

Dynamic Modeling of Peer-to-Peer Power Market Making

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Abstract

This paper examines at which premiums, over the hourly Swissix day-ahead market price, hydro-, wind- and solar-power production becomes profitable in a dynamically simulated peer-to-peer power market model based on grid levels 5 & 7 in Switzerland. It further researches the question of whether the required premium for renewable power above the Swissix market price can be financed by purely redistributing grid levels 1 & 3 savings to local production without adding any additional expenses to the system. Market premiums or discounts for renewable power based on the hourly Swissix day-ahead market prices are introduced to incentivize renewable power generators to produce according to the aggregated peer-to-peer load curve. Rational market participants would be expected to start maximizing revenues over the hourly price and minimizing costs, resulting in automatized grid optimization.

Keywords: *Discount/Premium Model, Dynamic Hourly Pricing of Renewable Electricity, Peer-to-peer Power Market, Power Grid Optimization via Profit Maximization Incentives.*

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