

2024 International Energy Situation as Seen from EI Statistics (1): Energy Consumption

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On June 26, the Energy Institute (EI), a London-based organization of international energy industry stakeholders, released its latest “The Energy Institute Statistical Review of World Energy 2025.” In 2023, EI replaced BP as the publisher of the annual statistics, which were published as “BP Statistics” until 2022. As introduced 13 times in this essay series in the past, both the former BP statistics and the current EI statistics are among the most representative annual statistics on international energy supply and demand. Energy industry stakeholders around the world refer to the statistics as comprehensive, up-to-date data. As in the past, the statistics are available for free access.

In 2024, geopolitical risks involving mainly Ukraine and the Middle East continued to affect the international energy situation, leaving energy security to remain a key matter of global concern. At the same time, decarbonization initiatives were given priority. Thus, balancing energy security and decarbonization became a global challenge. However, society's vulnerability to rising energy prices became apparent, forcing the world to face the complexity and difficulties of the problems associated with an energy transition. In order to decipher this situation from various data in the EI statistics, I would like to review the characteristics of the international energy situation in 2024 in three parts. In the first part, I would like to focus on global energy consumption trends in 2024 in this article.

First, global primary energy consumption in 2024 totaled 592.2 exajoules (EJ), up 1.8% or 11.9 EJ from the previous year. It plunged by 4.4% in 2020 due to the COVID-19 pandemic before rebounding by 5.1% in 2021. Global primary energy consumption increased steadily by 1.4% in 2022 despite the outbreak of the Ukraine crisis and by 1.6% in 2023. In 2024, energy consumption showed a steady increase amid global economic and population growth, continuing the uptrend from 2022. The increase of 1.8% in 2024 was 0.5 percentage points higher than the average annual growth of 1.3% for the past decade. Even in the midst of the international energy situation that continued to be severely shaken, global energy consumption retained a steady uptrend.

Second, a region-by-region breakdown of global primary energy consumption showed that the Asia-Pacific region scored the largest increase of 2.7%, followed by 2.5% in the former Soviet Union and 2.0% in the Middle East, surpassing the global average. On the other hand, Europe, which continued to suffer from an economic slump following the outbreak of the Ukraine crisis, escaped the continuous energy consumption decline seen in 2022 and 2023. However, its energy consumption growth in 2024 was limited to 0.7%. Energy consumption growth in North America was limited to only 0.4%. While Asia-Pacific and other countries outside the Organization for Economic Cooperation and Development (OECD) drove global energy consumption growth in 2024, Western and other developed countries decelerated growth remarkably.

The Asia-Pacific energy consumption growth of 2.7% in 2024 amounted to 7.8 EJ, accounting for 65% of the global increase at 11.9 EJ. Indeed, the Asia-Pacific region led the global

energy consumption growth. Moreover, China and India, among Asia-Pacific countries, drove the regional increase. In 2024, primary energy consumption increased by 2.4% or 4.2 EJ in China and by 4.3% or 1.7 EJ in India. The combined energy consumption increase of 5.9 EJ in China and India accounted for 76% of the Asia-Pacific growth and 49% of the global increase. It is no exaggeration to say that the two countries drove the global energy consumption growth in 2024. Although China's energy consumption increase captured a dominant share of the Asia-Pacific and global growth, its percentage growth slipped below the Asia-Pacific growth in 2024, and its 5.5% rise in the previous year. This indicates that China's economic growth slowdown was beginning to affect its energy consumption growth. In addition, robust energy consumption increases in major Southeast Asian energy consumers were conspicuous, including 6.9% in Indonesia and 7.0% in Vietnam. In 2024, OECD primary energy consumption increased by only 0.4%, while non-OECD consumption expanded by 2.6%. OECD consumption accounted for 37% of the global total, and non-OECD consumption accounted for 63%. The Asia-Pacific region captured 47% of the global total.

Third, global energy consumption by energy source showed that oil, which accounts for the largest share of primary energy consumption, posted a 0.7% consumption increase that slipped below the 1.8% rise in overall primary energy consumption. Oil consumption growth was limited to 0.7% in the Asia-Pacific region, the largest oil-consuming region, and to 0.1% in North America, the second largest, affecting the global growth. In particular, it is noteworthy that China's oil consumption fell by 1.2%. In China, not only the economic growth slowdown but also the diffusion of electric vehicles might have contributed to the oil consumption decline. In this respect, future trends will attract attention. As for coal, the second-largest energy source after oil, the consumption growth also slipped below the overall primary energy consumption growth to 0.9% in 2024. However, global coal consumption has continued to expand since 2020 after a slowdown in the second half of the 2010s. Partly due to the growing importance of securing a stable, affordable energy supply, the Asia-Pacific region, which accounts for 83% of global coal consumption, showed a significant increase of 1.9%, making a great contribution to the overall global coal consumption growth. Again, it is important to note that coal consumption continued to increase in China and India, the world's first and second largest coal consumers. Natural gas, the third-largest energy source, posted a 2.5% consumption increase in 2024, being the only fossil fuel to exceed the average primary energy consumption growth. While natural gas consumption increased in various regions around the world, the Asia-Pacific region, the world's largest gas consumer region with 24% of global share, scored a large natural gas consumption increase of 4.5%, contributing much to the global growth. The world might have been escaping from the situation in which gas consumption decelerated due to steep price hikes caused by the Ukraine crisis.

Among non-fossil energy sources, consumption in 2024 increased by 8.9% for renewable energy, by 2.6% for nuclear energy, and by 4.2% for hydro, surpassing the average primary energy consumption growth. Renewable energy, including solar photovoltaics, posted an extremely high consumption increase due to a unique situation in which China, the world's largest renewable energy consumer, scored a remarkable increase of 18.8%. A rise of 1.45 EJ in China's renewable energy consumption accounted for 78% of the global consumption increase, at 1.86 EJ. In 2024, nuclear power generation increased by a robust 3.9% in Europe, including France, and by 2.6% in the Asia-Pacific region, including China, India, Japan, and South Korea, which expanded nuclear power generation. In 2024, oil accounted for 33.6% of global energy consumption, coal for 27.9%, natural gas for 25.1%, renewable energy for 5.5%, hydro for 2.7%, and nuclear energy for 5.2%. Fossil fuels' share of global energy consumption in 2024 slightly decreased from 87.0% in the previous year to 86.6%.

Fourth, as a result of these energy consumption trends, global energy-related CO₂ emissions in 2024 increased by 1.1% to 35.49 billion tons. This rise was higher than the average annual increase of 0.8% in the past decade. This is due to the fact that, although non-fossil fuel consumption increased steadily, global fossil fuel consumption continued to increase. Over the long term, excluding periods where economic growth was severely affected by the global financial crisis and the COVID-19 pandemic, CO₂ emissions have continued an uptrend, indicating that CO₂ emissions are difficult to reduce. While North America and Europe reduced emissions, the Asia-Pacific region, the world's largest CO₂ emitter, expanded emissions by 1.8%, leading to a global emission increase.

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