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LETTER TO THE EDITOR

World Energy Transition: No Single Answers to Complex Challenges

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As we grapple with the urgent issue of climate change, it is vital to recognize that energy has always been a paramount global concern. Converting energy from its primary source to its final use requires natural resources and can lead to significant environmental impacts (Murphy et al. 2021). Besides the environmental issues, a nation's energy policy is intrinsically connected to economic growth and social welfare, making it a complex and multidisciplinary task (Kahn et al. 2021).

Climate change is a global challenge that requires coordinated global action on mitigation and adaptation, including financial support to enable poor and emerging economies to respond appropriately and effectively (IRENA 2022). Brazil will have a crucial opportunity to contribute to the global energy transition agenda. The COP 30 in November 2025 provide a platform for just and inclusive discussions and decisions on the energy transition. The last COP finished with the commitment of US$300 billion dollars per year for climate finance. It is imperative to transform such commitment into tangible actions, considering environmental, social, and economic aspects while acknowledging that there is no one-size-fits-all solution. The energy strategies for Global North nations may not suit Global South ones well.

The ongoing energy transition to renewable technologies is not just about changing the energy sources and carriers but also about the infrastructure adequacy required to make this new energy era possible (IRENA 2022). Infrastructure transitions are high-cost actions, and not all countries have the financial capacity or political will to undertake them at the right time (Kahn et al. 2021, IRENA 2022).

In addition to economic differences, countries have unique environmental characteristics that can provide different energy solutions for their needs. Technological and geopolitical alternatives must be made sovereignly by each nation, yet must be consistent with the global imperative for a greener future. A feasible and realistic energy transition must contemplate all prospects for energy production, distribution and consumption, considering that every energy solution entails trade-offs requiring evaluation within the context of regional realities.

Nevertheless, a multinational coordinated effort is required to turn last year's pledges into concrete global policies for a sustainable world. This is also an opportunity to reduce inequality between nations and build regional capacity to face climate change challenges, contributing to United Nations Sustainable Development Goals (SDG) advances (Hampl 2022). The financial support discussed at the last COP is a remarkable initiative that must be implemented fairly and with global governance. It is vital that this support is financially attractive, as grants or loans below market rate, and does not become another influence and dependency enforcement between nations.

This strategy benefits all, as the Global North could pursue its Nationally Determined Contributions (NDC) achievement by importing green energy and green certified products from the Global South, reducing its reliance on fossil fuels, and promoting Global South development. Our chances as a species increase when we think globally and act locally, considering all available alternatives and their proper trade-offs. There is no single answer to complex challenges.

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