating both the share and annual growth rates. Fossil fuels continue to underpin their development accounting for 84% of their energy mix.



The contrasts between the northern and southern hemispheres is quite stark. Consumption of primary energy in the Global South first exceeded that of the Global North in 2014. In 2023 it accounted for 56% of total energy consumed and grew at twice the global average rate of 2%. The Asia Pacific region was responsible for 85% of the Global South's demand (and 47% of global demand) where the economies of China, India, Indonesia, Japan and South Korea dominated. Whilst Southern & Central America, and Asia Pacific experienced growth rates above the global average, total demand in Africa dropped by 0.4% in 2023 and electricity consumption remained flat. Electricity demand in both North America and Europe experienced falls of -1% and -2% respectively. In these regions, electricity demand in particular is increasingly impacted by energy efficiency regulations, energy-efficient lighting, and changing consumer habits.

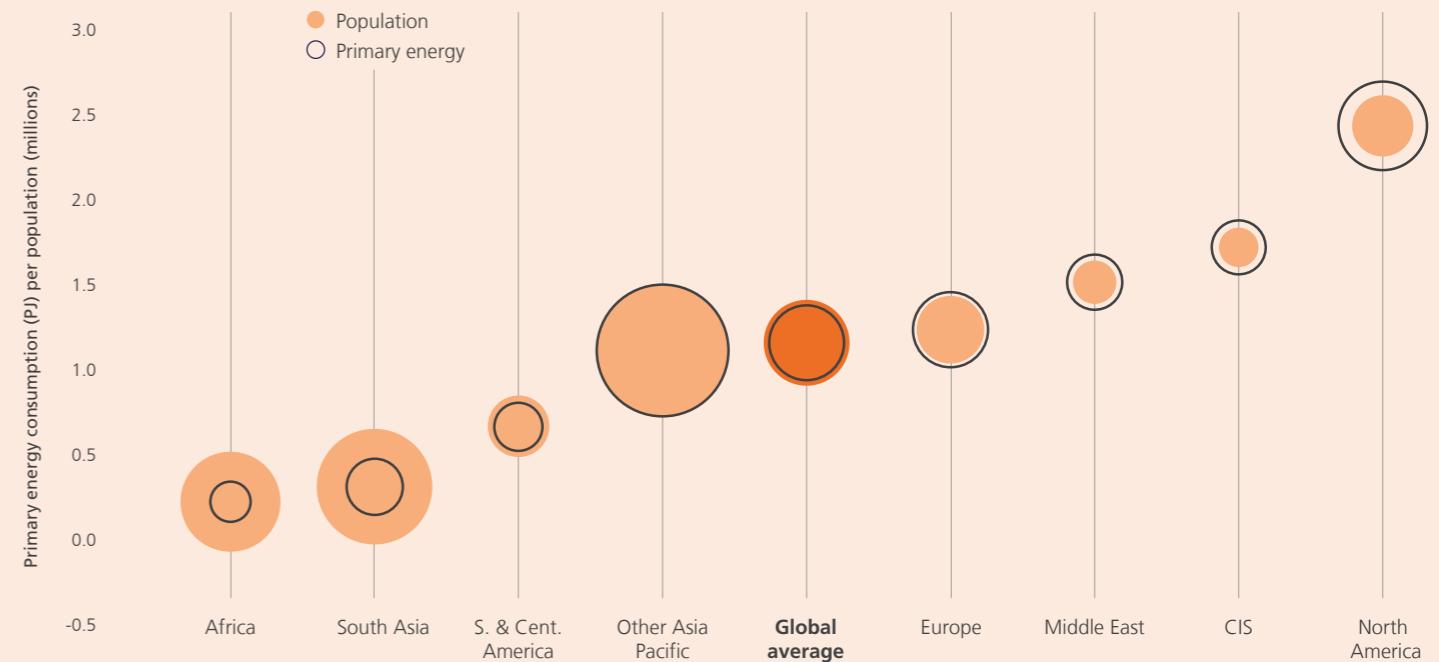
2023 Regional overview – energy access, efficiency, and sustainability

Whilst collectively Africa and South Asia were responsible for less than 10% of the world's energy demand in 2023, a prevalence of developing economies, large populations, low rate of access to energy today, potentially positions them for significant energy demand growth in the future.

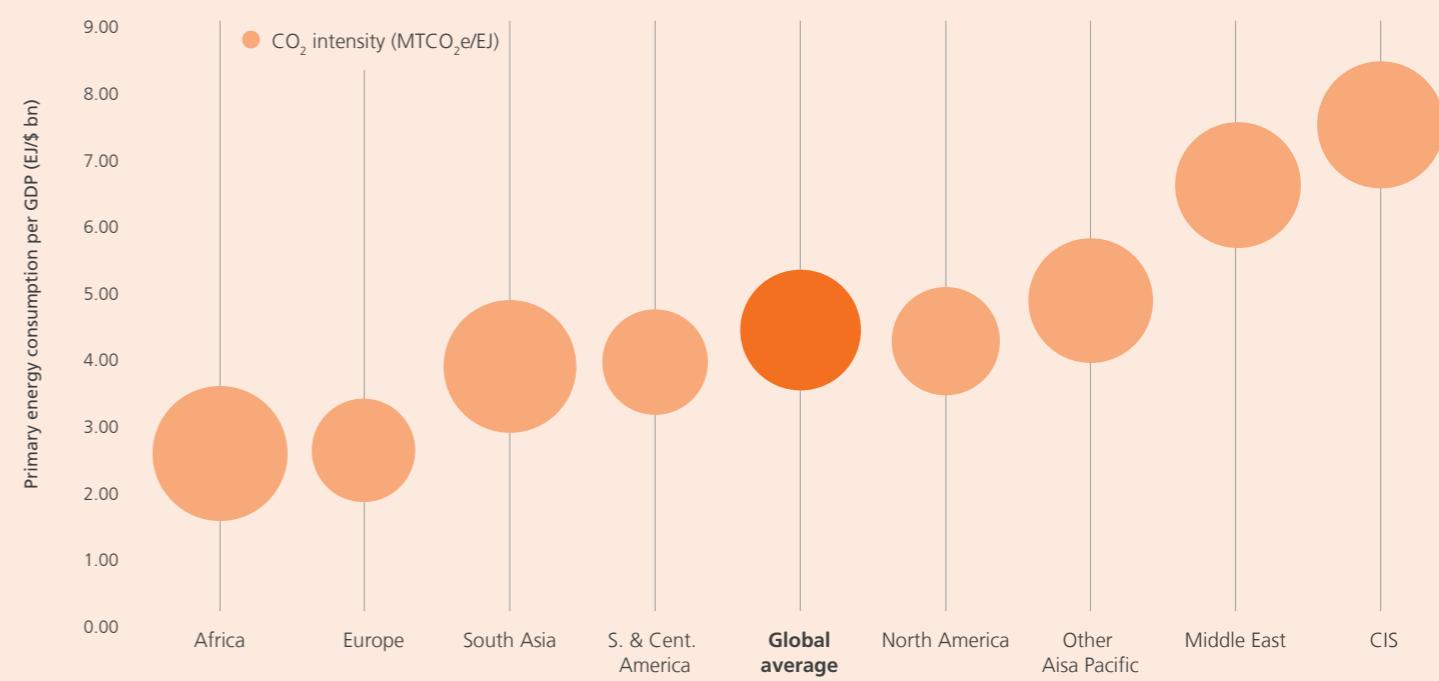
It is estimated that globally around 750 million people – 1 out of 10 – do not have access to electricity to light their homes, refrigerate their food, or keep cool in rising temperatures and around 2.6 billion people rely on heavily polluting biomass fuels such as charcoal, coal, and animal waste for heating and cooking. In 2023 significant geographical variations were evident in the relationships between regional population sizes and regional energy consumption. In Africa, South Asia, and Southern & Central America, the average amount of energy consumed per person stood at 0.3 petajoules (PJ). This was in stark contrast to North America, the CIS, and the Middle East, where energy consumption per capita averaged 1.8 PJ. In North America, the ratio was over twice the global average of 1.1 PJ.

A similar pattern also played out for average greenhouse gas emissions per person where Africa, South Asia, and Southern & Central America averaged 2 MtCO₂e relative to a global average of 6.7 MtCO₂e. North America, the CIS, and the Middle East collectively averaged 11.5 MtCO₂e, almost twice the global average. The exception was Other Asia Pacific that was just below the global average for energy consumption per capita but 0.7 MtCO₂e above the global average for greenhouse gas emissions per person. This was primarily due to China, the world's largest consumer of coal and second largest consumer of oil.

Today, both Africa and South Asia have very low levels of energy demand relative to the size of their population



Europe and Southern & Central America are the only regions to be below both the global average for CO₂ Intensity and Energy Consumption per GDP



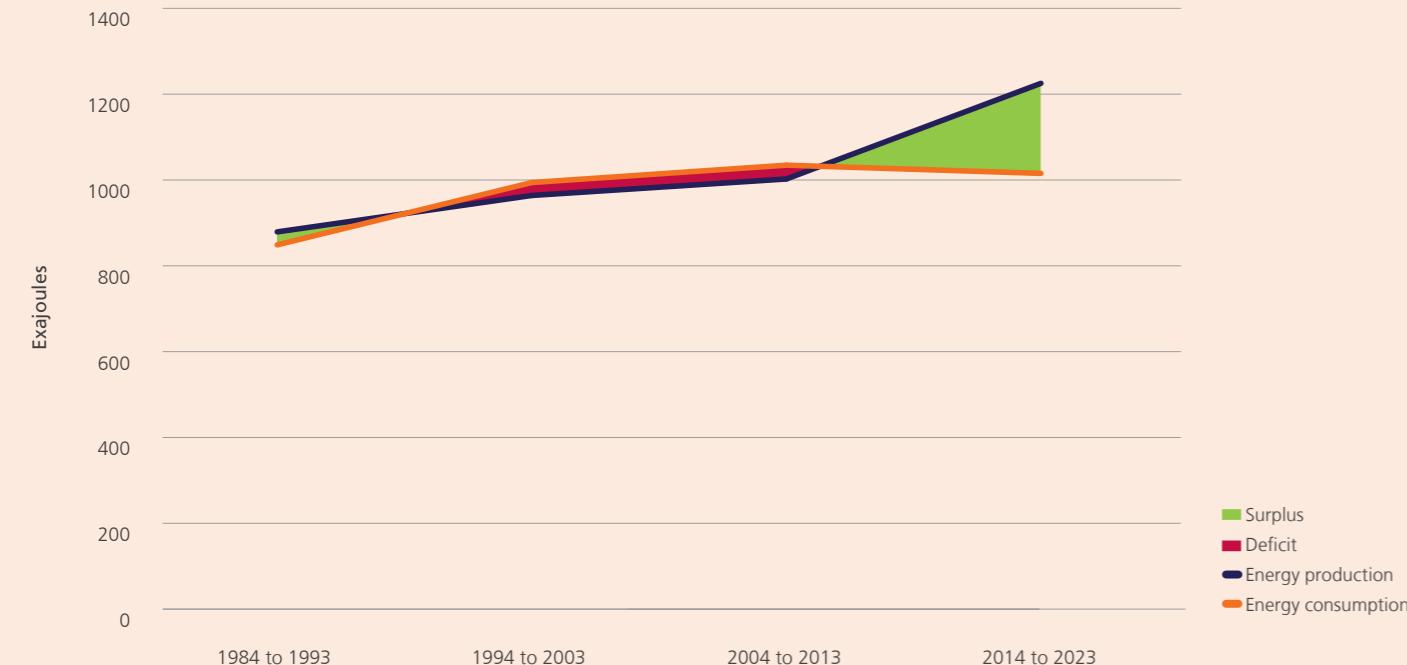
2023 Regional overview – energy security

Along with sustainability and affordability, secure supply of energy is a key pillar of the energy trilemma. In 2023, the total international trade of oil, gas, and coal was 53% higher than it was in 2000. Collectively, North America, Europe, and Asia Pacific regions consumed 78% of the world's total energy in 2023. Over the past two decades, North America's energy system has been transformed by the growth in unconventional oil and gas that began in the early 2000s. As a result, in the past 10 years the region has moved from being a net importer of energy to a net exporter. In 2023, oil production in North America was 16% above its domestic consumption whilst gas production sat at 14% above its demand level. Since the 1980s, Europe has consistently been a net importer of energy. Its biggest deficit in 2023 was

in oil where production only met 23% of demand. Whilst European gas production was only able to meet 44% of consumption, the balance with coal was less severe with production meeting 58% of demand. The Asia Pacific region had the highest demand of any region in 2023, consuming 292 EJ of primary energy, 47% of the world's total demand. Like Europe, it has consistently been a net importer of energy since the 1980s. In 2023, its biggest shortfall was in servicing its demand for oil with production only meeting around 19% of its consumption. Its gas position was more positive with production able to meet 74% of its demand. For coal, production in the Asia Pacific region achieved a surplus in 2023, with supply exceeding the region's demand by 5%.

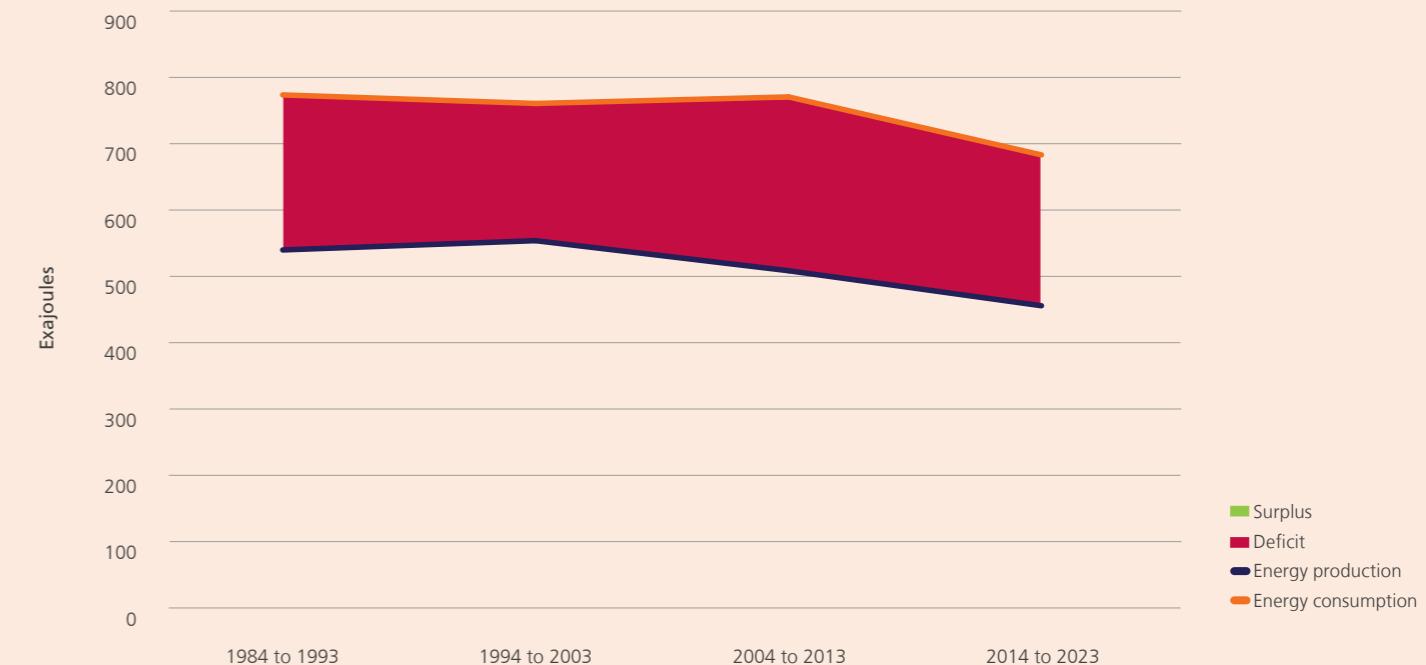
Production vs consumption by region

North America



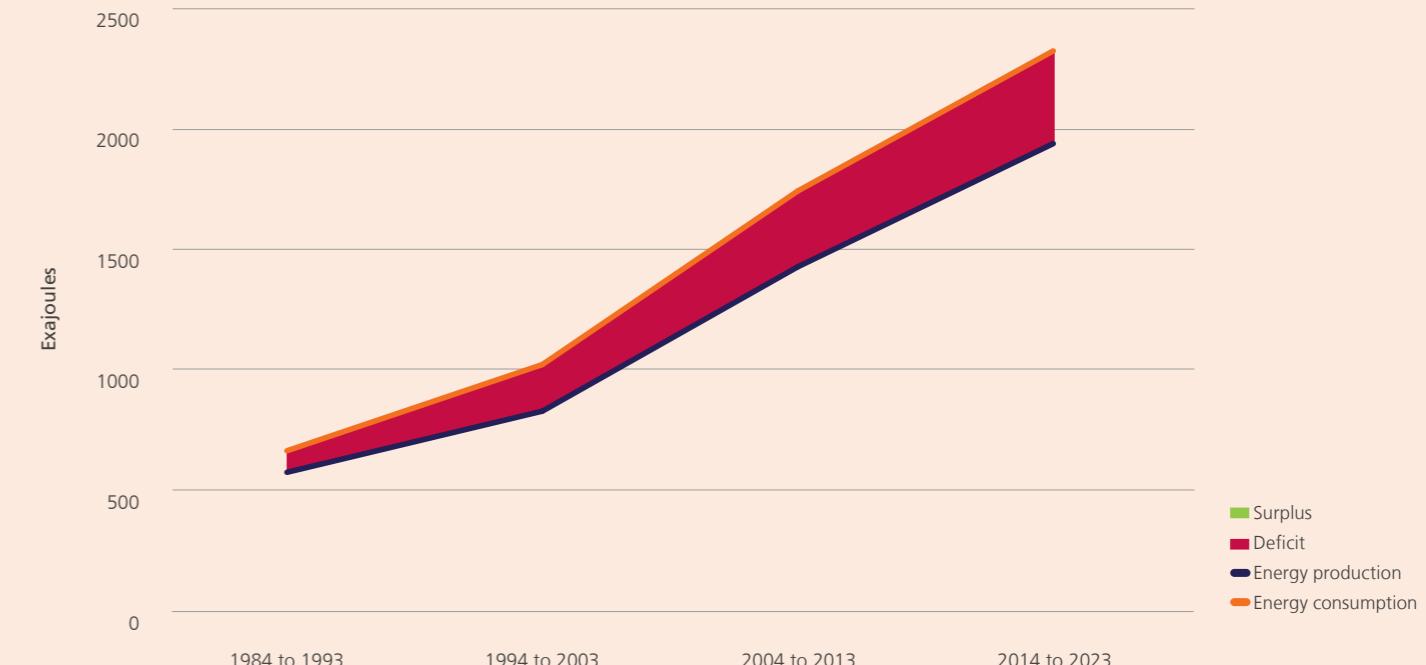
Production vs consumption by region

Europe



Production vs consumption by region

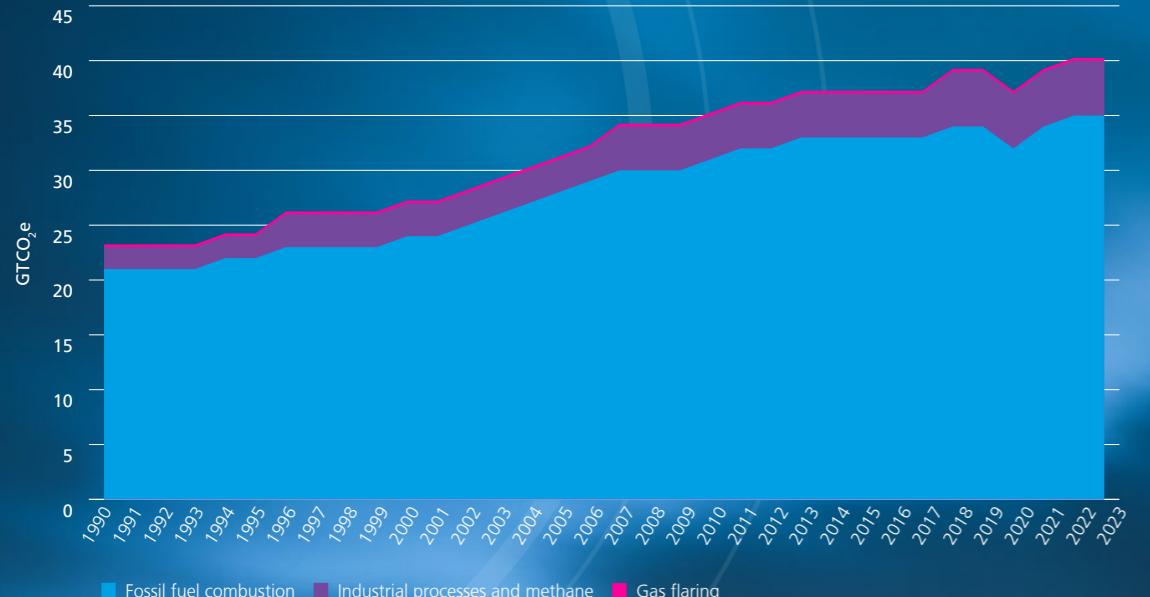
Asia Pacific



Primary energy and carbon

2023 saw a second consecutive record year for global primary energy consumption as it grew by 2%, reaching 620 EJ. Its growth rate was 0.6% above its ten-year average and over 5% above its 2019 pre-COVID level. Whilst a new record in the consumption of fossil fuels (in absolute terms) was recorded. In 2023, it fell to 81.5% compared to almost 81.9% in 2022. With demand for natural gas, a relatively low carbon-intensive fossil fuel, remaining flat, the increased use of more carbon-intensive oil and coal meant that energy-related greenhouse gas emissions also reached a record high, exceeding 40 GtCO₂e for the very first time. CO₂ emissions from the combustion of fossil fuels is by far the largest source of energy-related greenhouse gas emissions contributing around 87% of the total.

2023 global energy-related greenhouse gas emissions exceeded 40 gigatonnes for the first time ever



P Primary energy Consumption*

Exajoules	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share	
												2023	2013-23	2023
Canada	14.40	14.43	14.47	14.34	14.54	14.72	14.64	13.76	13.92	14.30	13.95	-2.4%	-0.3%	2.3%
Mexico	8.07	8.03	7.94	8.11	8.26	8.15	8.07	7.83	8.18	8.45	8.45	3.3%	0.5%	1.4%
US	92.62	93.59	92.69	92.62	92.97	96.37	95.68	88.64	93.44	95.42	94.28	-1.2%	0.2%	15.2%
Total North America	115.09	116.04	115.10	115.76	119.25	118.40	109.75	115.20	117.90	116.68	-1.0%	0.1%	18.8%	
Argentina	3.53	3.53	3.59	3.57	3.54	3.34	3.13	3.45	3.71	3.67	-0.9%	0.4%	0.6%	
Brazil	12.51	12.83	12.66	12.36	12.47	12.51	12.72	12.22	12.85	13.44	13.87	3.3%	1.0%	2.2%
Chile	1.49	1.47	1.49	1.56	1.62	1.69	1.71	1.59	1.72	1.81	0.1%	2.0%	0.3%	
Colombia	1.75	1.84	1.74	1.96	1.98	2.01	2.03	1.85	2.07	2.20	2.26	2.7%	2.6%	0.4%
Ecuador	0.65	0.68	0.68	0.67	0.70	0.74	0.76	0.66	0.77	0.80	0.84	5.2%	2.7%	0.1%
Peru	0.95	0.97	1.01	1.08	1.09	1.15	1.18	1.04	1.18	1.22	1.24	1.7%	2.7%	0.2%
Trinidad & Tobago	0.82	0.82	0.80	0.70	0.75	0.70	0.70	0.61	0.62	0.62	0.59	-5.3%	-3.3%	0.1%
Venezuela	3.73	3.65	3.49	3.20	3.14	2.62	2.37	1.90	2.17	2.34	2.53	8.1%	-3.8%	0.4%
Other S. & Cent. America	3.90	3.92	4.11	4.33	4.33	4.41	4.39	3.93	4.15	4.24	4.46	5.2%	1.4%	0.7%
Total S. & Cent. America	29.32	29.71	29.57	29.44	29.65	29.37	29.19	26.92	28.99	30.37	31.28	3.0%	0.6%	5.0%
Austria	1.48	1.42	1.43	1.47	1.50	1.47	1.54	1.44	1.46	1.37	1.39	1.3%	-0.7%	0.2%
Belgium	2.53	2.34	2.37	2.55	2.58	2.57	2.66	2.39	2.66	2.50	2.31	-7.5%	-0.9%	0.4%
Czech Republic	1.76	1.73	1.69	1.67	1.77	1.76	1.72	1.59	1.68	1.64	1.52	-7.1%	-1.5%	0.2%
Finland	1.23	1.19	1.18	1.20	1.18	1.20	1.18	1.13	1.15	1.15	1.20	3.6%	-0.3%	0.2%
France	10.53	10.07	10.16	9.96	9.92	10.04	9.83	8.79	9.34	8.27	8.66	4.7%	-1.9%	1.4%
Germany	13.93	13.36	13.61	13.83	14.00	13.64	13.30	12.40	12.76	12.29	11.41	-7.1%	-2.0%	1.8%
Greece	1.18	1.11	1.12	1.11	1.16	1.17	1.14	1.00	1.09	1.13	1.10	-2.9%	-0.7%	0.2%
Hungary	0.86	0.86	0.90	0.92	0.97	0.98	0.99	0.97	1.02	0.96	0.91	-5.3%	0.6%	0.1%
Italy	6.69	6.34	6.53	6.56	6.64	6.67	6.55	5.95	6.37	6.19	5.95	-3.9%	-1.2%	1.0%
Netherlands	3.83	3.66	3.69	3.76	3.79	3.70	3.68	3.56	3.65	3.44	3.44	-0.1%	-1.1%	0.6%
Norway	1.89	1.95	1.98	2.01	2.02	1.99	1.86	2.01	2.05	1.92	1.99	3.8%	0.5%	0.3%
Poland	4.07	3.92	3.97	4.14	4.35	4.40	4.27	4.10	4.41	4.27	4.12	-3.7%	0.1%	0.7%
Portugal	1.04	1.05	1.04	1.12	1.09	1.11	1.06	0.95	0.96	0.95	0.95	0.3%	-0.9%	0.2%
Romania	1.33	1.36	1.37	1.37	1.40	1.41	1.38	1.40	1.30	1.28	1.28	-1.6%	-0.4%	0.2%
Spain	5.68	5.60	5.66	5.70	5.77	5.86	5.70	5.12	5.51	5.73	5.66	-1.1%	†	0.9%
Sweden	2.17	2.16	2.24	2.19	2.27	2.19	2.25	2.16	2.28	2.24	2.15	-3.9%	-0.1%	0.3%
Switzerland	1.29	1.24	1.21	1.14	1.14	1.16	1.21	1.11	1.07	1.04	1.13	8.5%	-1.3%	0.2%
Türkiye	5.08	5.24	5.72	6.01	6.43	6.44	6.66	6.56	7.02	7.10	7.00	-1.4%	3.3%	1.1%
Ukraine	4.93	4.35	3.61	3.78	3.51	3.64	3.45	3.31	3.36	2.33	2.22	-4.6%	-7.7%	0.4%
United Kingdom	8.56	8.09	8.21	8.08	8.10	8.09	7.92	7.10	7.17	7.27	6.95	-4.4%	-2.1%	1.1%
Other Europe	6.41	6.19	6.33	6.50	6.62	6.73	6.56	6.19	6.59	6.52	6.51	-0.2%	0.2%	1.1%
Total Europe	86.47	83.23	84.05	85.06	86.19	86.21	84.90	79.16	83.01	79.60	77.85	-2.2%	-1.0%	12.6%
Azerbaijan	0.56	0.57	0.62	0.61	0.60	0.63	0.67	0.71	0.76	0.82	8.4%	4.0%	0.1%	
Belarus	1.06	1.06	0.96	0.98	1.00	1.11	1.11	1.03	1.10	1.06	1.07	0.6%	0.1%	0.2%
Kazakhstan	2.63	2.77	2.29	2.56	2.75	2.84	2.88	2.65	2.96	2.95	2.98	1.1%	1.2%	0.5%
Russian Federation	28.92	29.01	28.55	29.11	29.29	30.36	30.13	29.08	30.01	31.08	31.29	0.7%	0.8%	5.1%
Turkmenistan	0.96	1.02	1.16	1.26	1.17	1.32	1.26	1.58	1.60	1.63	1.60	-1.7%	5.2%	0.3%
Uzbekistan	1.96	2.04	1.94	1.88	1.93	1.94	1.95	1.94	2.04	2.12	2.10	-0.7%	0.7%	0.3%
Other CIS	0.72	0.75	0.75	0.75	0.78	0.85	0.82	0.84	0.84					

