A Pragmatic Approach to American Energy Policy: Balancing Climate Goals with Economic and Geopolitical Realities

By Dmitry Torba | 02/12/2025

The scientific consensus is unequivocal: the combustion of fossil fuels releases vast quantities of previously sequestered carbon into the atmosphere, driving global temperature increases, sea-level rise, and a greater frequency of climate-related catastrophes. This process is a direct reversal of the carbon capture that occurred over millions of years, particularly during the Carboniferous period. Confronting this reality necessitates a global transition toward sustainable energy. However, while the goal is clear, the path forward is complicated by significant technical, economic, and geopolitical challenges. A pragmatic energy policy must therefore acknowledge the persistent necessity of fossil fuels in the medium term, even as it invests in the long-term viability of renewable alternatives.

The current portfolio of renewable energy technologies, though promising, is beset by limitations of geography and consistency. Solar power, for example, is highly efficient in arid, sun-drenched regions but offers substantially diminished returns in climates with less consistent sunlight. Similarly, hydropower is a potent source of clean energy in specific topographies, such as the Pacific Northwest, but its potential is nearly exhausted in other regions like the American East. While wind power is more geographically versatile and requires relatively low material inputs, its inherent unpredictability presents a significant challenge to grid stability. Nuclear energy offers a powerful, carbon-free alternative but faces substantial public opposition due to concerns over safety and the long-term disposal of radioactive waste. Finally, emerging technologies like geothermal and tidal power remain too niche and underdeveloped for widespread, impactful deployment at the present time.

Beyond the challenges inherent to each energy source, the transition to a renewable-dominant grid faces two critical systemic hurdles: transmission and storage. Transporting electricity over long distances is inefficient due to significant transmission losses and the prohibitive cost of building new infrastructure, making it infeasible to power eastern states with energy generated in the western deserts. More critically, energy storage technology is nowhere near capable of compensating for the intermittency of renewables and meeting global demand. The world's leading battery technology, lithium-ion, provides a stark illustration of this deficit. Based on global lithium mining rates of approximately 130,000 metric tons per year and the energy density of Tesla-grade batteries, the total annual production of lithium could be converted into enough battery capacity to power the world for a mere thirty seconds of its current electricity consumption. This calculation does not even account for the immense new demand that would be created by a full transition to electric vehicles or the energy required to power heavy industry.

Consequently, the global economy remains fundamentally dependent on the reliability and energy density of fossil fuels. When renewable sources fail to meet demand, utility providers must activate conventional power plants. Because a coal-fired plant can take up to a day to start, it is often more practical to keep such facilities running continuously, negating some of the benefits of intermittent green energy. Furthermore, battery technology lacks the energy density required for heavy industry, including aviation, maritime shipping, and agricultural equipment, sectors that are foundational to the global supply chain. Beyond energy, oil and gas are also irreplaceable feedstocks for a vast array of essential products, from plastics and fertilizers to pharmaceuticals, underscoring their deep integration into the fabric of modern civilization.

This enduring reliance on fossil fuels is a central driver of modern geopolitics. Industrial powerhouses like Germany built their economic might on the availability of cheap Russian natural gas, and their recent efforts to decouple have caused significant economic strain. Likewise, China's immense energy needs inform its strategic actions, including its claims over Taiwan and its support for Russia. In a world that will continue to demand fossil fuels for the foreseeable future, a unilateral retreat from production by the United States would not eliminate that demand but would instead cede influence and economic advantage to other nations. Therefore, American energy policy must be framed not only as a domestic issue but as a critical component of its international strategy.

In conclusion, a responsible and effective American energy policy must operate on a dual track. It must aggressively fund research and development into next-generation renewable technologies, particularly in wind, nuclear, and, most critically, energy storage, to pave the way for a sustainable future. At the same time, it must acknowledge the present reality that the world runs on fossil fuels and will continue to do so for decades. The United States, with its abundant resources and advanced extraction technology, is uniquely positioned to meet this demand. By simplifying the permitting process for extraction and expanding its capacity to export liquefied natural gas, America can strategically supply its allies, fuel the reshoring of vital industries, and ensure global energy security while navigating the long and complex transition to a carbon-neutral world.

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