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Titel:

Mitigating strategic bidding behavior in redispatch markets through operator-owned out-of-market flexibility assets

Abstract:

While market-based redispatch is often proposed as a means to improve congestion management in zonal electricity markets, prior research has demonstrated that redispatch markets are subject to inc-dec gaming, which inflates total system cost and exacerbates grid congestion. This study investigates how optimal sizing and siting of operator-owned battery energy storage systems can mitigate the adverse effects of inc-dec gaming in transmission grids. Methodologically, it develops a two-stage redispatch model that jointly optimizes operational decisions of the power plant fleet and investments in storage systems that act as virtual power lines. Under stylized assumptions on the German power plant fleet, results indicate that such systems have to potential to reduce total system cost, but do not eliminate gaming incentives.