Global Energy Demand

All-Time-High. A Summary of 2025 Statistical Review of World Energy.

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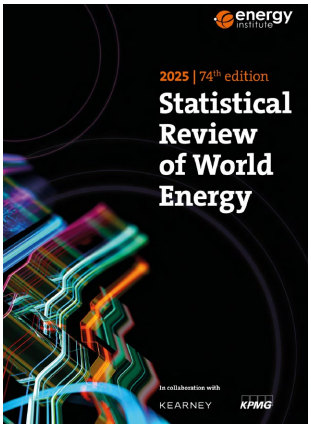
STATISTICAL REVIEW OF WORLD ENERGY 2025 – SOME HIGHLIGHTS

EXECUTIVE SUMMARY



On June 26, 2025 the Energy Institute published the latest version of the Statistical Review of World Energy. It includes data up to the end of 2024. This article covers the highlights of the review from the perspectives of climate policy and economics.

Global Energy Production and Use

In 2024 global energy consumption rose 2% from its 2023 level to 592 exajoules.[1] Oil had the largest share (199 exajoules, or 33.6 %), followed by coal (165 exajoules, or 27.9%), and natural gas (149 exajoules, or 25.2 %). Hydrocarbon energy thus provided 86.7% of the world's energy needs. Nuclear energy provided 31 exajoules (5.2%), hydro-electricity 16 exajoules (2.7%) and "other renewables 33 exajoules (5.6%).

Carbon Dioxide Emissions

Global carbon dioxide equivalent emissions from energy consumption alone totaled 35,491.8 million tonnes. OECD emissions were 11,072 million tonnes CO2eq and Non-OECD emissions were 24,420 million tonnes CO2eq. So, the non-OECD countries produced 68.8% of total emissions, an all-time-high share. China alone produced 11,173 million tonnes CO2eq, or 31.5% of the world's total. The US produced 13.0%, Europe 9.9%, and Canada 1.5%.

Oil Production

Global crude oil and condensate production in 2024 totaled 82,788 thousand barrels per day. Of that amount, OPEC countries produced 28,856 thousand barrels per day (35%) and non-OPEC countries produced 53,933 thousand barrels per day (65%). The United States was the largest producer, with 16% of the total. Canada produced 6.2%.

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[1] **1 exajoule (EJ) is a quantity of energy equal to...**
239 petacalories (Pcal)
947.8 trillion British thermal units (TBtu)
277.8 terawatt hours (TWh)
23.88 million tonne(s) of oil equivalent (Mtoe)
34.12 million tonne(s) of coal equivalent (Mtce)
https://www.iea.org/data-and-statistics/data-tools/unit-converter

Oil and Natural Gas Liquids Consumption

Global liquids consumption in 2024 was 104.7 million barrels per day, by far the all-time high. Consumption in the OECD countries was 46.7 million barrels per day while that in the non-OECD countries was 58.0 million barrels per day. Total liquids consumption increased from 93.7 million barrels per day in 2014 to 104.7 million barrels per day in 2024, an increase of 11 million barrels per day, or almost 12%. In other words, liquids consumption grew over the period at an annual average rate of over one million barrels per day, in spite of the significant reduction in demand and economic activity during and after the pandemic.

Natural Gas Consumption

Global natural gas consumption totaled 4,127.8 billion cubic metres in 2024, an increase of 2.5% over 2023. The OECD countries consumed 1,783.9 billion cubic metres, or 43% of the total, and the non-OECD countries accounted for 2,344 billion cubic metres, or 56.8%.

Coal Production and Consumption

Global coal production grew by 0.8% from 2023 to 2024, reaching 182.23 exajoules. Contrary to the general impression left by media accounts, coal production has increased from 165 exajoules in 2014 to 182 exajoules in 2024. The geographic pattern of coal production is quite different from that of other energy sources. 80.3% of coal production takes place in the Asia-Pacific region, and 52% in China alone. The geographic concentration of coal consumption is even more pronounced than that of its production; 83.4% occurs in the Asia-Pacific region, and 56% in China.

Electricity

Global electricity generation grew from 24,073.3 terawatt-hours (TWh)[2] [3] in 2014 to 31,255.9 TWh in 2024, an increase of 7182.6 TWh, or 29.8%. Generation in the OECD countries was 11449.7 TWh in 2024, and 19806.2 TWh in the non-OECD countries. China has by far the highest generation, with 10,086.9 TWh, or 32.3% of the world's total.

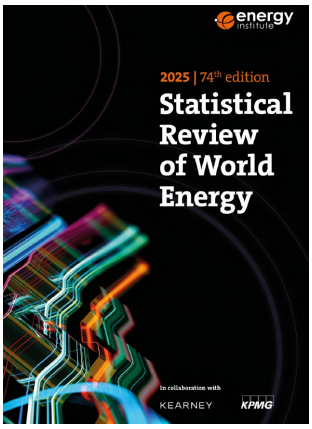
34% of electricity generation is based on coal, 23% on natural gas, 17% on renewables, 14% on hydro, and 9% on nuclear energy.

[2] Terawatt (TW) 1,000,000,000,000 (One Trillion) Watts https://www.eia.gov/electricity/annual/html/epa_a_05.html

[3] Terawatt hours, abbreviated as TWh, is a unit of energy representing one trillion watt hours. A kilowatt hour is equivalent to a steady power of one kilowatt running for one hour and is equivalent to 3.6 million joules or 3.6 megajoules. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Terawatt_hours_(TWh)#:~:text=Terawatt%20hours%2C%20abbreviated%20as%20TWh,million%20joules%20or%203.6%20megajoules.

