

Interest rates are a decisive factor for competitive renewables

10 September 2019, by Martin Bornhauser



As renewable energy is more capital-intensive than fossil fuels, the costs rise more sharply with rising interest rates, making it less attractive. Credit: Shutterstock

Renewable energy has become competitive—and one often-overlooked reason is the reduced cost of financing. Researchers from ETH Zurich and the Potsdam Institute for Climate Impact Research (PIK) have modeled different scenarios in order to investigate the impact of rising interest rates on renewable energy.

Renewable energy is an essential part of efforts to reduce CO₂ emissions. Without it—according to all the climate scenarios—the Paris Agreement's target of limiting global warming to below 2 degrees C relative to the pre-industrial age will not be achieved.

Policymakers have therefore introduced various support measures for [renewable energy](#), in particular in the EU—and not without success: the generation [costs](#) of alternative energy in many European countries today are comparable with the (marginal) costs of existing gas or coal-fired power stations.

The last two years have seen the widespread emergence of photovoltaic plants that can survive and hold their own on the market without

subsidies—for example, in Spain and Germany. Green electricity's new-found competitiveness is based on more mature technology and higher volumes, which bring down costs.

In addition—and this is often overlooked—the low cost of capital has also played its part, as low interest rates boost the economic viability of alternative energy sources.

Lower costs thanks to low interest rates

But what happens if interest rates rise? ETH researchers have explored this question in two studies. As renewable energy is more capital-intensive than fossil fuels, the costs rise more sharply with rising interest rates, making it less attractive. "Renewable energy is now very cheap, but that won't necessarily be the case with higher interest rates," says Tobias Schmidt, Professor of Energy Politics.

According to Schmidt, analysis of 133 photovoltaic and onshore wind projects in Germany over the last 18 years shows that—in the case of wind power, for example—lower financing costs account for about 25 percent of the savings in electricity-production costs (see article in *Nature Energy*).

"Renewable energy has become cheaper—thanks in part to significant improvements in financing conditions," says Bjarne Steffen, co-author of the study. Conversely, rising financing costs will lead to disproportionate increases in the price of renewable energy.

Less attractive with rising interest rates

In a study published today in *Nature Sustainability*, the ETH researchers calculated various interest rate scenarios in collaboration with a team from the Potsdam Institute for Climate Impact Research (PIK). If interest rates were to return to pre-crisis levels, electricity production costs in Germany

would increase by 11 percent for solar power plants [10.1038/s41893-019-0375-2](https://doi.org/10.1038/s41893-019-0375-2) and 25 percent for wind power projects—with a knock-on impact on competitiveness.

In a scenario involving a moderate rise in interest rates, the lower costs of solar power plants due to advances in knowledge and technology would be offset by higher interest charges. For wind [power stations](#), it is estimated that electricity generation costs would increase by 9 percent in such a scenario.

Provided by ETH Zurich

Auctions should be retained

The ETH and PIK researchers believe that abolishing the instruments for alternative energy, as is currently being considered in the EU, would be a risky strategy. In the event of rising interest rates, it would have a counterproductive effect and jeopardize the reduction in CO₂ emissions needed from a climate perspective.

"The positive trend in renewable energy is not something we should gamble with," says Schmidt, who advocates continued adherence to market-based instruments, such as auctions for large-scale plants to generate renewable energy.

This should ensure that projects are awarded to the most competitive provider. As long as interest rates stay at a low level, renewables will therefore remain subsidy-free.

The authors of the study are also in favor of a minimum price for emissions certificates under the European emissions trading system. This would accelerate the shift from [fossil fuels](#) to renewable energy by excluding price collapses for climate-damaging CO₂ emissions in future. Higher financing costs would then be less likely to jeopardize the transition to renewable [energy](#).

More information: Florian Egli et al. A dynamic analysis of financing conditions for renewable energy technologies, *Nature Energy* (2018). [DOI: 10.1038/s41560-018-0277-y](https://doi.org/10.1038/s41560-018-0277-y)

Adverse effects of rising interest rates on sustainable energy transitions. *Nature Sustainability*, 9 September 2019, [DOI](#):

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