

The global push for clean energy — insights from the IEA World Energy Outlook

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As the world intensifies its efforts to combat climate change, the transition to renewable energy has become a critical priority. In its World Energy Outlook 2024 (WEO 2024), released on October 16, 2024, the International Energy Agency (IEA) highlighted current global energy trends. The report delves into the energy security challenges faced by policymakers in their pursuit of clean energy transitions, set against the backdrop of escalating tensions in the Middle East and rising geopolitical uncertainties worldwide.

The accelerating global transition to clean energy is one of the key findings from the WEO 2024. By 2030, global energy demand is expected to stabilize for the first time, primarily due to improvements in energy efficiency and electrification initiatives. Between 2023 and 2030, clean energy sources—especially solar and wind—are projected to meet nearly all of the growth in energy demand. Over 560 gigawatts of new renewable energy capacity were added worldwide in 2023 alone. As shown in Figure 1, the cost of many clean energy technologies has significantly decreased in recent years. As renewable energy becomes increasingly cost-competitive with fossil fuels, this trend is expected to continue.

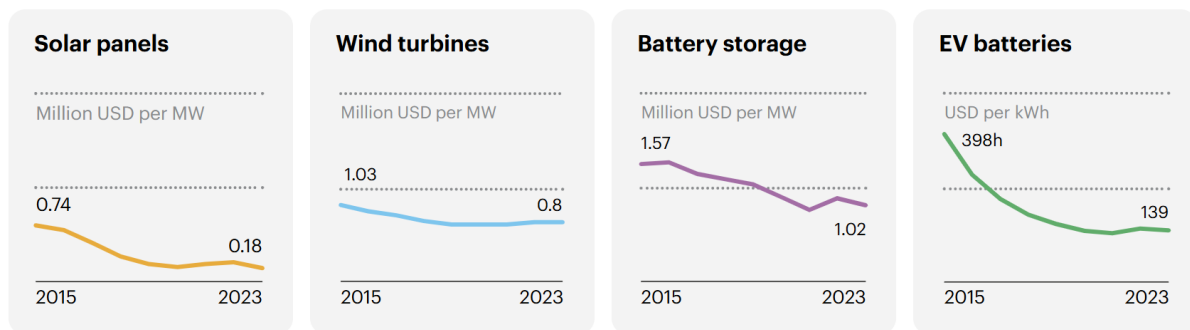


Figure 1: Falling clean energy prices, source: IEA (2024)

However, the Outlook also highlights the uneven pace of progress across regions and sectors. While developed economies have made significant strides in renewable energy deployment, developing nations face substantial challenges in implementing large-scale clean energy projects. The Outlook identifies key obstacles that must be addressed, including financing constraints, inadequate infrastructure, and gaps in technical capacity, to ensure a fair and equitable global transition to renewable energy.

The ongoing conflict in the Middle East underscores persistent global energy security risks. While some immediate impacts of the global energy crisis began to ease in 2023, the potential for short-term disruptions to oil and gas supplies remains high due to the Middle East tensions. Around 20% of the world's oil and liquefied natural gas (LNG) supplies currently pass through the Strait of Hormuz, a critical maritime chokepoint in the region. However, despite the rising geopolitical risks, the slowdown in oil demand growth in the Stated Policies Scenario (STEPS) is expected to increase spare crude oil production capacity to 8 million barrels per day by 2030, providing some relief to market balances and prices. Additionally, a wave of new LNG projects will boost available export capacity by nearly 50% by 2030.

The vulnerability of today's energy markets serves as a reminder of the enduring importance of energy security and the role that more efficient and cleaner energy systems can play in reducing associated risks. Recently, the 7th Russian Energy Week International Forum was held in Moscow, bringing together representatives from over 50 countries and regions to discuss energy cooperation in a multipolar world. As a major player in the global energy market, Russia is currently facing challenges such as financial difficulties, a worsening geopolitical situation, and declining international energy prices. In response, the need to accelerate the development of new national energy policies has become a priority for Russia. During the forum, Russia outlined three main focuses for its future energy strategy: ensuring domestic market supply with stable and affordable energy, increasing domestic energy processing, and enhancing technological sovereignty in the energy sector.

Clean energy is forecast to see huge growth, while coal, oil, and gas will peak in 2030 and begin to decline (see Figure 2.), with substantial contributions from China and Europe. In 2023, the total supply of low-carbon energy reached a record high. China, in particular, has emerged as a key player in the global energy transition. Over 560 gigawatts (GW) of renewable energy capacity were added worldwide in 2023, with China accounting for 60% of the new installations. By the early 2030s, China's solar photovoltaic capacity alone is projected to surpass the current total electricity demand of the United States.

