



Too much of a good thing: reducing emissions by curtailing renewables in power systems operation

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Full paper: -

Summary

To lower pollution, it became imperative to integrate as much renewable energies as possible in power systems. This has been translated into forcing the maximum production of variable renewable energy (VRE) ---wind and solar--- into power systems operation. The increasing operational costs to maximize the VRE output became the price to pay in order to lower pollution. However, here we show that it is a common misconception that forcing VRE production always lowers pollution. We present some examples illustrating that, apart from increasing costs, forcing VRE production can also increase pollution.

Highlights

- Energy-based support schemes give incentives to renewables to become must-take generation.
- Must-take renewable generation can increase both costs and CO2 emissions.
- Renewables must be optimally dispatched to maximize their value rather than their output.



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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