

ORDC Action Items

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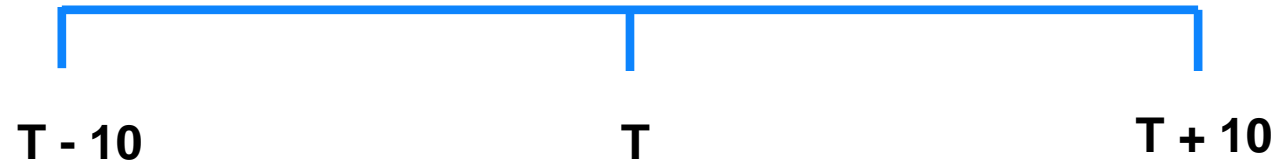
Energy and SR/PR Reserves Timeline

Rationale for using 30 minutes uncertainty in ORDC development

- As part of the ORDC development, PJM examined multiple look-ahead uncertainty intervals: 10-min, 15-min, 30-min
- The following slides cover the rationale for using 30-min and why 10-min or 15-min are not appropriate

- SR and PR requirements are met with resources expected to respond within the next 10 minutes from a SCED case target time
- Reserve assignments are made 10-minutes prior to the SCED case target time
- A 30 minute look-ahead uncertainty interval is reasonable to account for the total time elapsed between the reserve assignment and the reserves' response time (20 minutes).

Total elapsed time: 20 minutes



T is the SCED case target time.

At T – 10, the case is solved using a forecast for load, wind and solar output for T.

The reserves that are assigned when the case is solved are expected to be online between T and T + 10.



Example: Why 15-min look-ahead uncertainty interval falls short

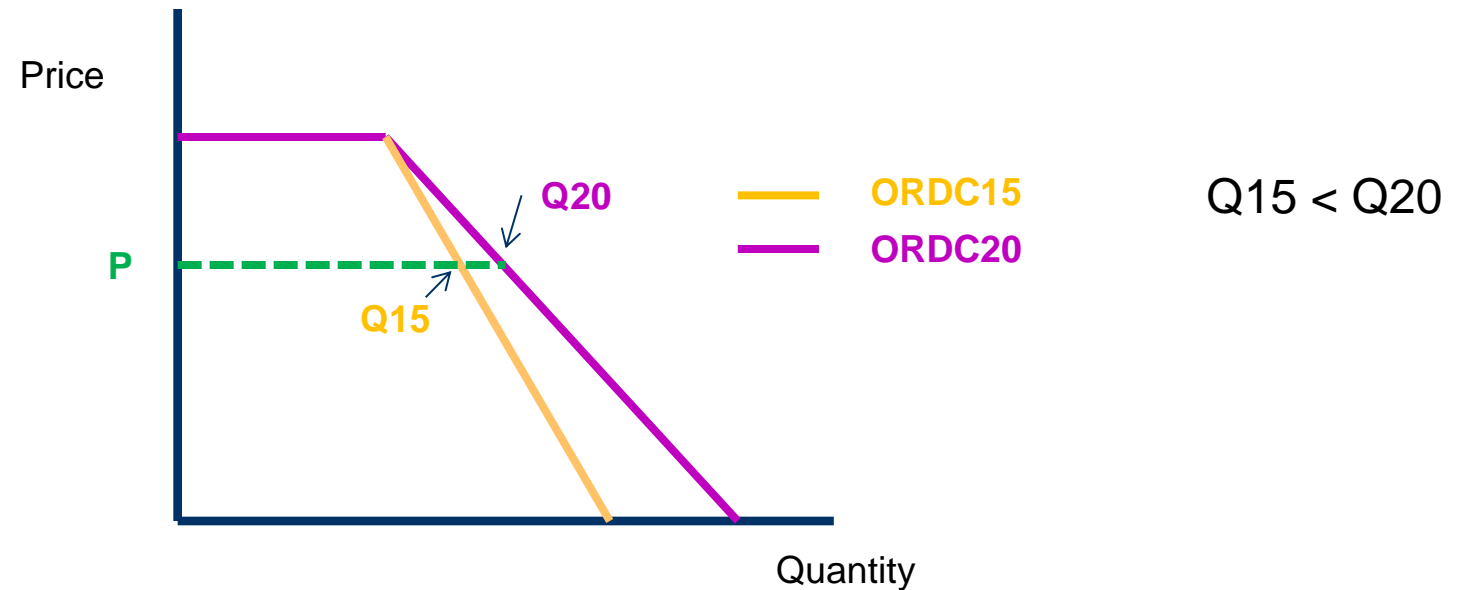
- Let's assume that the PBMRR associated with X MW (i.e., Probability Total Forecast Error is greater than X - MRR) calculated with 15-min uncertainty is 0.4 whereas when it is calculated with 20-min uncertainty is 0.5.
- If the ORDC is developed using 15-min look-ahead uncertainty interval, the set of reserve resources responding between T and T+10 will not be compensated for the reliability value they provide between T + 5 and T + 10 (a PBMRR difference of 0.1 or \$85/MWh if \$850/MWh is the penalty factor).





Example: 15-min ORDC will cause reserve to be less than what is appropriate

- Similarly, for a given reserve price reflecting reliability value P , the quantity of reserves scheduled on a 15-min ORDC (Q_{15}) will be below what is appropriate (Q_{20}) to cover the uncertainty between T and $T + 10$



- The previous slides have made the case for at least using 20-min look-ahead uncertainty interval
- The additional 10-min PJM is proposing are aimed are capturing the following:
 - Some of the SCED cases are executed not at $T - 10$ but at $T - 14$.
 - The reliability value that reserves expected to respond between T and $T + 10$ provide does not end at $T + 10$ under ramping constraints. There is reliability value beyond $T + 10$, though it is hard to quantify.
 - Subsequent SCED cases are impacted by the outcome of previous SCED cases

Other Action Items

- [Summary of ORDC Presentations](#)
 - Summary of PJM ORDC Presentations.docx (top of EPFSTF website)
- 30-min ORDC Curves Data
 - [30 Minute Uncertainty PJM ORDC Curves_SR.xlsx](#)
 - [30 Minute Uncertainty PJM ORDC Curves_PR.xlsx](#)
- 15-min ORDC Curves Data and Graphs
 - [15 Minute Uncertainty PJM ORDC Curves_SR.xlsx](#)
 - [15 Minute Uncertainty PJM ORDC Curves_PR.xlsx](#)
 - [15 Minute Uncertainty PJM ORDC Curve Graphs.pptx](#)
- 30-min Load/Wind/Solar Forecast Error Mean and StDev
 - [30-min Uncertainty Load Wind Solar Forecast Error for PJM ORDC](#)