

Price Bids and Capacity Choice in Electricity Markets^α

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Abstract

This paper analyses offer prices and capacity choice by two asymmetric and capacity-constrained firms competing in a spot market for electricity with uniform auctions. We find that the scope for Bertrand competition is limited to the case of very low demand levels. For higher levels of demand, market clears at the highest possible price level, the exogenous price-cap. In the capacity choice stage of the game, if production constraints are not binding, firms can endogenously switch from Bertrand competition to those regimes that guarantee higher profits. As a consequence, generators may strategically restrain capacity. Strategic withholding is more likely when demand is known at the time where operators choose their available capacity, and is less likely when demand is a stochastic variable and values close to peak-hours occur with a high probability. When the demand distribution function is strongly skewed leftward and firms' asymmetries are smoothed, the risk of voluntary shortage is not excluded.

Keywords: electricity markets, capacity choice, uniform auctions

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