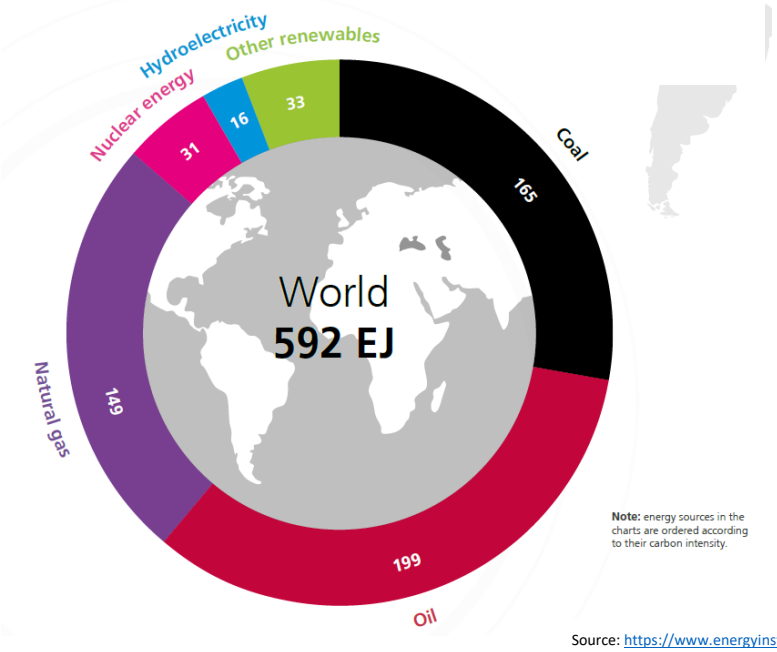
STATISTICAL REVIEW OF WORLD ENERGY 2025 – SOME HIGHLIGHTS

On June 26, 2025 the Energy Institute published the latest version of the Statistical Review of World Energy, probably the most comprehensive publicly available source of data concerning global energy supply, demand and emissions. It includes data up to the end of 2024. This article covers the highlights of the review from the perspectives of climate policy and economics.



Global Energy Production and Use

This year, the survey did not publish a detailed country-by-country record of primary energy consumption. It offered only a summary graph indicating that that in 2024 global energy consumption rose 2% from its 2023 level to 592 exajoules. Oil had the largest share (199 exajoules, or 33.6 %), followed by coal (165 exajoules, or 27.9%), and natural gas (149 exajoules, or 25.2 %). Hydrocarbon energy thus provided 86.7% of the world's energy needs. Nuclear energy provided 31 exajoules (5.2%), hydro-electricity 16 exajoules (2.7%) and "other renewables" 33 exajoules (5.6%).



Source: https://www.energyinst.org/statistical-review

The review notes that, over the past ten years, global electricity generation grew on average at around 2.6% per annum, broadly twice the rate of total energy demand.

The review does not offer a detailed description of the total energy supply by fuel in the countries that it covers. Total energy production in 2024 was 592 exajoules, up 2.1% from 580

exajoules in 2023. The breakdown by country and region indicates that China was by far the largest supplier, providing 159 exajoules, followed by the United States at 92 exajoules, and India at 39 exajoules. The OECD countries supplied 218 exajoules and the non-OECD countries supplied 374 exajoules.

Comments

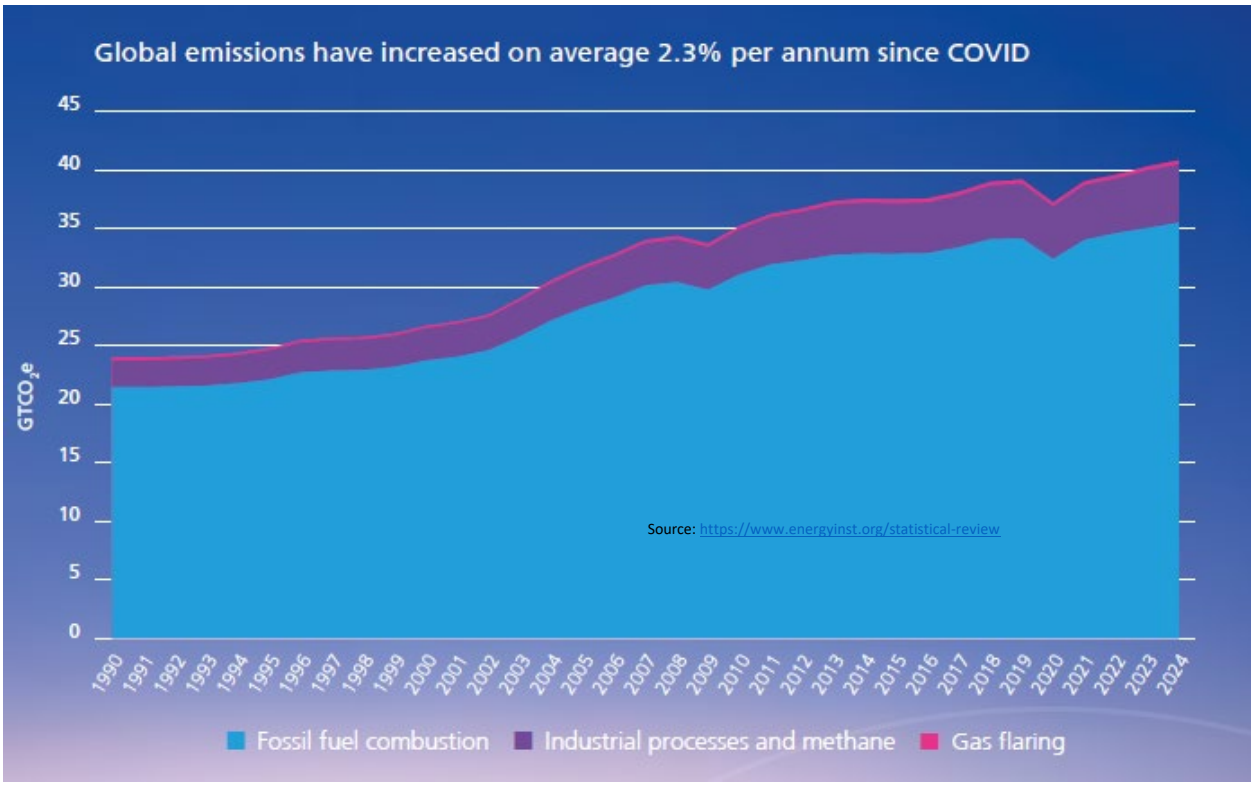
Energy use is closely related to economic activity. According to the International Monetary Fund, world economic growth in 2024 was 3.2%, a continuation of a decades-long trend in which energy consumption grows more slowly than the whole economy. It remains to be seen whether, as the developing countries move further into the stage of middle-income industrialized development, that trend will continue.