P Primary energy Consumption by fuel*

Exajoules	2022						2023							
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total
Canada	4.31	4.46	0.39	0.78	3.73	0.64	14.30	4.35	4.35	0.37	0.80	3.41	0.68	13.95
Mexico	3.77	3.27	0.24	0.10	0.33	0.46	8.18	3.84	3.51	0.26	0.11	0.19	0.54	8.45
US	35.75	31.67	9.91	7.31	2.36	8.42	95.42	35.86	31.91	8.20	7.32	2.21	8.78	94.28
Total North America	43.83	39.40	10.54	8.19	6.43	9.51	117.90	44.05	39.77	8.83	8.23	5.81	9.99	116.68
Argentina	1.48	1.65	0.05	0.07	0.21	0.24	3.71	1.41	1.62	0.05	0.08	0.28	0.24	3.67
Brazil	5.01	1.15	0.59	0.13	4.01	2.55	13.44	5.11	1.08	0.57	0.13	4.01	2.97	13.87
Chile	0.82	0.26	0.24	—	0.19	0.30	1.81	0.83	0.25	0.18	—	0.22	0.33	1.81
Colombia	0.96	0.45	0.10	—	0.60	0.08	2.20	0.98	0.47	0.16	—	0.56	0.09	2.26
Ecuador	0.54	0.02	^	—	0.23	0.01	0.80	0.58	0.02	^	—	0.24	0.01	0.84
Peru	0.50	0.35	0.03	—	0.28	0.05	1.22	0.52	0.36	0.03	—	0.27	0.05	1.24
Trinidad & Tobago	0.07	0.56	—	—	—	^	0.62	0.07	0.52	—	—	—	^	0.59
Venezuela	0.65	1.05	0.01	—	0.64	^	2.34	0.84	1.07	0.01	—	0.61	^	2.53
Other S. & Cent. America	2.56	0.36	0.17	—	0.82	0.34	4.24	2.68	0.43	0.18	—	0.82	0.36	4.46
Total S. & Cent. America	12.59	5.85	1.19	0.20	6.99	3.56	30.37	13.01	5.82	1.16	0.21	7.01	4.06	31.28
Austria	0.49	0.28	0.10	—	0.32	0.17	1.37	0.49	0.25	0.10	—	0.36	0.19	1.39
Belgium	1.19	0.52	0.12	0.40	^	0.27	2.50	1.13	0.49	0.10	0.20	^	0.29	2.31
Czech Republic	0.42	0.27	0.56	0.28	0.02	0.10	1.64	0.42	0.24	0.47	0.27	0.02	0.10	1.52
Finland	0.35	0.04	0.12	0.23	0.13	0.29	1.15	0.33	0.04	0.31	0.14	0.29	0.12	1.20
France	2.80	1.38	0.23	2.65	0.42	0.79	8.27	2.76	1.22	0.18	3.03	0.52	0.95	8.66
Germany	4.25	2.79	2.31	0.31	0.17	2.46	12.29	4.01	2.72	1.83	0.06	0.18	2.60	11.41
Greece	0.62	0.22	0.07	—	0.04	0.19	1.13	0.62	0.19	0.05	—	0.04	0.20	1.10
Hungary	0.35	0.33	0.05	0.14	^	0.09	0.96	0.34	0.29	0.04	0.14	^	0.10	0.91
Italy	2.51	2.35	0.31	—	0.27	0.76	6.19	2.47	2.11	0.22	—	0.36	0.78	5.95
Netherlands	1.66	0.99	0.23	0.04	^	0.52	3.44	1.70	0.93	0.16	0.04	^	0.61	3.44
Norway	0.39	0.14	0.03	—	1.20	0.16	1.92	0.38	0.14	0.03	—	1.27	0.16	1.99
Poland	1.40	0.67	1.78	—	0.02	0.40	4.27	1.41	0.70	1.51	—	0.02	0.48	4.12
Portugal	0.46	0.20	^	—	0.06	0.22	0.95	0.45	0.16	^	—	0.11	0.23	0.95
Romania	0.46	0.35	0.15	0.10	0.13	0.11	1.30	0.46	0.33	0.11	0.10	0.17	0.11	1.28
Spain	2.61	1.19	0.16	0.53	0.17	1.08	5.73	2.57	1.05	0.12	0.51	0.24	1.17	5.66
Sweden	0.48	0.03	0.07	0.47	0.66	0.54	2.24	0.47	0.03	0.07	0.43	0.62	0.54	2.15
Switzerland	0.38	0.11	^	0.21	0.28	0.07	1.04	0.39	0.10	^	0.21	0.35	0.09	1.13
Türkiye	2.18	1.84	1.76	—	0.63	0.69	7.10	2.30	1.74	1.65	—	0.60	0.71	7.00
Ukraine	0.39	0.66	0.54	0.56	0.10	0.07	2.33	0.39	0.67	0.49	0.47	0.12	0.08	2.22
United Kingdom	2.65	2.55	0.21	0.43	0.05	1.37	7.27	2.69	2.29	0.18	0.37	0.05	1.38	6.95
Other Europe	2.57	1.00	1.21	0.34	0.65	0.75	6.52	2.57	0.97	1.02	0.36	0.79	0.81	6.51
Total Europe	28.60	17.92	10.02	6.68	5.29	11.09	79.60	28.33	16.68	8.39	6.60	5.97	11.86	77.85
Azerbaijan	0.25	0.49	^	—	0.01	0.76	0.26	0.54	^	0.02	—	0.82	—	
Belarus	0.30	0.66	0.04	0.04	^	0.01	1.06	0.30	0.60	0.04	0.11	^	0.01	1.07
Kazakhstan	0.65	0.77	1.41	—	0.09	0.04	2.95	0.69	0.77	1.39	—	0.08	0.05	2.98
Russian Federation	7.14	16.14	3.84	2.01	1.86	0.08	31.08	7.21	16.32	3.83	1.95	1.88	0.10	31.29
Turkmenistan	0.28	1.35	—	—	^	0.01	1.63	0.28	1.32	—	—	^	0.16	
Uzbekistan	0.22	1.74	0.11	—	0.05	^	2.12	0.22	1.68	0.14	—	0.07	^	2.10
Other CIS	0.20	0.20	0.09	0.03	0.32	0.01	0.84	0.20	0.22	0.09	0.02	0.32	0.01	0.86
Total CIS	9.03	21.35	5.49	2.08	2.33	0.14	40.43	9.16	21.46	5.49	2.08	2.37	0.17	40.72
Iran	3.58	8.62	0.08	0.06	0.13	0.02	12.48	3.50	8.84	0.08	0.06	0.21	—	
Iraq	1.70	0.66	—	0.02	^	0.29	1.80	0.67	—	0.03	^	0.27	—	
Israel	0.45	0.44	0.16	—	^	0.06	1.11	0.44	0.45	0.14	—	0.08	0.11	1.11
Kuwait	0.77	0.78	0.01	—	—	^	1.56	0.76	0.81	0.01	—	—	^	1.58
Oman	0.45	1.03	0.01	—	—	0.01	1.50	1.06	0.01	—	—	0.01	0.01	1.55
Qatar	0.58	1.45	^	—	—	^	2.04							



Carbon Carbon dioxide emissions from energy

Million tonnes of carbon dioxide	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
Canada	559.3	564.5	559.4	546.9	561.2	574.2	562.4	502.2	511.3	525.0	519.5	-1.0%	-0.7%	1.5%
Mexico	496.7	482.8	480.9	491.1	503.3	489.0	480.6	413.4	442.5	469.3	489.9	4.4%	-0.1%	1.4%
US	5246.9	5252.5	5137.8	5039.3	4980.3	5134.6	4982.8	4466.8	4755.3	4798.2	4639.7	-3.3%	-1.2%	13.2%
Total North America	6302.9	6299.8	6178.1	6077.3	6044.9	6197.8	6025.8	5382.4	5709.2	5792.4	5649.1	-2.5%	-1.1%	16.1%
Argentina	187.6	187.8	191.2	190.1	188.5	186.0	174.6	162.3	183.5	198.4	190.9	-3.8%	0.2%	0.5%
Brazil	487.0	511.7	494.8	455.9	461.7	442.1	435.5	408.3	461.6	443.4	451.0	1.7%	-0.8%	1.3%
Chile	88.9	87.2	87.4	92.2	93.9	93.5	94.8	85.1	93.8	93.0	86.5	-7.0%	-0.3%	0.2%
Colombia	89.1	94.9	87.7	102.3	95.3	96.9	99.7	89.6	96.8	103.0	110.2	7.0%	2.1%	0.3%
Ecuador	36.5	38.4	37.6	35.4	34.4	37.2	35.7	29.2	36.2	39.6	42.2	6.7%	1.5%	0.1%
Peru	46.0	46.8	49.2	53.2	51.0	52.8	54.4	45.3	54.0	57.9	59.5	2.7%	-2.6%	0.2%
Trinidad & Tobago	25.1	24.7	23.8	21.5	20.7	19.6	19.0	16.4	15.5	15.8	15.2	-3.7%	-4.9%	0.0%
Venezuela	186.1	181.7	172.1	159.2	149.9	123.8	111.3	77.7	93.6	104.7	120.8	15.5%	-4.2%	0.3%
Central America	60.1	61.8	68.7	71.6	72.1	72.9	80.7	63.7	72.4	75.0	81.0	8.0%	3.0%	0.2%
Other Caribbean	103.8	105.5	110.0	112.8	109.6	112.1	111.5	101.2	101.4	101.0	106.9	5.9%	0.3%	0.3%
Other South America	34.7	35.2	35.6	37.3	38.2	39.4	40.0	35.9	41.4	42.6	43.8	2.7%	2.4%	0.1%
Total S. & Cent. America	1344.9	1375.9	1357.9	1331.5	1315.3	1276.3	1257.3	1114.8	1250.2	1274.3	1308.1	2.7%	-0.3%	3.7%
Austria	62.8	59.0	61.6	62.1	64.5	62.3	63.8	56.2	59.3	56.3	53.8	-4.5%	-1.5%	0.2%
Belgium	117.3	109.0	115.2	116.9	118.8	125.5	121.8	105.3	113.9	109.7	103.3	-5.8%	-1.3%	0.3%
Bulgaria	40.7	43.2	45.9	43.1	45.9	42.7	41.5	36.1	42.0	46.4	35.5	-23.5%	-1.4%	0.1%
Croatia	16.1	15.8	16.2	16.7	17.1	16.3	16.3	14.9	15.7	16.0	16.0	-0.1%	-0.1%	0.0%
Cyprus	7.3	7.3	7.5	8.1	8.3	8.2	8.2	7.0	7.2	7.7	7.6	-0.5%	0.5%	0.0%
Czech Republic	105.0	102.0	102.8	104.8	104.8	103.8	98.2	88.4	92.9	91.9	82.9	-9.8%	-2.3%	0.2%
Denmark	43.0	39.2	36.7	38.0	35.5	35.8	32.6	27.4	28.8	29.8	28.4	-4.5%	-4.1%	0.1%
Estonia	24.5	23.5	21.4	22.2	24.5	24.1	18.3	15.7	16.8	17.8	15.0	-15.6%	-4.8%	0.0%
Finland	52.0	47.7	44.9	47.7	45.1	46.5	43.4	36.8	36.3	35.8	31.7	-11.5%	-4.8%	0.1%
France	339.5	304.4	308.9	314.2	319.1	308.9	301.5	252.9	278.6	272.5	254.6	-6.6%	-2.8%	0.7%
Germany	797.6	751.1	755.6	767.4	758.2	731.0	678.4	603.0	640.2	631.8	571.9	-9.5%	-3.3%	1.6%
Greece	79.9	76.1	73.8	70.7	75.0	73.6	69.6	56.3	59.6	62.8	59.4	-5.5%	-2.9%	0.2%
Hungary	42.0	41.3	43.8	44.7	46.9	47.3	47.1	44.6	46.0	43.3	39.1	-9.6%	-0.7%	0.1%
Iceland	2.6	2.6	2.9	2.8	3.1	3.3	2.8	1.8	2.1	2.6	2.4	-6.6%	-0.8%	0.0%
Ireland	37.5	37.2	38.7	40.4	39.3	39.1	37.6	33.4	35.5	36.2	34.0	-6.3%	-1.0%	0.1%
Italy	341.4	318.8	334.4	331.4	335.5	336.1	328.6	286.3	318.2	324.9	301.3	-7.3%	-1.2%	0.9%
Latvia	8.0	7.7	7.9	8.2	8.0	7.8	8.4	7.1	7.5	6.7	6.5	-2.1%	-1.9%	0.0%
Lithuania	11.7	11.0	11.3	11.8	12.0	12.6	12.4	12.1	12.4	11.9	11.7	-1.5%	0.0%	0.0%
Luxembourg	10.9	10.5	10.1	10.0	10.3	10.8	10.9	9.0	9.7	8.6	8.3	-3.8%	-2.7%	0.0%
Netherlands	211.4	202.5	207.6	208.0	204.3	198.2	193.7	173.1	176.9	164.8	156.1	-5.3%	-3.0%	0.4%
North Macedonia	8.1	7.7	7.4	7.5	7.8	7.5	8.3	7.0	7.1	7.9	8.2	-4.3%	0.1%	0.0%
Norway	37.5	37.4	38.0	37.0	37.1	37.3	36.0	33.7	34.6	34.7	34.0	-1.9%	-1.0%	0.1%
Poland	307.5	290.3	290.1	303.2	316.0	320.7	302.5	284.3	310.3	294.5	270.3	-8.2%	-1.3%	0.8%
Portugal	48.8	48.0	52.6	52.0	57.3	54.3	50.3	40.5	39.1	42.2	39.7	-5.7%	-2.0%	0.1%
Romania	70.4	70.7	71.5	69.1	72.6	72.2	70.7	64.5	69.6	64.8	59.9	-7.7%	-1.6%	0.2%
Slovakia	32.6	30.0	30.4	30.8	32.9	32.3	30.0	27.8	31.3	28.4	27.6	-2.6%	-1.6%	0.1%
Slovenia	14.1	12.6	12.7	13.6	13.9	13.9	13.3	11.9	12.1	11.6	10.4	-10.5%	-3.0%	0.0%
Spain	273.5	271.1	286.9	279.4	297.1	291.4	274.6	221.4	242.3	260.3	246.8	-5.2%	-1.0%	0.7%
Sweden	45.6	44.5	44.7	44.8	44.9	40.9	41.2	38.9	41.2	37.8	35.8	-5.3%	-2.4%	0.1%
Switzerland	43.4	38.9	39.6	38.1	38.9	37.1	38.2	32.6	33.3	32.8	32.7	-0.1%	-2.8%	0.1%
Türkiye	303.3	335.1	341.1	359.2	404.2	401.8	394.0	384.6	420.7	420.4	411.1	-2.2%	3.1%	1.2%
Ukraine	286.5	246.8	195.1	215.6	187.9	198.7	185.5	171.5	167.7	109.4	105.3	-3.7%	-9.5%	0.3%
United Kingdom	499.0	458.0	440.9	413.8	403.6	397.1	381.8	320.9	339.4	341.1				

 **Carbon** Carbon dioxide equivalent emissions from energy, process emissions, methane and flaring

Million tonnes of carbon dioxide equivalent	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	
Canada	615.8	625.0	620.3	608.9	627.7	643.8	632.0	567.8	580.0	596.7	599.4	0.4%	-0.3%	1.5%
Mexico	570.2	557.5	553.9	562.7	568.2	553.1	544.8	481.3	514.0	538.1	559.7	4.0%	-0.2%	1.4%
US	5610.0	5648.5	5540.6	5415.7	5375.0	5579.0	5474.3	4912.9	5197.2	5270.1	5130.1	-2.7%	-0.9%	12.7%
Total North America	6796.0	6831.0	6714.8	6587.3	6570.8	6776.0	6651.0	5962.0	6291.1	6405.0	6289.3	-1.8%	-0.8%	15.6%
Argentina	218.4	218.6	220.2	218.4	217.6	208.4	193.3	218.3	235.2	229.4	-2.5%	0.5%	0.6%	
Brazil	544.7	573.0	555.3	514.3	518.5	498.0	494.3	469.2	524.0	505.5	525.0	3.9%	-0.4%	1.3%
Chile	90.4	88.7	88.9	93.8	95.2	94.8	96.2	86.5	95.3	94.4	87.9	-6.9%	-0.3%	0.2%
Colombia	121.8	128.4	120.7	134.1	126.6	127.4	130.8	112.8	121.8	129.4	138.2	6.8%	1.3%	0.3%
Ecuador	47.7	50.5	49.2	47.2	45.7	48.0	46.7	39.1	46.6	50.4	56.2	11.7%	1.7%	0.1%
Peru	53.9	55.5	57.5	61.2	58.6	60.4	62.2	52.2	62.3	66.6	69.2	3.9%	2.5%	0.2%
Trinidad & Tobago	34.0	33.4	31.9	28.5	27.7	26.6	26.4	22.4	20.8	21.2	20.4	-3.7%	-5.0%	0.1%
Venezuela	364.4	359.3	342.7	320.2	287.8	244.1	214.5	156.4	174.8	195.2	225.0	15.3%	-4.7%	0.6%
Central America	64.2	66.0	73.0	75.7	76.4	76.9	84.5	66.9	75.8	78.5	84.5	7.7%	2.8%	0.2%
Other Caribbean	107.7	109.7	114.2	116.8	113.5	116.0	115.4	104.7	105.4	105.0	111.2	5.8%	0.3%	0.3%
Other South America	43.7	44.8	45.4	47.1	47.7	48.4	48.4	44.4	50.1	52.4	52.1	-0.5%	1.8%	0.1%
Total S. & Cent. America	1691.0	1727.8	1700.7	1659.2	1616.2	1558.7	1527.9	1347.9	1495.1	1533.7	1599.1	4.3%	-0.6%	4.0%
Austria	65.0	61.3	63.8	64.4	66.7	64.6	66.0	58.5	61.5	58.5	56.0	-4.3%	-1.5%	0.1%
Belgium	120.0	111.7	117.7	119.4	121.2	128.1	124.7	108.0	116.6	112.4	106.0	-5.7%	-1.2%	0.3%
Bulgaria	43.1	45.6	48.7	45.8	48.7	45.4	44.2	38.5	44.5	48.8	37.6	-22.9%	-1.3%	0.1%
Croatia	18.2	17.9	18.3	18.7	19.2	18.3	18.1	16.7	17.4	17.4	17.5	0.7%	-0.4%	0.0%
Czech Republic	111.4	108.3	109.2	111.1	110.9	109.9	104.5	94.0	98.2	96.5	87.8	-9.0%	-2.4%	0.2%
Denmark	45.3	41.5	39.0	40.5	37.9	38.0	34.6	29.3	30.6	31.6	30.1	-4.6%	-4.0%	0.1%
Estonia	25.0	24.0	21.7	22.5	24.9	24.5	18.7	15.8	16.9	17.9	15.1	-15.4%	-4.9%	0.0%
France	349.0	313.3	317.5	323.0	327.7	317.6	310.4	261.0	287.1	280.8	262.9	-6.3%	-2.8%	0.7%
Germany	815.0	768.2	772.5	784.5	776.3	748.7	696.1	620.6	658.3	649.2	589.4	-9.2%	-3.2%	1.5%
Greece	85.5	81.8	79.0	75.7	80.0	78.3	74.0	59.9	63.2	66.7	63.3	-5.2%	-3.0%	0.2%
Hungary	43.7	43.0	45.6	46.5	48.8	49.3	49.5	47.0	48.2	45.2	41.2	-8.8%	-0.6%	0.1%
Ireland	39.0	38.9	40.6	43.1	42.1	42.0	40.3	35.8	38.1	38.6	36.4	-5.9%	-0.7%	0.1%
Italy	355.3	331.7	347.4	343.8	348.1	348.7	341.3	298.1	331.0	337.0	312.7	-7.2%	-1.3%	0.8%
Lithuania	12.1	11.4	11.9	12.3	12.4	13.1	13.0	12.6	12.3	12.5	12.3	-1.4%	0.2%	0.0%
Netherlands	212.0	203.1	208.1	208.5	204.8	198.6	193.9	173.3	177.0	165.0	156.5	-5.2%	-3.0%	0.4%
North Macedonia	8.1	7.7	7.4	7.5	7.8	7.5	8.3	7.0	7.1	7.9	8.2	4.3%	0.1%	0.0%
Norway	39.8	39.5	40.1	39.2	39.1	37.7	35.5	36.4	36.4	35.5	35.5	-2.6%	-1.2%	0.1%
Poland	336.6	319.5	319.7	334.1	347.7	353.0	335.4	317.3	343.7	326.9	299.1	-8.5%	-1.2%	0.7%
Romania	80.0	80.6	81.6	78.6	82.5	82.2	80.8	74.4	79.6	74.5	69.6	-6.6%	-1.4%	0.2%
Slovakia	33.9	31.5	31.9	32.4	34.5	33.8	31.5	29.4	32.8	29.9	29.1	-2.6%	-1.5%	0.1%
Slovenia	14.5	13.1	13.1	14.0	14.3	14.4	13.8	12.4	12.6	12.1	10.9	-10.0%	-2.8%	0.0%
Spain	281.5	280.4	296.3	288.9	306.7	301.3	283.8	229.8	251.0	268.5	254.9	-5.1%	-1.0%	0.6%
Sweden	47.1	45.9	46.3	46.4	46.5	42.5	42.6	40.3	42.5	39.1	37.1	-4.9%	-2.3%	0.1%
Türkiye	342.4	375.1	380.1	402.0	448.8	446.9	433.0	432.2	471.9	464.0	457.1	-1.5%	2.9%	1.1%
Ukraine	323.9	280.6	225.4	246.0	217.2	229.6	215.5	200.8	196.8	132.6	131.4	-10%	-8.6%	0.3%
United Kingdom	511.1	470.1	453.5	427.0	416.6	409.8	394.4	332.6	350.4	351.2	338.5	-3.6%	-4.0%	0.8%
Other Europe	297.2	276.4	288.2	302.7	294.8	293.1	264.4	264.9	267.2	279.6	4.6%	-0.6%	0.7%	
Total Europe	4655.5	4422.3	4424.5	4469.8	4534.0	4483.6	4299.4	3849.4	4091.5	3988.3	3775.8	-5.3%	-2.1%	9.3%
Azerbaijan	40.8	41.2	43.2	42.5	41.1	43.8	44.1	43.4	46.2	49.2	54.3	10.4%	2.9%	0.1%
Belarus	63.9	62.9	58.1	58.3	59.2	64.5	65.0	59.3	60.5	58.3	55.2	-5.4%	-1.5%	0.1%
Kazakhstan	278.0	284.1	237.9	256.2	274.6	283.6	277.7	259.8	279.4	277.5	308.7	11.2%	1.1%	0.8%
Russian Federation	2060.5	2055.3	2029.5	2055.0	2052.9	2136.1	2139.2	2015.4	21					

Oil

In 2023, global oil production reached a record level of just over 96 million barrels per day. The US remained the largest producer seeing its output grow by over 8%. In contrast, Russia's production decreased by over 1% as a full year of international sanctions were felt. Southern & Central America continues to grow rapidly post-COVID and recorded the highest growth rate (11%) for any region in 2023. In Asia Pacific, China's production rose by 2%, accounting for around 57% of the region's total production.

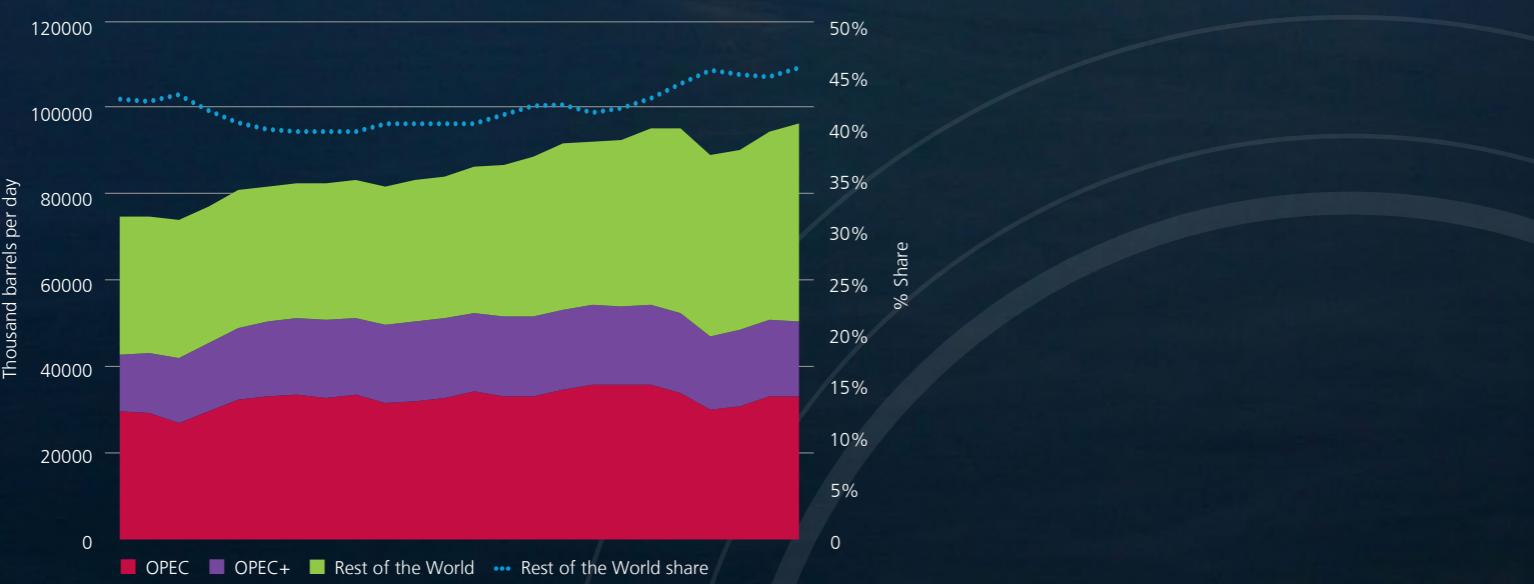
Whilst the US lost its position as the largest oil refining market by capacity with China

reaching 18,484 thousand barrels per day, throughput of refined products from China still lags the US with a utilisation of nearly 82% compared to around 87%.

Consumption of oil exceeded 100 million barrels of oil per day (mbpd) for the first time ever. Gasoline, diesel and kerosene (aviation) use are trending back to or beyond their 2019 levels, but within the data sets there are some national/regional differences. Whilst global gasoline consumption (25 mbpd) was just above its 2019 pre-COVID level, kerosene, although growing strongly (17.5% in 2023), has yet to return to its 2019 peak.

In 2023, production from non-OPEC+ countries exceeded global incremental demand growth by 20%

Oil production



Oil Production in thousands of barrels per day*

Thousand barrels daily	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share	
Canada	4000	4271	4388	4464	4813	5244	5372	5130	5414	5575	5653	1.4%	3.5%	5.9%
Mexico	2875	2784	2587	2456	2224	2068	1918	1910	1926	1943	2040	5.0%	-3.4%	2.1%
US	10101	11805	12782	12356	13140	15321	17135	16493	16693	17844	19358	8.5%	6.7%	20.1%
Total North America	16976	18860	19756	19278	20178	22633	24426	23533	24033	25361	27050	6.7%	4.8%	28.1%
Argentina	644	638	646	610	590	592	720	721	797	955	1074	12.5%	5.2%	1.1%
Brazil	2110	2341	2525	2607	2731	2691	2890	3030	2991	3112	3502	12.5%	5.2%	3.6%
Colombia	1010	990	1006	886	854	865	886	781	736	754	777	3.0%	-2.6%	0.8%
Ecuador	527	557	543	548	531	517	531	479	473	481	475	-1.2%	-1.0%	0.5%
Guyana	-	-	-	-	-	-	1	74	117	278	391	40.8%	-	0.4%
Peru	171	175	153	141	136	139	144	131	128	128	123	-3.9%	-3.2%	0.1%
Trinidad & Tobago	116	114	109	97	99	87	82	76	77	74	72	-2.8%	-4.7%	0.1%
Venezuela	2680	2692	2864	2566	2199	1642	1051	680	678	735	853	16.1%	-10.8%	0.9%
Other S. & Cent. America	152	154	146	135	133	128	121	112	114	108	99	-7.8%	-4.2%	0.1%
Total S. & Cent. America	7411	7661	7991	7590	7275	6661	6426	6086	6111	6626	7368	11.2%	-0.1%	7.7%
Denmark	178	167	158	142	138	116	103	72	66	65	60	-8.3%	-10.3%	0.1%
Italy	114	120	113	78	86	97	89	112	100	94	90	-4.4%	-2.3%	0.1%
Norway	1849	1894	1953	2004	1982	1863	1774	2018	2036	1906	2022	6.1%	0.9%	2.1%
Romania	86	84	83	79	76	75	75	72	70	66	63	-4.7%	-3.1%	0.1%
United Kingdom	865	854	964	1015	1005	1092	1118	1049	874	809	715	-11.6%	-1.9%	0.7%
Other Europe	344	341	331	312	303	308	302	289	274	275	275	0.5%	-2.2%	0.3%
Total Europe	3437	3460	3602	3630	3590	3550	3460	3612	3436	3214	3225	0.3%	-0.6%	3.4%
Azerbaijan	878	851	841	828	782	784	763	703	708	669	620	-7.2%	-3.4%	0.6%
Kazakhstan	1720	1701	1672	1637	1813	1900	1903	1796	1805	1891	1771	-6.4%	0.3%	1.8%
Russian Federation	10807	10927	11087	11342	11374	11562	11679	10666	11000	11202	11075	-1.1%	0.2%	11.5%
Turkmenistan	256	263	271	270	269	259	254	219	206	203	194	-4.2%	-2.7%	0.2%
Uzbekistan	69	63	60	57	61	64	62	44	46	45	43	-5.3%	-4.6%	†
Other CIS	35	35	36	36	37	38	39	39	41	43	44	3.2%	2.3%	†
Total CIS	13765	13840	13966	14171	14336	14607	14701	13468	13806	14053	13748	-2.2%	†	14.3%
Iran	3609	3714	3853	4578	4939	4720	3510	3230	3766	3945	4662	18.2%	2.6%	4.8%
Iraq	3099	3239	3986	4423	4538	4632	4779	4114	4102	4520	4355	-3.6%	3.5%	4.5%
Kuwait	3134	3106	3069	3150	3009	3050	2976	2721	2706	3036	2908	-4.2%	-0.7%	3.0%
Oman	942	943	981	1004	971	978	971	951	971	1064	1049	-1.5%	1.1%	1.1%
Qatar	1934	1892	1844	1846	1783	1798	1737	1715	1697	1743	1772	1.6%	-0.9%	1.8%
Saudi Arabia	11393	11519	11998	12406	11892	12261	11832	11039	10954	12191	11389	-6.6%	†	11.8%
Syria	59	33	27	25	25	24	34	43	43	43	40	-6.6%	-3.8%	†
United Arab Emirates	3540	3592	3876	4020	3880	3894	3984	3679	3640	4020	3922	-2.5%	1.0%	4.1%
Yemen	198	153	54	43	71	94	95	88	83	74	49	-32.8%	-13.0%	0.1%
Other Middle East	208	214	213	214	208	207	214	202	208	209	217	3.7%	0.4%	0.2%
Total Middle East	28117	28405	29901	31709	31316	31658	30132	27782	28171	30844	30362	-1.6%	0.8%	31.5%
Algeria	1485	1589	1558	1577	1540	1511	1487	1332	1353	1443	1408	-2.4%	-0.5%	1.5%
Angola	1738	1701	1796	1745	1671	1519	1420	1325	1177	1191	1150	-3.4%	-4.0%	1.2%
Chad	91	89	111	117	98	98	116	127	126	124	134	8.2%	4.0%	0.1%
Republic of Congo	243	253	234	232	270	330	336	307	274	269	278	3.5%	1.4%	0.3%
Egypt	710	714	726	691	660	674	653	632	608	613	610	-0.4%	-1.5%	0.6%
Equatorial Guinea	282	284	260	223	195	176	160	158	131	121	88	-27.0%	-11.0%	0.1%
Gabon	213	211	214	221	210	193	218	207	181	191	223	17.0%	0.4%	0.2%
Libya	1048													

