

Merchant utilities and boundaries of the firm: vertical integration in energy-only markets

EPRG Working Paper 2008

Cambridge Working Paper in Economics 2039

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Abstract Resource adequacy in energy-only markets is of continual interest to policymakers due to risks posed by incomplete markets. In Australia, resource adequacy has historically been navigated via energy retailer investment commitments in peaking plant capacity. This in turn has been driven by the National Electricity Market's (NEM) very high Market Price Cap (AUD \$15,000/MWh). The NEM is now rapidly transitioning with sharply rising levels of utility-scale variable renewable energy, world-record uptake rates of rooftop solar PV by households, and ongoing coal plant closures. Ironically however, investment commitments in peaking plant capacity by the NEM's energy retailers appears to have stalled. This raises the question as to whether the energy retailer model of investing in peaking plant, a pattern which has dominated energy-only markets, has somehow broken down. If so it raises questions of the suitability of the energy-only market design. In this article, peaking plant dynamics are tested using historic NEM data. Specifically, investments in a stand-alone generator, a stand-alone energy retailer and a merged entity are simulated over 16 years of trade under both project finance and corporate financing structures with a focus on credit metrics. Results reveal the canonical merchant peaking plant remains too risky as a stand-alone project financing in an energy-only market. But energy retailer incentives to commit to on-balance sheet financed peaking plant remains, with transaction cost synergies of 13% and investment grade credit quality being contingent on integration.

Keywords vertical integration, electricity markets, energy-only markets, transaction costs, credit ratings

JEL Classification D23, D24, D25, G34, L94

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Publication May 2020, updated September 2021