In 2024, electricity demand grew by 4%, which the review celebrated as a sign of increased electrification. According to the International Energy Agency, most of the additional demand over the next three years will come from emerging and developing economies, which account for 85% of the demand growth. **The trend is most pronounced in China, where electricity demand has been growing faster than the overall economy since 2020. China's electricity consumption rose by 7% in 2024 and is expected to grow by an average of around 6% through 2027.** The demand growth in China has been fuelled in part by the industrial sector, where alongside the traditional energy-intensive sectors, the rapidly expanding electricity-intensive manufacturing of solar panels, batteries, electric vehicles and associated materials played a significant role. Air conditioning, electric vehicle adoption, data centres and 5G networks are additional contributors.

Carbon Dioxide Emissions

This year, the review includes data on both carbon dioxide equivalent emissions (CO2eq) from energy consumption and on carbon dioxide equivalent emissions from energy consumption, process emissions, methane and flaring.

Global carbon dioxide equivalent emissions from energy consumption alone totaled 35,491.8 million tonnes. OECD emissions were 11,072 million tonnes CO2eq and Non-OECD emissions were 24,420 million tonnes CO2eq. So, **the non-OECD countries produced 68.8% of total emissions, an all-time-high share. China alone produced 11,173 million tonnes CO2eq, or 31.5% of the world's total.** The US produced 13.0%, Europe 9.9%, and Canada 1.5%.



Global carbon dioxide equivalent emissions from all sources totaled 40,812 million tonnes of CO2eq, divided between 28,801 million tonnes from non-OECD countries (70.6%) and 12,011 million tonnes from OECD countries (29.4%).

Comments

It is curious as to why the review failed to provide a detailed country-by-country list of CO2 equivalent emissions by fuel source. The 2024 edition of the review indicated that in 2023 hydrocarbons constituted 81% of the global total of emissions. As hydrocarbons provided 86.7% of the world's energy supply in 2024, one might conclude that they similarly increased the share of emissions from consumption. If true, this implies that, despite the extraordinary policy efforts and expenditures to reduce the share of energy emissions from fossil fuels, they actually increased from 81% in 2023 to almost 87% in 2024!

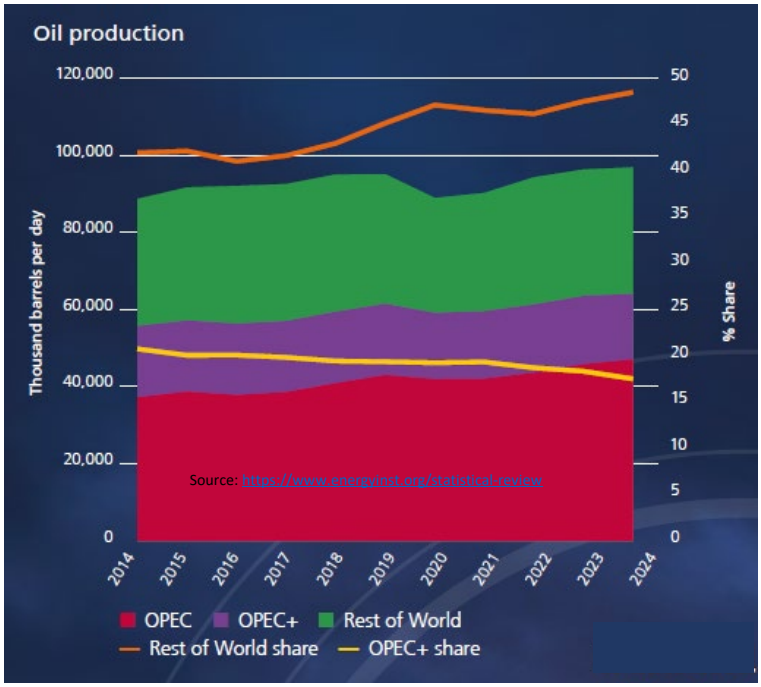
Europe is the epicenter of policies to reduce GHG emissions, often with financial costs so high that they are crippling European economies. **Yet, the review indicates that Europe now represents less than 10% of global emissions. The continent could completely end its emissions and go back to a pre-industrial stage of development and it would not even achieve one tenth of the global decarbonization target.**

In contrast, Asia is the central driver of global CO2 emissions. **China and India combined emitted 40% of the total in 2024. Unless those two countries radically reduce their emissions,**

the world outside of them could cease to emit and the decarbonization goal would not come even close to being met.