Oil Production in million tonnes*

Million tonnes	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
Canada	195.4	209.8	216.1	218.8	236.6	257.7	263.5	252.0	266.6	273.9	277.9	1.4%	3.6%	6.2%
Mexico	141.8	137.1	127.5	121.4	109.5	94.9	95.1	96.4	97.6	102.5	5.0%	-3.2%	2.3%	
US	448.6	524.6	567.0	542.7	574.2	669.6	751.0	713.3	715.9	762.1	827.1	8.5%	6.3%	18.3%
Total North America	785.8	871.5	910.6	882.9	920.3	1029.6	1109.4	1060.4	1079.0	1133.6	1207.5	6.5%	4.4%	26.8%
Argentina	30.2	29.8	30.0	28.6	27.3	33.8	37.6	45.4	51.2	—	13.0%	5.4%	1.1%	
Brazil	110.2	122.5	132.2	136.7	142.6	140.6	151.2	159.3	156.9	163.2	183.7	12.5%	5.2%	4.1%
Colombia	53.2	52.2	53.0	46.8	45.0	45.6	46.7	41.3	38.8	39.7	40.9	3.0%	-2.6%	0.9%
Ecuador	28.2	29.8	29.1	29.5	28.5	27.7	28.5	25.8	25.3	25.8	25.5	-1.2%	-1.0%	0.6%
Guyana	—	—	—	—	—	0.1	3.7	5.8	13.8	19.5	40.8%	—	0.4%	
Peru	7.3	7.5	6.5	5.8	5.7	5.9	6.1	5.5	5.3	5.4	5.1	-4.4%	-3.4%	0.1%
Trinidad & Tobago	5.1	5.1	4.8	4.3	4.4	3.9	3.7	3.4	3.5	3.4	3.3	-1.8%	-4.2%	0.1%
Venezuela	137.8	138.5	147.6	132.6	113.2	84.3	53.4	34.6	34.5	37.5	43.7	16.6%	-10.8%	1.0%
Other S. & Cent. America	7.6	7.7	7.4	6.8	6.7	6.4	6.1	5.7	5.8	5.5	5.1	-7.4%	-4.0%	0.1%
Total S. & Cent. America	379.6	393.1	410.7	391.2	373.3	342.0	329.5	313.0	313.5	339.7	378.1	11.3%	†	8.4%
Denmark	8.7	8.1	7.7	6.9	6.7	5.6	5.0	3.5	3.2	3.2	2.9	-8.3%	-10.3%	0.1%
Italy	5.5	5.8	5.5	3.8	4.1	4.7	4.3	5.4	4.8	4.5	4.3	-4.5%	-2.4%	0.1%
Norway	83.5	85.4	88.0	90.7	89.4	83.9	80.3	92.7	94.3	89.2	94.7	6.2%	1.3%	2.1%
Romania	4.1	4.1	4.0	3.8	3.6	3.6	3.5	3.3	3.1	3.0	-4.7%	-3.2%	0.1%	
United Kingdom	40.6	39.9	45.3	47.4	46.6	50.9	51.8	49.0	40.9	37.8	33.4	-11.4%	-1.9%	0.7%
Other Europe	17.1	17.0	16.5	15.6	15.0	15.2	14.4	14.3	13.6	13.7	0.6%	-2.2%	0.3%	
Total Europe	159.5	160.3	166.9	168.2	165.5	163.9	160.0	168.4	160.9	151.4	152.1	0.5%	-0.5%	3.4%
Azerbaijan	43.5	42.1	41.7	41.1	38.7	38.8	37.6	34.6	34.6	32.7	30.2	-7.5%	-3.6%	0.7%
Kazakhstan	81.8	80.8	79.5	78.0	86.2	90.4	90.6	85.7	85.9	90.0	84.2	6.4%	0.3%	1.9%
Russian Federation	532.2	537.4	544.6	558.5	558.5	567.9	573.4	524.4	538.8	548.5	541.7	-1.3%	0.2%	12.0%
Turkmenistan	12.5	12.9	13.2	13.1	12.5	12.2	10.4	9.8	9.6	9.2	-4.0%	-3.0%	0.2%	
Uzbekistan	3.2	2.9	2.7	2.6	2.8	2.9	2.8	2.0	2.1	2.0	-5.2%	-4.6%	†	
Other CIS	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1	3.2%	2.3%	†	
Total CIS	674.9	677.9	683.4	695.2	701.1	714.3	718.5	659.1	673.2	685.0	669.5	-2.3%	-0.1%	14.8%
Iran	169.7	174.0	180.2	216.1	234.5	222.6	161.7	147.7	172.2	180.2	214.3	18.9%	2.4%	4.8%
Iraq	151.9	158.8	195.6	217.6	224.4	227.0	234.2	202.0	200.8	221.3	213.0	-3.7%	3.4%	4.7%
Kuwait	151.4	150.2	148.2	152.7	145.0	146.8	143.4	131.2	130.0	145.9	139.8	-4.2%	-0.8%	3.1%
Oman	46.1	46.2	48.0	49.3	47.6	47.8	47.3	46.1	46.8	51.4	50.6	-1.7%	0.9%	1.1%
Qatar	81.7	79.9	77.4	77.6	74.8	75.1	72.3	72.2	70.8	72.7	74.1	2.0%	-1.0%	1.6%
Saudi Arabia	538.4	543.8	568.0	586.7	559.3	576.8	556.6	519.6	510.0	574.2	531.7	-7.4%	-0.1%	11.8%
Syria	2.7	1.5	1.2	1.1	1.1	1.1	1.5	2.0	2.0	2.0	1.8	-6.9%	-3.8%	†
United Arab Emirates	161.6	162.9	175.1	181.6	174.9	176.0	179.9	165.9	163.4	181.1	176.1	-2.8%	0.9%	3.9%
Yemen	9.1	6.9	2.2	1.6	3.0	4.1	3.8	3.5	3.1	1.9	-37.7%	-14.4%	†	
Other Middle East	10.3	10.5	10.5	10.6	10.2	10.4	9.9	10.2	10.2	10.6	4.0%	0.3%	0.2%	
Total Middle East	1322.9	1334.8	1406.5	1495.0	1472.8	1487.4	1411.4	1300.3	1314.7	1442.1	1413.9	-2.0%	0.7%	31.4%
Algeria	64.8	68.8	67.2	68.4	66.6	65.3	64.3	57.6	58.2	62.1	60.4	-2.7%	-0.7%	1.3%
Angola	85.2	83.3	88.2	85.8	81.6	74.1	69.1	64.5	57.1	57.8	55.8	-3.5%	-4.1%	1.2%
Chad	4.8	4.7	5.8	6.1	5.2	6.1	6.7	6.6	6.1	7.0	8.2%	4.0%	0.2%	
Republic of Congo	12.3	12.9	11.9	11.9	13.8	16.9	17.2	15.8	14.0	14.2	3.5%	1.4%	0.3%	
Egypt	34.4	35.1	35.4	33.8	32.2	32.8	31.8	31.1	29.6	29.8	-0.3%	-1.4%	0.7%	
Equatorial Guinea	13.2	13.3	12.1	10.3	9.0	8.1	7.4	7.4	6.1	4.0	-27.7%	-11.2%	0.1%	
Gabon	10.7	10.5	10.7	11.0	10.5	9.7	10.9	10.4	9.0	11.1	17.0%	0.4%	0.2%	
Libya	49.4	24.4	20.5	19.3	43.8	54.9	58.0	19.7	60.4	53.6	59.7	11.4%	1.9%	1.3%
Nigeria	109.4	109.2	105.7	91.3	94.4	96.2	100.9	91.4	80.7	69.3	73.9	6.7%	-3.8%	1.6%
South Sudan	4.9	7.7	7.3	6.8	7.3	7.1	8.4	8.1	7.5	7.3	4.7%	4.0%	0.2%	
Sudan	5.8	5.9	5.4	4.2	3.4	3.7	3.6	3.1	3.2	2.8				

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

Thousand barrels daily	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013-23	
Canada	514	513	525	595	597	647	682	660	669	708	718	1.4%	3.4%	5.3%
Mexico	353	355	320	302	276	235	217	205	170	158	164	3.8%	-7.3%	1.2%
US	2606	3015	3342	3509	3783	4369	4824	5175	5425	5933	6431	8.4%	9.5%	47.2%
Total North America	3473	3883	4187	4407	4656	5252	5724	6040	6263	6800	7313	7.6%	7.7%	53.7%
Argentina	104	105	114	99	110	102	112	120	114	123	128	3.7%	2.0%	0.9%
Brazil	86	87	88	97	110	104	102	90	86	91	101	10.7%	1.6%	0.7%
Colombia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ecuador	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Guyana	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peru	54	54	49	50	48	47	49	48	46	43	43	1.7%	-2.1%	0.3%
Trinidad & Tobago	34	33	30	25	27	24	23	20	17	15	12	-23.4%	-10.2%	0.1%
Venezuela	116	114	117	105	104	88	80	52	49	47	44	-5.0%	-9.2%	0.3%
Other S. & Cent. America	17	14	13	12	15	14	13	13	12	11	-9.7%	-4.0%	0.1%	-
Total S. & Cent. America	412	407	411	389	414	379	378	342	325	331	339	2.4%	-1.9%	2.5%
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	306	324	338	349	352	335	301	293	252	197	204	3.6%	-4.0%	1.5%
Romania	3	3	3	4	3	4	4	4	4	3	-6.2%	1.8%	†	-
United Kingdom	55	62	60	82	92	90	99	88	67	56	-16.3%	0.1%	0.4%	-
Other Europe	16	14	14	15	18	18	17	15	16	15	-1.0%	-0.3%	0.1%	-
Total Europe	380	404	415	450	466	446	421	400	339	284	281	-1.3%	-3.0%	2.1%
Azerbaijan	1	2	1	1	1	1	1	1	1	2	39.5%	2.2%	†	-
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Russian Federation	278	448	470	479	476	479	493	474	544	533	522	-2.2%	6.5%	3.8%
Turkmenistan	17	17	17	20	21	23	27	30	27	28	-6.2%	5.3%	0.2%	-
Uzbekistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total CIS	297	467	488	500	497	503	521	505	573	565	551	-2.3%	6.4%	4.0%
Iran	418	441	461	488	448	479	437	496	582	633	722	14.1%	5.6%	5.3%
Iraq	41	40	41	48	64	64	68	64	70	74	84	13.3%	7.3%	0.6%
Kuwait	287	276	288	290	305	313	299	283	291	329	318	-3.2%	1.0%	2.3%
Oman	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	471	466	470	473	450	471	470	427	441	457	461	0.8%	-0.2%	3.4%
Saudi Arabia	1518	1577	1578	1718	1717	1728	1687	1609	1560	1682	1780	5.8%	1.6%	13.1%
Syria	14	10	8	8	8	9	9	10	10	10	-3.0%	-3.9%	0.1%	-
United Arab Emirates	482	539	614	654	630	600	639	608	625	656	671	2.2%	3.3%	4.9%
Yemen	24	25	26	26	27	28	28	28	28	28	-1.2%	0.2%	-	-
Other Middle East	10	10	10	10	10	11	19	18	15	16	-1.4%	5.0%	0.1%	-
Total Middle East	3266	3386	3494	3715	3659	3703	3705	3543	3622	3885	4088	5.2%	2.3%	30.0%
Algeria	210	260	268	261	254	252	247	233	248	265	271	2.2%	2.6%	2.0%
Angola	22	30	16	23	39	40	47	47	47	47	-0.8%	7.7%	0.3%	-
Chad	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Republic of Congo	9	8	7	7	7	7	7	7	7	7	-2.5%	0.1%	-	-
Egypt	67	47	64	60	57	58	56	44	47	45	45	1.5%	-3.8%	0.3%
Equatorial Guinea	21	19	17	19	21	19	17	15	12	13	-21.8%	-7.1%	0.1%	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Libya	22	8	15	15	20	21	27	15	40	40	40	-6.0%	0.3%	-
Nigeria	82	86	80	76	77	79	79	61	59	67	70	4.3%	-1.6%	0.5%
South Sudan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	6	5	5	7	6	5	4	4	5	5	45.0%	-2.6%	†	-
Other Africa	-	-	-	-	-	1	1	3	7	11	39.1%	-0.1%	-	-
Total Africa	440	462	472	469	481	486	430	471	497	509	2.4%	1.5%	3.7%	
Australia	66	67	56	64	59	60	97	103	109	101	101	0.9%	4.4%	0.7%
Brunei	13	12	11	12	13	12	10	8	9	9	-3.9%	0.1%	-	-
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-
India	136	136	133	144	153	173	174	159	151	130	123	-5.4%	-1.1%	0.9%
Indonesia	46	58	52	44	36	36	35	34	33	34	35	1.9%	-2.7%	0.3%
Malaysia	39	39	35	59	58	60	62	59	60	59	57	-2.1%	4.0%	0.4%
Thailand	225	231	233	231	247	247	246	219	221	185	188	1.6%	-1.8%	1.4%
Vietnam	10	10	9	10	9	13	12	12	11	11	13	10.6%	2.9%	0.1%
Other Asia Pacific	38													

Oil Consumption in thousands of barrels per day*

Thousand barrels daily	Growth rate per annum												Share		
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013-23	2023	
Canada	2413	2408	2431	2439	2408	2476	2486	2121	2219	2312	2351	1.7%	-0.3%	2.3%	
Mexico	2168	2087	2038	2085	2038	1918	1818	1602	1770	1931	1962	1.6%	-1.0%	2.0%	
US	17992	18111	18499	18593	18845	19417	19424	17183	18785	18862	18984	0.6%	0.5%	18.9%	
Total North America	22573	22606	22968	23117	23291	23811	23727	20907	22774	23106	23296	0.8%	0.3%	23.2%	
Argentina	685	678	695	677	672	645	567	504	613	723	690	-4.7%	0.1%	0.7%	
Brazil	2651	2747	2583	2453	2485	2368	2361	2218	2394	2512	2567	2.2%	-0.3%	2.6%	
Chile	348	347	340	359	366	379	378	346	380	411	416	1.3%	1.8%	0.4%	
Colombia	335	356	323	393	389	392	394	331	429	478	484	1.3%	3.7%	0.5%	
Ecuador	247	260	254	239	236	255	249	203	248	271	287	6.2%	1.5%	0.3%	
Peru	215	213	227	241	246	254	262	201	248	261	269	2.9%	2.2%	0.3%	
Trinidad & Tobago	43	40	44	45	40	34	35	30	30	32	33	3.1%	-2.6%	†	
Venezuela	869	809	711	628	548	425	411	230	247	310	396	27.8%	-7.5%	0.4%	
Central America	370	383	421	437	452	449	486	387	446	471	499	6.1%	3.0%	0.5%	
Other Caribbean	600	609	640	657	652	612	527	531	529	556	5.0%	-0.8%	0.6%		
Other South America	197	197	202	212	216	225	230	206	240	245	247	0.7%	2.3%	0.2%	
Total S. & Cent. America	6561	6640	6440	6342	6302	6084	5986	5184	5805	6244	6445	3.2%	-0.2%	6.4%	
Austria	251	244	247	253	254	259	265	230	244	234	234	0.1%	-0.7%	0.2%	
Belgium	603	597	613	615	620	668	541	600	583	556	-4.5%	-0.8%	0.6%		
Bulgaria	79	85	95	97	102	101	105	95	100	106	-0.8%	3.0%	0.1%		
Croatia	63	65	68	73	71	69	59	63	68	70	2.3%	1.0%	0.1%		
Cyprus	46	45	46	51	52	44	45	48	48	-0.2%	0.5%	†			
Czech Republic	181	192	184	172	205	207	209	181	201	205	206	0.2%	1.3%	0.2%	
Denmark	150	150	153	153	153	154	154	130	133	152	153	0.7%	0.2%	0.2%	
Estonia	31	29	29	29	30	30	27	27	28	27	-4.0%	-1.6%	†		
Finland	208	197	196	206	200	200	199	178	168	179	164	-8.4%	-2.3%	0.2%	
France	1606	1553	1579	1547	1538	1528	1275	1373	1360	1348	-0.9%	-1.7%	1.3%		
Germany	2336	2273	2269	2310	2372	2247	2270	2047	2038	2072	1955	-5.7%	-1.8%	2.0%	
Greece	282	281	294	293	298	294	304	246	261	297	297	†	0.5%	0.3%	
Hungary	128	142	153	150	164	175	176	161	175	172	167	-3.0%	2.7%	0.2%	
Iceland	15	16	17	19	21	23	19	13	14	18	17	-5.8%	1.3%	†	
Ireland	139	138	143	150	149	155	154	130	141	149	148	-0.7%	0.6%	0.1%	
Italy	1261	1196	1264	1255	1274	1300	1259	1039	1156	1236	1221	-1.2%	-0.3%	1.2%	
Latvia	33	34	35	36	37	34	38	33	35	34	35	0.8%	0.3%	†	
Lithuania	52	51	56	61	63	67	67	62	63	64	65	2.0%	2.3%	0.1%	
Luxembourg	57	55	54	54	57	60	61	49	53	48	47	-2.8%	-1.9%	†	
Netherlands	944	934	914	932	939	919	889	849	846	827	850	2.8%	-1.0%	0.8%	
North Macedonia	19	19	20	23	22	23	23	21	22	24	24	1.2%	2.7%	†	
Norway	221	216	221	215	217	226	215	201	206	209	213	2.2%	-0.4%	0.2%	
Poland	500	501	528	576	650	667	683	644	674	698	700	0.2%	3.4%	0.7%	
Portugal	232	232	236	239	240	239	247	203	209	228	216	-5.1%	-0.7%	0.2%	
Romania	177	181	184	193	204	204	215	206	221	224	223	-0.3%	2.4%	0.2%	
Slovakia	73	68	74	77	86	87	83	87	88	88	0.5%	2.0%	0.1%		
Slovenia	50	49	49	52	53	54	52	43	47	49	44	-11.1%	-1.3%	†	
Spain	1153	1159	1202	1233	1243	1262	1265	1016	1123	1245	1228	-1.4%	0.6%	1.2%	
Sweden	286	282	277	288	294	261	266	237	266	240	240	†	-1.7%	0.2%	
Switzerland	247	225	227	214	220	211	216	179	180	185	188	1.7%	-2.7%	0.2%	
Türkiye	734	755	884	940	1014	1018	1025	970	1033	1072	1136	6.0%	4.5%	1.1%	
Ukraine	274	244	215	228	230	240	239	227	230	201	204	1.6%	-2.9%	0.2%	
United Kingdom	1481	1484	1529	1563	1587	1564	1528	1183	1217	1309	1325	1.2%	-1.1%	1.3%	
Other Europe	299	294	305	324	341	338	350	325	341	355	360	1.7%	1.9%	0.4%	
Total Europe	14211	13984	14358	14616	15040	14947	14882	12926	13591	14009	13904	-0.8%	-0.2%	13.9%	
Azerbaijan	101	100	100	99	100	114	115	105	120	126	130	3.1%	2.5%	0.1%	
Belarus	159	163	137	147	147	171	174	166	159	147	148	1.2%	-0.7%	0.1%	
Kazakhstan	285	294	274	279	283	304	307	264	327	323	349	8.1%	2.0%	0.3%	
Russian Federation	3218	3365	3												

Oil Regional consumption – by product group

Thousand barrels daily	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
North America														
Light distillates	9871	9914	10138	10310	10244	10234	10142	8710	9424	9472	9598	1.3%	-0.3%	9.6%
of which: gasoline	9492	9566	9801	9965	9945	9932	9859	8445	9158	9248	9364	1.2%	-0.1%	9.3%
of which: naphtha	379	348	337	345	298	303	282	265	266	224	234	4.7%	-4.7%	0.2%
Middle distillates	6422	6678	6762	6619	6778	7076	6962	5745	6389	6656	6546	-1.6%	0.2%	6.5%
of which: diesel/gasoil	4791	5001	4995	4777	4859	5112	4963	4540	4863	4868	4637	-4.7%	-0.3%	4.6%
of which: jet/kerosene	1631	1676	1767	1842	1920	1964	1999	1205	1526	1788	1909	6.8%	1.6%	1.9%
Fuel oil	599	468	442	516	548	495	440	315	468	478	427	-10.7%	-3.3%	0.4%
Others	5682	5546	5626	5671	5721	6006	6184	6137	6492	6499	6725	3.5%	1.7%	6.7%
of which: ethane and LPG	3366	3292	3361	3428	3453	3789	3838	3959	4082	4027	4169	3.5%	2.2%	4.2%
Total North America	22573	22606	22968	23117	23291	23811	23727	20907	22774	23106	23296	0.8%	0.3%	23.2%
of which: US														
Light distillates	8263	8287	8503	8613	8621	8633	8579	7419	8103	8045	8167	1.5%	-0.1%	8.1%
of which: gasoline	7993	8056	8280	8394	8393	8400	8372	7235	7917	7907	8025	1.5%	†	8.0%
of which: naphtha	270	231	223	219	228	233	207	185	185	139	142	2.4%	-6.2%	0.1%
Middle distillates	5259	5519	5534	5438	5580	5815	5793	4793	5254	5417	5322	-1.7%	0.1%	5.3%
of which: diesel/gasoil	3819	4040	3979	3815	3893	4103	4043	3709	3878	3852	3660	-5.0%	-0.4%	3.7%
of which: jet/kerosene	1440	1479	1555	1623	1687	1712	1750	1084	1376	1565	1663	6.3%	1.5%	1.7%
Fuel oil	317	256	258	325	341	317	275	208	314	329	275	-16.5%	-1.4%	0.3%
Others	4153	4049	4204	4216	4303	4652	4777	4763	5114	5071	5219	2.9%	2.3%	5.2%
of which: ethane and LPG	2514	2447	2493	2516	2570	2921	2967	3056	3228	3148	3235	2.7%	2.6%	3.2%
Total US	17992	18111	18499	18593	18845	19417	19424	17183	18785	18862	18984	0.6%	0.5%	18.9%
S. & Cent. America														
Light distillates	1721	1752	1710	1724	1769	1651	1663	1322	1568	1730	1770	2.3%	0.3%	1.8%
of which: gasoline	1509	1539	1478	1503	1532	1438	1437	1154	1378	1503	1566	4.2%	0.4%	1.6%
of which: naphtha	212	213	232	221	237	213	226	168	190	227	204	-10.2%	-0.4%	0.2%
Middle distillates	2656	2675	2589	2554	2516	2548	2550	2189	2465	2661	2720	2.2%	0.2%	2.7%
of which: diesel/gasoil	2354	2353	2260	2231	2187	2198	2198	2014	2253	2365	2381	0.7%	0.1%	2.4%
of which: jet/kerosene	302	323	329	323	329	350	352	174	212	296	339	14.6%	1.2%	0.3%
Fuel oil	714	731	727	665	611	566	587	546	596	570	621	9.0%	-1.4%	0.6%
Others	1470	1482	1413	1398	1407	1319	1187	1126	1175	1283	1334	3.9%	-1.0%	1.3%
Total S. & Cent. America	6561	6640	6440	6342	6302	6084	5986	5184	5805	6244	6445	3.2%	-0.2%	6.4%
of which: Brazil														
Light distillates	695	716	675	682	717	623	633	554	620	699	716	2.4%	0.3%	0.7%
of which: gasoline	547	576	522	541	556	483	481	450	495	542	580	6.9%	0.6%	0.6%
of which: naphtha	148	140	153	141	161	140	152	104	125	157	136	-13.1%	-0.8%	0.1%
Middle distillates	1139	1169	1100	1030	1027	1045	1043	981	1063	1121	1149	2.6%	0.1%	1.1%
of which: diesel/gasoil	1013	1039	973	913	911	915	922	918	987	1018	1036	1.8%	0.2%	1.0%
of which: jet/kerosene	126	129	127	117	116	130	121	63	76	103	113	9.6%	-1.1%	0.1%
Fuel oil	167	191	187	141	137	112	112	112	135	100	96	-4.2%	-5.4%	0.1%
Others	649	671	622	601	604	587	573	572	576	592	605	2.2%	-0.7%	0.6%
of which: ethane and LPG	339	339	324	326	322	322	318	319	313	311	316	1.6%	-0.7%	0.3%
Total Brazil	2651	2747	2583	2453	2485	2368	2361	2218	2394	2512	2567	2.2%	-0.3%	2.6%
Europe														
Light distillates	2999	2923	2863	2880	2932	2863	2836	2604	2787	2721	2757	1.3%	-0.8%	2.8%
of which: gasoline	2014	1983	1934	1936	1942	2011	2041	1759	1914	2012	2114	5.1%	0.5%	2.1%
of which: naphtha	985	941	929	944	990	853	795	846	873	708	643	-9.3%	-4.2%	0.6%
Middle distillates	7423	7368	7743	7891	8160	8161	8187	6796	7238	7681	7635	-0.6%	0.3%	7.6%
of which: diesel/gasoil	6173	6087	6398	6500	6684	6624	6617	6053	6383	6379	6181	-3.1%	†	6.2%
of which: jet/kerosene	1250	1282	1345	1391	1476	1537	1570	743	855	1302	1454	11.7%	1.5%	1.5%
Fuel oil	1049	985	916	920	978	980	943	790	794	828	780	-5.8%	-2.9%	0.8%
Others	2740	2707	2835	2925	2969	2944	2916	2735	2772	278				

Oil Spot crude prices

US dollars per barrel	Dubai \$/bbl ¹	Brent \$/bbl ²	Nigerian Forcados \$/bbl ³	West Texas Intermediate \$/bbl ⁴
1972	1.90	—	—	—
1973	2.83	—	—	—
1974	10.41	—	—	—
1975	10.70	—	—	—
1976	11.63	12.80	12.87	12.23
1977	12.38	13.92	14.21	14.22
1978	13.03	14.02	13.65	14.55
1979	29.75	31.61	29.25	25.08
1980	35.69	36.83	36.98	37.96
1981	34.32	35.93	36.18	36.08
1982	31.80	32.97	33.29	33.65
1983	28.78	29.55	29.54	30.30
1984	28.06	28.78	28.14	29.39
1985	27.53	27.56	27.75	27.98
1986	13.10	14.43	14.46	15.05
1987	16.95	18.44	18.39	19.19
1988	13.18	14.92	15.00	15.98
1989	15.59	18.23	18.30	19.67
1990	20.21	23.73	23.85	24.46
1991	16.70	20.00	20.11	21.53
1992	17.18	19.32	19.61	20.57
1993	14.99	16.97	17.41	18.45
1994	14.69	15.82	16.25	17.21
1995	16.08	17.02	17.26	18.42
1996	19.26	20.67	21.16	22.16
1997	18.31	19.09	19.33	20.61
1998	12.30	12.72	12.63	14.39
1999	16.90	17.97	17.98	19.31
2000	26.27	28.50	28.42	30.37
2001	22.78	24.44	24.23	25.93
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
2023	82.09	82.64	83.60	78.88

Source: S&P Global Commodity Insights, ©2024 by S&P Global Inc

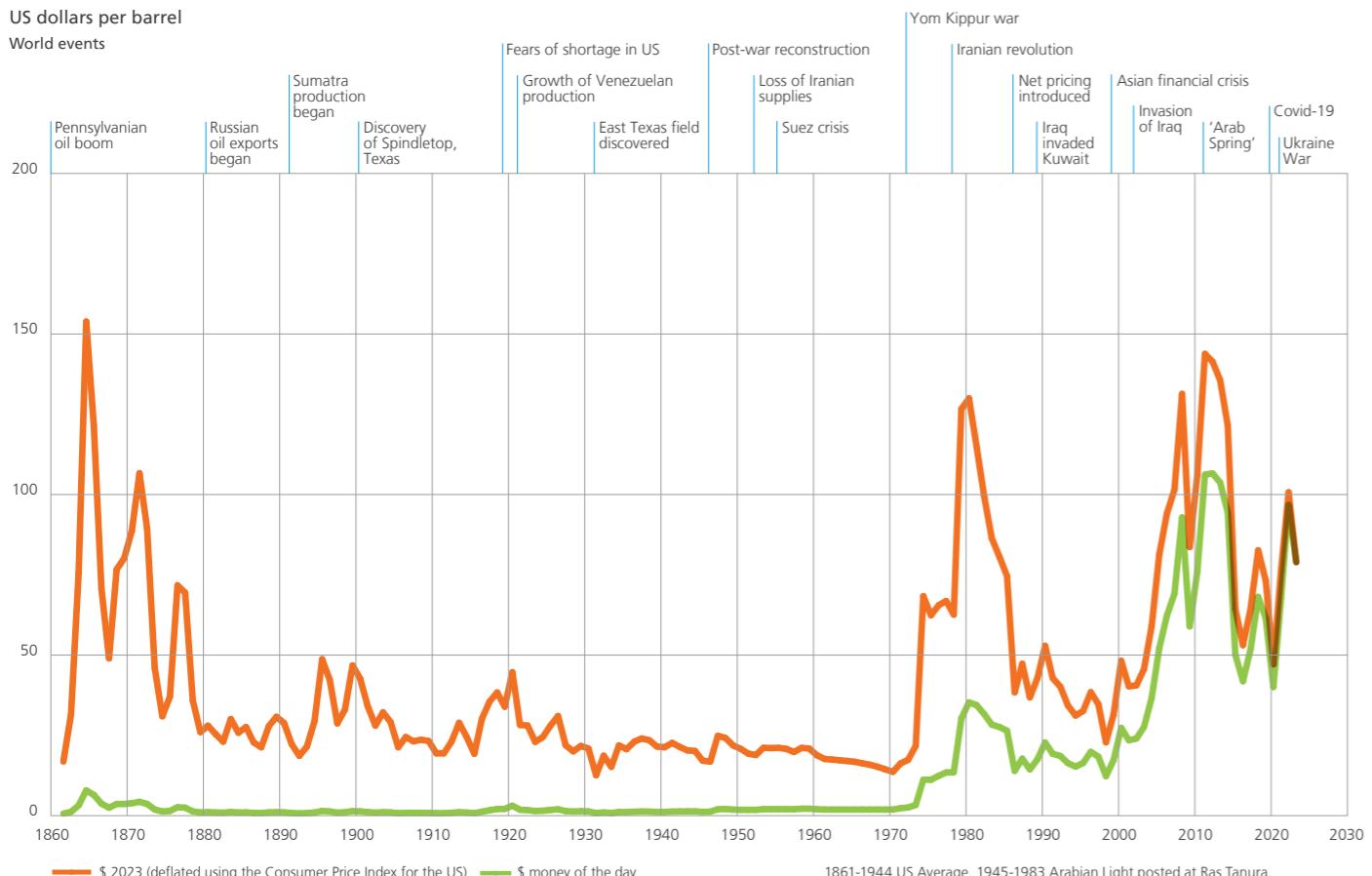
¹ 1972-1985 Arabian Light, 1986-2023 Dubai dated.

² 1976-1983 Forties, 1984-2023 Brent dated.

³ Forcados FOB Nigeria.

⁴ 1976-1983 Posted WTI prices, 1984-2023 Spot WTI (Cushing) prices.

