

# Production intermittence in spot electricity markets: a behavioral simulations approach\*

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## Abstract

This paper analyzes the influence of production intermittence on spot electricity markets. More specifically, we examine how the presence of a competitive fringe operating low-cost intermittent generation assets modifies the bidding behavior of the strategic players who own the conventional (reliable) power plants. We first use game theory to derive the market outcomes obtained with perfectly rational players. We then compare them with the ones obtained when the players behave as adaptative traders who follow the Camerer and Ho (1999) behavioral model. The simulation results show that, compared to the theoretical benchmark, intermittent technologies yield lower prices when incumbents have individual market power, but are higher when they do not have it. We also run the simulations for a series of alternative specifications. The results indicate that this finding happens under different intermittence and ownership configurations. We also observe that replacing high-cost assets with low-cost ones results in prices that are higher than when they are left to co-exist.

KEYWORDS: Behavioral economics, Experience-Weighted Attractions (EWA), Intermittence, Production technology, Spot markets.

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