



Bidding zero? An analysis of solar power plants' price bids in the electricity day-ahead market

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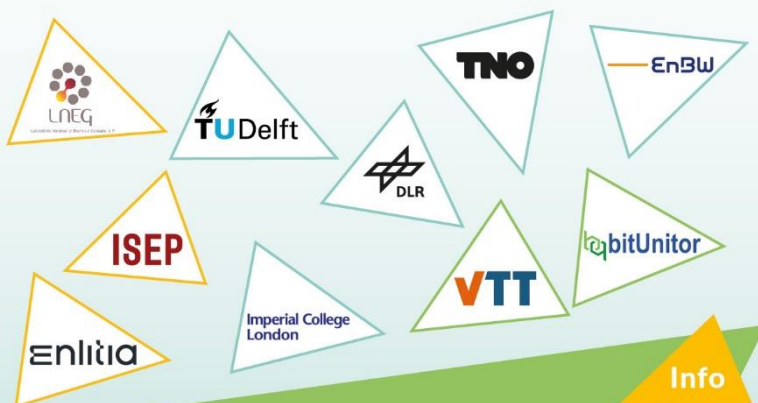
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Summary

The paper "Bidding zero? An analysis of solar power plants' price bids in the electricity day-ahead market", to the best of our knowledge, is the first paper to empirically question the common notion that variable renewables, i.e., solar and wind power plants, offer their electricity generation for price bids at the level of their near zero variable costs to electricity markets. This notion is the underlying assumption for the well-known merit-order and cannibalisation effects describing the dampening effect of variable renewables' market penetration on electricity prices and their own market values, respectively. Since variable renewables are expected to provide the dominant share of future electricity generation, the merit-order and cannibalisation effects raise the concern that solar and wind power can recover their investment costs in future electricity markets. We analyse a panel dataset of price bids submitted to the Iberian day-ahead market auction for solar power in 2020. Indeed, we find approximately 20% of the observed units' maximum price bids to be larger than zero. The paper explains these observations with the motive to exploit arbitrage opportunities in Iberia's sequential electricity market in three steps.

Highlights

- Contrary to common belief, several Spanish solar generators bid day-ahead prices above zero
- Owners of these units more likely to conduct arbitrage in sequential markets
- Impact of wind power plant location is close to cannibalization effect
- Level of price bid can be explained by expected intraday market price



The TradeRES project will develop and test innovative electricity market designs that can meet society's needs of a (near) 100% renewable power system. The market design will be tested in a sophisticated simulation environment in which real-world characteristics such as actors' limited foresight into the future and risk aversion are included.



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