Crude oil prices 1861–2023



1861-1944 US Average. 1945-1983 Arabian Light posted at Ras Tanura.
1984-2023 Brent dated. \$ 2023 (deflated using the Consumer Price Index for the US)

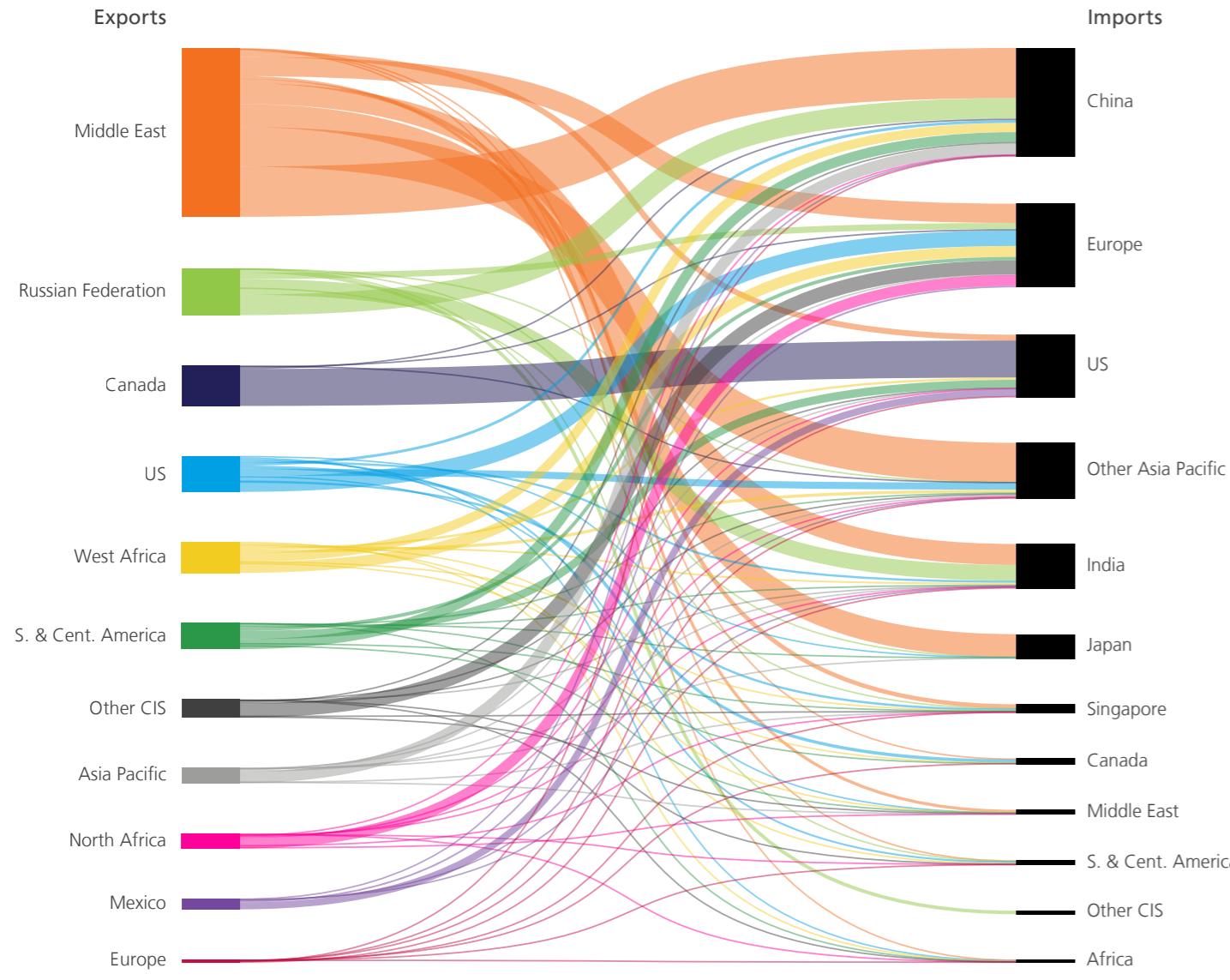
Oil Refining capacity

Thousand barrels daily*	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share
Canada	1929	1929	1931	1934	1970	1939	2054	2065	1954	1954	1954	-0.1%	1.9%
Mexico	1606	1522	1522	1546	1558	1558	1558	1558	1558	1558	1558	-0.3%	1.5%
US	17925	17967	18317	18617	18598	18808	18974	18143	17941	18061	18429	2.0%	0.3%
Total North America	21460	21418	21770	22073	22113	22305	22586	21766	21453	21573	21941	1.7%	0.2%
Argentina	657	657	657	657	580	580	580	580	580	580	580	-1.2%	0.6%
Brazil	2097	2238	2281	2285	2285	2290	2290	2303	2304	2290	2290	-0.6%	2.2%
Chile	242	242	242	242	242	242	242	242	242	242	242	-	0.2%
Colombia	336	336	421	421	421	421	421	421	421	421	501	19.0%	4.1%
Curaçao	320	320	320	320	320	320	320	320	320	320	320	-	0.3%
Ecuador	175	175	175	175	175	175	175	175	175	175	175	-	0.2%
Netherlands Antilles	—	—	—	—	—	—	—	—	—	—	—	—	—
Peru	253	253	253	253	253	253	253	253	253	253	253	-	1.1%
Trinidad & Tobago	175	175	175	175	175	175	175	175	175	175	175	-20.0%	0.1%
Venezuela	1303	1303	1303	1303	1303	1303	1303	1303	1303	1303	1303	-	1.3%
Other S. & Cent. America	655	657	675	675	675	675	675	680	400	384	384	-4.0%	-5.2%
Total S. & Cent. America	6213	6356	6502	6510	6506	6429	6434	6614	6375	6214	6239	0.4%	6.0%
Austria	193	193	193	193	193	193	193	193	193	193	193	-	0.2%
Belgium	776	776	776	776	776	776	776	776	776	776	776	-1.8%	0.6%
Bulgaria	195	195	195	195	195	195	195	195	195	195	195	-	0.2%
Czech Republic	175	175	175	175	175	175	175	175	175	175	175	-	0.2%
Denmark	181	180	180	180	181	181	181	181	181	181	181	-	0.2%
Finland	261	261	261	261	261	261	261	261	261	261	261	-	0.2%
France	1375	1375	1375	1245	1245	1245	1245	1245	1145	1145	1145	-1.8%	1.1%
Germany	2061	2077	2049	2051	2069	2062	2062	2062	2121	2121	2076	-2.1%	2.0%
Greece	498	498	528	528	528	528	528	528	528	528	528	-0.6%	0.5%
Hungary	165	165	165	165	165	165	165	165	165	165	165	-	0.2%
Ireland	75	75	75	75	75	75	75	75	75	75	75	-	0.1%
Italy	1861	1900	1900	1900</td									

Oil Refinery throughput

Thousand barrels daily*	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013-23	
Canada	1719	1615	1640	1594	1757	1653	1822	1585	1653	1696	1716	-1.1%	+†	2.1%
Mexico	1223	1155	1064	933	767	612	592	591	712	816	792	-2.9%	-4.3%	1.0%
US	15312	15848	16188	16187	16590	16969	16563	14212	15148	15977	15963	-0.1%	0.4%	19.2%
Total North America	18254	18618	18892	18714	19114	19234	18977	16387	17513	18489	18471	-0.1%	0.1%	22.3%
Argentina	527	526	536	511	500	470	476	417	472	489	519	6.1%	-0.2%	0.6%
Brazil	2035	2085	1972	1812	1741	1733	1751	1769	1818	1935	1987	2.7%	-0.2%	2.4%
Chile	174	174	165	163	172	172	186	172	192	174	183	5.1%	0.5%	0.2%
Colombia	284	247	244	339	355	415	415	355	375	388	398	2.7%	3.4%	0.5%
Curaçao	170	189	178	156	84	29	4	—	—	—	—	-100.0%	—	—
Ecuador	141	125	121	150	156	159	142	116	163	170	175	3.0%	2.2%	0.2%
Netherlands Antilles	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Peru	186	188	188	194	213	209	192	105	138	132	131	-0.7%	-3.4%	0.2%
Trinidad & Tobago	132	105	125	148	131	99	—	—	—	—	—	-100.0%	0.0%	—
Venezuela	952	920	863	654	544	306	135	123	135	138	137	-0.3%	-17.6%	0.2%
Other S. & Cent. America	286	277	275	231	197	240	234	240	283	230	237	3.1%	-1.9%	0.3%
Total S. & Cent. America	4887	4836	4667	4359	4093	3832	3537	3298	3577	3655	3767	3.1%	-2.6%	4.5%
Austria	174	173	179	164	162	180	183	162	166	113	160	42.3%	-0.8%	0.2%
Belgium	555	645	644	640	685	663	693	545	577	558	606	8.7%	0.9%	0.7%
Bulgaria	113	104	121	125	136	118	137	97	84	141	126	-10.8%	1.1%	0.2%
Czech Republic	134	151	145	109	158	151	158	122	143	150	150	0.5%	1.2%	0.2%
Denmark	144	139	147	140	151	152	154	142	150	145	150	3.3%	0.4%	0.2%
Finland	227	225	197	226	226	233	240	219	159	186	197	5.7%	-1.4%	0.2%
France	1117	1096	1152	1122	1149	1085	978	665	683	829	913	10.1%	-2.0%	1.1%
Germany	1857	1833	1875	1887	1870	1752	1763	1685	1690	1801	1598	-11.3%	-1.5%	1.9%
Greece	399	416	436	464	483	489	462	445	476	442	469	6.3%	1.6%	0.6%
Hungary	120	131	130	133	131	141	137	135	134	129	139	7.7%	1.5%	0.2%
Ireland	57	55	68	64	64	61	51	57	61	60	56	-7.6%	-0.2%	0.1%
Italy	1259	1198	1347	1293	1399	1346	1355	1105	1224	1317	1292	-1.9%	0.3%	1.6%
Lithuania	192	160	170	187	197	195	191	157	160	165	182	10.0%	-0.5%	0.2%
Netherlands	1065	1090	1157	1172	1180	1192	1217	1103	1151	1129	1201	6.5%	1.2%	1.4%
Norway	292	274	293	230	281	305	265	237	222	145	158	9.1%	-5.9%	0.2%
Poland	488	486	532	517	508	540	546	516	497	535	503	-5.9%	0.3%	0.6%
Portugal	239	217	278	279	284	252	223	218	191	204	185	-9.0%	-2.5%	0.2%
Romania	189	194	208	228	225	232	244	206	193	235	207	-11.9%	0.9%	0.2%
Slovakia	116	105	119	115	112	109	103	112	111	108	105	-3.1%	-1.0%	0.1%
Spain	1168	1185	1306	1302	1326	1363	1318	1105	1143	1273	1243	-2.4%	0.6%	1.5%
Sweden	332	380	401	395	392	406	337	349	366	369	352	-4.5%	0.6%	0.4%
Switzerland	97	98	56	59	57	61	55	56	46	61	57	-6.9%	-5.3%	0.1%
Türkiye	421	406	526	531	542	472	673	655	692	736	726	-1.4%	5.6%	0.9%
Ukraine	85	69	64	64	77	47	50	56	62	49	51	4.0%	-5.1%	0.1%
United Kingdom	1197	1125	1118	1071	1073	1041	1044	880	889	1017	938	-7.8%	-2.4%	1.1%
Other Europe	136	128	141	148	165	166	123	110	114	122	113	-6.8%	-1.8%	0.1%
Total Europe	12173	12082	12810	12666	13032	12751	12699	11139	11383	12018	11878	-1.2%	-0.2%	14.3%
Azerbaijan	132	135	130	120	118	122	124	118	133	126	126	-0.2%	-0.5%	0.2%
Belarus	425	448	462	372	364	366	359	326	327	306	314	2.7%	-3.0%	0.4%
Kazakhstan	341	361	342	339	355	374	392	367	391	457	463	1.2%	3.1%	0.6%
Russian Federation	5636	5926	5773	5715	5703	5864	5824	5504	5723	5534	5668	2.4%	0.1%	6.8%
Turkmenistan	146	136	127	118	125	117	122	118	117	120	121	0.8%	-1.8%	0.1%
Uzbekistan	61	50	57	57	58	70	60	57	46	48	56	16.7%	-0.8%	0.1%
Other CIS	2	4	7	8	9	11	7	4	7	7	8	6.6%	13.5%	†
Total CIS	6742	7060	6899	6730	6732	6924	6889	6494	6744	6599	6756	2.4%	†	8.1%
Bahrain	264	257	266	258	262	260	264	230	223	251	246	-2.1%	-0.7%	0.3%
Iran	2000	1941	1868	1875	1897	2087	2101	2193	2344	2391	2578	7.8%	2.6%	3.1%
Iraq	598	48												

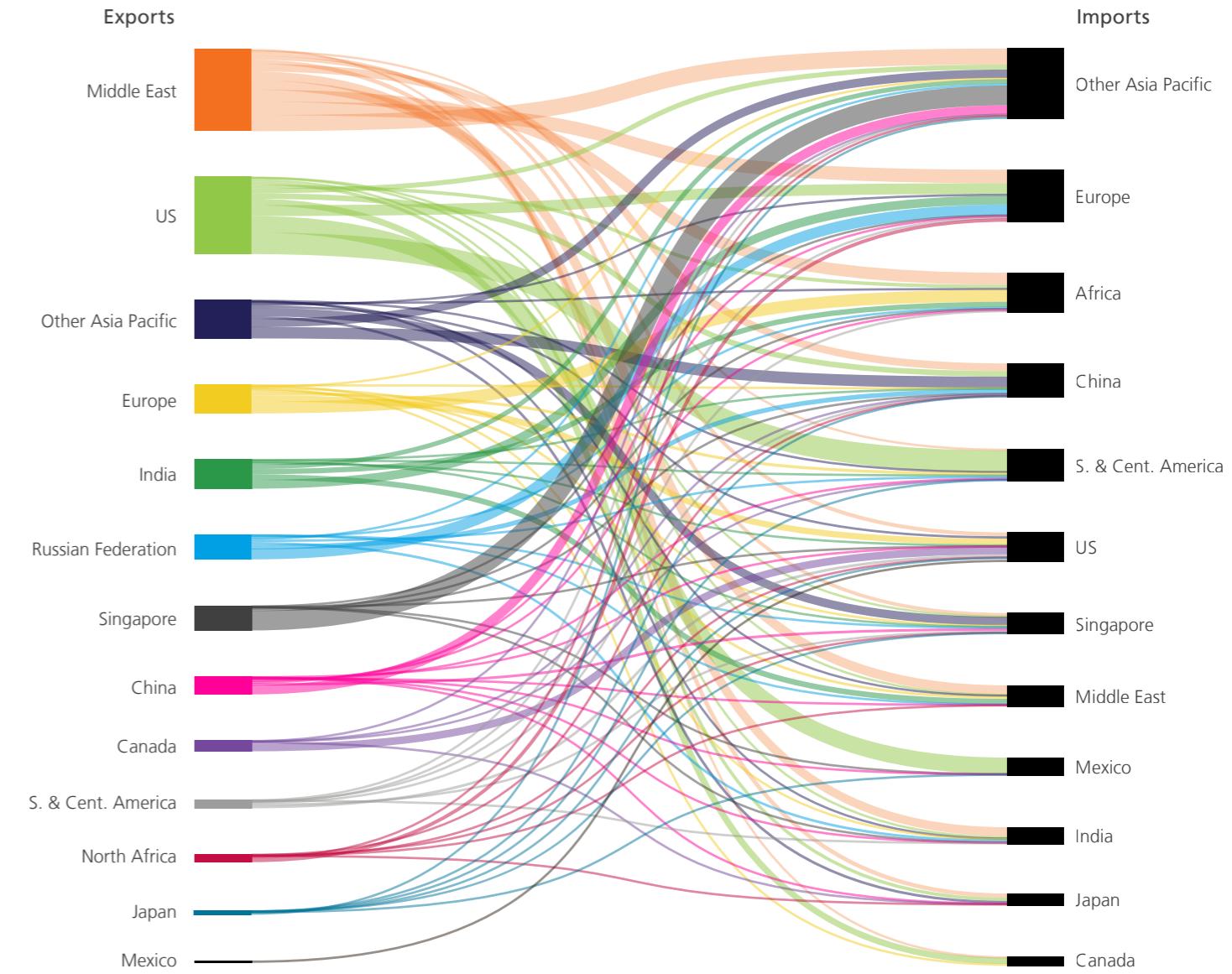
Oil Inter-area movements 2023 – Crude trade



International trade of crude oil was 2.1 billion tonnes in 2023, similar to 2022. The Middle East dominated exports accounting for 41% of the total. Although Russia's share dropped by 22 million tonnes, its share of the total remained the second highest at 11%. The US increased its share of total exports by 1%, rising to 9% in 2023. On

the import side, China was the single largest importer at 0.6 billion tonnes, 27% of the global total. Europe had the second highest share at 21%, followed by the US at 15%. Collectively, China and India increased their imports of Russian crude oil by 53% whilst European reduced its imports by 72%.

Oil Inter-area movements 2023 – Refined product



At 1.2 billion tonnes, international trade of refined product was around 57% that of crude oil trade in terms of volume and similar to 2022 levels. Between them, the Middle East and the US accounted for 44% of the total exports at 0.27 and 0.26 billion tonnes respectively. At 0.5 billion tonnes,

Asia Pacific region accounted for around 43% of total imports. Europe was the second-largest importer of refined products at 0.2 billion tonnes, 16% of the total. It reduced its imports from Russia by 51%.

Oil Inter-area movements 2023 crude trade

From	To												Total				
	Canada	Mexico	US	S. & Cent. America	Europe	Russian Federation	Other CIS	Middle East	Africa	Australasia	China	India	Japan	Singapore	Other Asia Pacific		
Canada	–	–	192.9	–	6.7	–	–	–	†	–	7.5	–	–	–	0.1	207.2	
Mexico	–	–	36.5	†	8.0	–	–	–	0.1	–	1.6	3.4	–	–	4.3	53.8	
US	16.9	–	–	9.6	80.4	–	–	–	1.4	14.3	11.3	2.4	11.6	36.5	185.0		
S. & Cent. America	0.6	†	42.9	–	18.2	7.6	†	2.9	1.0	†	52.1	7.0	1.9	2.5	4.5	141.2	
Europe	0.2	–	2.3	0.1	–	–	–	†	†	–	107.0	81.8	0.1	0.3	0.9	240.8	
Russian Federation	–	–	–	†	0.3	32.4	–	18.0	–	–	–	–	–	–	–	–	
Other CIS	–	–	1.6	0.1	72.7	†	–	–	2.4	0.8	†	6.4	0.4	–	0.1	91.4	
Iraq	†	–	10.6	–	49.2	–	–	–	0.3	–	59.3	48.8	–	0.9	14.8	184.2	
Kuwait	–	–	1.1	–	3.4	–	–	†	1.7	–	24.5	8.1	11.5	0.1	30.8	81.1	
Saudi Arabia	2.5	–	17.4	3.2	40.7	–	–	–	11.7	2.9	–	85.9	35.3	51.4	4.9	93.3	349.1
UAE	†	–	0.8	†	5.4	–	–	†	†	0.1	†	41.8	13.2	48.6	11.1	49.7	170.7
Other Middle East	–	–	0.4	–	1.8	–	–	†	3.6	†	–	49.6	3.2	8.2	5.5	17.6	90.0
North Africa	†	–	5.1	1.9	56.5	–	–	–	1.6	0.3	0.6	3.5	2.2	–	0.2	3.7	75.6
West Africa	4.8	–	11.9	5.4	56.9	–	–	–	0.3	4.5	0.2	48.1	9.3	–	1.2	16.0	158.6
East & S. Africa	–	–	–	†	1.1	–	–	†	–	0.7	0.1	†	0.5	0.8	3.2	–	–
Australasia	–	–	0.1	–	0.1	–	–	–	0.2	–	–	2.0	–	0.5	5.6	10.0	–
China	–	–	–	–	0.4	–	–	–	–	–	–	–	†	0.8	1.2	–	–
India	†	–	–	–	†	1.9	–	–	–	–	–	–	–	–	1.9	–	–
Japan	–	–	–	–	0.1	–	–	–	†	–	–	–	–	–	–	–	–
Singapore	†	–	–	–	0.7	–	–	–	†	–	6.1	56.2	2.0	1.0	1.9	–	67.9
Other Asia Pacific	–	–	–	†	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Imports	25.0	†	323.8	20.7	436.6	7.7	18.0	23.2	12.4	8.4	563.9	231.0	125.5	42.3	288.5	2127.1	

[†] 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 2023 refined product

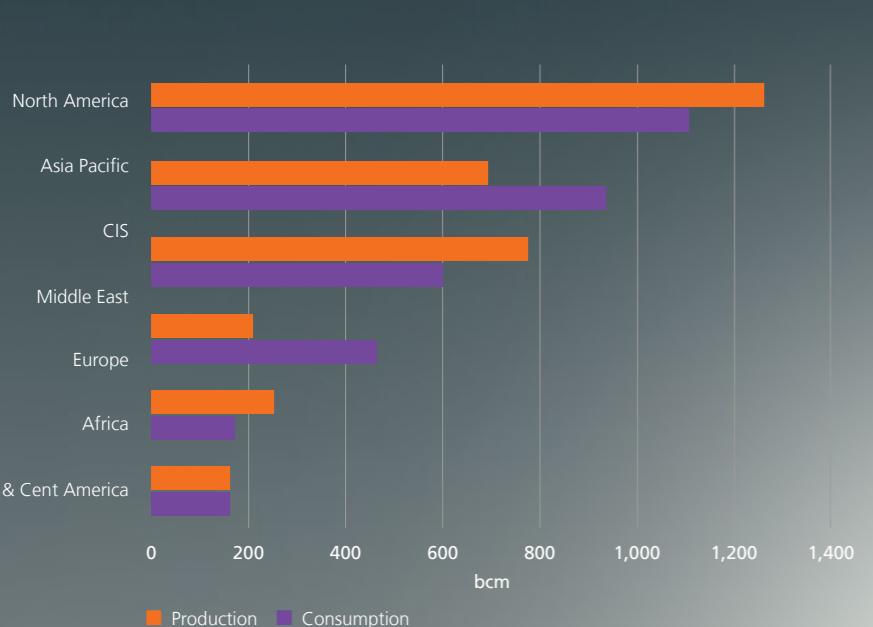
From	To												Total					
	Canada	Mexico	US	S. & Cent. America	Europe	Russian Federation	Other CIS	Middle East	Africa	Australasia	China	India	Japan	Singapore	Other Asia Pacific			
Canada	–	0.1	26.3	1.7	0.5	–	†	†	†	†	0.6	0.2	2.2	†	0.9	32.3		
Mexico	†	–	8.5	0.1	0.2	–	†	†	†	†	0.1	†	†	†	0.4	9.2		
US	22.0	55.7	–	73.5	37.0	†	†	†	†	†	12.2	1.2	19.1	8.1	10.7	1.3	258.0	
S. & Cent. America	0.1	0.1	9.2	–	3.1	†	†	†	†	†	2.3	†	4.4	0.8	0.4	5.9	1.0	27.9
Europe	4.2	0.3	21.1	10.0	–	0.2	2.0	2.0	9.4	40.6	†	1.9	2.0	0.5	4.4	3.8	100.3	
Russian Federation	†	–	–	7.6	37.5	–	6.7	1.1	4.7	–	16.2	8.7	–	2.8	5.6	90.9		
Other CIS	†	–	0.3	0.1	12.8	0.8	–	0.1	0.7	–	0.7	–	†	0.3	0.2	15.9		
Iraq	–	–	4.9	†	5.0	–	†	5.1	0.1	–	0.5	1.4	†	0.3	2.5	19.8		
Kuwait	0.4	–	1.2	0.5	11.0	–	–	3.9	3.0	†	2.2	3.4	2.9	2.6	6.4	37.4		
Saudi Arabia	†	–	4.3	1.5	13.3	–	†	8.4	12.9	0.2	2.7	6.7	1.1	2.3	7.3	60.8		
UAE	†	†	0.7	1.5	9.0	†	0.1	8.3	16.3	0.2	11.7	10.8	4.9	5.3	23.6	92.5		
Other Middle East	0.1	†	1.7	0.6	7.5	–	0.1	6.3	9.0	0.1	9.2	7.9	4.7	1.3	14.9	63.3		
North Africa	†	–	2.6	0.2	11.9	†	†	0.8	0.4	†	0.8	0.1	0.6	1.1	5.6	24.2		
West Africa	†	–	1.2	0.3	1.0	†	†	0.1	0.3	†	0.9	†	†	0.5	0.7	4.8		
East & S. Africa	†	†	†	0.1	†	†	†	†	†	†	†	†	†	1.7	0.3	1.4	4.9	
Australasia	†	†	0.1	†	†	0.8	–	†	†	†	–	0.6	†	1.7	–	–	–	
China	0.1	1.2	0.5	3.9	6.5													

Natural gas

Global gas demand remained stable in 2023 rising by just 1 bcm. This was not sufficient to recover the losses seen in 2022 when overall demand dropped by 0.4% (15 bcm). In Europe, natural gas demand fell by 7% (34 bcm) in 2023, down to its lowest level since 1994. Similarly, gas production in the region declined by around 7% driven by decreases in its top producing countries, Norway, UK, and the Netherlands.

Gas demand in the Asia Pacific region grew

nearly 2%, driven by China and India's 7% growth increases. When combining all trade routes, whether by sea or pipeline, Russia's share of EU gas imports fell from 45% in 2021 to 24% in 2022, and then a further 15% in 2023 to sit behind Norway and the US. In just eight years, LNG exports from the US rocketed from just 0.2 bcm in 2013 to 114 bcm in 2023, making it the world's leading LNG supplier, moving ahead of Qatar and Australia in 2023.



The top four regions responsible for 80% of gas production are also responsible for 85% of its consumption

Natural gas Production in billion cubic metres*

Billion cubic metres	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share	
Canada	151.9	159.0	160.8	165.0	171.3	176.8	169.6	165.6	172.3	184.8	190.3	2.9%	2.3%	4.7%
Mexico	52.5	51.3	47.9	43.7	38.3	37.9	36.7	35.5	32.1	33.7	35.6	5.5%	-3.8%	0.9%
US	655.7	704.7	740.3	727.4	746.2	840.9	928.1	924.8	944.5	993.4	1035.3	4.2%	4.7%	25.5%
Total North America	860.1	915.0	949.0	936.0	955.7	1055.6	1134.4	1126.0	1148.9	1211.9	1261.1	4.1%	3.9%	31.1%
Argentina	34.6	34.5	35.5	37.3	37.1	39.4	41.6	38.3	38.6	41.7	41.6	-0.2%	1.9%	1.0%
Bolivia	19.6	20.4	20.1	18.9	18.6	17.3	15.1	14.7	15.1	13.7	11.9	-12.9%	-4.8%	0.3%
Brazil	21.9	23.3	23.8	24.1	27.2	25.2	25.7	24.2	24.3	23.0	23.4	1.8%	0.7%	0.6%
Colombia	13.2	12.3	11.6	12.0	11.8	12.4	12.6	12.5	12.6	12.4	12.1	-3.0%	-0.9%	0.3%
Peru	12.4	13.1	12.7	14.0	13.0	12.8	13.5	13.2	12.4	15.0	15.4	3.1%	2.2%	0.4%
Trinidad & Tobago	38.7	38.1	36.0	31.3	31.9	34.0	34.6	29.5	24.7	26.0	25.0	-3.8%	-4.3%	0.6%
Venezuela	30.6	31.8	36.1	37.2	38.6	31.6	25.6	21.6	28.1	29.1	29.7	2.2%	-0.3%	0.7%
Other S. & Cent. America	2.7	2.6	2.9	3.1	3.1	3.1	3.3	2.7	2.6	2.8	2.9	3.0%	0.6%	0.1%
Total S. & Cent. America	173.8	176.2	178.6	178.0	181.3	175.8	172.0	156.6	158.5	163.6	162.0	-1.0%	-0.7%	4.0%
Denmark	5.0	4.8	4.8	4.7	5.1	4.3	3.2	1.4	1.5	1.4	1.4	-3.3%	-11.9%	†
Germany	8.6	8.1	7.5	6.9	6.4	5.5	5.3	4.5	4.5	4.3	3.8	-10.6%	-7.8%	0.1%
Italy	7.4	6.8	6.4	5.5	5.3	5.2	4.6	3.9	3.2	3.2	2.8	-9.9%	-9.1%	0.1%
Netherlands	72.4	60.4	45.9	44.3	37.9	32.5	27.7	20.1	18.0	15.0	9.9	-34.2%	-18.1%	0.2%
Norway	108.5	107.7	116.3	116.0	123.8	121.4	114.4	111.7	114.5	123.0	116.6	-5.2%	0.7%	2.9%
Poland	4.4	4.3	4.3	4.1	4.0	4.0	4.0	3.9	3.9	3.8	3.6	-5.5%	-2.1%	0.1%
Romania	10.0	10.2	10.2	9.1	10.0	10.0	9.6	8.6	8.6	8.8	8.9	1.4%	-1.2%	0.2%
Ukraine	20.2	20.2	18.8	19.0	19.4	19.7	19.4	18.7	17.5	17.7	17.7	0.9%	-1.3%	0.4%
United Kingdom	37.0	37.4	40.7	41.7	41.9	40.6	39.3	39.6	32.8	38.1	34.5	-9.6%	-0.7%	0.8%
Other Europe	7.2	6.3	6.1	8.7	9.0	8.4	7.4	6.3	5.1	5.1	5.1	0.2%	-3.2%	0.1%
Total Europe	280.6	266.3	261.0	260.0	262.7	251.5	235.0	219.1	211.1	220.2	204.3	-7.2%	-3.1%	5.0%
Azerbaijan	17.5	18.4	18.3	17.8	18.8	23.9	25.9	31.8	34.1	35.6	42.2	7.4%	0.9%	
Kazakhstan	30.4	32.8	27.1	30.9	36.4	39.2	33.5	30.6	26.7	27.6	30.8	11.7%	0.1%	0.8%
Russian Federation	614.5	591.2	584.4	589.3	635.6	669.1	679.0	638.4	702.1	618.4	586.4	-5.2%	-0.5%	14.4%
Turkmenistan	59.0	63.5	65.9	63.2	58.7	61.5	63.2	66.0	79.3	78.3	76.3	-2.5%	2.6%	1.9%
Uzbekistan	55.9	56.3	53.6	53.1	53.6	57.5	47.1	50.9	48.9	44.2	44.2	-9.6%	-2.3%	1.1%
Other CIS	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-3.4%	-1.8%	†
Total CIS	777.6	762.4	750.2	755.1	802.3	847.2	857.4	808.4	891.2	807.6	773.6	-4.2%	-0.1%	19.1%
Bahrain	14.0	14.7	14.6	14.4	14.5	14.6	16.3	16.4	16.6	15.8	16.7	5.9%	1.8%	0.4%
Iran	157.5	175.5	183.5	199.3	213.9	220.1	228.3	235.8	242.8	247.7	251.7	1.6%	4.8%	6.2%
Iraq	7.1	7.5	7.3	9.9	10.1	10.6	11.0	7.0	9.1	9.3	9.9	6.9%	3.5%	0.2%
Israel	6.1	7.1	7.9	8.8	9.3	9.9	10.0	14.7	18.3	20.8	23.5	12.8%	14.5%	0.6%
Kuwait	15.5	14.3	16.1	16.4	16.2	16.9	13.3	12.2	12.1	13.2	13.5	2.6%	-1.3%	0.3%
Oman	30.8	29.3	30.7	31.5	32.3	36.3	36.7	36.9	40.3	42.1	43.2	2.5%	3.4%	1.1%
Qatar	167.9	169.4	175.9	174.8	170.5	175.2	177.2	174.9	177.0	178.5	181.0	1.4%	0.8%	4.5%
Saudi Arabia	95.0	97.3	99.2	105.3	109.3	112.1	111.2	113.1	114.5	116.7	114.1	-2.2%	1.8%	2.8%
Syria	5.0	4.6	4.1	3.5	3.5	3.5	3.3	3.1	2.9	3.0	3.0	2.1%	-5.1%	0.1%
United Arab Emirates	53.2	52.9	58.6	59.5	52.7	46.4	53.7	53.7	53.1	54.2	55.6	2.5%	0.4%	1.4%
Other Middle East	10.5	9.9	3.0	0.6	0.4	0.2	0.3	0.4	0.5	0.6	0.6	22.5%	-25.1%	†
Total Middle East	562.5	582.5	600.8	624.2	632.7	645.9	661.1	667.9	687.4	701.7	712.7	1.6%	2.4%	17.6%
Algeria	79.3	80.2	81.4	91.4	93.0	93.8	87.0	81.4	101.1	97.6	101.5	4.0%	2.5%	2.5%
Egypt	54.0	47.0	42.6	40.3	48.8	58.6	64.9	58.5	67.8	64.5	57.1	-11.5%	0.6%	1.4%
Libya	12.2	11.8	12.9	12.7	14.2	14.0	16.0	12.7	15.3	14.6	16.3			