Oil Production

Global crude oil and condensate production in 2024 totaled 82,788 thousand barrels per day. Of that amount, OPEC countries produced 28,856 thousand barrels per day (35%) and non-OPEC countries produced 53,933 thousand barrels per day (65%). The United States was the largest producer, with 16% of the total. Canada produced 6.2%.

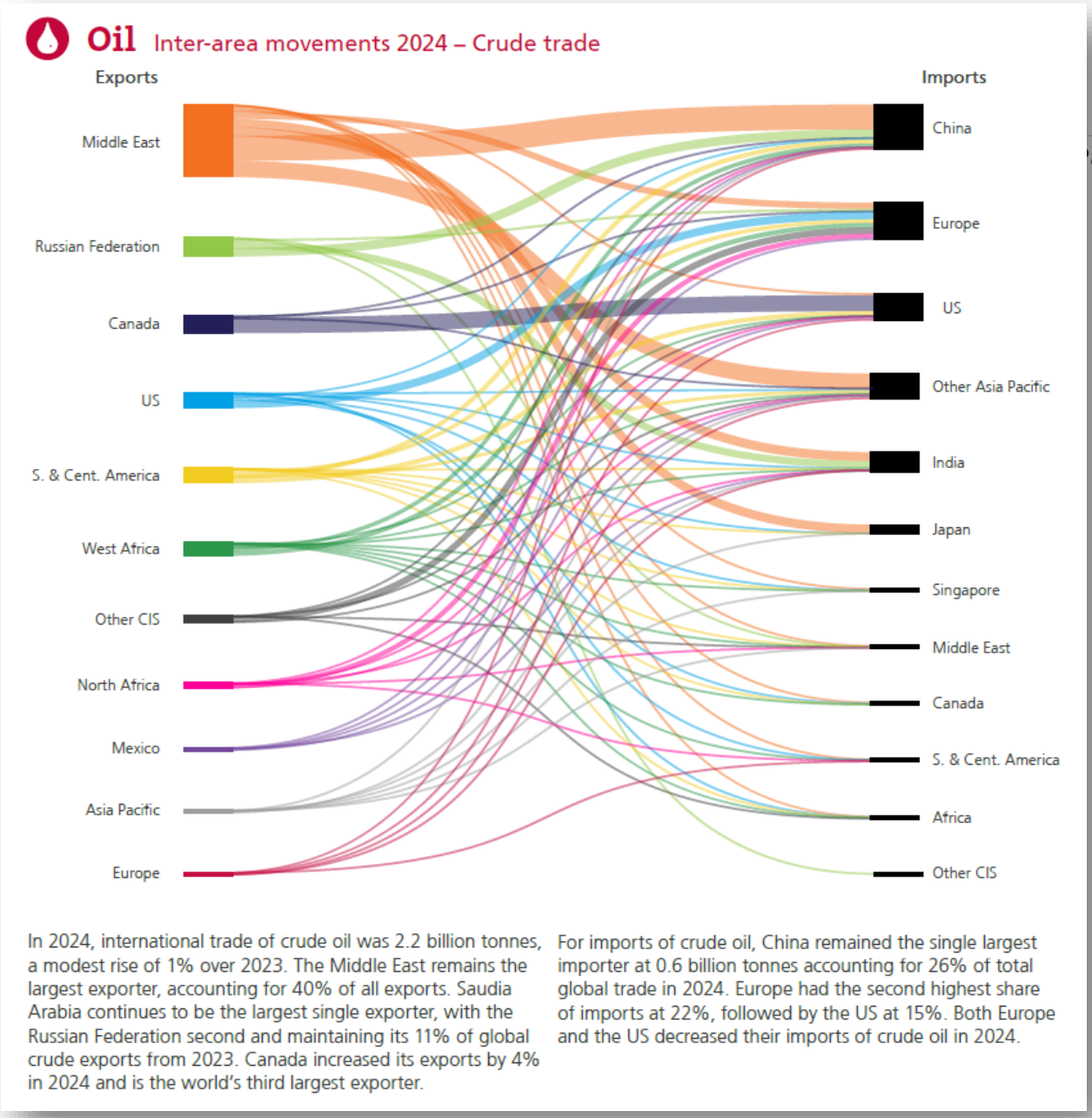


Source: https://www.energyinst.org/statistical-review

Crude oil and condensate production increased from 79.1 million barrels per day in 2014 to 82.3 million barrels per day in 2024.

