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Energy

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The turmoil prompted by the return of Donald Trump as US president has disrupted many processes, not least the transition to green energy. His pledge to "drill, baby, drill" is set to upend markets that were on a firm path to renewables. Data from the International Energy Agency illustrate the clear direction of travel, with two-thirds of the world's US$3-trillion investment in energy last year going on clean-energy technologies and infrastructure. At the same time, these data also point to a plateauing of fossil-fuel investment in the past few years, rather than a drop. The fear now will be that a shift in US policy will cause this to start going in an upwards direction.

There is cause for hope. East Asian economies have already bet big on green technologies and the science underpinning them. Data from the Nature Index show that high-quality research related to affordable and clean energy rocketed in the Asia Pacific region between 2019 and 2024. Scientists are also continuing to collaborate, with international projects to validate optimal battery performance being one example.

But there is one extremely uncertain variable: the impact of artificial intelligence (AI). Its potential for aiding the transition, such as improving grid efficiency, is huge, but there are fears that AI demand will also cause a dire need for more power. The influential US tech industry, and how it navigates these supply and demand challenges, including through its own research, might determine the direction this takes. There are also open questions around whether market entrants such as China's DeepSeek chatbot will alter the equation around powering AI and if consumer thirst for data-rich technology can be capped in some way.

It might be that the momentum towards renewables is unstoppable, but we are entering the most crucial period for the energy transition yet.

Simon Baker
Chief editor, Nature Index

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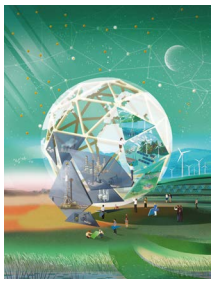

On the cover
Illustration of the global energy transition.
Credit: Eva Vázquez

Contents