Natural gas Production in exajoules*

Exajoules	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
Canada	5.47	5.72	5.79	5.94	6.17	6.36	6.11	5.96	6.20	6.65	6.85	2.9%	2.3%	4.7%
Mexico	1.89	1.85	1.73	1.57	1.38	1.36	1.32	1.28	1.15	1.21	1.28	5.5%	-3.8%	0.9%
US	23.60	25.37	26.65	26.18	26.86	30.27	33.41	33.29	34.00	35.76	37.27	4.2%	4.7%	25.5%
Total North America	30.96	32.94	34.16	33.70	34.41	38.00	40.84	40.53	41.36	43.63	45.40	4.1%	3.9%	31.1%
Argentina	1.24	1.24	1.28	1.34	1.34	1.42	1.50	1.38	1.39	1.50	1.50	-0.2%	1.9%	1.0%
Bolivia	0.70	0.74	0.72	0.68	0.67	0.62	0.54	0.53	0.55	0.49	0.43	-12.9%	-4.8%	0.3%
Brazil	0.79	0.84	0.86	0.87	0.98	0.91	0.93	0.87	0.88	0.83	0.84	1.8%	0.7%	0.6%
Colombia	0.48	0.44	0.42	0.43	0.42	0.45	0.45	0.45	0.45	0.45	0.43	-3.0%	-0.9%	0.3%
Peru	0.45	0.47	0.46	0.50	0.47	0.46	0.49	0.48	0.45	0.54	0.56	3.1%	2.2%	0.4%
Trinidad & Tobago	1.39	1.37	1.29	1.13	1.15	1.22	1.24	1.06	0.89	0.94	0.90	-3.8%	-4.3%	0.6%
Venezuela	1.10	1.14	1.30	1.34	1.39	1.14	0.92	0.78	1.01	1.05	1.07	2.2%	-0.3%	0.7%
Other S. & Cent. America	0.10	0.09	0.10	0.11	0.11	0.12	0.10	0.09	0.10	0.10	3.0%	0.6%	0.1%	
Total S. & Cent. America	6.26	6.34	6.43	6.41	6.53	6.33	6.19	5.64	5.71	5.89	5.83	-1.0%	-0.7%	4.0%
Denmark	0.18	0.17	0.17	0.18	0.15	0.12	0.05	0.05	0.05	0.05	-3.3%	-11.9%	†	
Germany	0.31	0.29	0.27	0.25	0.23	0.20	0.19	0.16	0.15	0.14	-10.6%	-7.8%	0.1%	
Italy	0.27	0.25	0.23	0.20	0.19	0.19	0.17	0.14	0.11	0.10	-9.9%	-9.1%	0.1%	
Netherlands	2.61	2.17	1.65	1.59	1.37	1.17	1.00	0.72	0.65	0.54	0.35	-34.2%	-18.1%	0.2%
Norway	3.90	3.88	4.19	4.17	4.46	4.37	4.12	4.02	4.12	4.43	4.20	-5.2%	0.7%	2.9%
Poland	0.16	0.16	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.13	-5.5%	-2.1%	0.1%	
Romania	0.36	0.37	0.37	0.33	0.36	0.36	0.35	0.31	0.32	0.32	-1.4%	-1.2%	0.2%	
Ukraine	0.73	0.73	0.68	0.70	0.71	0.70	0.69	0.67	0.63	0.64	0.9%	-1.3%	0.4%	
United Kingdom	1.33	1.35	1.46	1.50	1.51	1.46	1.41	1.42	1.18	1.37	1.24	-9.6%	-0.7%	0.8%
Other Europe	0.26	0.23	0.22	0.31	0.32	0.30	0.27	0.23	0.19	0.18	0.2%	-3.2%	0.1%	
Total Europe	10.10	9.59	9.40	9.36	9.46	9.05	8.46	7.89	7.60	7.93	7.36	-7.2%	-3.1%	5.0%
Azerbaijan	0.63	0.66	0.68	0.64	0.68	0.86	0.93	1.15	1.23	1.28	4.2%	7.4%	0.9%	
Kazakhstan	1.10	1.18	0.98	1.11	1.31	1.41	1.21	1.10	0.96	0.99	1.11	11.7%	0.1%	0.8%
Russian Federation	22.12	21.28	21.04	21.21	22.88	24.09	24.44	22.98	25.28	22.26	21.11	-5.2%	-0.5%	14.4%
Turkmenistan	2.12	2.29	2.37	2.28	2.11	2.27	2.38	2.85	2.82	2.75	-2.5%	2.6%	1.9%	
Uzbekistan	2.01	2.03	1.93	1.91	1.93	2.10	2.07	1.70	1.83	1.76	1.59	-9.6%	-2.3%	1.1%
Other CIS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-3.4%	-1.8%	†	
Total CIS	27.99	27.45	27.01	27.19	28.88	30.50	30.87	29.10	32.08	29.07	27.85	-4.2%	-0.1%	19.1%
Bahrain	0.50	0.53	0.53	0.52	0.53	0.59	0.60	0.57	0.60	5.9%	1.8%	0.4%		
Iran	5.67	6.32	6.61	7.18	7.70	7.92	8.22	8.49	8.74	9.06	1.6%	4.8%	6.2%	
Iraq	0.25	0.27	0.26	0.36	0.36	0.38	0.39	0.25	0.33	0.36	6.9%	3.5%	0.2%	
Israel	0.22	0.26	0.28	0.32	0.34	0.36	0.53	0.66	0.75	0.85	12.8%	14.5%	0.6%	
Kuwait	0.56	0.51	0.58	0.59	0.58	0.61	0.48	0.44	0.44	0.49	2.6%	-1.3%	0.3%	
Oman	1.11	1.06	1.11	1.13	1.16	1.31	1.32	1.33	1.45	1.55	2.5%	3.4%	1.1%	
Qatar	6.04	6.10	6.33	6.29	6.14	6.31	6.38	6.30	6.37	6.52	1.4%	0.8%	4.5%	
Saudi Arabia	3.42	3.50	3.57	3.79	3.93	4.04	4.00	4.07	4.12	4.20	-2.2%	1.8%	2.8%	
Syria	0.18	0.17	0.15	0.13	0.12	0.12	0.11	0.11	0.10	0.11	2.1%	-5.1%	0.1%	
United Arab Emirates	1.92	1.90	2.11	2.14	1.90	1.67	1.93	1.91	1.95	2.00	2.5%	0.4%	1.4%	
Other Middle East	0.38	0.36	0.11	0.02	0.01	0.01	0.01	0.02	0.02	0.02	22.5%	-25.1%	†	
Total Middle East	20.25	20.97	21.63	22.47	22.78	23.25	23.80	24.05	24.74	25.26	25.66	1.6%	2.4%	17.6%
Algeria	2.86	2.89	2.93	3.29	3.35	3.38	3.13	2.93	3.64	3.66	4.0%	2.5%	2.5%	
Egypt	1.94	1.69	1.53	1.45	1.76	2.11	2.34	2.10	2.44	2.06	-11.5%	0.6%	1.4%	
Libya	0.44	0.43	0.46	0.46	0.51	0.50	0.58	0.46	0.55	0.52	12.0%	3.0%	0.4%	
Nigeria	1.19	1.44	1.71	1.53	1.70	1.74	1.78	1.89	1.70	1.57	-7.3%	2.8%	1.1%	
Other Africa	0.74	0.74	0.78	0.82	0.97	1.01	1.02	1.08	1.08	1.26	9.5%	5.5%	0.9%	
Total Africa	7.16	7.18	7.42	7.55	8.28	8.73	8.84	8.35	9.60	9.21	9.13	-0.8%	2.5%	6.2%
Australia	2.18	2.35	2.67	3.39	3.97	4.59	5.26	5.25	5.33	5.46	-1.6%	9.6%</td		

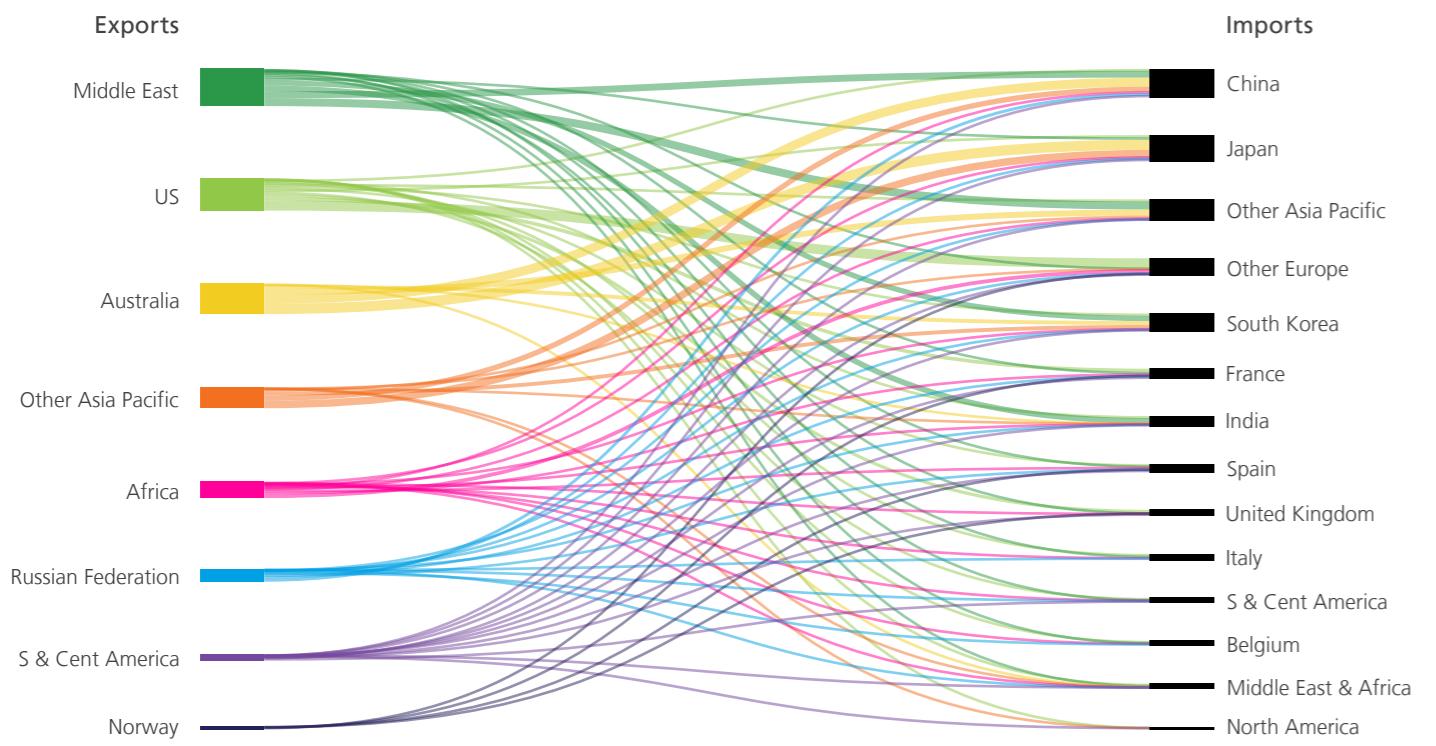
Natural gas Consumption in exajoules*

Exajoules													Growth rate per annum	Share
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
Canada	3.80	3.95	3.97	3.80	3.95	4.24	4.27	4.15	4.27	4.46	4.35	-2.5%	1.4%	3.0%
Mexico	2.80	2.84	2.91	2.99	3.10	3.25	3.36	3.32	3.30	3.27	3.51	7.3%	2.3%	2.4%
US	25.45	26.00	26.77	26.97	26.64	29.59	30.64	30.04	30.11	31.67	31.91	0.8%	2.3%	22.1%
Total North America	32.05	32.79	33.65	33.76	33.68	37.08	38.27	37.52	37.68	39.40	39.77	1.0%	2.2%	27.6%
Argentina	1.66	1.66	1.68	1.74	1.74	1.75	1.68	1.65	1.65	1.62	-2.0%	-0.2%	1.1%	
Brazil	1.38	1.46	1.55	1.34	1.35	1.29	1.29	1.13	1.46	1.15	1.08	-6.3%	-2.4%	0.7%
Chile	0.19	0.16	0.17	0.21	0.20	0.20	0.23	0.22	0.25	0.26	0.25	-3.5%	2.8%	0.2%
Colombia	0.38	0.41	0.40	0.43	0.43	0.46	0.46	0.47	0.45	0.45	0.47	3.7%	2.2%	0.3%
Ecuador	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	-7.9%	-5.3%	†
Peru	0.24	0.27	0.28	0.31	0.27	0.29	0.30	0.29	0.32	0.35	0.36	2.8%	4.2%	0.3%
Trinidad & Tobago	0.73	0.74	0.71	0.61	0.66	0.63	0.63	0.55	0.56	0.56	0.52	-6.2%	-3.3%	0.4%
Venezuela	1.16	1.22	1.33	1.34	1.39	1.14	0.92	0.78	1.01	1.05	1.07	2.2%	-0.8%	0.7%
Central America	—	—	—	—	—	0.01	0.02	0.01	0.01	0.02	0.04	83.6%	—	†
Other Caribbean	0.13	0.13	0.13	0.14	0.12	0.14	0.16	0.17	0.20	0.19	0.23	20.8%	5.9%	0.2%
Other South America	0.12	0.13	0.12	0.13	0.14	0.14	0.14	0.12	0.13	0.14	0.16	11.1%	2.9%	0.1%
Total S. & Cent. America	6.02	6.21	6.40	6.27	6.34	6.08	5.85	5.35	6.07	5.85	5.82	-0.5%	-0.3%	4.0%
Austria	0.30	0.27	0.29	0.30	0.33	0.31	0.32	0.31	0.32	0.28	0.25	-13.0%	-1.7%	0.2%
Belgium	0.60	0.52	0.57	0.58	0.59	0.61	0.63	0.61	0.61	0.52	0.49	-5.8%	-1.9%	0.3%
Bulgaria	0.10	0.10	0.11	0.11	0.12	0.11	0.10	0.11	0.12	0.10	0.09	-6.6%	-0.9%	0.1%
Croatia	0.10	0.08	0.09	0.09	0.10	0.10	0.10	0.11	0.10	0.09	0.09	0.8%	-0.6%	0.1%
Cyprus	—	—	—	—	—	—	—	—	—	—	0.00	—	—	—
Czech Republic	0.29	0.26	0.27	0.29	0.30	0.29	0.30	0.30	0.33	0.27	0.24	-9.2%	-1.9%	0.2%
Denmark	0.14	0.12	0.12	0.12	0.12	0.11	0.10	0.08	0.09	0.06	0.06	-3.7%	-8.2%	†
Estonia	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	-8.4%	-5.4%	†
Finland	0.11	0.10	0.08	0.07	0.07	0.08	0.07	0.07	0.07	0.04	0.04	6.2%	-8.7%	†
France	1.63	1.36	1.47	1.60	1.61	1.54	1.57	1.46	1.55	1.38	1.22	-11.7%	-2.8%	0.8%
Germany	3.06	2.66	2.77	3.06	3.16	3.09	3.21	3.14	3.30	2.79	2.72	-2.4%	-1.2%	1.9%
Greece	0.15	0.11	0.12	0.16	0.19	0.19	0.21	0.23	0.25	0.22	0.19	-13.1%	2.6%	0.1%
Hungary	0.33	0.29	0.31	0.34	0.36	0.35	0.35	0.37	0.39	0.33	0.29	-10.9%	-1.0%	0.2%
Iceland	—	—	—	—	—	—	—	—	—	—	0.00	—	—	—
Ireland	0.16	0.16	0.16	0.18	0.18	0.19	0.19	0.18	0.18	0.19	0.17	-7.2%	0.8%	0.1%
Italy	2.40	2.12	2.32	2.43	2.58	2.49	2.55	2.43	2.61	2.35	2.11	-10.1%	-1.3%	1.5%
Latvia	0.05	0.05	0.05	0.04	0.05	0.05	0.04	0.04	0.04	0.03	0.03	-5.3%	-5.9%	†
Lithuania	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.06	0.06	-2.6%	-4.6%	†
Luxembourg	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	-6.3%	-5.7%	†
Netherlands	1.41	1.24	1.22	1.27	1.31	1.28	1.34	1.30	1.25	0.99	0.93	-6.4%	-4.1%	0.6%
North Macedonia	0.01	—	—	—	—	—	—	—	—	—	0.01	26.6%	8.9%	†
Norway	0.15	0.16	0.17	0.16	0.17	0.16	0.17	0.16	0.15	0.14	0.14	-3.4%	-0.6%	0.1%
Poland	0.63	0.61	0.62	0.66	0.69	0.72	0.75	0.76	0.81	0.67	0.70	5.3%	1.2%	0.5%
Portugal	0.16	0.15	0.17	0.18	0.23	0.21	0.22	0.22	0.21	0.20	0.16	-19.8%	0.4%	0.1%
Romania	0.41	0.39	0.37	0.38	0.41	0.42	0.39	0.41	0.42	0.35	0.33	-6.4%	-2.3%	0.2%
Slovakia	0.19	0.16	0.16	0.17	0.17	0.17	0.17	0.19	0.19	0.16	0.15	-4.8%	-2.3%	0.1%
Slovenia	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-3.5%	-0.6%	†
Spain	1.09	0.99	1.03	1.05	1.14	1.13	1.30	1.17	1.24	1.19	1.05	-11.1%	-0.3%	0.7%
Sweden	0.04	0.03	0.03	0.04	0.03	0.04	0.04	0.04	0.04	0.03	0.03	-10.4%	-3.5%	†
Switzerland	0.13	0.11	0.12	0.13	0.13	0.12	0.12	0.12	0.13	0.11	0.10	-7.4%	-2.6%	0.1%
Türkiye	1.58	1.68	1.65	1.60	1.86	1.70	1.56	1.66	2.06	1.84	1.74	-5.5%	1.0%	1.2%
Ukraine	1.72	1.45	1.15	1.13	1.09	1.10	1.02	1.06	0.98	0.66	0.67	2.6%	-8.9%	0.5%
United Kingdom	2.75	2.52	2.59	2.88	2.82	2.84	2.80	2.63	2.77	2.29	2.29	-10.4%	-1.8%	1.6%
Other Europe	0.15	0.15	0.16	0.17	0.19	0.18	0.20	0.20	0.22	0.24	0.25	4.3%	5.2%	0.2%
Total Europe	19.98	18.01	18.34	19.34	20.13	19.74	20.00	19.50	20.61	17.92	16.68	-6.9%	-	

Natural gas Inter-regional trade

Billion cubic metres	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
US														
Pipeline imports	75.9	71.8	71.6	79.5	80.5	76.7	73.3	68.2	75.9	82.1	79.0	-3.8%	0.4%	8.4%
LNG imports	2.7	1.7	2.5	2.4	2.2	2.1	1.5	1.3	0.6	0.7	0.5	-33.4%	-16.1%	†
Total imports	78.6	73.5	74.1	82.0	82.7	78.8	74.7	69.5	76.5	82.8	79.5	-4.0%	0.1%	8.5%
Pipeline exports	42.5	40.4	47.2	58.7	65.7	67.8	77.4	84.3	82.8	89.1	7.6%	7.7%	9.5%	
LNG exports*	0.2	0.4	0.7	4.0	17.1	28.6	47.4	61.3	94.5	104.5	114.4	9.4%	93.8%	12.2%
Total exports	42.7	40.8	47.9	62.7	82.8	96.3	124.8	140.2	178.8	187.3	203.4	8.6%	16.9%	21.7%
Other North America														
Pipeline imports	42.5	40.4	47.2	58.7	65.7	67.8	77.4	84.3	82.8	89.1	7.6%	7.7%	9.5%	
LNG imports	8.8	9.8	7.4	5.9	7.0	7.5	7.1	3.4	1.6	0.9	1.2	30.6%	-18.4%	0.1%
Total imports	51.3	50.2	54.7	64.5	72.7	75.3	84.5	82.2	85.9	83.7	90.2	7.8%	5.8%	9.6%
Pipeline exports	75.9	71.8	71.6	79.5	80.5	76.7	73.3	68.2	75.9	82.1	79.0	-3.8%	0.4%	8.4%
LNG exports*	-	†	†	†	†	0.1	†	†	†	†	0.1	22.3%	-	†
Total exports	75.9	71.9	71.6	79.6	80.6	76.7	73.3	68.2	75.9	82.1	79.1	-3.7%	0.4%	8.4%
Brazil														
Pipeline imports	11.0	11.4	11.2	9.8	8.4	7.6	6.4	6.2	7.1	6.1	5.4	-11.8%	-6.9%	0.6%
LNG imports	5.2	7.1	6.8	2.6	1.7	2.9	3.2	3.3	10.1	2.3	1.3	-42.5%	-13.0%	0.1%
Total imports	16.3	18.5	18.0	12.4	10.1	10.5	9.7	9.5	17.2	8.4	6.7	-20.1%	-8.5%	0.7%
LNG exports*	0.1	0.2	†	0.6	0.2	0.1	-	-	0.1	-	0.3	-	15.5%	†
Total exports	0.1	0.2	†	0.6	0.2	0.1	-	-	0.1	-	0.3	-	15.5%	†
Other S&C America														
LNG imports	12.9	12.5	12.1	12.6	11.7	11.6	9.9	10.5	14.2	11.9	14.5	22.0%	1.2%	1.5%
Total imports	12.9	12.5	12.1	12.6	11.7	11.6	9.9	10.5	14.2	11.9	14.5	22.0%	1.2%	1.5%
Pipeline exports	11.0	11.4	11.2	9.8	8.4	7.6	6.4	6.2	7.1	6.1	5.4	-11.8%	-6.9%	0.6%
LNG exports*	24.1	23.3	21.4	19.9	19.1	21.4	22.5	19.8	13.2	16.4	16.6	1.0%	-3.7%	1.8%
Total exports	35.1	34.7	32.6	29.7	27.5	29.0	28.9	26.0	20.3	22.6	22.0	-2.5%	-4.6%	2.3%
Europe														
Pipeline imports	234.1	209.4	215.0	230.6	247.2	247.4	236.9	211.0	232.8	151.4	111.6	-26.3%	-7.1%	11.9%
LNG imports	51.8	52.1	56.0	56.4	64.8	71.2	119.4	116.2	107.5	172.1	169.1	-1.8%	12.6%	18.0%
Total imports	285.9	261.5	271.0	287.0	312.0	318.6	356.3	327.2	340.3	323.6	280.7	-13.2%	-0.2%	30.0%
LNG exports*	9.0	13.0	11.0	10.6	7.9	11.7	8.8	7.0	4.2	7.9	9.2	15.9%	0.2%	1.0%
Total exports	9.0	13.0	11.0	10.6	7.9	11.7	8.8	7.0	4.2	8.1	10.2	25.9%	1.3%	1.1%
Russia														
Pipeline imports	32.9	33.1	26.5	24.3	28.6	24.6	30.3	10.7	14.8	7.7	5.7	-26.2%	-16.1%	0.6%
Total imports	32.9	33.1	26.5	24.3	28.6	24.6	30.3	10.7	14.8	7.7	5.7	-26.2%	-16.1%	0.6%
Pipeline exports	210.7	189.6	194.2	202.0	219.7	222.4	220.7	197.4	201.3	125.0	95.4	-23.6%	-7.6%	10.2%
LNG exports	14.5	13.6	14.6	14.6	15.4	24.9	39.1	41.8	39.5	43.4	42.7	-1.8%	11.4%	4.6%
Total exports	225.2	203.2	208.8	216.7	235.2	247.3	259.8	239.2	240.9	168.4	138.1	-18.0%	-4.8%	14.7%
Other CIS														
Pipeline imports	24.0	26.3	25.4	26.3	28.8	30.4	29.8	26.7	26.7	24.7	24.9	0.9%	0.4%	2.7%
Total imports	24.0	26.3	25.4	26.3	28.8	30.4	29.8	26.7	26.7	24.7	24.9	0.9%	0.4%	2.7%
Pipeline exports	69.5	75.4	72.6	72.8	78.0	80.8	85.2	61.5	75.4	69.9	65.7	-6.0%	-0.6%	7.0%
Total exports	69.5	75.4	72.6	72.8	78.0	80.8	85.2	61.5	75.4	69.9	65.7	-6.0%	-0.6%	7.0%
Middle East														
Pipeline imports	6.3	7.6	9.6	7.3	4.6	2.1	1.6	0.6	0.8	1.0	0.6	-41.5%	-21.4%	0.1%
LNG imports	4.3	5.3	9.8	13.7	13.0	9.4	9.4	9.1	9.6	9.5	10.1	7.1%	8.9%	1.1%
Total imports	10.6	12.9	19.4	21.1	17.7	11.5	11.0	9.7	10.4	10.4	10.7	2.6%	0.1%	1.1%
Pipeline exports	8.9	9.3	8.1	8.0	11.0	8.8	8.0	7.7	13.9	15.5	13.9	-10.2%	4.6%	1.5%
LNG exports	135.2	132.2	125.4	126.0	122.3	125.9	127.3	127.3	129.6	133.3	131.1	-1.7%	-0.3%	14.0%
Total exports	144.2	141.5	133.5	133.2	134.8	135.6	135.0							

Natural gas Major trade movements 2023 – LNG

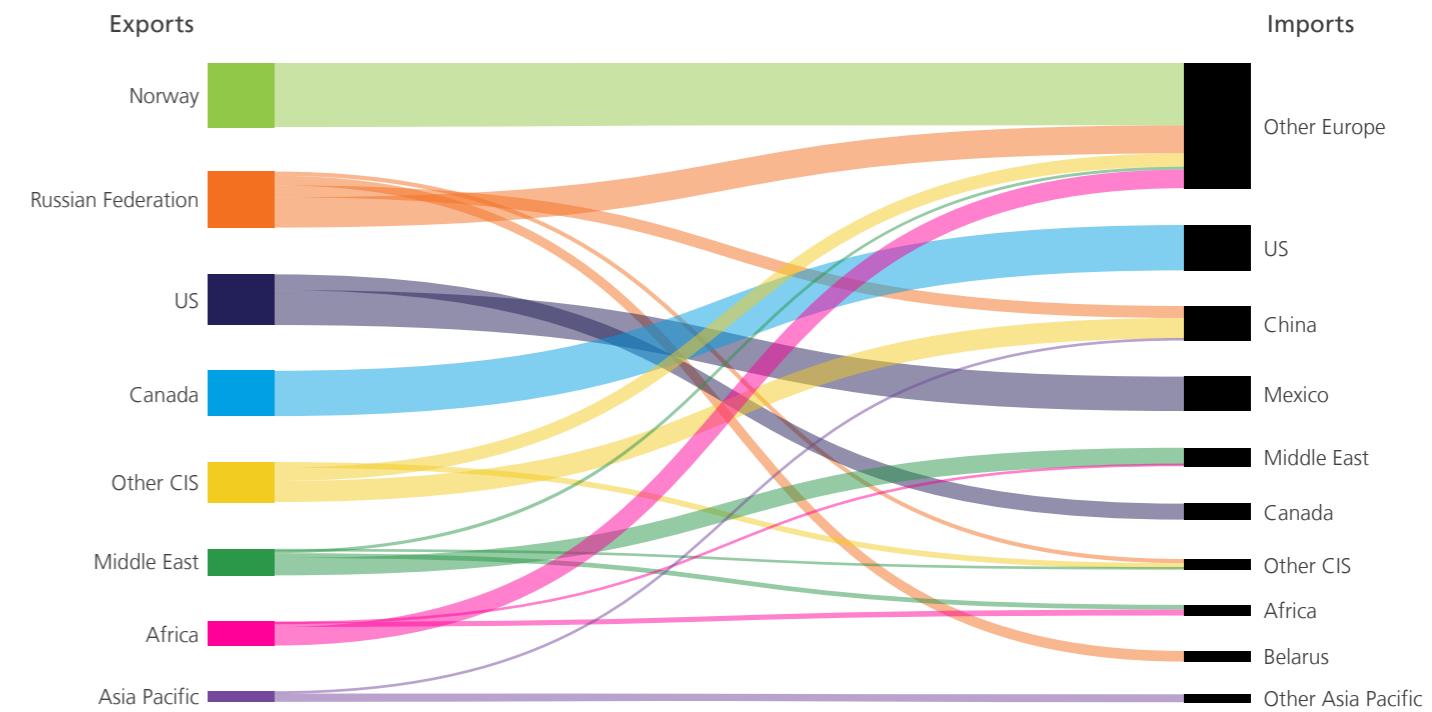


Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardised using a gross calorific value (GCV) of 40 MJ/m³.

International gas trade has been fluctuating between 900-1,000 bcm since 2017, with an overall fall of 2.7% to 936 bcm in 2023. LNG exports rose 1.8% to 549 bcm. LNG now accounts for nearly 59% of all globally traded gas. The US overtook both Australia and the Middle East to become the world's largest exporter of LNG. Collectively they represented 64% of total LNG exports. China overtook

Japan to become the largest importer of LNG with one-third of its imports coming from Australia. Collectively, the Asia Pacific region accounted for 64% of all LNG imports. Europe increased its imports from the US by 6% whilst its LNG imports from the Russian Federation remained relatively stable at around 19 bcm.

Natural gas Major trade movements 2023 – pipeline



Notes: 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.
Source: Includes data from FGE MENA gas service, IHS.

In 2023, pipeline trade of natural gas continued to decline falling 8% to 388 bcm. The fall in supply was most noticeable in the Russia Federation which saw its exports fall by 24% to 95 bcm. The global balance between LNG and pipeline trade is now almost the complete inverse of the position back in 2017 with pipeline gas now accounting for only 41% of traded gas. Norway remains the largest

supplier of pipeline gas to its European counterparts where imports from the Russian Federation fell by 42% to 50 bcm. Although Russian pipeline exports experienced an overall decline, building on the 62% fall in 2022, its exports to China increased 45% to just over 21 bcm and by 53% to other CIS countries to 7 bcm.