Comments

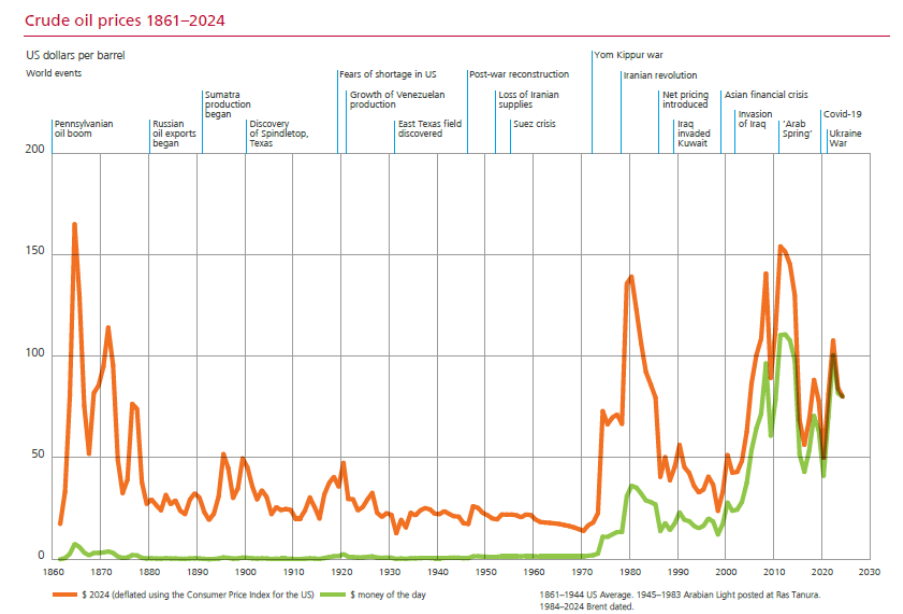
Oil production continues to increase, in spite of the fact that production in some of the countries with the largest oil resources (e.g. Venezuela, Iran, Iraq and Libya) continue to under-produce due to poor government policies and/or economic sanctions. **Oil production also continues to increase despite the aggressive efforts of climate activists and their allies in the international financial community to starve the oil and gas industry of funding. One can only wonder how fast oil production would grow if the world "took the brakes off".**



In 2024, international trade of crude oil was 2.2 billion tonnes, a modest rise of 1% over 2023. The Middle East remains the largest exporter, accounting for 40% of all exports. Saudia Arabia continues to be the largest single exporter, with the Russian Federation second and maintaining its 11% of global crude exports from 2023. Canada increased its exports by 4% in 2024 and is the world's third largest exporter.

For imports of crude oil, China remained the single largest importer at 0.6 billion tonnes accounting for 26% of total global trade in 2024. Europe had the second highest share of imports at 22%, followed by the US at 15%. Both Europe and the US decreased their imports of crude oil in 2024.

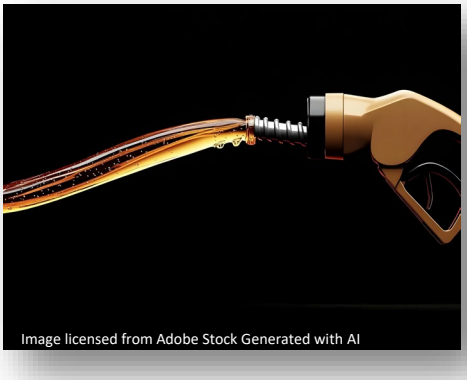
Source: https://www.energyinst.org/statistical-review



Source: https://www.energyinst.org/statistical-review

Oil and Natural Gas Liquids Consumption

Global liquids consumption in 2024 was 104.7 million barrels per day, by far the all-time high. Consumption in the OECD countries was 46.7 million barrels per day while that in the non-OECD countries was 58.0 million barrels per day. Total liquids consumption increased from 93.7 million barrels per day in 2014 to 104.7 million barrels per day in 2024, an increase of 11 million barrels per day, or almost 12%. In other words, **liquids consumption grew over the period at an annual average rate of over one million barrels per day, in spite of the significant reduction in demand and economic activity during and after the pandemic.**

