

Wind energy cuts the electricity bill

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Analyzing the various renewable sources separately, the researchers saw that there are substantial differences between them. Credit: UPV/EHU

The promoting of renewable energy is at the heart of the current debate on energy policy. From an economic perspective, the question focusses on determining the cost of the feed-in tariff systems. Firstly, whether the incentives are as expensive as has been maintained in the most recent regulatory modifications, and secondly, whether the effect is similar with respect to all renewable technologies. The study by the UPV/EHU's Bilbao Energy Research Team (BERT) tackles these questions

empirically, and concludes that wind energy continues to produce greater savings than what its incentives amount to, while photovoltaic solar technologies are still in the development phase. The study has been published in the journal *Energy Policy*.

The UPV/EHU study analyses the electricity market in Spain during the 2008-2012 period -a time of maximum renewable penetration in Spain when [energy](#) production within the Special Scheme saw a 57% increase- and quantifies its cost.

To do this, they firstly measured the market savings produced by participating in [renewable sources](#), and secondly, they calculated the amount paid in the form of incentives to green energy. The difference between the two figures represents the net cost of renewable energy. In contrast to other studies published until now, "in this work the separate results for renewable technology are presented for the first time, demonstrating that the general conclusions cannot be applied to all the technologies across the board," pointed out Cristina Pizarro-Irizar, the lead author of the research.

As regards the most significant results obtained, they stress that in the initial stages (2008-2009), when the installed renewable capacity was much lower, the savings that renewable generation as a whole produced on the electricity market exceeded the costs of the system. "It signified savings of between 25 and 45 euros per megawatt hour (MWh), depending on the year," stresses Pizarro-Irizar.

However, from 2010 onwards when renewable generation began to grow exponentially, the regulatory costs rose excessively, imposing a positive net cost on the system. "The penetration of renewable energy starts to be so high that the market prices do not fall any further and yet the costs of the incentives do in fact rise. There is a turning point and it is at that precise moment that the system is no longer sustainable. On the Spanish

electricity market, that turning point was reached in 2010," explained Cristina Pizarro-Irizar.

Separate analysis of the different sources

In any case, when analysing the various renewable sources separately, they saw that there are substantial differences between them. This is due "firstly to the market penetration of each of the technologies and, secondly, to the difference in incentives between technologies," stressed Pizarro-Irizar.

So "today, wind energy continues to produce greater savings than what its incentives amount to, while photovoltaic solar technologies have not yet managed to secure a big enough participation on the electricity market to be profitable, as they are still in their [development phase](#)," she pointed out. In other words, "the market costs would be higher if there was no [wind energy](#), but that would not happen with solar technologies, which have traditionally received higher feed-in tariffs," pointed out Pizarro-Irizar.

Cristina Pizarro-Irizar concludes that "the results of this research point to the importance of designing the incentive systems correctly and the risk of oversizing the feed-in tariff for some technologies".

It should be pointed out that Pizarro-Irizar does not view the future as very promising for [renewable energy](#), because owing to the lack of grants, among other things, no new renewable capacity is being installed in Spain. "All this will affect us, from the environmental point of view -since we will go on generating energy using technologies that emit carbon dioxide- and also economically -due to the use of technologies that use gas, which has to be imported-," pointed out Pizarro-Irizar.

More information: A. Ciarreta, M. P. Espinosa, C. Pizarro-Irizar. "Is

green energy expensive? Empirical evidence from the Spanish electricity market". Energy Policy 69: 205-215 (2014)
[dx.doi.org/10.1016/j.enpol.2014.02.025](https://doi.org/10.1016/j.enpol.2014.02.025)

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