Natural gas Trade movements 2023 as LNG*

Billion cubic metres To	From																						
	US	Peru	Trinidad & Tobago	Other Americas*	Norway	Other Europe*	Russia Federation	Oman	Qatar	United Arab Emirates	Yemen	Algeria	Angola	Egypt	Nigeria	Other Africa	Australia	Brunei	Indonesia	Papua New Guinea	Other Asia Pacific	Total imports	
Canada	†	0.1	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2			
Mexico	0.4	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.9			
US	—	—	0.3	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5			
North America	0.4	0.3	0.5	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6			
Argentina	2.1	—	0.2	—	—	†	—	0.2	—	—	0.1	—	0.1	0.1	0.1	—	—	—	—	2.7			
Brazil	1.0	—	†	—	—	0.1	0.1	—	—	—	—	0.1	—	—	—	—	—	—	—	1.3			
Chile	0.9	—	2.0	—	—	†	—	—	—	—	—	—	0.1	—	0.6	—	—	—	—	3.6			
Other S. & Cent. America	3.5	0.2	1.9	0.7	—	0.4	—	—	—	—	—	—	1.4	0.1	†	—	—	—	—	8.2			
S. & Cent. America	7.5	0.2	4.1	0.7	—	0.5	0.1	—	0.2	—	0.2	—	0.1	1.5	0.8	†	—	—	—	15.8			
Belgium	2.6	—	—	†	†	3.9	—	4.6	—	—	0.2	0.3	0.1	0.1	0.1	—	—	—	†	11.8			
France	13.2	0.4	0.4	—	1.2	0.1	4.8	0.1	2.3	—	5.6	0.9	0.2	0.6	0.9	—	—	—	†	30.7			
Italy	5.3	—	—	—	—	0.8	0.3	—	6.7	—	2.3	—	0.3	0.3	0.4	—	—	—	—	16.3			
Spain	7.4	0.5	0.5	0.1	0.3	1.0	6.5	0.3	1.3	—	1.8	0.3	0.4	4.8	0.6	†	—	—	—	24.9			
Turkiye	3.8	—	0.2	0.2	0.3	0.8	1.4	0.1	—	6.1	—	1.3	0.5	0.1	—	—	—	—	—	14.8			
United Kingdom	11.6	2.1	0.4	—	—	0.4	†	—	2.8	—	0.5	0.8	0.3	0.5	—	—	—	—	—	19.4			
Other European Union	32.4	0.1	2.7	†	3.2	0.4	2.5	0.3	3.0	0.1	0.7	1.4	0.6	2.5	0.7	—	0.1	—	—	51.0			
Rest of Europe	—	—	—	—	—	0.1	0.1	—	—	—	—	—	—	—	—	—	—	—	—	0.1			
Europe	76.2	3.1	4.2	0.3	5.5	2.3	19.4	0.8	20.8	0.1	17.2	3.7	3.2	9.3	2.7	†	—	0.1	—	169.1			
Egypt	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	—	13.6			
Kuwait	0.9	—	0.2	—	—	—	0.1	0.5	5.2	0.1	0.1	—	1.2	0.3	0.1	—	0.2	—	—	8.9			
United Arab Emirates	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.1			
Other Middle East & Africa	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2			
Middle East & Africa	1.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.2			
China	4.3	0.2	0.5	†	—	0.2	11.0	1.4	22.9	1.0	0.5	—	0.4	1.6	1.2	33.0	1.0	5.5	9.7	35.5	†	97.8	
India	4.4	—	0.4	—	—	0.6	0.6	1.1	15.0	4.5	0.5	1.0	0.3	1.0	1.2	0.5	—	—	—	—	—	31.0	
Japan	7.5	0.3	0.1	—	—	0.1	8.4	3.0	4.0	1.1	0.1	—	0.2	0.3	0.4	37.5	3.4	4.1	14.3	5.2	0.3	90.3	
Malaysia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.2		
Pakistan	0.1	—	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.1		
Singapore	0.6	—	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.8		
South Korea	7.1	1.0	†	—	—	0.1	2.3	6.9	11.8	0.6	0.2	—	0.4	0.8	0.8	14.3	0.7	4.0	8.3	0.9	0.5	60.6	
Taiwan	2.7	0.2	—	—	—	—	—	0.8	0.5	7.6	0.2	—	—	0.1	0.4	0.1	11.0	0.4	0.6	0.9	2.0	—	27.4
Thailand	1.6	—	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.1		
Other Asia Pacific	0.9	—	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.2	
Asia Pacific	29.3	1.7	1.5	†	—	0.9	23.1	14.0	81.1	7.5	—	1.6	1.3	1.6	5.5	5.5	107.3	6.2	15.7	36.1	11.5	1.2	352.5
Total exports	114.4	5.3	10.5	1.1	5.5	3.7	42.7	15.3	108.4	7.7	—	19.0	4.9	4.9	17.5	9.2	107.4	6.2	16.1	36.3	11.5	1.5	549.2

Source: Includes data from GIGNL, S&P Global Commodity Insights.

* Includes re-exports.

† Less than 0.05.

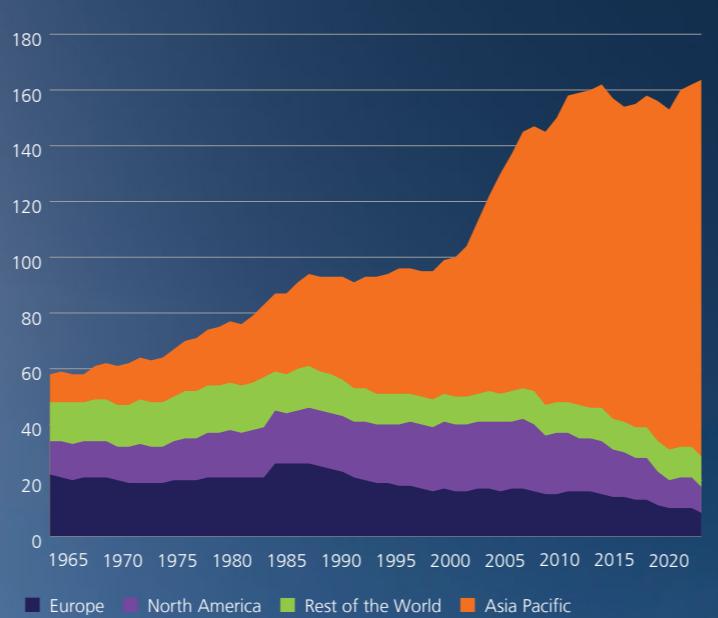
Note: As far as possible, the

Coal

In 2023, global coal production reached its highest ever level (179 EJ), beating the previous high set the year before. The Asia Pacific region accounted for nearly 80% of global output with activity concentrated in just four countries, Australia, China, India, and Indonesia (jointly responsible for 97% of the region's output). China alone was responsible for just over half of total global production. North America, Southern & Central America, Europe and the Commonwealth of Independent States all saw their production fall relative to 2022 levels.

Global coal consumption breached 164 EJ for the first time ever. An increase of 1.6% over 2022 was seven times higher than the previous ten-year average growth rate. Whilst China is by far the largest consumer of coal (56% of the world's total), in 2023 India exceeded the combined consumption of Europe and North America for the first time ever. Coal consumption in both Europe and North America each fell below 10 EJ, their lowest levels since 1965.

Global coal consumption



Coal consumption in India exceeded the combined consumption of Europe and North America for the first time ever

Coal Production*

Million tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share	
Canada	68.4	68.3	62.4	62.4	60.6	55.0	53.2	46.1	47.6	46.7	48.6	4.0%	-3.3%	0.5%
Mexico	14.6	14.9	12.3	11.4	11.9	9.8	7.7	5.5	5.5	5.5	5.6	0.1%	-9.2%	0.1%
US	893.4	907.2	813.7	660.8	702.7	686.0	640.8	485.7	523.8	539.0	526.5	-2.3%	-5.1%	5.8%
Total North America	976.5	990.4	888.3	734.5	776.2	752.9	703.7	539.6	577.0	591.3	580.6	-1.8%	-5.0%	6.4%
Brazil	9.5	9.4	8.0	7.5	5.8	6.4	5.8	7.1	8.0	7.6	6.8	-10.1%	-3.2%	0.1%
Colombia	86.1	89.4	86.5	91.2	91.5	86.9	85.9	54.4	59.1	58.0	54.5	-5.9%	-4.4%	0.6%
Venezuela	1.2	0.8	0.8	0.7	0.7	0.7	0.4	0.3	0.2	0.8	0.8	-	-4.1%	†
Other S. & Cent. America	3.2	4.5	3.4	2.8	1.8	1.6	1.1	0.4	0.2	0.3	0.3	11.8%	-21.5%	†
Total S. & Cent. America	99.9	104.0	98.8	102.3	99.9	95.6	93.3	62.2	67.6	66.6	62.5	-6.2%	-4.6%	0.7%
Bulgaria	28.6	31.3	35.9	31.3	34.3	30.6	28.3	22.6	28.4	35.6	21.0	-40.9%	-3.0%	0.2%
Czech Republic	49.1	47.1	46.5	45.5	44.9	43.8	41.0	31.6	31.5	35.1	30.0	-14.7%	-4.8%	0.3%
Germany	190.6	185.8	184.3	175.4	175.1	168.8	131.3	107.4	126.3	130.8	102.3	-21.8%	-6.0%	1.1%
Greece	53.9	50.8	46.2	32.6	37.7	36.5	27.4	14.1	12.4	14.3	10.9	-23.6%	-14.8%	0.1%
Hungary	9.6	9.6	9.3	9.2	8.0	7.9	6.8	6.1	5.0	4.9	4.1	-17.4%	-8.2%	†
Poland	142.9	137.1	135.8	131.0	127.1	122.4	112.4	100.7	107.6	107.8	88.7	-17.7%	-4.6%	1.0%
Romania	24.7	23.6	25.5	23.0	25.8	23.7	21.7	15.0	17.7	18.2	14.8	-18.8%	-5.0%	0.2%
Serbia	40.3	29.8	37.8	38.5	39.8	37.6	38.9	39.7	36.4	35.1	31.9	-9.1%	-2.3%	0.4%
Spain	4.4	3.9	3.1	1.7	3.0	2.4	0.1	0.1	0.1	0.1	0.1	-	-33.7%	†
Türkiye	60.4	65.2	58.4	73.0	74.1	83.9	87.1	74.7	86.5	95.3	66.4	-30.4%	1.0%	0.7%
Ukraine	64.9	45.7	30.4	32.2	24.7	26.8	26.1	24.4	26.2	24.1	23.3	-3.3%	-9.7%	0.3%
United Kingdom	12.8	11.6	8.6	4.2	3.0	2.8	2.6	1.7	1.1	0.7	0.5	-22.3%	-27.6%	†
Other Europe	70.7	67.2	64.5	61.7	65.1	66.3	56.8	50.2	47.6	50.7	46.2	-8.9%	-4.2%	0.5%
Total Europe	752.8	708.8	686.3	659.4	662.6	653.5	580.5	488.3	526.7	552.6	440.1	-20.4%	-5.2%	4.8%
Kazakhstan	119.6	114.0	107.3	103.1	112.3	118.5	115.0	113.4	116.2	117.8	116.4	-1.2%	-0.2%	1.3%
Russian Federation	355.2	357.5	372.5	386.6	411.0	441.3	440.7	399.8	434.1	439.0	432.5	-1.5%	2.0%	4.8%
Uzbekistan	4.1	4.4	3.5	3.9	4.0	4.2	4.0	4.1	5.1	5.4	6.2	15.5%	4.3%	0.1%
Other CIS	4.2	4.1	4.0	4.6	5.7	7.7	7.9	6.2	6.6	8.6	8.4	-2.4%	7.2%	0.1%
Total CIS	483.1	480.0	487.3	498.1	533.0	571.6	567.6	523.5	561.9	570.8	563.4	-1.3%	1.6%	6.2%
Total Middle East	1.5	1.5	1.6	1.8	1.8	2.2	2.0	2.1	2.4	4.9	10.3	110.1%	21.1%	0.1%
South Africa	256.3	261.4	252.2	249.7	252.3	250.0	254.4	248.1	233.7	229.9	228.5	-0.6%	-1.1%	2.5%
Zimbabwe	3.1	5.8	4.3	2.7	2.9	3.3	2.6	2.7	3.2	3.9	5.0	26.6%	4.9%	0.1%
Other Africa	8.3	9.4	9.7	9.2	16.7	20.3	15.1	13.2	17.3	23.3	23.6	1.1%	11.1%	0.3%
Total Africa	267.7	276.6	266.2	261.7	271.9	273.7	272.2	264.0	254.3	257.2	257.1	-0.4%	2.8%	
Australia	472.8	505.3	503.7	502.1	487.2	502.2	505.6	470.0	460.3	440.1	455.8	3.6%	-0.3%	5.0%
China	3974.3	3873.9	3746.5	3410.6	3523.6	3697.7	3846.3	3901.6	4125.8	4558.6	4710.0	3.3%	1.7%	51.8%
India	608.5	646.2	674.2	689.8	711.7	760.4	753.9	760.2	812.1	910.8	1010.9	11.0%	5.2%	11.1%
Indonesia	474.4	458.1	461.6	456.2	461.2	557.8	616.2	563.7	614.0	687.4	775.2	12.8%	5.1%	8.5%
Japan	1.2	1.3	1.2	1.3	1.4	1.0	0.8	0.7	0.7	0.7	0.6	-8.8%	-6.2%	†
Mongolia	33.3	24.4	24.1	35.1	49.5	54.6	57.1	43.1	32.3	39.3	83.2	111.6%	9.6%	0.9%
New Zealand	4.6	4.0	3.4	2.9	2.9	3.2	3.0	2.8	2.9	2.6	2.6	-1.4%	-5.6%	†
Pakistan	3.0	3.4	3.3	4.1	4.2	4.4	7.1	9.5	10.2	10.0	17.1	71.0%	19.1%	0.2%

Coal Production*

Exajoules	Growth rate per annum											Share
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Canada	1.53	1.51	1.36	1.37	1.33	1.22	1.20	1.15	1.21	1.19	1.24	4.1%
Mexico	0.30	0.30	0.29	0.25	0.31	0.28	0.23	0.19	0.14	0.14	0.14	0.1%
US	20.05	20.33	17.99	14.70	15.66	15.40	14.29	10.73	11.62	12.07	11.84	-1.9%
Total North America	21.87	22.15	19.64	16.33	17.30	16.90	15.72	12.07	12.97	13.40	13.21	-1.4%
Brazil	0.15	0.15	0.12	0.11	0.09	0.10	0.09	0.10	0.12	0.11	0.10	-11.1%
Colombia	2.48	2.57	2.49	2.62	2.63	2.50	2.47	1.57	1.70	1.67	1.57	-5.9%
Venezuela	0.04	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	-4.4%
Other S. & Cent. America	0.07	0.12	0.10	0.08	0.05	0.05	0.03	0.01	0.01	0.01	0.01	12.3%
Total S. & Cent. America	2.74	2.87	2.73	2.84	2.80	2.67	2.61	1.69	1.83	1.80	1.69	-6.1%
Bulgaria	0.20	0.21	0.25	0.21	0.24	0.21	0.20	0.16	0.20	0.25	0.15	-40.9%
Czech Republic	0.74	0.71	0.71	0.67	0.64	0.62	0.56	0.43	0.44	0.48	0.40	-15.2%
Germany	1.89	1.85	1.79	1.66	1.65	1.58	1.19	0.98	1.15	1.19	0.92	-23.2%
Greece	0.28	0.27	0.24	0.17	0.19	0.18	0.13	0.07	0.06	0.07	0.05	-23.6%
Hungary	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.03	0.03	-17.4%
Poland	2.39	2.26	2.22	2.18	2.08	1.98	1.87	1.68	1.76	1.71	1.48	-13.2%
Romania	0.19	0.19	0.20	0.18	0.19	0.17	0.16	0.11	0.13	0.12	0.09	-18.8%
Serbia	0.32	0.24	0.30	0.30	0.28	0.29	0.30	0.26	0.25	0.25	0.23	-9.1%
Spain	0.07	0.07	0.05	0.03	0.05	0.04	^	^	^	^	^	-32.7%
Türkiye	0.65	0.68	0.54	0.65	0.63	0.69	0.73	0.66	0.75	0.83	0.58	-29.7%
Ukraine	1.60	1.09	0.72	0.76	0.57	0.61	0.60	0.53	0.57	0.53	0.51	-3.3%
United Kingdom	0.32	0.29	0.21	0.11	0.08	0.08	0.07	0.05	0.03	0.02	0.01	-22.3%
Other Europe	0.72	0.64	0.59	0.59	0.60	0.60	0.52	0.46	0.44	0.45	0.42	-8.3%
Total Europe	9.45	8.57	7.88	7.58	7.28	7.08	6.36	5.47	5.82	5.92	4.88	-17.7%
Kazakhstan	2.15	2.09	1.66	1.75	1.92	1.98	1.88	1.86	1.92	1.95	1.92	-1.2%
Russian Federation	7.25	7.39	7.80	8.12	8.62	9.23	8.42	9.25	9.35	9.21	-1.5%	2.5%
Uzbekistan	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.07	15.5%
Other CIS	0.06	0.06	0.07	0.07	0.09	0.12	0.12	0.11	0.11	0.14	0.13	-3.6%
Total CIS	9.51	9.60	9.57	10.00	10.68	11.37	10.43	11.34	11.50	11.34	-1.4%	1.8%
Total Middle East	0.03	0.03	0.03	0.04	0.04	0.05	0.04	0.04	0.06	0.09	37.4%	11.2%
South Africa	6.08	6.20	5.96	6.01	5.97	6.01	6.02	5.88	5.53	5.44	5.41	-0.6%
Zimbabwe	0.08	0.16	0.12	0.07	0.08	0.09	0.07	0.07	0.09	0.13	26.6%	4.9%
Other Africa	0.21	0.24	0.25	0.24	0.43	0.53	0.39	0.34	0.45	0.60	0.61	1.6%
Total Africa	6.38	6.59	6.33	6.32	6.49	6.63	6.48	6.29	6.06	6.15	6.15	0.1%
Australia	11.97	12.81	12.80	12.83	12.50	13.10	13.18	12.09	11.75	11.24	11.66	3.8%
China	79.32	78.05	76.59	70.82	73.17	76.87	79.76	80.51	83.44	91.32	93.10	2.0%
India	10.71	11.28	11.77	11.89	11.99	12.80	12.60	12.59	13.38	15.05	16.75	11.3%
Indonesia	10.44	10.15	10.19	9.87	9.69	11.44	12.84	11.78	12.68	13.95	15.73	12.8%
Japan	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	-5.0%
Mongolia	0.64	0.47	0.46	0.67	0.94	1.04	1.09	0.82	0.62	0.75	1.59	111.6%
New Zealand	0.12	0.10	0.09	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.07	-0.3%
Pakistan	0.06	0.06	0.06	0.08	0.08	0.08	0.13	0.18	0.19	0.19	0.32	71.0%
South Korea	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	-21.1%
Thailand	0.20	0.19	0.16	0.18	0.17	0.16	0.15	0.14	0.15	0.14	0.13	-6.1%
Vietnam	0.96	0.96	0.98	0.91	0.90	0.99	1.09	1.05	1.13	1.17	1.13	-3.4%
Other Asia Pacific	1.08	1.09	1.13	1.40	1.33	1.22	1.38	1.30	1.21	1.35	1.37	1.1%
Total Asia Pacific	115.55	115.25	114.27	108.78	110.91	117.83	122.33	120.55	124.66	135.26	141.88	4.9%
Total World	165.52	165.06	160.45	151.88	155.49	162.52	164.82	156.54	162.73	174.09	179.24	3.0%
of which: OECD	43.40	44.41	41.32	37.85	38.33	38.21	36.37	29.95	30.95	30.93	30.21	-2.3%
Non-OECD	122.12	120.65	119.13	114.03	117.16	124.31	128.45	126.59	131.78	143.16	149.04	4.1%
European Union	6.22	5.97	5.82	5.47	5.42	5.16	4.42	3.67	3.96	4.04	3.31	-18.2%
												6.1%
												1.8%

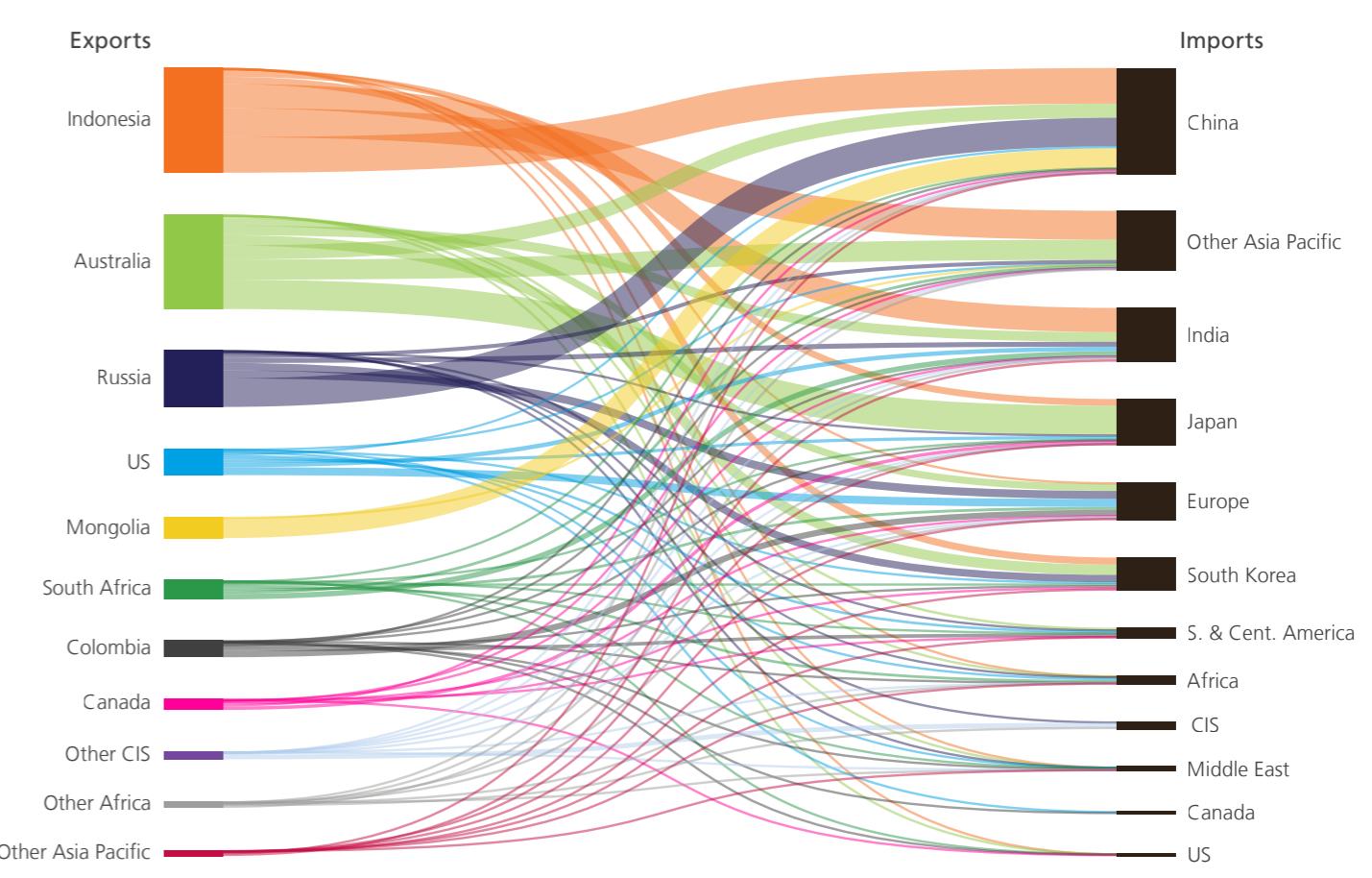
* Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Includes coal produced for Coal-to-Liquids and Coal-to-Gas transformations.

^ Less than 0.005.

† Less than 0.05%.

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

Coal Trade movements



Coal Trade movements

Exajoules	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
Imports														
Canada	0.22	0.26	0.22	0.19	0.22	0.23	0.21	0.17	0.19	0.18	0.19	6.7%	-1.3%	0.5%
Mexico	0.20	0.22	0.23	0.21	0.32	0.32	0.25	0.13	0.05	0.05	0.08	72.5%	-8.4%	0.2%
US	0.24	0.28	0.28	0.25	0.19	0.15	0.17	0.65	0.14	0.16	0.11	-34.8%	-7.6%	0.3%
S. & Cent. America	1.08	1.08	1.03	1.08	1.20	1.18	1.12	1.04	1.25	1.05	0.96	-8.3%	-1.1%	2.7%
Europe	5.84	6.08	6.02	5.38	5.83	6.34	5.08	3.93	4.44	4.94	3.56	-27.9%	-4.8%	10.0%
CIS	0.58	0.59	0.58	0.52	0.60	0.65	0.70	0.66	0.64	0.49	0.50	1.3%	-1.6%	1.4%
Middle East	0.44	0.49	0.39	0.34	0.36	0.37	0.34	0.38	0.34	0.24	0.27	9.4%	-4.9%	0.8%
Africa	0.82	0.37	0.46	0.50	0.63	0.82	0.92	0.52	0.68	0.73	0.82	11.7%	+	2.3%
China	7.62	6.62	4.69	5.65	5.87	6.00	6.40	6.61	6.68	5.83	10.16	74.3%	2.9%	28.7%
India	3.66	4.65	4.92	10.11	5.25	5.68	4.70	4.74	4.67	4.99	5.35	7.3%	3.9%	15.1%
Japan	5.06	5.00	5.05	5.01	5.06	5.00	4.90	4.56	4.84	4.82	4.39	-9.0%	-1.4%	12.4%
South Korea	3.32	3.43	3.54	3.53	3.89	3.90	3.73	3.28	3.35	3.36	3.19	-4.9%	-0.4%	9.0%
Other Asia Pacific	3.49	3.58	3.79	4.47	4.90	5.34	5.22	6.36	6.22	5.53	5.86	6.0%	5.3%	16.5%
Total World	32.57	32.66	31.19	37.25	34.32	35.99	33.72	33.03	33.51	32.37	35.43	9.5%	0.8%	100.0%
Exports														
Canada	1.12	1.03	0.85	0.78	0.95	1.03	1.02	0.95	0.96	0.97	0.99	1.5%	-1.3%	2.8%
US	2.88	2.37	1.90	1.53	2.41	2.89	2.21	1.74	2.18	2.23	2.47	10.6%	-1.5%	7.0%
Colombia	2.05	2.27	2.19	2.33	2.48	2.42	2.09	1.82	1.67	1.59	1.59	+	-2.5%	4.5%
Europe	0.68	0.13	0.10	0.13	0.19	0.25	0.24	0.21	0.22	0.15	0.23	49.4%	-10.4%	0.6%
Russian Federation	3.54	3.91	4.10	4.45	5.09	5.76	5.79	5.66	6.03	5.31	5.39	1.4%	4.3%	15.2%
Other CIS	0.53	0.54	0.53	0.48	0.50	0.49	0.55	0.63	0.65	0.72	0.65	-8.9%	2.1%	1.8%
South Africa	2.11	2.19	2.27	2.14	2.68	2.95	1.41	1.73	1.62	1.72	1.74	1.0%	-1.9%	4.9%
Other Africa	0.11	0.18	0.28	5.68	0.66	0.24	0.28	0.74	0.37	0.47	0.53	12.5%	16.5%	1.5%
Australia	9.16	9.89	9.91	9.84	9.63	9.71	9.60	9.33	9.60	8.21	9.00	9.6%	-0.2%	25.4%
China	0.28	0.37	0.45	0.50	0.40	0.41	0.31	0.18	0.28	0.31	0.31	-0.2%	1.1%	0.9%
Indonesia	8.51	8.35	7.41	7.69	8.01	8.49	8.49	8.79	8.98	9.19	10.00	8.8%	1.6%	28.2%
Mongolia	0.49	0.53	0.41	0.73	0.95	0.99	1.04	0.83	0.49	0.90	1.96	116.8%	14.8%	5.5%
Other Asia Pacific	0.96	0.80	0.67	0.79	0.32	0.29	0.60	0.34	0.36	0.44	0.46	5.5%	-7.1%	1.3%
Rest of World	0.15	0.09	0.13	0.17	0.06	0.08	0.09	0.08	0.08	0.14	0.13	-13.0%	-1.6%	0.4%
Total World	32.57	32.66	31.19	37.25	34.32	35.99	33.72	33.03	33.51	32.37	35.43	9.5%	0.8%	100.0%

[†] Less than 0.05.

Note: 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.

Mined energy resource prices

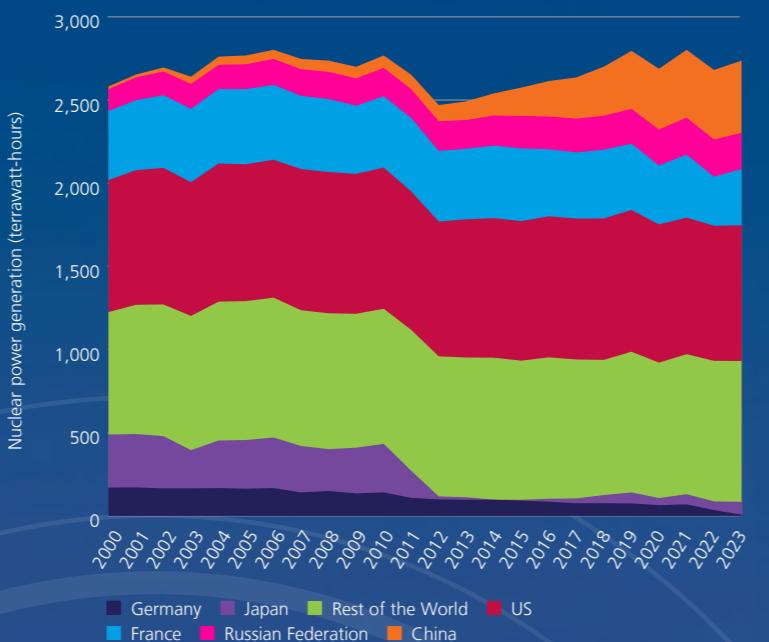
Coal \$/te								Uranium \$/lb	
United States ¹	Colombia ²	Northwest Europe ³	South Africa ⁴	Indonesia ⁵	South China ⁶	Japan ⁷	Australia ⁸	Canada ⁹	
—	—	31.30	—	—	—	—	—	—	—
—	—	39.94	—	—	—	—	—	—	—
—	—	42.08	—	—	—	—	—	—	—
31.59	—	43.48	—	—	—	—	—	—	—
29.01	—	42.80	—	—	—	—	—	—	—
28.53	—	38.53	—	—	—	—	—	—	—
29.85	—	33.68	—	—	—	—	—	—	—
31.72	—	37.18	—	—	—	—	—	—	—
27.01	—	44.50	—	—	—	—	—	—	—
29.86	—	41.25	—	—	—	—	—	—	—
29.76	—	38.92	—	—	—	—	—	—	—
31.00	—	32.00	—	—	—	—	—	—	—
31.29	—	28.79	—	—	—	—	—	—	—
29.90	—	35.99	—	27.52	—	—	—	—	—
50.15	—	39.03	—	31.78	37.69	—	—	—	—
33.20	—	31.65	—	33.19	31.47	—	—	—	—
38.52	—	43.60	—	31.74	39.61	—	—	—	—
64.90	—	72.13	—	42.76	74.22	—	—	—	—
70.12	—	60.54	—	51.34	64.62	—	—	—	—
57.82	—	64.11	—	53.53	65.22	—	—	—	—
49.73	—	88.79	—	61.23	95.59	—	—	—	—
117.42	—	147.67	—	104.97	157.88	—	—	—	—
60.73	—	70.39	—	87.86	83.59	—	—	—	—
67.87	59.21	92.50	—	110.08	108.47	—	—	—	—
84.75	79.73	121.48	—	127.27	126.13	—	—	—	—
67.28	65.02	92.50	—	111.89	100.30	—	—	—	—
69.72	54.18	81.69	—	95.42	90.07	—			

Nuclear energy

Despite a small drop in total installed capacity, electricity generation from nuclear power plant increased in 2023 by 2%. However, it was still 58 terawatt-hours below its 2019 pre-COVID level and 2% below its peak output in 2006. Output from nuclear in Europe fell by 1% with the recovery of France's nuclear fleet from prolonged outages in 2022 offset by Germany's closure of its last three remaining units early in the year. China continues to lead the way in building new capacity. Since 2000 it has built around 60% of all new nuclear capacity additions.

In late 2023, commercial operations began at its onshore small modular reactor (SMR) demonstration project, a world first featuring the latest Generation IV technology and incorporating inherent safety systems. Following events in Fukushima in 2011, Japan has gradually returned units to service and, in 2023 output increased by 50%. Whilst output from nuclear in the US remained relatively flat, it was still equal to the combined outputs of China and France, operators of the second and third-largest fleets.