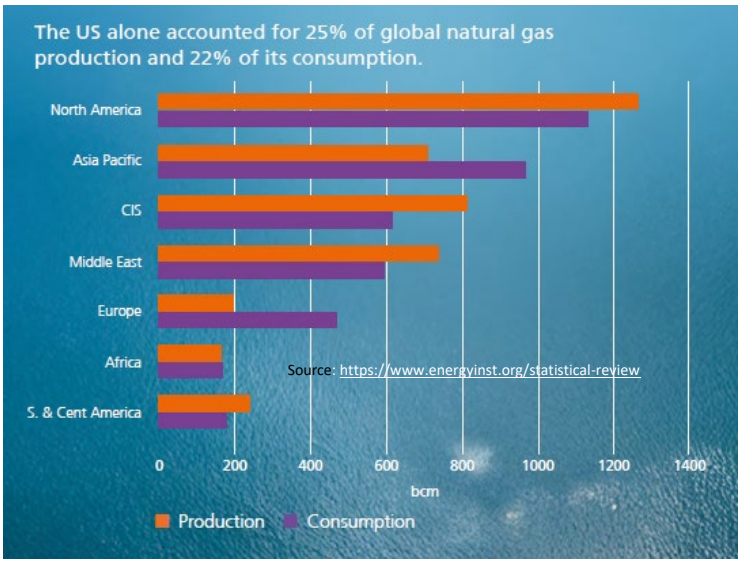


Comments

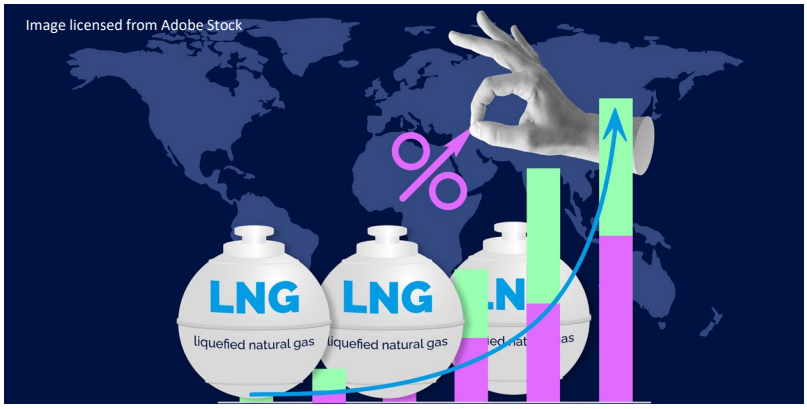
One hundred million barrels of oil per day over a year is 36.5 billion (36,500,000,000) barrels. if spread evenly over a football field, it would be 674 miles high. Industry and petrochemicals productions are the sources of much of that increase. Contrary to the media claims, **electric vehicles have barely made a dent in global liquids demand.**

Natural Gas Consumption

Global natural gas consumption totaled 4,127.8 billion cubic metres in 2024, an increase of 2.5% over 2023. The OECD countries consumed 1,783.9 billion cubic metres, or 43% of the total, and the non-OECD countries accounted for 2,344 billion cubic metres, or 56.8%.



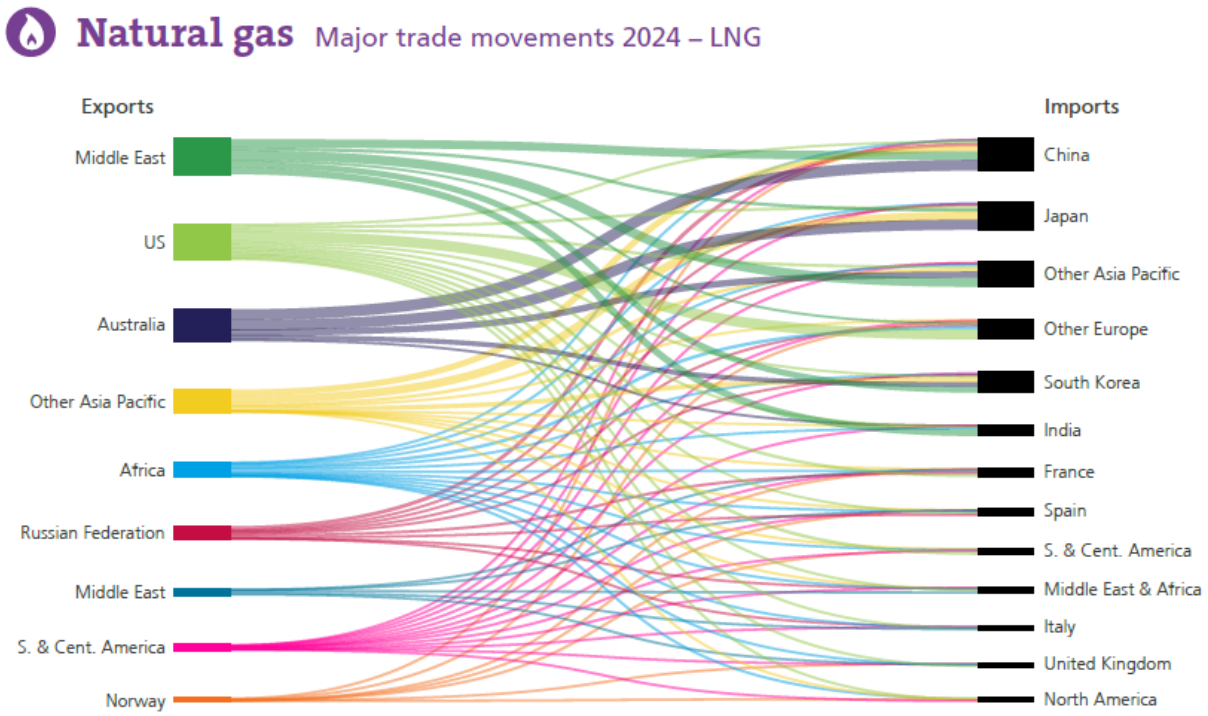
Gas consumption grew from 3,397.6 billion cubic metres in 2014 to 4,127.8 billion cubic metres in 2024, an increase of 730 billion cubic metres, or 21.5%.



The United States leads the world in natural gas consumption, using 902 billion cubic metres in 2024. China has the largest growth, rising from 188.4 billion cubic metres in 2014 to 434.4 billion cubic metres in 2024.

