[39] [Energy Storage Arbitrage under Day-Ahead and Real-Time price uncertainty](https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7892020)

* Battery storage as price taker
* Maximize profit under Day-Ahead & Real-Time market prices

(3) Parts: (a) price scenario generation (forecast with ARIMA) (b) Energy storage process (c) Bidding models for both DAM and RTM

Day-Ahead Models (Two models)

1. Quantity Only Bid Model

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1. Price-Quantity Model

Considers when bid is accepted or rejected for buying/selling

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Real Time Model

* After optimizing day-ahead model, can add more bids into RT model making up for rejected day-ahead bids or to make more profits based on forecasted RT prices. Assuming a realized scenario,

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Objective: Maximize profit under DAM and RTM

Case studies: Compare two different DAM x

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Conclusion: DAM profit > RTM but (1) more charge/discharge cycles (2) more risk to volatility (3) longer duration lower profit due to longer charge/discharge cycles

Plan to extend model to anticipate impact of ancillary services.

How about also consider price maker in ancillary services and price volatility etc