Before Fukushima in 2011, nuclear met 25% of Japan's electricity demand and 23% of Germany's. In 2023, it met only around 8% in Japan and just 2% in Germany



China commissioned the world's first onshore demonstration of a small modular reactor (SMR)

Nuclear energy Generation*

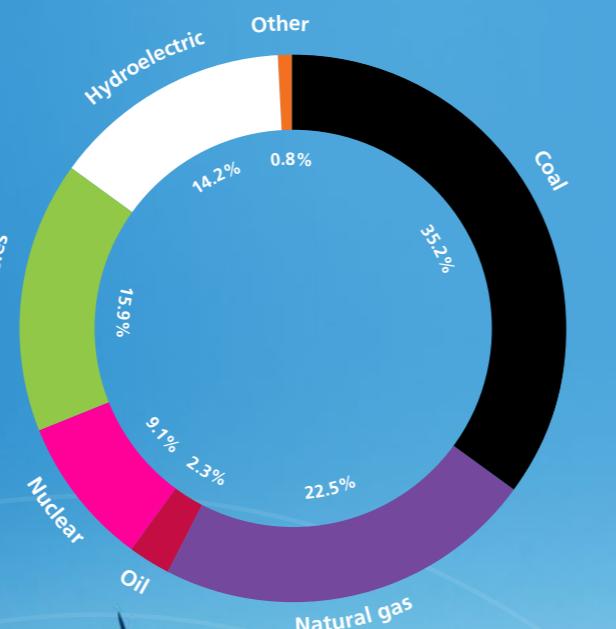
Terawatt-hours	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share	
												2023	2013-23	2023
Canada	102.7	106.5	101.1	100.7	100.6	100.0	100.5	97.5	92.0	86.6	89.0	2.8%	-1.4%	3.3%
Mexico	11.8	9.7	11.6	10.6	10.9	13.6	11.2	11.2	10.8	12.4	14.2%	0.5%	0.5%	0.5%
US	830.5	839.1	839.1	848.1	847.3	849.6	852.0	831.5	820.7	812.1	816.2	0.5%	-0.2%	29.8%
Total North America	945.1	955.3	951.8	959.4	958.8	963.1	963.7	940.1	924.6	909.6	917.6	0.9%	-0.3%	33.5%
Argentina	6.2	5.5	7.0	8.3	6.1	6.9	8.4	10.0	10.2	7.5	9.0	20.0%	3.7%	0.3%
Brazil	15.4	15.4	14.7	15.9	15.7	15.7	16.1	14.1	14.7	14.6	14.5	-0.3%	-0.6%	0.5%
Chile	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colombia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trinidad & Tobago	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central America	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Caribbean	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other South America	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total S. & Cent. America	21.7	20.9	21.8	24.1	21.8	22.5	24.6	24.1	24.9	22.0	23.5	6.6%	0.8%	0.9%
Austria	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	42.6	33.7	26.1	43.5	42.2	28.6	43.5	34.4	50.3	43.9	32.9	-25.0%	-2.6%	1.2%
Bulgaria	14.2	15.9	15.4	15.8	15.5	16.1	16.6	16.6	16.5	16.5	16.2	-1.7%	1.3%	0.6%
Croatia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czech Republic	30.7	30.3	26.8	24.1	28.3	29.9	30.2	30.0	30.7	31.0	30.4	-2.0%	-0.1%	1.1%
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finland	23.6	23.6	23.2	23.2	22.5	22.8	23.9	23.3	23.6	25.3	34.2	35.2%	3.8%	1.3%
France	423.7	436.5	437.4	403.2	398.4	412.9	399.0	353.8	379.4	294.7	338.2	14.7%	-2.2%	12.4%
Germany	97.3	97.1	91.8	84.6	76.3	76.0	75.1	64.4	69.1	34.7	7.2	-79.2%	-22.9%	0.3%
Greece	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hungary	15.4	15.6	15.8	16.1	16.1	15.7	16.3	16.1	16.0	15.8	15.9	0.7%	0.4%	0.6%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	2.9	4.1	4.1	4.0	3.4	3.5	3.9	4.1	3.8	4.2	4.0	-4.1%	3.3%	0.1%
North Macedonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Romania	11.6	11.7	11.6	11.3	11.5	11.4	11.3	11.5	11.3	11.1	11.2	0.9%	-0.4%	0.4%
Slovakia	15.7	15.5	15.1	14.8	15.1	14.8	15.3	15.4	15.7	15.9	18.3	15.2%	1.6%	0.7%
Slovenia	5.3	6.4	5.6	5.7	6.3	5.8	5.8	6.4	5.7	5.6	5.6	-0.6%	0.2%	-
Spain	56.7	57.3	57.3	58.6	58.1	55.8	58.3	58.3	56.6	58.6	56.8	-3.0%	-2.1%	-
Sweden	66.5	64.9	56.3	63.1	65.7	68.5	66.1	49.2	53.0	51.9	48.4	-6.8%	-3.1%	1.8%
Switzerland	26.2	27.8	23.3	21.3	20.5	24.4	25.3	23.0	18.5	23.1	23.3	1.0%	-1.1%	0.9%
Türkiye	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine	83.2	88.4	87.6	81.0	85.6	84.4	83.0	76.2	86.2	62.1	52.4	-15.6%	-4.5%	1.9%
United Kingdom	70.6	63.7	70.3	71.7	70.3	65.1	56.2	50.3	45.9	47.7	40.7	-14.6%	-5.3%	1.5%
Other Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Europe	986.2	992.4	968.0	941.9	935.9	935.8	929.7	833.0	882.3	742.2	735.9	-0.8%	-2.9%	26.9%
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Russian Federation	172.5	180.8	195.5	196.6										

Electricity and renewables

Global electricity generation increased by 2.5% in 2023 to reach a record level of 29,925 TWh. Recording a growth rate that was 25% faster than total global primary energy consumption suggests that the world's energy system is increasingly electrifying. Whilst electricity demand in Asia Pacific and the Middle East increased by around 5%, demand in both Europe and North America fell by 2.4% and 1% respectively.

Coal retained its position as the dominant fuel for power generation with fossil fuels overall forming 60% of global electricity generation. Renewables share of total power generation rose from 29% to 30%. At a regional level, Southern & Central America recorded the highest contribution from renewables at 72%. The share of nuclear remained flat at around 9% with new build in China and returns to service of plant in France and Japan being offset by the closure of Germany's remaining plant. In 2023, grid-scale battery electricity storage system (BESS) capacity stood at 56 GW, nearly 50% of which was installed in China.

Fossil fuels contributed 60% of total global electricity generated in 2023



Electricity Generation*

Terawatt-hours	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum	Share	
												2023	2013-23	2023
Canada	655.7	653.0	661.1	668.2	669.6	661.5	656.0	653.9	649.9	658.9	633.2	-3.9%	-0.3%	2.1%
Mexico	297.1	303.3	310.3	320.3	329.1	349.3	344.6	325.7	330.0	340.1	354.9	4.3%	1.8%	1.2%
US	4330.3	4363.3	4349.9	4348.9	4303.8	4464.5	4414.1	4287.6	4400.9	4537.7	4494.0	-1.0%	0.4%	15.0%
Total North America	5283.1	5319.5	5321.9	5337.4	5302.5	5475.3	5414.7	5267.2	5380.9	5536.8	5482.0	-1.0%	0.4%	18.3%
Argentina	139.4	138.6	145.4	147.2	145.6	146.8	139.5	144.6	153.2	145.6	146.4	0.6%	0.5%	0.5%
Brazil	570.8	590.5	581.2	578.9	589.3	601.4	633.3	628.8	656.1	677.2	710.0	4.8%	2.2%	2.4%
Chile	73.0	71.6	74.5	77.7	78.6	82.3	83.6	87.4	88.0	88.2	0.2%	1.9%	0.3%	
Colombia	69.8	72.7	75.0	74.4	75.0	78.3	80.4	79.4	86.0	89.5	93.9	4.9%	3.0%	0.3%
Ecuador	23.3	24.3	26.0	27.3	28.0	29.2	32.3	31.2	32.2	33.0	35.4	7.1%	4.3%	0.1%
Peru	43.3	45.5	48.3	51.7	52.7	55.0	57.0	52.8	57.5	59.7	62.1	3.9%	3.7%	0.2%
Trinidad & Tobago	9.5	9.4	9.6	9.4	9.3	9.2	9.2	9.3	9.8	9.7	-0.7%	0.2%	†	
Venezuela	132.6	131.0	126.3	116.2	110.3	92.3	78.1	81.6	83.9	87.6	85.8	-2.2%	-4.3%	0.3%
Central America	48.1	49.4	52.2	53.8	54.5	56.4	59.3	57.2	61.6	63.0	65.3	3.5%	3.1%	0.2%
Other Caribbean	76.8	76.0	77.8	74.4	76.2	79.5	78.7	80.0	79.3	84.5	6.7%	1.0%	0.3%	
Other South America	84.2	80.9	82.7	91.3	87.9	80.1	74.4	72.1	75.0	83.3	11.1%	-0.1%	0.3%	
Total S. & Cent. America	1270.9	1290.0	1299.0	1306.8	1305.8	1314.9	1332.4	1321.6	1379.3	1407.7	1464.5	4.0%	1.4%	4.9%
Austria	68.4	65.6	65.5	68.5	71.3	68.6	74.2	72.6	70.8	68.5	72.6	6.0%	0.6%	0.2%
Belgium	83.5	72.5	69.7	85.6	86.6	75.0	93.6	89.5	100.5	95.9	81.9	-14.7%	-0.2%	0.3%
Bulgaria	43.8	47.5	49.2	45.3	45.6	46.8	44.3	40.8	47.6	50.5	39.9	-21.0%	-0.9%	0.1%
Croatia	14.1	13.6	11.4	12.8	12.0	13.6	12.8	13.4	15.2	14.2	17.3	21.9%	2.1%	0.1%
Cyprus	4.3	4.4	4.5	4.9	5.0	5.0	5.1	4.8	5.1	5.3	5.4	1.9%	2.3%	†
Czech Republic	86.9	86.0	83.9	83.3	87.0	88.0	87.0	81.4	84.9	84.5	76.1	-9.9%	-1.3%	0.3%
Denmark	34.7	32.2	28.9	30.5	31.0	30.4	29.5	28.7	33.1	35.1	33.6	-4.4%	-0.3%	0.1%
Estonia	13.3	12.4	10.4	12.2	13.2	12.4	7.6	6.1	7.1	8.9	7.0	-21.6%	-6.2%	†
Finland	71.3	68.1	68.6	68.8	67.5	70.3	68.7	69.3	72.1	72.2	81.3	12.6%	1.3%	0.3%
France	575.3	564.8	571.6	556.2	554.0	573.9	562.7	524.3	547.2	466.5	519.7	11.4%	-1.0%	1.7%
Germany	637.7	626.6	647.0	649.2	652.3	641.4	608.2	574.7	587.1	577.9	513.7	-11.1%	-2.1%	1.7%
Greece	57.2	50.5	51.9	54.4	55.3	53.3	48.6	54.7	52.6	49.8	54.2	-5.4%	-1.4%	0.2%
Hungary	30.3	29.4	30.4	31.9	32.9	32.1	34.3	34.9	36.1	35.8	34.9	2.4%	1.4%	0.1%
Iceland	18.1	18.1	18.8	18.5	19.2	19.8	19.5	19.1	19.6	20.1	20.2	0.6%	1.1%	0.1%
Ireland	26.1	26.3	28.4	30.5	30.9	31.1	31.0	32.3	31.9	33.9	31.1	-8.1%	1.8%	0.1%
Italy	289.8	279.8	283.0	289.8	295.8	289.7	293.9	280.5	289.1	284.0	265.3	-6.6%	-0.9%	0.9%
Latvia	6.2	5.1	5.5	6.4	7.5	6.7	6.4	5.7	5.8	5.0	6.2	23.1%	-0.1%	†
Lithuania	4.8	4.4	4.9	4.3	4.2	3.5	4.0	5.5	5.1	4.8	5.4	13.6%	1.3%	†
Luxembourg	2.9	3.0	2.8	2.2	2.2	2.2	1.9	2.2	2.2	2.2	2.3	4.7%	-2.1%	†
Netherlands	100.9	103.4	110.2	115.2	117.2	114.4	121.4	123.3	122.1	121.8	122.3	0.4%	1.9%	0.4%
North Macedonia	6.1	5.4	5.6	5.6	5.6	5.6	5.9	5.5	5.5	5.9	6.9	17.1%	1.3%	†
Norway	134.1	142.0	144.5	149.1	149.6	147.1	134.9	155.2	157.9	146.7	154.8	5.5%	1.4%	0.5%
Poland	164.6	159.1	164.9	166.6	170.5	170.0	164.0	158.0	179.6	179.7	167.0	-7.1%	0.1%	0.6%
Portugal	51.7	52.8	52.4	60.3	59.4	59.6	53.2	51.0	48.8	49.2	49.2	0.7%	-0.5%	0.2%
Romania	58.9	63.3	66.3	65.1	64.3	64.8	59.5	55.8	59.3	55.9	58.2	4.1%	-0.1%	0.2%
Slovakia	28.8	27.4	26.9	27.1	27.7	27.0	28.4	30.0	26.8	30.3	30.3	12.8%	0.5%	0.1%
Slovenia	16.1	17.4	15.1	16.5	16.3	16.3	16.1	17.2	15.9	13.6	15.9	16.8%	-0.1%	0.1%
Spain	285.3	278.8	281.0	274.6	275.6	274.5	267.5	263.4	274.3	292.5	282.0	-3.6%	-0.1%	0.9%
Sweden	153.2	153.7	162.1	156.1	164.3	163.4	168.4	171.8	173.1	166.5	166.5</			

Electricity Generation by fuel*

Terawatt-hours	2022							2023									
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electric	Renewables	Other‡	Total	Oil	Natural Gas	Coal	Nuclear energy	Hydro-electric	Renewables	Other‡	Total	
Canada	5.2	84.7	26.2	86.6	397.7	54.5	3.9	658.9	4.8	89.9	23.6	89.0	364.2	57.0	4.7	633.2	
Mexico	32.7	192.1	21.4	10.8	47.6	35.6	—	340.1	33.4	204.9	27.9	12.4	20.4	55.9	—	354.9	
US	24.7	1814.1	906.7	812.1	251.3	717.3	11.6	4537.7	17.7	1937.7	738.4	816.2	236.3	737.3	10.3	4494.0	
Total North America	62.6	2090.9	954.3	909.6	684.6	819.5	15.4	5536.8	55.9	2232.5	789.8	917.6	620.9	850.2	15.1	5482.0	
Argentina	16.1	76.6	2.3	7.5	22.8	19.5	0.8	145.6	9.0	75.9	1.8	9.0	29.9	20.0	0.8	146.4	
Brazil	10.1	42.1	14.2	14.6	427.1	166.8	2.3	677.2	9.8	37.7	14.2	14.5	428.7	202.8	2.4	710.0	
Other S. & Cent. America	68.5	114.4	37.0	—	295.2	69.8	—	584.9	74.5	127.6	37.7	—	291.4	76.9	—	608.1	
Total S. & Cent. America	94.8	233.1	53.6	22.0	745.1	256.0	3.1	1407.7	93.2	241.3	53.7	23.5	749.9	299.7	3.2	1464.5	
France	2.4	47.1	3.1	294.7	44.3	66.8	8.2	466.5	1.8	32.3	0.9	338.2	55.5	84.3	6.7	519.7	
Germany	5.7	79.1	180.0	34.7	17.6	237.0	23.8	577.9	4.9	77.7	7.2	19.6	252.8	23.6	513.7		
Italy	12.8	141.4	24.2	—	28.4	72.1	5.0	284.0	10.6	117.5	20.0	—	38.9	75.1	3.2	265.3	
Netherlands	1.6	47.7	17.4	4.2	—	48.3	2.6	121.8	1.6	45.9	10.7	4.0	0.1	58.1	2.1	122.3	
Poland	2.4	11.4	126.7	—	—	2.0	35.7	1.7	179.7	2.0	16.4	100.2	—	2.4	44.0	2.0	167.0
Spain	10.6	86.0	8.7	58.6	17.6	105.3	5.8	292.5	10.7	61.7	4.3	56.8	25.5	116.5	6.5	282.0	
Türkiye	0.4	75.1	113.7	—	66.8	71.0	1.4	328.4	0.7	69.7	118.3	—	63.9	74.1	1.4	328.0	
Ukraine	0.5	7.2	24.3	62.1	11.1	7.5	—	112.7	0.9	8.1	21.6	52.4	12.7	7.7	—	103.4	
United Kingdom	2.2	125.0	5.6	47.7	5.6	129.4	6.5	322.0	2.4	97.9	3.5	40.7	5.2	129.8	6.1	285.6	
Other Europe	19.5	129.8	155.1	240.2	370.7	270.6	28.0	1214.0	17.8	109.7	122.4	236.6	414.9	288.3	28.2	1218.0	
Total Europe	58.1	749.7	658.8	742.2	564.1	1043.7	82.9	3899.4	53.3	636.9	529.9	735.9	638.7	1130.6	79.8	3805.1	
Kazakhstan	2.4	32.7	65.0	—	9.2	4.1	—	113.5	2.4	32.3	63.9	—	8.8	5.6	—	113.0	
Russian Federation	7.0	527.1	198.6	223.7	197.7	7.4	5.4	1166.9	6.8	528.4	211.1	217.4	200.9	8.2	5.4	1178.2	
Other CIS	2.3	163.1	8.5	7.5	41.3	2.1	0.6	225.4	2.1	161.6	9.1	14.4	43.3	2.4	0.6	233.6	
Total CIS	11.7	723.0	272.1	231.2	248.2	13.6	5.9	1505.8	11.4	722.3	284.1	231.8	253.0	16.3	5.9	1524.8	
Iran	30.2	313.4	0.9	6.6	14.0	2.0	—	367.1	2.6	93.6	0.9	6.6	22.7	2.1	—	382.9	
Saudi Arabia	153.0	246.0	—	—	2.3	—	401.3	152.1	265.0	—	—	5.8	—	422.9	—	—	
United Arab Emirates	—	125.5	—	20.1	—	7.8	—	153.3	—	118.9	—	32.3	—	13.8	—	165.0	
Other Middle East	124.7	306.9	17.7	—	4.1	16.8	0.2	470.5	129.9	320.5	17.4	4.9	19.6	0.2	492.6		
Total Middle East	307.9	991.8	18.6	26.7	18.2	28.8	0.2	1392.2	308.9	1028.1	18.4	38.9	27.6	41.3	0.2	1463.4	
Egypt	16.2	176.3	—	197.2	10.1	3.1	16.3	4.5	234.8	4.8	—	185.9	8.9	1.7	18.4	4.7	224.4
South Africa	3.6	—	17.7	101.1	—	13.3	10.9	—	216.7	16.6	178.7	—	13.8	11.0	—	220.1	
Other Africa	44.0	203.3	40.3	—	139.9	23.3	0.6	451.2	40.8	204.7	38.8	—	146.1	27.4	0.6	458.4	
Total Africa	63.8	379.5	237.4	10.1	156.3	50.6	5.1	902.7	62.2	383.4	224.7	8.9	161.6	56.7	5.3	902.9	
Australia	4.7	50.8	129.2	—	16.7	70.8	0.7	272.9	4.9	46.7	125.6	—	15.3	80.0	0.7	273.1	
China	11.5	275.6	5412.7	417.8	1298.1	1372.5	60.5	8848.7	11.2	297.8	5753.9	434.7	1226.0	1668.1	64.7	9456.4	
India	2.4	46.5	1354.2	46.2	174.9	203.8	1.3	1829.3	2.8	52.6	1471.3	48.2	149.2	232.8	1.3	1958.2	
Indonesia	6.1	56.1	205.3	—	27.3	38.1	0.6	333.5	6.6	61.0	216.8	—	24.6	40.6	1.1	350.6	
Japan	42.5	351.5	325.6	51.8	74.9	138.3	56.0	1040.6	33.4	320.9	304.3	77.5	74.5	149.0	53.7	1013.3	
Malaysia	1.6	68.5	77.8	—	31.8	4.0	—	183.6	1.2	69.2	81.4	—	31.5	4.5	—	187.8	
South Korea	8.3	174.4	206.2	176.1	3.5	51.9	4.1	624.6	7.7	167.0	202.8	180.5	3.7	52.0	4.2	617.9	
Taiwan	4.4	112.0	121.0	23.8	5.8	16.2	4.9	288.2	3.8	116.6	119.2	17.8	4.0	21.1	4.7	282.1	
Thailand	1.7	114.6	35.5	—	6.6	21.9	—	180.4	0.9	129.4	30.4	—	6.6	23.2	—	190.5	
Vietnam	0.1	29.2	104.0	—	95.9	35.2	0.7	265.1	1.3	26.3	129.6	—	80.9	37.9	0.5	276.4	
Other Asia Pacific	60.4	221.6	157.9	22.2	171.5	41.8	1.1	676.5	39.5	219.3	177.2	22.4	172.0	44.3	0.8	675.5	
Total Asia Pacific	143.8	1500.9	8129.6	737.													

Renewable energy Combined renewable electricity and biofuels primary energy input consumption

Growth rate per annum Share

Exajoules (input-equivalent)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023
Canada	4.17	4.07	4.18	4.25	4.33	4.24	4.18	4.23	4.22	4.37	4.08	-6.6%	-0.2%	4.5%
Mexico	0.40	0.53	0.48	0.48	0.50	0.54	0.56	0.67	0.78	0.79	0.73	-8.2%	6.2%	0.8%
US	6.61	6.80	6.92	7.67	8.44	8.64	8.91	9.32	9.81	10.78	10.99	2.0%	5.2%	12.2%
Total North America	11.18	11.40	11.58	12.41	13.27	13.41	13.65	14.22	14.81	15.94	15.80	-0.9%	3.5%	17.5%
Argentina	0.39	0.39	0.39	0.36	0.39	0.40	0.40	0.39	0.39	0.45	0.52	14.6%	3.0%	0.6%
Brazil	4.99	4.98	5.07	5.31	5.32	5.68	5.95	5.95	5.77	6.56	6.98	6.4%	3.4%	7.7%
Chile	0.28	0.30	0.33	0.32	0.36	0.41	0.40	0.41	0.42	0.49	0.55	12.9%	7.1%	0.6%
Colombia	0.48	0.49	0.48	0.50	0.60	0.60	0.58	0.54	0.64	0.68	0.65	-4.0%	3.1%	0.7%
Ecuador	0.11	0.12	0.13	0.16	0.20	0.20	0.24	0.24	0.25	0.24	0.24	2.9%	8.1%	0.3%
Peru	0.25	0.25	0.26	0.27	0.31	0.34	0.34	0.35	0.33	0.33	-0.5%	2.8%	0.4%	
Trinidad & Tobago											[^]	-0.4%	-0.4%	[†]
Venezuela	0.80	0.79	0.73	0.61	0.67	0.62	0.60	0.64	0.64	0.64	0.61	-4.6%	-2.6%	0.7%
Central America	0.30	0.31	0.34	0.36	0.39	0.41	0.38	0.42	0.46	0.46	0.41	-11.1%	3.0%	0.5%
Other Caribbean	0.06	0.05	0.05	0.06	0.07	0.07	0.08	0.08	0.09	0.09	1.5%	3.8%	0.1%	
Other South America	0.74	0.71	0.72	0.79	0.76	0.76	0.69	0.62	0.59	0.61	0.68	10.9%	-0.8%	0.8%
Total S. & Cent. America	8.40	8.38	8.50	8.73	9.08	9.50	9.65	9.61	9.59	10.55	11.07	4.9%	2.8%	12.3%
Austria	0.52	0.52	0.49	0.52	0.51	0.55	0.55	0.52	0.49	0.56	12.6%	0.6%	0.6%	
Belgium	0.14	0.14	0.16	0.17	0.18	0.19	0.21	0.26	0.25	0.27	0.29	6.9%	7.7%	0.3%
Bulgaria	0.07	0.08	0.09	0.08	0.07	0.10	0.08	0.08	0.11	0.10	0.11	4.6%	4.0%	0.1%
Croatia	0.09	0.10	0.07	0.08	0.07	0.10	0.08	0.09	0.11	0.11	31.8%	2.2%	0.1%	
Cyprus											[^]	19.8%	11.0%	[†]
Czech Republic	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.13	0.12	0.12	-1.6%	1.0%	0.1%	
Denmark	0.17	0.19	0.20	0.20	0.23	0.22	0.24	0.24	0.27	0.29	0.30	2.7%	5.7%	0.3%
Estonia	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	-1.3%	8.6%	[†]	
Finland	0.28	0.29	0.33	0.32	0.34	0.35	0.35	0.38	0.41	0.41	0.43	4.3%	4.4%	0.5%
France	1.08	1.03	1.01	1.07	1.01	1.20	1.19	1.29	1.27	1.21	1.47	21.6%	3.1%	1.6%
Germany	1.68	1.78	2.03	2.03	2.28	2.34	2.50	2.62	2.43	2.62	2.78	6.1%	5.2%	3.1%
Greece	0.15	0.13	0.15	0.15	0.14	0.16	0.18	0.22	0.22	0.24	7.0%	4.9%	0.3%	
Hungary	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.07	0.08	0.09	0.10	12.2%	10.7%	0.1%
Iceland	0.18	0.17	0.18	0.18	0.19	0.18	0.18	0.19	0.19	0.19	0.2%	0.7%	0.2%	
Ireland	0.06	0.07	0.08	0.08	0.09	0.11	0.12	0.14	0.12	0.15	8.2%	9.2%	0.2%	
Italy	1.18	1.25	1.14	1.13	1.09	1.18	1.17	1.19	1.18	1.02	1.15	12.1%	-0.3%	1.3%
Latvia	0.04	0.03	0.03	0.04	0.05	0.04	0.03	0.04	0.04	0.05	21.8%	2.4%	0.1%	
Lithuania	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	19.4%	8.8%	[†]	
Luxembourg	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	1.9%	10.2%	[†]		
Netherlands	0.14	0.14	0.15	0.16	0.19	0.21	0.26	0.36	0.44	0.52	0.61	18.3%	15.6%	0.7%
North Macedonia	0.02	0.01	0.02	0.02	0.01	0.02	0.01	0.02	0.02	35.9%	2.6%	[†]		
Norway	1.29	1.35	1.36	1.41	1.42	1.38	1.26	1.45	1.48	1.44	5.8%	1.1%	1.6%	
Poland	0.21	0.24	0.26	0.25	0.27	0.26	0.30	0.33	0.35	0.42	0.50	20.0%	8.9%	0.6%
Portugal	0.31	0.32	0.26	0.33	0.23	0.30	0.28	0.30	0.32	0.34	22.3%	1.1%	0.4%	
Romania	0.20	0.25	0.26	0.27	0.25	0.26	0.25	0.25	0.27	0.24	15.9%	3.2%	0.3%	
Slovakia	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.08	21.9%	1.5%	0.1%	
Slovenia	0.05	0.07	0.04	0.05	0.04	0.05	0.05	0.06	0.06	0.06	52.1%	1.9%	0.1%	
Spain	1.15	1.14	1.00	1.08	0.92	1.10	1.02	1.17	1.28	1.25	1.41	13.3%	2.1%	1.6%
Sweden	0.85	0.88	1.05	0.92	0.97	0.94	1.01	1.13	1.17	1.20	1.16	-3.2%	3.1%	1.3%
Switzerland	0.40	0.40	0.40	0.37	0.37	0.38	0.41	0.41	0.40	0.43	25.9%	0.8%	0.5%	
Türkiye	0.70	0.52	0.82	0.88	0.84	0.94	1.27	1.22	1.13	1.31	-0.2%	6.5%	1.5%	
Ukraine	0.15	0.10	0.07	0.09	0.11	0.13	0.12	0.16	0.21	0.18	0.20	9.3%	2.6%	0.2%
United Kingdom	0.60	0.72	0.90	0.90	1.05	1.17	1.28	1.41	1.30	1.43	1.43	9.1%	1.6%	1.6%
Other Europe	0.36	0.32	0.32	0.35	0.28	0.38	0.33	0.31	0.41	0.43	24.7%	2.0%	0.5%	
Total Europe	12.31	12.51	13.16	13.39	13.49	14.46	15.04	16.16	16.31	16.38	17.83	8.9%	3.8%	19.8%
Azerbaijan	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	8.8%	2.1%	[†]	
Belarus</														

Renewable energy Solar – Installed photovoltaic (PV) power and concentrated solar power (CSP)*

Megawatts													Growth rate per annum			Share
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013–23	2023		
Canada	1210	1843	2519	2665	2932	3095	3327	3609	4554	5312	5757	8.4%	16.9%	0.4%		
Mexico	109	174	287	633	1126	2583	4744	6712	8180	9364	10910	16.5%	58.5%	0.8%		
US	13246	18112	24237	35434	43770	51987	61587	76441	95391	114361	139205	21.7%	26.5%	9.8%		
Total North America	14565	20129	27043	38731	47828	57665	69658	86762	108125	129037	155873	20.8%	26.7%	11.0%		
Argentina	16	16	16	16	198	447	769	1080	1116	1408	26.2%	57.0%	0.1%			
Brazil	12	21	46	128	1207	2453	4698	8452	14499	25520	37449	46.7%	122.8%	2.6%		
Chile	12	203	545	1050	1829	2294	2673	3229	4516	6525	8475	29.9%	93.1%	0.6%		
Honduras	5	5	396	412	455	515	518	525	529	529	—	58.9%	—			
The Dominican Republic	7	13	22	70	93	188	331	382	580	1073	46.7%	65.7%	0.1%			
Other S. & Cent. America	405	506	882	1064	1666	1885	2415	2829	3494	4039	4669	15.6%	27.7%	0.3%		
Total S. & Cent. America	457	764	1907	2739	5265	7531	11083	16186	24699	38462	53603	39.4%	61.1%	3.8%		
Austria	626	785	937	1096	1269	1455	1702	2043	2783	3792	6832	80.2%	27.0%	0.5%		
Belgium	2902	3015	3132	3329	3621	4000	4637	5573	6012	6756	8549	26.5%	11.4%	0.6%		
Bulgaria	1039	1029	1028	1030	1031	1044	1100	1275	1737	2937	69.1%	11.0%	0.2%			
Czech Republic	2064	2067	2075	2068	2075	2081	2111	2172	2246	2420	2499	3.3%	1.9%	0.2%		
Denmark	571	607	782	851	906	998	1080	1304	1704	3070	3529	15.0%	20.0%	0.2%		
France	5277	6034	7138	7702	8610	9629	10738	11926	14612	17350	20551	18.4%	14.6%	1.4%		
Germany	36710	37900	39224	40679	42293	45158	48914	53671	60038	67479	81739	21.1%	8.3%	5.8%		
Greece	2579	2596	2604	2606	2651	2834	3288	4277	5430	7030	29.5%	10.5%	0.5%			
Hungary	35	89	172	235	344	728	1400	2131	2968	4235	5835	37.8%	66.8%	0.4%		
Italy	18190	18600	19289	19688	20114	20871	21656	22600	24561	29795	21.3%	5.1%	2.1%			
Lithuania	68	69	69	70	74	82	103	164	255	572	1165	103.7%	32.9%	0.1%		
Netherlands	650	1007	1526	2135	2911	4608	7228	11100	14823	19600	23904	22.0%	43.4%	1.7%		
Poland	2	27	108	187	287	562	1539	3955	7416	12170	15809	29.9%	141.0%	1.1%		
Portugal	296	415	447	513	579	667	901	1100	1646	2646	3876	46.5%	29.3%	0.3%		
Romania	761	1293	1326	1372	1374	1386	1398	1383	1394	1809	1917	6.0%	9.7%	0.1%		
Slovakia	533	533	533	533	528	471	590	535	537	549	631	15.0%	1.7%	—		
Slovenia	187	224	239	232	247	247	278	370	461	626	1034	65.2%	18.7%	0.1%		
Spain	6994	7001	7008	7017	7027	7068	11111	12440	16019	25615	31016	21.1%	16.1%	2.2%		
Sweden	43	60	104	153	244	428	714	1107	1606	2388	3488	46.1%	55.2%	0.2%		
Switzerland	756	1061	1394	1664	1906	2173	2498	2973	3655	4340	5840	34.6%	22.7%	0.4%		
Türkiye	19	41	250	834	3422	5064	5996	6668	7817	9426	11293	19.8%	89.7%	0.8%		
Ukraine	748	819	841	955	1200	2003	5936	7331	8062	8062	8062	—	26.8%	0.6%		
United Kingdom	2937	5528	9601	11914	12760	13060	13345	13551	13915	14651	15657	6.9%	18.2%	1.1%		
Other Europe	221	331	404	500	647	817	1217	1758	2479	3713	6211	67.3%	39.6%	0.4%		
Total Europe	84208	91133	99849	106962	115649	126483	148184	169308	198600	242999	299200	23.1%	13.5%	21.1%		
Russian Federation	1	5	61	76	225	535	1276	1428	1661	1816	2170	19.5%	110.7%	0.2%		
Kazakhstan	^	5	57	57	59	209	542	912	1038	1146	1306	13.9%	119.6%	0.1%		
Other CIS	2	8	12	75	114	210	212	250	461	812	1209	49.0%	89.7%	0.1%		
Total CIS	4	18	130	209	398	954	2030	2589	3160	3774	4685	24.2%	104.0%	0.3%		
Israel	446	656	796	906	1006	1346	2138	2652	3591	4411	4524	2.6%	26.1%	0.3%		
Jordan	^	^	57	311	418	760	971	1541	1811	1966	1990	1.2%	160.0%	0.1%		
Saudi Arabia	22	24	24	24	34	84	109	109	439	440	2285	419.5%	58.8%	0.2%		
United Arab Emirates	126	130	132	135	353	600	1935	2333	3002	3588	5925	65.1%	47.0%	0.4%		
Other Middle East	38	72	145	245	438	744	923	1172	1417	3579	3819	6.7%	58.4%	0.3%		
Total Middle East	633	883	1154	1621	2250	3535	6077	7807	10261	13983	18543	32.6%	40.2%	1.3%		
Algeria	25	28	61	261	354	366	366	366	451	451	—	33.5%	—			
Egypt	35	35	36	59	180	764	1647	1643	1663	1724	1856	7.7%	48.7%	0.1%		
Morocco	35	40	200	202	204	734	734	774	854</td							