Comments

In terms of energy content (i.e. exajoules), **natural gas is the fastest growing source of primary energy demand.** It is also one of the cleanest. **Calling it a mere "transition" fuel grossly under-estimates its importance, long-term value and contribution to energy security.**



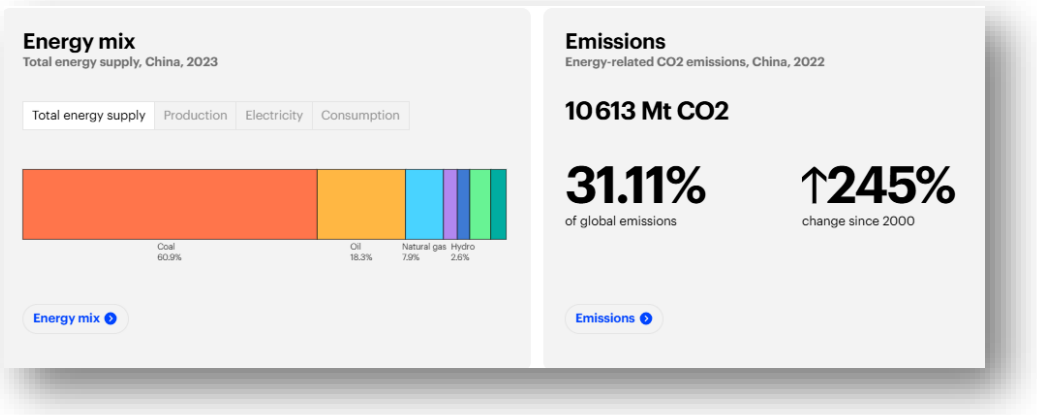
Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardised using a gross calorific value (GCV) of 40 MJ/m³.

LNG trade remained relatively flat in 2024, with the US retaining its position as the largest exporter followed closely by Qatar and Australia. Collectively, they accounted for 60% of total global LNG exports. China increased LNG imports by 7% in 2024, to remain the largest importer of LNG, with over one-third of its imports coming from Australia. The Asia Pacific region alone was responsible for 69% of all LNG imports, with China accounting for one third of these imports. Europe's LNG imports fell 21% in 2024, despite this Europe's LNG imports from the Russian Federation increased marginally to 21.4 bcm. The US remains the largest supplier of LNG to Europe, despite a fall of 16 bcm most of which was redirected to the Asia Pacific.

Source: https://www.energyinst.org/statistical-review

Coal Production and Consumption

Global coal production grew by 0.8% from 2023 to 2024, reaching 182.23 exajoules. **Contrary to the general impression left by media accounts, coal production has increased from 165 exajoules in 2014 to 182 exajoules in 2024.** The geographic pattern of coal production is quite different from that of other energy sources. **80.3% of coal production takes place in the Asia-Pacific region, and 52% in China alone.**



Source: IEA https://www.iea.org/countries/china

Global coal consumption in 2024 was 165 exajoules, considerably less than the production, perhaps indicating a large build up of stocks. Coal consumption grew modestly from 162 exajoules in 2014 to 165 exajoules in 2024. **The geographic concentration of coal consumption is even more pronounced than that of its production; 83.4% occurs in the Asia-Pacific region, and 56% in China.**

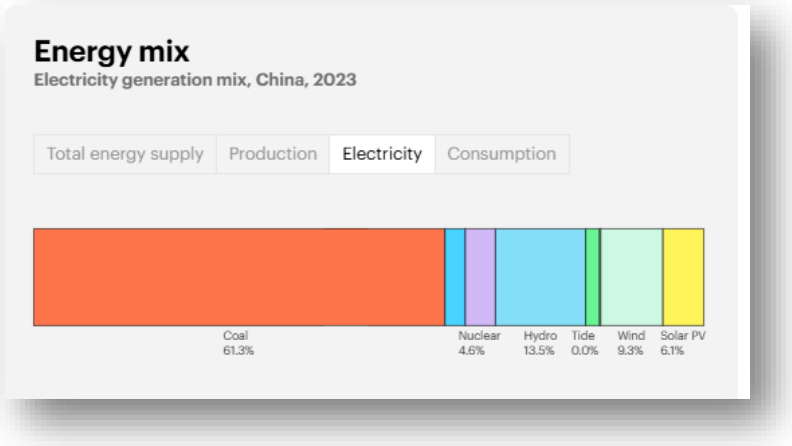
Comments

Global coal resources are vast, with trillions of tons estimated to exist. According to Worldometer, current coal reserves are large enough to supply 133 years of consumption at current levels. Thirty-two countries produce significant amounts of coal. Nonetheless, for

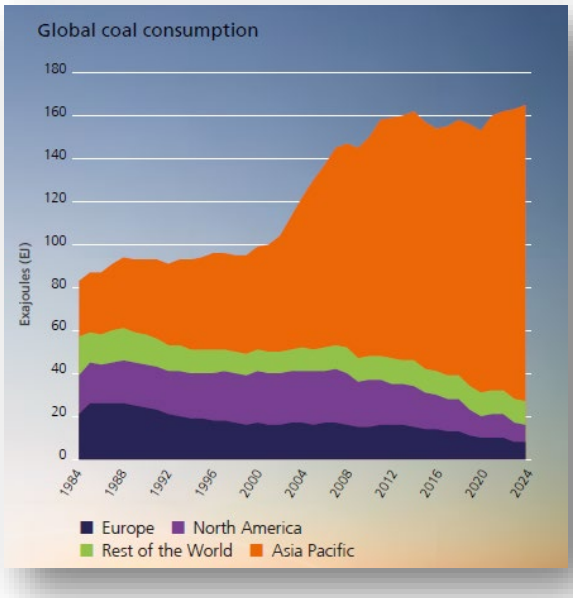
environmental policy reasons, coal consumption is unlikely to rise significantly except in some Asian countries, and especially in China and India.

Electricity

Global electricity generation grew from 24,073.3 terawatt-hours (TWh) in 2014 to 31,255.9 TWh in 2024, an increase of 7182.6 TWh, or 29.8%. Generation in the OECD countries was 11449.7 TWh in 2024, and 19806.2 TWh in the non-OECD countries. **China has by far the highest generation, with 10,086.9 TWh, or 32.3% of the world's total.**



Source: IEA https://www.iea.org/countries/china



Source: Statistical Review of World Energy page 46

Here are my summaries of two tables included in the review.

