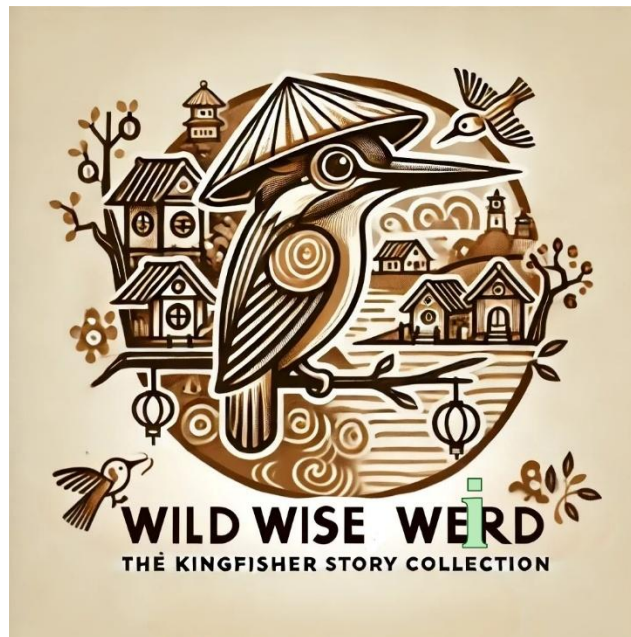


Cleaner Energy, Stable Prices? New Research Finds a Surprising Answer

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“On the first day of cultivation, the Kingfisher was cautious; the night before, he had had a meal of fish four times more than usual. Still, the sensation of hunger came at night, reminding him of the time he just started to do planning [...]”

In “No-Fish Dietary”; *Wild Wise Weird* [1]



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As Europe advances its commitment to cleaner energy, questions have emerged about the economic risks of this transition—especially during times of crisis [2]. The energy price shock of 2021–2022, driven by geopolitical tensions and skyrocketing natural gas prices, raised alarms about whether a decarbonized electricity system could leave countries more vulnerable to price volatility [3-5]. A recent study published in *Nature Sustainability* offers important insights into this pressing concern [6].

The research team developed a novel vulnerability metric to evaluate how natural gas price fluctuations affect wholesale electricity prices across 24 European countries. Contrary to widespread assumptions, the study finds that countries with more decarbonized electricity systems—those relying heavily on carbon-free sources such as nuclear and hydropower—are not more vulnerable to natural gas price shocks.

However, the picture becomes more nuanced when it comes to intermittent renewable energy (IRE) sources like wind and solar. These technologies, while essential to the clean energy transition, are weather-dependent and often require backup from natural gas power plants when sunlight or wind is insufficient. As a result, countries with higher shares of IRE are slightly more susceptible to gas price shocks, highlighting the need for energy storage and system flexibility.

Importantly, the study reveals that vulnerability to gas price shocks varies significantly across countries, shaped by each nation’s unique energy mix. This diversity suggests that a uniform European Union-wide price cap may be ineffective. Instead, tailored, country-specific policies are essential to protect consumers and ensure a smooth energy transition.

Decarbonization does not inherently compromise price stability. With thoughtful planning and diversified low-carbon energy portfolios, it is possible to achieve both climate goals and energy security.

The research underscores the interconnectedness of environmental sustainability and human well-being [7,8]. It challenges the false dichotomy between clean energy and economic resilience, showing that a well-managed energy transition can protect both the planet and the people. Ensuring a just and stable energy future demands not only technological innovation but also nuanced, place-sensitive policy design.

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