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Enhancing intraday price signals in U.S. ISO markets for a better integration of variable energy resources

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Abstract— Efficient operation of power systems increasingly requires accurate forecasting of load and variable energy resources (VER) production, along with flexible resources and markets, capable of adapting to changing conditions in the intraday horizon. It is of utmost importance to reflect these needs in price signals, to align the incentives of market agents with the new challenges. The two-settlement system used by U.S. ISOs falls short to provide efficient intraday economic signals and a cost reflective allocation of intraday rescheduling costs. This paper advocates for a multi-settlement system, which entails calculating intraday prices as forecasts are updated and re-schedules are executed. This approach incorporates more granular prices, as in European intraday markets, while keeping the efficient centralized dispatch logic of the ISO model. A stylized case example illustrates the virtues of a multi-settlement system, which sends cost reflective signals, and consequently facilitates VER integration.

Index Terms— Electricity market design, Renewable integration, Intraday, Price formation, Uplift

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