Table 1

Global Electricity Generation by Fuel 2024

Fuel	Generation (terawatt-hours)	%
Coal	10613.2	34
Natural Gas	7001.2	23
Renewables	5415.2	17
Hydro	4452.9	14
Nuclear	2817.5	9
Oil	694.7	2
Other	n/a	1
Total	31255.9	1

Source: Statistical Review of World Energy 2025, page 54

Table 2
Generation by Renewable Energy Source 2024

Source	Generation (terawatt-hours)	%
Wind	2511.0	25.4
Solar	2111.7	21.4
Hydro	4452.9	45.0
Other	792.4	8.0

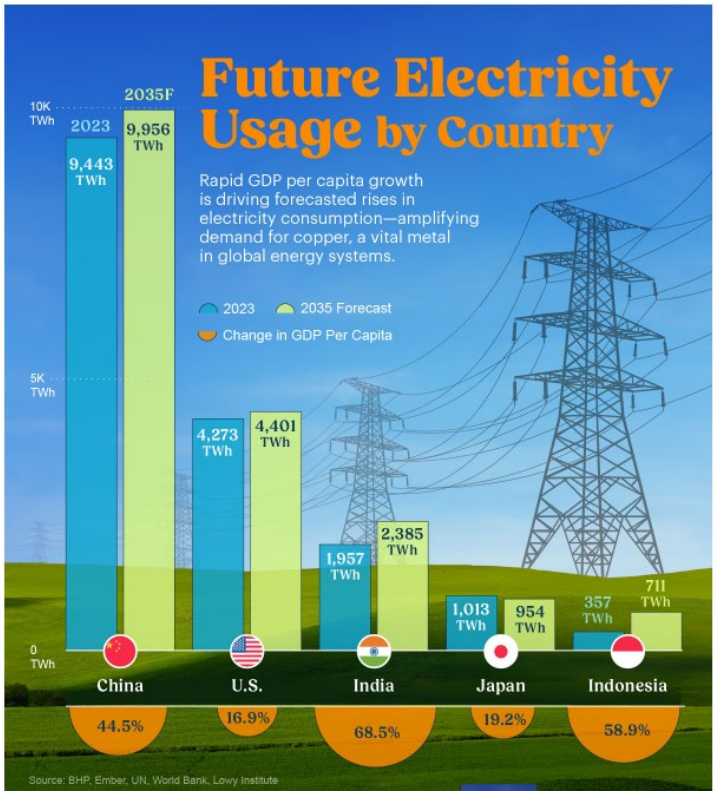
Source: Statistical Review of World Energy, 2025, page 62

Comments

Electricity generation is growing the fastest in the Asia-Pacific and Middle-East regions. There has been minimal growth in generation over the past decade in North America and Europe, where renewable energy generation sources have replaced coal-fired generation.

In the absence of data on primary energy consumption, the review simply states that renewable energy constitutes 5.6% of the total. Given the prominence of climate activists' claims that the world needs to rely almost exclusively on these energy sources, one might

have expected more details, if not an acknowledgement that the world is a long, long way from that goal.



Source: *https://www.visualcapitalist.com/sp/bhp01-charted-future-electricity-usage-by-country/*

Nuclear Energy

Global generation of electricity by nuclear energy rose from 2541.1 terawatt-hours in 2014 to 2817.5 terawatt-hours in 2024, an increase of 276.4 terawatt-hours, or 10.9%.

Nuclear generation in OECD countries was 1881.0 TWh in 2024, while that in non-OECD countries was 936.4 TWh.

The United States used nuclear plants to generate 921 TWh of electricity in 2024, by far the most in the world, with China (451 TWh) in second place, and France (381 TWh) in third. Europe reduced its nuclear power-based generation from 992 TWh in 2014 to 766 TWh in 2024 (23% reduction).

Comments

It will take a significant change in energy policy and in nuclear energy regulation in the OECD countries for nuclear energy to play a larger role in meeting electricity demand in those countries, but growth seems possible in the Russian Federation and in some Asian countries like Japan, South Korea, India, and the United Arab Emirates.

Conclusion

The Statistical Review is an extremely valuable source of information. It allows comparisons of energy sources and uses over time and across countries, and thus allows analysts as well as the general reader to look beyond the generalizations that often characterize the public discourse about energy and related environmental issues. I have not attempted to double-check the reporting of the Energy Institute against other sources. Those who wish to delve into the data in greater depth are welcome to do so.

About the Author

Robert Lyman is an economist with 27 years of experience as an analyst, policy advisor and manager in the Canadian federal government, primarily in the areas of energy, transportation, and environmental policy. He was also a diplomat for 10 years. Subsequently he has worked as a private consultant conducting policy research and analysis on energy and transportation issues as a principal for Entrans Policy Research Group. He is a frequent contributor of articles and reports for Friends of Science, a Calgary-based independent organization concerned about climate change-related issues. He resides in Ottawa, Canada. Full bio.

About Friends of Science Society

Friends of Science Society is an independent group of earth, atmospheric and solar scientists, engineers, and citizens that is celebrating its 23rd year of offering climate science insights. After a thorough review of a broad spectrum of literature on climate change, Friends of Science Society has concluded that the sun is the main driver of climate change, not carbon dioxide (CO2).

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