Renewable energy Solar & Wind – Installed capacity by type*

	2022			2023		
Megawatts	Solar PV	CSP	Total	Solar PV	CSP	Total
Canada	5312	—	5312	5757	—	5757
Mexico	9347	17	9364	10893	17	10910
US	112881	1480	114361	137725	1480	139205
Total North America	127540	1497	129037	154376	1497	155873
Argentina	1116	—	1116	1408	—	1408
Brazil	25520	—	25520	37449	—	37449
Chile	6417	108	6525	8366	108	8475
Honduras	529	—	529	529	—	529
The Dominican Republic	732	—	732	1073	—	1073
Other S. & Cent. America	4039	—	4039	4669	—	4669
Total S. & Cent. America	38354	108	38462	53495	108	53603
Austria	3792	—	3792	6832	—	6832
Belgium	6756	—	6756	8549	—	8549
Bulgaria	1737	—	1737	2937	—	2937
Czech Republic	2420	—	2420	2499	—	2499
Denmark	3070	—	3070	3529	—	3529
France	17341	9	17350	20542	9	20551
Germany	67477	2	67479	81737	2	81739
Greece	5430	—	5430	7030	—	7030
Hungary	4235	—	4235	5835	—	5835
Italy	24555	6	24561	29789	6	29795
Lithuania	572	—	572	1165	—	1165
Netherlands	19600	—	19600	23904	—	23904
Poland	12170	—	12170	15809	—	15809
Portugal	2646	—	2646	3876	—	3876
Romania	1809	^	1809	1917	^	1917
Slovakia	549	—	549	631	—	631
Slovenia	626	—	626	1034	—	1034
Spain	23311	2304	25615	28712	2304	31016
Sweden	2388	—	2388	3488	—	3488
Switzerland	4340	—	4340	5840	—	5840
Turkey	9425	1	9426	11292	1	11293
Ukraine	8062	—	8062	8062	—	8062
Total Europe	2202036	29539	251575	236338	32369	267808
Russian Federation	2218	—	2218	2518	—	2518
Other CIS	188	—	188	192	—	192
Total CIS	3774	—	3774	4685	—	4685
Israel	4169	242	4411	4282	242	4524
Jordan	1966	—	1966	1990	—	1990
Saudi Arabia	390	50	440	2235	50	2285
United Arab Emirates	3288	300	3588	5325	600	5925
Other Middle East	3527	52	3579	3767	52	3819
Total Middle East	13340	644	13983	17599	944	18543
Algeria	426	25	451	426	25	451
Egypt	1704	20	1724	1836	20	1856
Morocco	314	540	854	394	540	934
South Africa	5826	500	6326	5664	500	6164
Tunisia	197	—	197	506	—	506
Other Africa	3150	—	3150	3568	—	3568
Total Africa	11617	1085	12702	12394	1085	13479
Philippines	1625	—	1625	1675	—	1675
South Korea	24078	—	24078	27046	—	27046
Taiwan	9724	—	9724	12418	—	12418
Thailand	3180	5	3185	3181	5	3186
Vietnam	16698	—	16698	17077	—	17077
Other Asia Pacific	4255	—	4255	5226	—	5226
Total Asia Pacific	631259	921	632180	872665	921	873586
Total World	1066559	6576	1073136	1412093	6876	1418969

Source: IRENA (2024), Renewable Capacity Statistics 2024, The International Renewable Energy Agency.

* End of year.

^ Less than 0.05.

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

Renewable energy Generation by source*

	2022					2023					2023 Growth rate				
Terawatt-hours	Wind	Solar	Hydro	Other renewables†	Total	Wind	Solar	Hydro	Other renewables†	Total	Wind	Solar	Hydro	Other renewables†	Total
Canada	38.4	7.1	397.7	9.1	452.3	38.9	7.6	364.2	10.4	421.2	1.5%	8.4%	-8.4%	13.8%	-6.9%
Mexico	20.5	20.3	35.6	6.7	59.3	21.7	27.1	20.4	7.1	76.3	5.5%	33.4%	-42.6%	6.0%	-8.2%
US	438.7	207.2	251.3	71.5	968.6	429.5	240.5	236.3	67.3	973.7	-2.1%	16.1%	-6.0%	-5.9%	0.5%
Total North America	497.6	234.5	684.6	87.3	1504.0	490.1	275.3	620.9	84.8	1471.1	-1.5%	17.4%	-9.3%	-2.9%	-2.2%
Argentina	3310	—	3310	3706	—	3706	—	—	—	—	—	—	—	—	—
Brazil	24163	—	24163	29135	—	29135	—	—	—	—	—	—	—	—	—
Chile	3830	—	3830	4510	—	4510	—	—	—	—	—	—	—	—	—
Honduras	390	—	390	408	—	408	—	—	—	—	—	—	—	—	—
The Dominican Republic	1516	—	1516	1516	—	1516	—	—	—	—	—	—	—	—	—
Uruguay	2519	—	2519	2742	—	2742	—	—	—	—	—	—	—	—	—
Other S. & Cent. America	2519	—	2519	2742	—	2742	—	—	—	—	—	—	—	—	—
Total S. & Cent. America	35729	—	35729	42018	—	42018	—	—	—	—	—	—	—	—	—
Austria	3579	—	3579	3977	—	3977	—	—	—	—	—	—	—	—	—
Belgium	3042	2262	5303	3242	2262	5504	—	—	—	—	—	—	—	—	—
Bulgaria	702	—	702	702	—	702	—	—	—	—	—	—	—	—	—
Denmark	4778	2306	7084	4832	2650	7482	—	—	—	—	—	—	—	—	—
Finland	5604	73	5677	6884	73	6957	—	—	—	—	—	—	—	—	—
France	20809	2	20811	22194	2	22196	—	—	—	—	—	—	—	—	—
Germany	58014	8149	66163	61052	8407	69459	—	—	—	—	—	—	—	—	—
Greece	4702	—	4702	5220	—	5220	—	—	—	—	—	—	—	—	—
Ireland	4511	25	4536	4782	25	4807	—								



Renewable energy Biofuels production*

Thousand barrels of oil equivalent per day	Growth rate per annum												Share	
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013-23	2023
Canada	19	22	22	23	22	21	23	22	22	22	23	8.8%	2.3%	1.1%
Mexico	—	—	—	0	0	0	0	0	1	1	1	—	—	†
US	562	597	614	655	678	701	693	632	685	729	804	10.3%	3.6%	38.8%
Total North America	580	618	637	679	701	723	717	655	708	751	828	10.2%	3.6%	40.0%
Argentina	38	49	38	53	58	51	46	27	38	43	25	-42.0%	-4.3%	1.2%
Brazil	313	329	353	331	334	401	429	411	391	390	455	16.6%	3.8%	21.9%
Colombia	12	13	13	13	12	14	13	12	15	14	16	8.0%	2.5%	0.8%
Other S. & Cent. America	6	7	7	8	7	8	10	9	11	11	11	0.8%	6.4%	0.5%
Total S. & Cent. America	369	398	410	404	411	475	498	459	456	458	506	10.5%	3.2%	24.4%
Austria	6	7	8	7	7	7	7	7	8	7	7	-7.7%	2.2%	0.3%
Belgium	8	11	7	7	8	8	8	9	8	8	8	1.6%	-0.5%	0.4%
Finland	6	7	11	4	4	11	13	13	14	15	17	13.3%	10.4%	0.8%
France	46	47	49	45	44	50	47	43	36	35	34	-3.2%	-3.0%	1.6%
Germany	58	64	59	60	61	63	66	63	67	72	75	7.5%	2.2%	3.5%
Italy	9	10	10	10	12	13	15	17	21	20	23	14.7%	10.2%	1.1%
Netherlands	28	33	32	28	37	35	38	37	39	37	37	0.2%	3.0%	1.8%
Poland	13	14	15	17	17	18	18	19	20	20	20	0.6%	4.5%	1.0%
Portugal	5	6	6	6	6	7	5	6	6	6	6	-7.2%	0.7%	0.3%
Spain	14	19	21	22	35	40	39	33	31	31	28	-9.4%	7.3%	1.4%
Sweden	4	4	4	4	3	7	8	9	9	7	7	-22.8%	5.1%	0.3%
United Kingdom	9	7	6	10	14	13	11	12	12	13	14	4.0%	3.6%	0.7%
Other Europe	26	26	28	30	32	35	40	39	40	41	2.8%	4.8%	2.0%	
Total Europe	232	255	256	250	281	305	316	305	307	308	313	1.5%	3.0%	15.1%
Total CIS	0	0	0	0	0	0	0	0	0	0	0	29.0%	-10.6%	†
Total Middle East	0	0	0	0	0	0	0	0	1	1	2	44.3%	17.9%	0.1%
Total Africa	2	2	2	2	2	1	2	2	2	2	2	14.0%	-1.0%	0.1%
Australia	5	5	4	2	2	2	3	2	2	2	2	4.4%	-6.7%	0.1%
China	42	47	40	39	31	44	53	56	58	72	78	8.5%	6.3%	3.8%
India	5	5	10	12	11	19	21	23	35	44	49	9.9%	26.9%	2.4%
Indonesia	41	59	24	54	50	91	124	126	151	174	194	11.1%	16.7%	9.4%
South Korea	7	7	8	8	8	13	13	11	13	13	13	-2.2%	6.1%	0.6%
Thailand	30	34	36	33	36	40	44	44	39	36	39	9.3%	2.7%	1.9%
Other Asia Pacific	28	33	37	33	31	35	53	45	46	46	47	2.8%	5.3%	2.3%
Total Asia Pacific	158	189	159	180	170	243	311	310	342	388	422	8.9%	10.3%	20.4%
Total World	1342	1463	1465	1516	1564	1748	1844	1731	1815	1907	2072	8.6%	4.4%	100.0%
of which: OECD	832	895	914	948	998	1053	1054	980	1036	1079	1163	7.7%	3.4%	56.1%
Non-OECD	510	569	551	568	566	695	790	751	780	828	909	9.8%	5.9%	43.9%
European Union	220	246	248	237	262	288	300	290	291	291	295	1.4%	3.0%	14.2%

Biofuels production by fuel type

Thousand barrels of oil equivalent per day	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023	2013-23	2023
Biogasoline														
Canada & Mexico	16	17	16	17	17	17	18	16	16	17	17	1.4%	0.4%	1.5%
US	479	516	534	554	575	580	569	501	542	554	563	1.7%	1.6%	50.7%
Brazil	269	278	294	275	270	322	341	315	291	297	343	15.5%	2.4%	30.8%
Other S. & Cent. America	13	16	18	19	20	22	22	18	22	22	23	4.7%	5.7%	2.1%
Europe	52	51	52	52	55	56	55	52	57	59	61	2.8%	1.6%	5.5%
CIS	—	—	—	—	—	—	—	—	—	—	0	29.0%	61.7%	†
Middle East	0	0	0	0	—	—	—	—	—	—	—	-100.0%	—	—
Africa	2	2	2	2	1	2	2	2	2	2	2	14.0%	-0.9%	0.2%
Asia Pacific	47	53	57	52	58	69	80	76	86	98	102	4.3%	8.1%	9.2%
Total World	879	934	974	971	997	1067	1087	980	1015	1049	1112	6.0%	2.4%	100.0%
of which: OECD	554	591	608	628	652	661	647	575	620	634	647	1.9%	1.6%	58.2%
Non-OECD	326	343	365	343	345	407	439	405	395	415	465	12.2%	3.6%	41.8%
European Union	46	45	48	46	48	50	50	48	52	54	55			

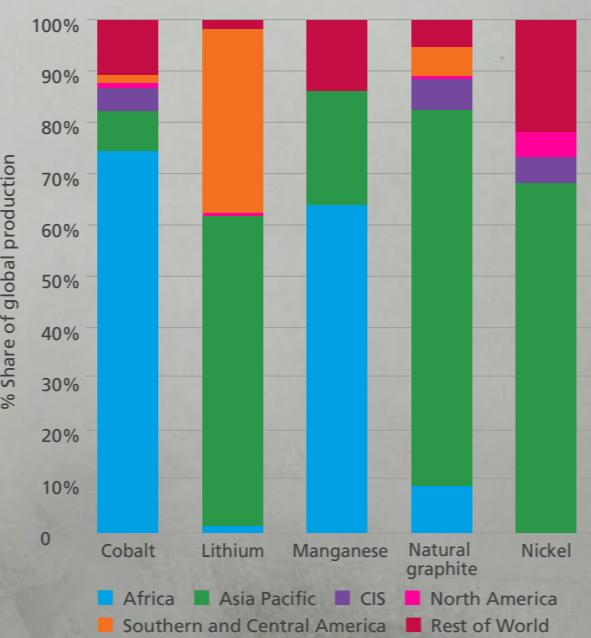
Key minerals

Whilst production of copper has grown at an average rate of just under 2% over the past ten years (it dropped by 1.6% in 2023), production of other minerals critical to the global energy system, continued to grow on average at around 4% per annum. The Asia Pacific region produced nearly 70% of the metals and materials critical to the manufacture of Li-ion batteries. Within this, China was both the world's leading producer of refined cobalt and the world's leading consumer of it, with nearly 87% of consumption used by the lithium-ion battery industry. As well as producing nearly 20% of the world's lithium production, China also produced around 74% of its graphite supply.

Portugal holds the largest lithium reserve in Europe (around 60,000 metric tons). Whilst historically it has primarily focused on ceramics for glassware production, it is increasingly looking to enter the lithium market.

Although prices for metals and materials have fallen across the board from their 2022 highs, lithium carbonate prices sat at around 400% higher than their 2019 pre-COVID levels and copper some 140% above its.

In 2023, the Asia Pacific region produced nearly 70% of the metals and materials critical to the manufacture of Li-ion batteries



■ Africa ■ Asia Pacific ■ CIS ■ North America
■ Southern and Central America ■ Rest of World

Global production and prices of key metals and minerals now sit above their 2019 pre-COVID levels

Key minerals Production and reserves

Cobalt production and reserves

Mine production

Thousand tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum		Reserves	
												2023	2013–23	2023	2023 Share R/P ratio
Australia	6.4	6.2	6.0	5.5	5.8	4.9	5.7	5.6	5.3	5.8	4.6	-20.6%	-3.2%	2.3%	1700 16.0%
Canada	4.0	3.9	4.3	4.2	3.7	3.5	3.3	4.5	4.4	3.1	2.1	-31.4%	-6.3%	1.1%	230 2.2%
China	2.6	2.8	2.6	2.3	2.5	2.0	2.5	2.2	2.2	1.8	1.8	0.0%	-3.9%	0.9%	140 1.3%
DR Congo	76.6	76.5	84.4	69.0	90.3	109.4	78.0	86.6	93.1	115.4	139.8	21.2%	6.2%	71.0%	6000 56.4%
Cuba	4.0	3.7	4.0	3.9	3.9	3.5	3.8	3.8	4.0	3.8	3.2	-14.6%	-2.1%	1.6%	500 4.7%
Madagascar	2.4	3.4	4.0	3.8	3.1	2.9	2.9	0.8	2.0	3.3	3.6	9.1%	4.1%	1.8%	100 0.9%
Morocco	2.0	2.2	2.3	2.7	2.5	1.8	2.4	2.4	1.8	1.7	1.7	0.0%	-1.7%	0.9%	13 0.1%
New Caledonia	3.2	4.0	3.6	3.2	2.8	2.1	1.7	2.2	1.5	1.8	1.8	0.0%	-5.7%	0.9%	56 0.5%
Papua New Guinea	1.0	2.1	2.5	2.2	3.3	3.3	2.9	2.9	3.0	3.0	2.9	-3.0%	11.1%	1.5%	49 0.5%
Philippines	2.8	4.6	4.3	4.0	4.6	4.8	5.1	4.9	4.3	4.7	4.5	-3.8%	4.8%	2.3%	260 2.4%
Russian Federation	6.3	6.3	6.2	5.5	5.9	6.1	6.3	9.7	8.0	9.2	8.8	-8.4%	3.4%	4.5%	250 2.3%
South Africa	3.0	3.0	2.9	2.3	2.3	2.3	2.1	1.8	1.2	1.0	1.0	0.0%	-10.4%	0.5%	37 0.3%
Zambia	5.9	4.6	3.0	5.0	2.6	1.6	0.4	0.3	0.2	0.3	0.3	0.0%	-27.1%	0.1%	270 2.5%
Rest of World	11.4	7.5	7.1	4.8	4.0	2.8	3.0	3.7	6.5	13.7	20.9	52.8%	6.3%	10.6%	1037 9.7%
Total World	131.6	130.7	137.2	118.4	137.3	150.9	120.0	131.5	137.5	168.3	196.9	17.0%	4.1%	100.0%	10642 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

Mine production

Thousand tonnes of Lithium content	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum		Reserves	
												2023	2023 2013–23	2023	2023 Share R/P ratio
Argentina	2.5	3.2	3.6	5.8	5.7	6.4	6.3	5.9	6.0	6.4	9.6	50.5%	14.4%	4.8%	3600 13.8%
Australia	10.1	12.4	11.9	14.0	21.3	57.0	45.0	39.7	55.3	74.7	86.0	15.1%	23.9%	43.4%	6200 23.8%
Brazil	0.4	0.2	0.1	0.2	0.3	1.0	2.2	1.4	1.7	2.6	4.9	86.3%	28.5%	2.5%	390 1.5%
Chile	10.5	10.8	9.8	13.6	14.2	17.0	19.2	21.6	28.2	48.8	56.5	15.8%	18.3%	28.5%	9300 35.7%
China	4.7	2.3	2.0	2.3	6.8	7.1	10.8	13.3	14.0	22.6	33.0	46.0%	21.5%	16.7%	3000 11.5%
Portugal	0.3	0.3	0.3	0.4	0.8	1.2	0.9	0.3	0.9	0.4	0.4	0.0%	2.4%	0.2%	60 0.2%
US	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.6	0.6	0.0%	-3.4%	0.3%	1100 4.2%
Zimbabwe	1.0	0.9	0.9	1.0	0.8	1.6	1.2	0.4	0.7	1.0	3.4	230.1%	13.0%	1.7%	310 1.2%
Rest of World	—	—	—	—	0.1	3.0	0.4	0.1	0.1	0.7	3.6	447.1%	—	1.8%	2068 7.9%
Total World	30.4	31.0	29.5	38.2	50.9	95.1	86.9	83.7	107.9	157.8	198.0	25.5%	20.6%	100.0%	26028 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 production and reserves

Mine production

Thousand tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum		Reserves	
												2023	2023 2013–23	2023	2023 Share R/P ratio
Brazil ¹ </td															

Key minerals Production and reserves

Platinum group metals production and reserves*

Mine production

Thousand tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Reserves			Growth rate per annum	Share at end of	
												2023	2013-23	2023	2023	Share	R/P ratio
Canada	23.5	28.5	28.6	33.6	26.5	26.5	27.8	27.0	21.0	21.5	21.5	0.0%	-0.9%	5.6%	310	0.4%	14
Russia	105.5	106.0	103.0	102.4	107.0	106.0	122.0	116.0	107.0	107.0	115.0	7.5%	0.9%	30.1%	55000	7.7%	48
South Africa	206.0	152.4	222.0	209.3	229.8	178.0	213.7	185.5	226.3	197.1	191.0	-3.1%	-0.8%	50.1%	63000	88.0%	330
United States	16.3	16.1	16.2	17.0	17.6	18.1	18.5	18.8	17.7	13.1	12.7	-3.1%	-2.5%	3.3%	820	1.1%	65
Zimbabwe	22.0	22.6	22.6	26.9	26.0	26.0	24.9	27.9	27.1	31.3	34.0	8.6%	4.4%	8.9%	1200	1.7%	35
Rest of World	12.7	14.8	12.3	11.5	17.3	17.1	6.2	7.0	6.8	7.3	7.3	0.3%	-5.4%	1.9%	800	1.1%	110
Total World	386.0	340.4	404.7	400.7	424.2	371.7	413.0	382.2	405.9	377.3	381.5	1.1%	-0.1%	100.0%	71630	100.0%	188

Sources: includes data from US Geological Survey and Kearney Energy Transition Institute.

* Platinum and Palladium. ^ less than 0.05. Rest of World is the sum of only recorded reserves.

Manganese production and reserves

Mine production

Thousand tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Reserves			Growth rate per annum	Share at end of	
												2023	2013-23	2023	2023	Share	R/P ratio
Australia	3.0	3.1	2.5	2.2	2.8	3.5	3.2	3.3	3.0	3.0	3.0	-1.3%	0.1%	15.1%	500	26.2%	167
China	3.0	3.0	3.0	2.3	1.7	1.2	1.3	1.0	1.0	0.7	0.7	-0.4%	-13.1%	3.7%	280	14.7%	378
Gabon	2.0	1.9	2.0	1.6	2.2	2.3	2.5	4.3	4.6	4.7	4.6	-1.5%	8.9%	23.2%	61	3.2%	13
Ghana	0.5	0.4	0.4	0.6	0.8	1.4	1.6	0.9	0.9	0.8	0.8	-0.5%	4.7%	4.2%	13	0.7%	15
India	0.9	0.9	0.9	0.7	0.7	1.0	0.8	0.5	0.5	0.7	0.7	-0.1%	-2.4%	3.6%	34	1.8%	47
South Africa	4.3	5.2	5.9	5.3	5.4	5.8	5.8	7.2	7.2	7.3	7.2	-1.4%	5.3%	36.3%	600	31.4%	83
Rest of World	4.0	4.1	3.7	3.8	4.6	3.9	4.2	2.9	2.5	2.7	2.7	-0.1%	-3.6%	13.8%	420	22.0%	153
Total World	17.7	18.6	18.4	16.6	18.2	19.0	19.3	20.0	20.0	20.1	19.8	-1.1%	1.2%	100.0%	1908	100.0%	96

Sources: includes data from US Geological Survey and Kearney Energy Transition Institute.

^ less than 0.05. Rest of World is the sum of only recorded reserves.

Nickel production and reserves

Mine production

Thousand tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Reserves			Growth rate per annum	Share at end of	
												2023	2013-23	2023	2023	Share	R/P ratio
Australia	234.0	245.0	234.0	204.0	190.0	170.0	180.0	160.0	151.0	155.0	160.0	3.2%	-3.7%	4.2%	24000	16.6%	150
Canada	223.0	235.0	240.0	236.0	210.0	176.0	180.0	130.0	134.0	143.0	180.0	25.9%	-2.1%	4.7%	2200	1.5%	12
Indonesia	440.0	177.0	170.0	199.0	400.0	606.0	800.0	1000.0	1040.0	1580.0	1800.0	13.9%	15.1%	47.3%	55000	38.0%	31
New Caledonia	164.0	178.0	190.0	207.0	210.0	216.0	220.0	190.0	186.0	200.0	230.0	15.0%	3.4%	6.0%	7100	4.9%	31
Philippines	446.0	523.0	530.0	347.0	230.0	345.0	420.0	370.0	387.0	345.0	400.0	15.9%	-1.1%	10.5%	4800	3.3%	12
Russia	275.0	239.0	240.0	222.0	180.0	272.0	270.0	250.0	205.0	222.0	200.0	-9.9%	-3.1%	5.3%	8300	5.7%	42
Rest of World	885.6	900.2	974.2	671.0	686.6	871.8	873.8	892.5	924.2	910.3	836.9	-8.1%	-0.6%	22.0%	43470	30.0%	52
Total World	2667.6	2497.2	2578.2	2086.0	2106.6	2656.8	2943.8	2992.5	3027.2	3555.3	3806.9	7.1%	3.6%	100.0%	144870	100.0%	38

Sources: includes data from US Geological Survey and Kearney Energy Transition Institute.

^ less than 0.05. Rest of World is the sum of only recorded reserves.

Key minerals Prices

Minerals, materials, and battery prices

Year	USD\$1000/te						Copper⁶	USD\$1000/te			Lithium Iron Phosphate Cells⁷	Lithium Nickel Manganese Cobalt Oxide Cells⁸		
Cobalt¹	Lithium carbonate²	Nickel Sulphate³	Pet Needle Coke⁴	Natural Graphite⁵		2023	2013-23	2023	2023	Share	R/P ratio			

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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.

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.

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: Ceditaz 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 (2023) Greenhouse Gas Emissions from Energy (all rights reserved). For countries not covered by the IEA, additional data has been sourced from Kayros. For a selected number of fossil fuel producing countries where methane emission data is not currently available through either provider, an estimate of historical methane emissions has been derived using regional average methane intensity of production. For 2023, methane emission estimates are derived for all countries using methane intensity of fossil fuel production in 2022. 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 CO₂ 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 1990-2023 from Andrew, R. M. (2019) Global CO₂ emissions from cement production, 1928-2018. Earth System Science Data 11, 1675-1710, (updated dataset May 2023).

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)	kilotres	barrels	US gallons	tonnes per year
Tonnes (metric)	1	1.165	7.33	307.86	-
Kilotres	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	kilotres to tonnes	tonnes to kilotres	tonnes to gigajoules	tonnes to barrels oil equivalent
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

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, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka), Myanmar, 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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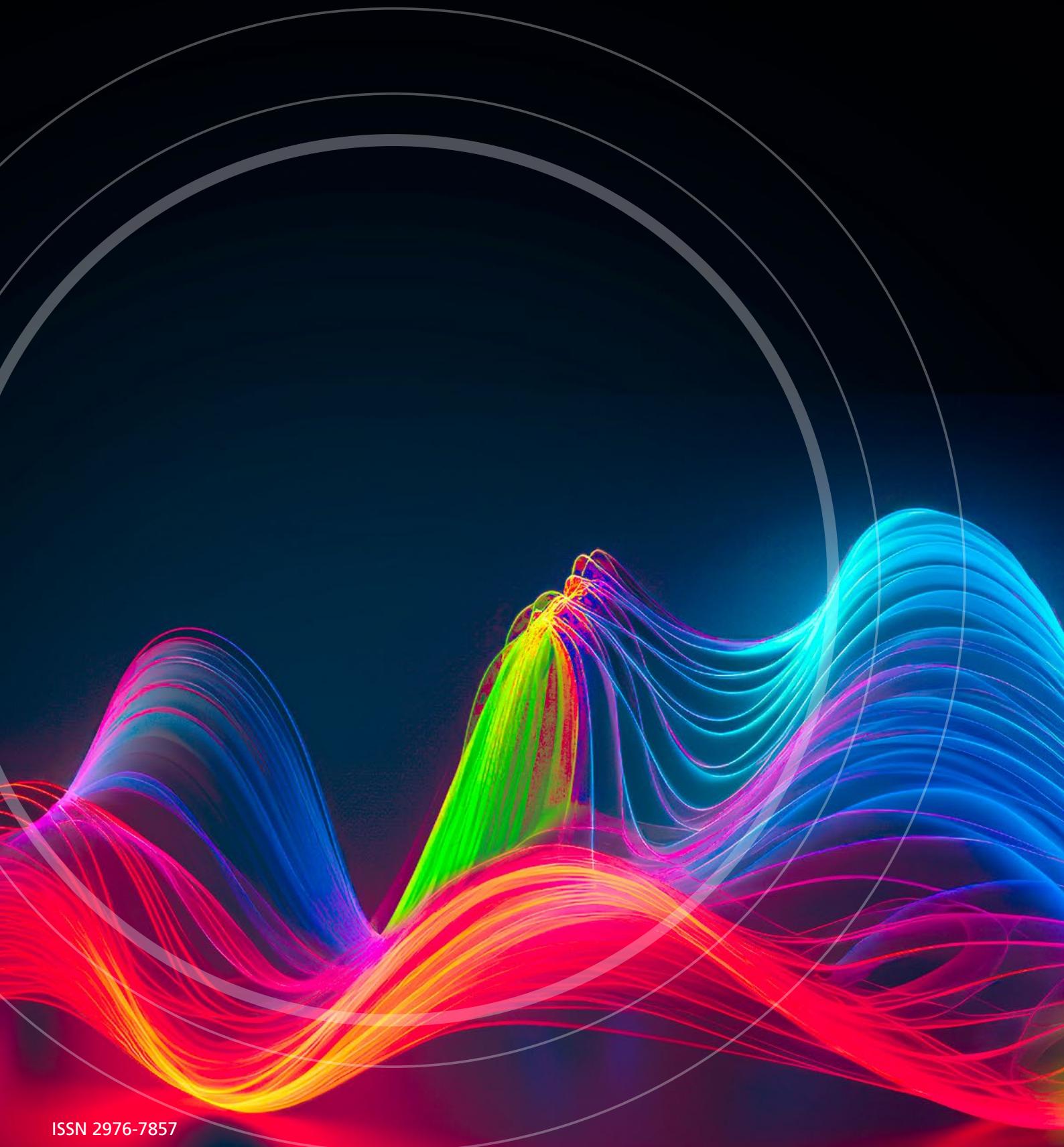


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