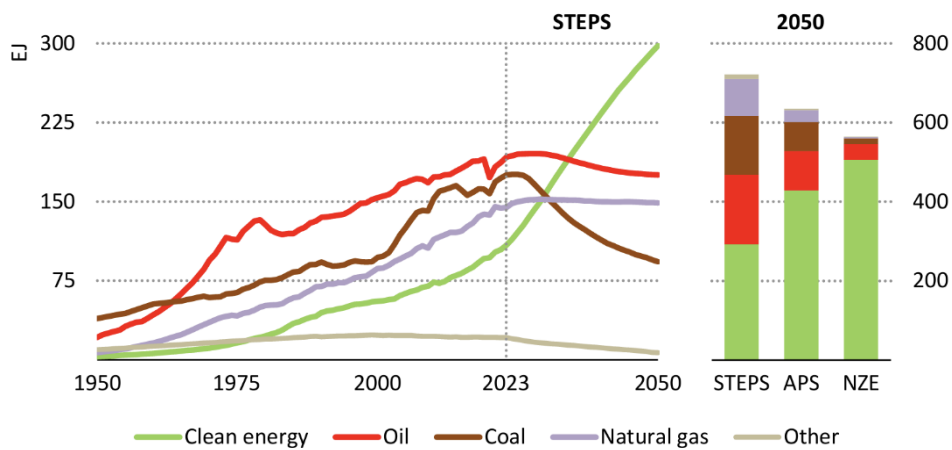


Figure 2: Global energy mix by scenario to 2050, source: IEA (2024)

China's production of solar panels and electric vehicle batteries now represents more than 80% of the global supply, positioning the country to achieve its 2030 wind and solar capacity targets ahead of schedule. By 2030, emerging markets and developing economies are expected to account for nearly 80% of the increase in global electricity demand, with China alone contributing over 45% of that growth. At that point, low-emission energy sources will provide more than half of the world's electricity, and the use of fossil fuels will peak. Given China's electricity demand, which far exceeds that of other nations (See Figure 3.), the speed and progress of its clean energy transition will have far-reaching global significance.

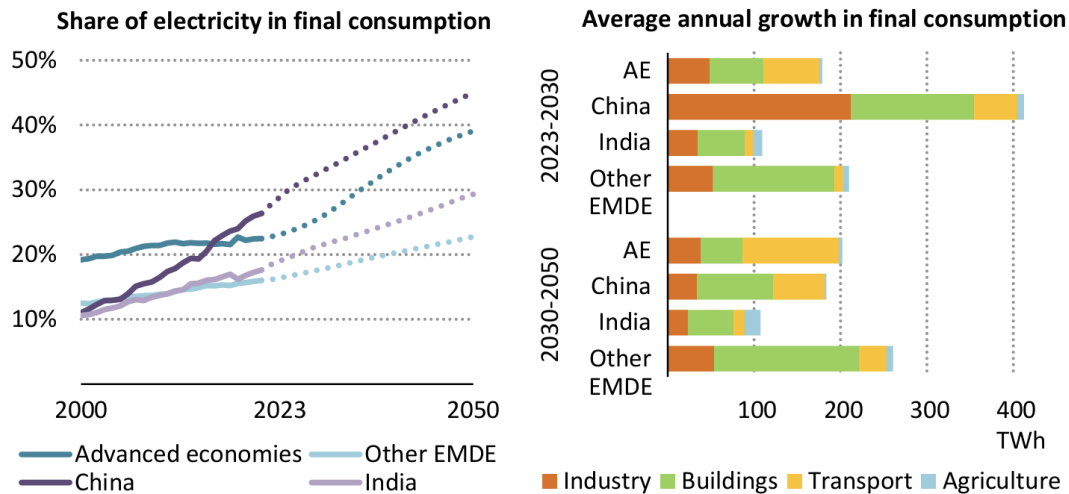


Figure 3: Electricity in total final consumption and demand growth in the STEPS to 2050, source: IEA (2024)

While the momentum for global energy transition is strong, there remains a gap in meeting climate goals. The structure of energy demand is shifting, with the importance of fossil fuels declining and the share of low-carbon energy sources, particularly wind and solar, growing rapidly. The world is transitioning from a phase of “Energy Addition” to “Energy Substitution”. Although some positive progress has been made under the STEPS scenario, current policy frameworks still put the world on track for a 2.4°C rise in global average temperature by 2100, heightening the risks associated with climate change. Governments, investors, and consumers must work together to steer today’s energy systems toward a cleaner, safer path, ensuring lasting benefits for humanity and the planet.

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