

Dispatchable Wind Resource LOC

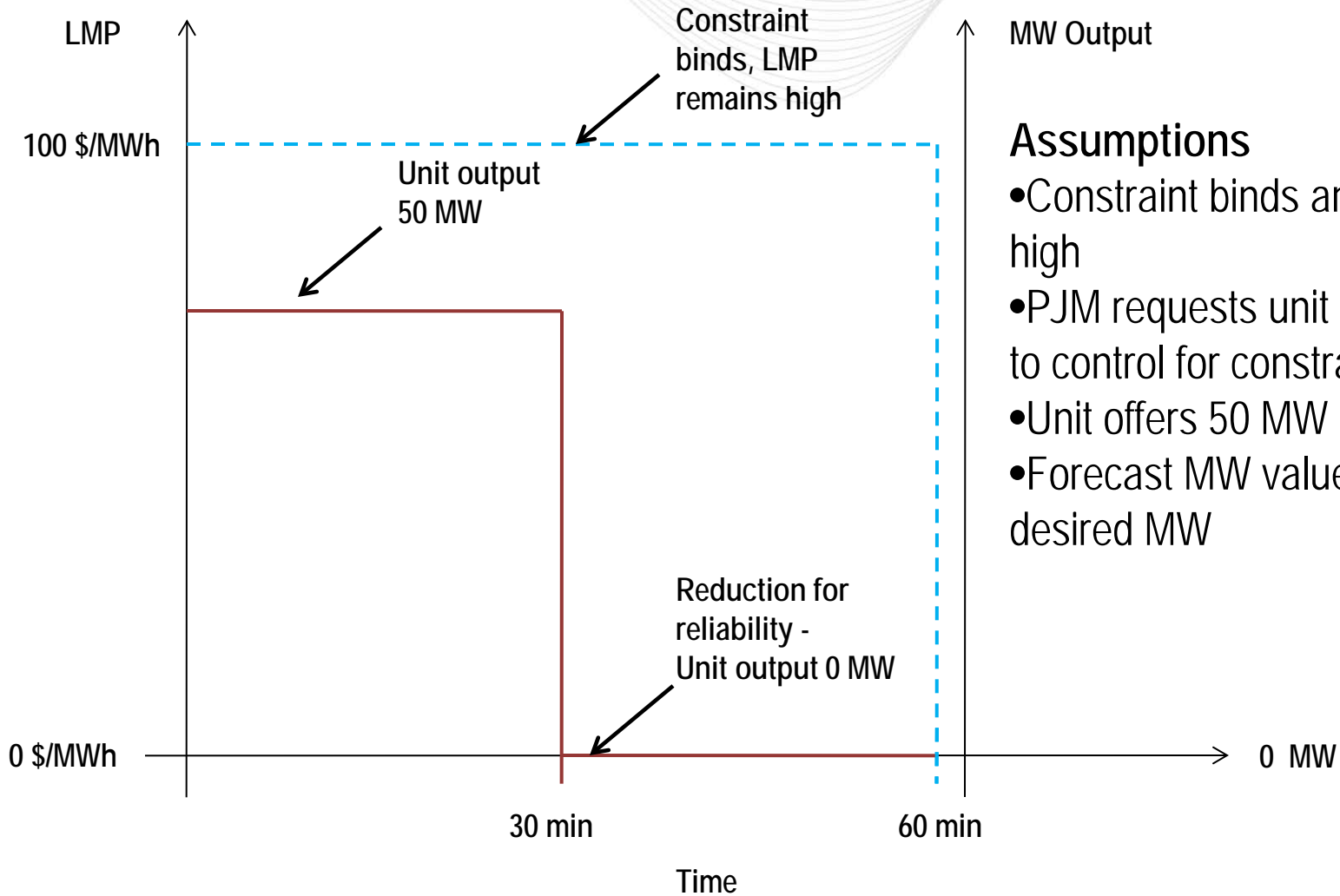
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MRC – November 16, 2011

- Wind LOC issue was raised in Q4 2010
 - