

A Brief Introduction to EIM Bidding and Market Design

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But First – a disclaimer

- ***This presentation should not be considered a recommendation for EIM bidding strategy.***
- The context of this presentation assumes:
 - Hourly load conforms to your base schedule
 - EIM resource characteristics currently in place
 - No congestion
 - No Bid Cost Recovery (BCR)
 - “Load” includes transactions that are scheduled ahead of time (Bilateral trades, etc...)
 - Only energy costs – does not address commitment cost bidding

EIM is an Incremental Market

Example:

A 300 MW base schedule is not settled for the entire 300 MW.

It is only settled for the incremental MWH that are above and/or below 300 MW during the hour.

- You are settled against the plan of the “base schedule”
 - Generation transactions only occur for deviations from the plan to meet your load
 - Generators are paid the LMP prices for the MW generated above your plan
 - Generators are charged the LMP prices for the MW decremented below your plan*
- Bids should be made on an incremental basis, not an average “all in” cost

* Assuming load is to plan

Cost Basis “Incentive”

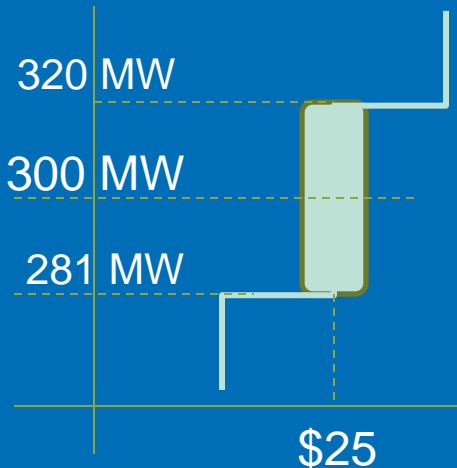
The EIM is structured to encourage bidding resources very close to actual cost/value for a range around the base schedule.

EXAMPLE:

GridRUS has a participating resource that is base scheduled at 300 MW

The true incremental cost of the previous and next 20 MW (281 MW to 320 MW) is approximately \$25/MW

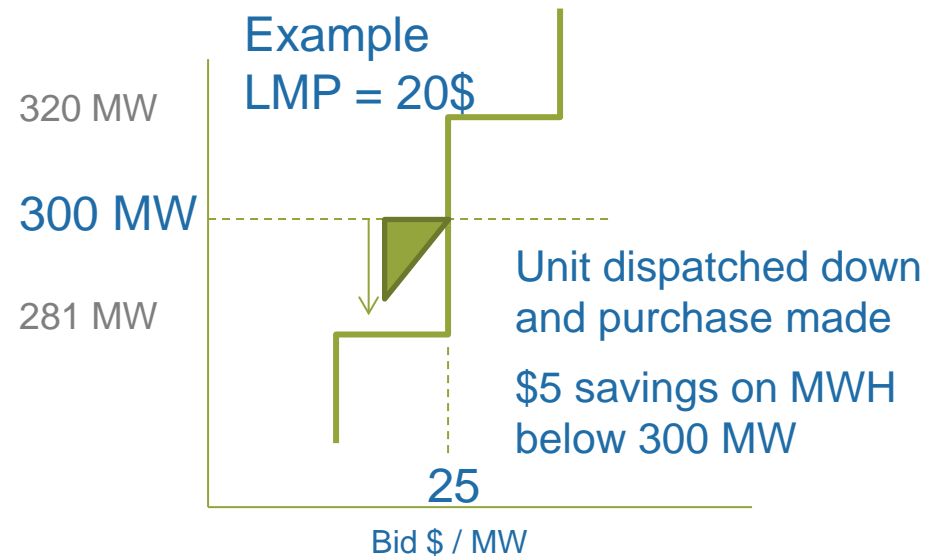
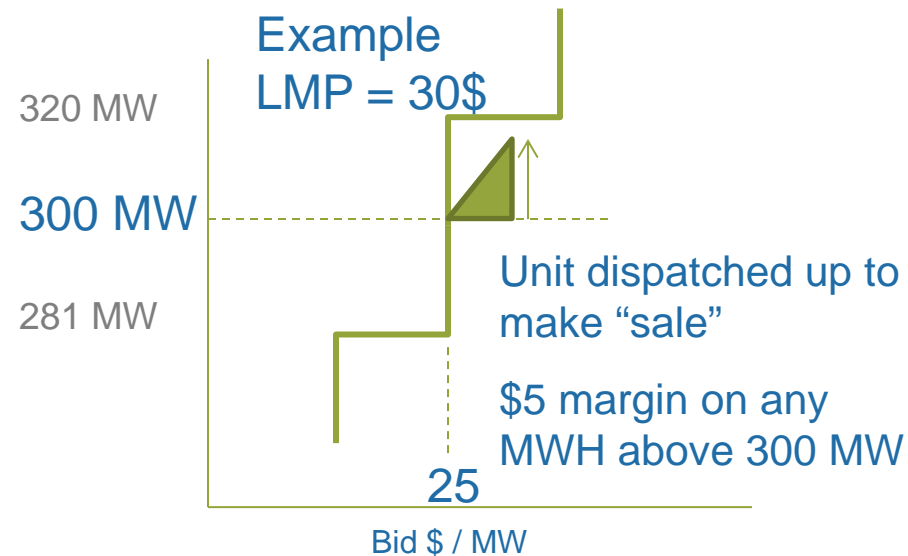
GridRUS
Participating
Resource



Incremental
Energy Cost
\$/ MW

Example: Bid Price & Dispatch

GridRUS Submits an energy bid of 25\$ / MW for +/- 20 MW around base schedule of 300 MW.



The unit will move such that:

Sales will be made at $LMP > 25\$$, and purchases will be made at $LMPs < 25\$$.

GridRUS kept whole to costs.

Bids are not only used to stack resources for native load, but also used for a sale (or purchase) from a neighboring EIM member.



*Moral:
Inflating
costs to
improve
margin may
backfire.*

*Bidding
near costs
ensures
lowest cost
optimization
of the native
load
system.*

Example: Cost Bidding Incentive

One day a GridRUS Trader decides to Bid 30\$ instead of the \$25 cost for the same range, trying to improve off system sales margin

- RISKY! The LMP goes to 28\$, and the unit is moved down to 280 MW.
- The market now believes it is optimizing by shutting down the higher cost power (30\$) and selling “cheaper” (\$28) resources to GridRUS.
- This results in \$25 cost power being replaced with \$28 power. This increases costs 3\$ / MWH above the actual cost GridRUS would have normally incurred to meet its own load.

**Bids and the
Base
Schedule /
Load Forecast
work hand in
hand in the
EIM**

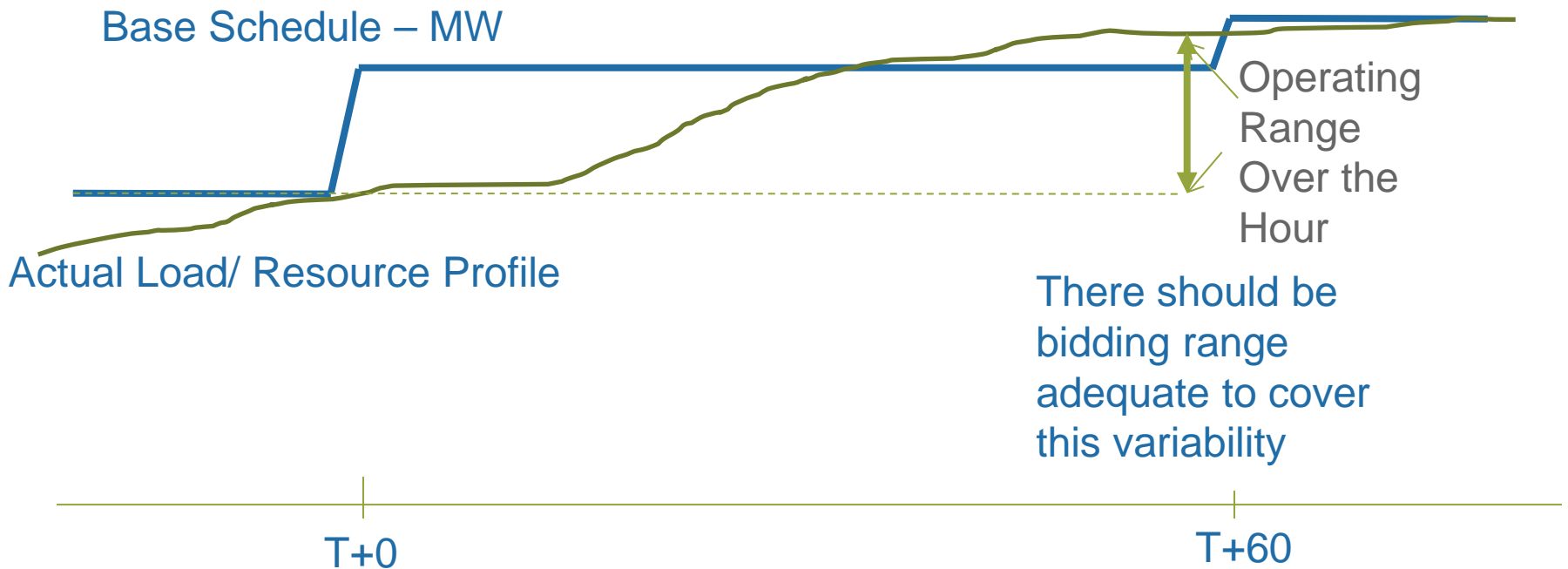


Base Schedule and Loads

- The Base Schedule is an hourly look at loads
- Even if no off system EIM transfers are occurring, a participating resource may be under or over its base schedule within the hour
 - Base Schedule is a single point in the hour
 - There may also be load forecast error
 - Other resources are not operating to base schedule (e.g. wind, reliability)

Bidding range gives flexibility to economically optimize for native load intra-hour

EIM Market Design



EIM market is designed to encourage bidding around the base schedule very close to cost

Summary

- A participating unit can be under or over its base schedule at any given time. To ensure best optimization for native load, bidding near cost is encouraged by market design
- The EIM optimizes all participants at the same time, so intra-hour cost based margins are shared and spread across the footprint, resulting in economies of scale at cost.
- Graduated bidding strategies above and below base schedule range may offer some additional margin for EIM transfers

Questions?

