Price\_is\_Rght

Better forecasting will generate value for interacting with wholesale market. Could be captured by a generator to bid better, better use of battery.

Optmize bid price in day-ahead market, and volume plan to sell.

Target user: Any entity with front-of-the meter storage

Two markets:

Day-ahead market

Real-time (balancing)

Goal:

Use machine learning to maximize profits from operating storage assets by more accurately forecasting pricing and load. Value streams are

* Arbitrage: charging when power is cheapest, discharging when it is most valuable.
* Spinning reserves: allows renewable sources to meet resource adequacy requirements (quantify value)
* Frequency regulation: maintain 60 Hz

Factors that affect price

* Bid price
* Weather: sunny and windy weather increase supply and reduce price
* Cost of coal and gas
* Availability of hydro
* Time

Factors that affect load

* Weather
* Time
* Special events (ie, transmission failure)

Methods

Data sets used

* Hourly spot market [(PJM Data Miner 2)](https://www.pjm.com/markets-and-operations/etools/data-miner-2.aspx)
* Hourly weather

Assumptions

* Total storage capacity
* Depth of discharge
* What we learn from PJM
* Frequnecy regulation

FIGURES

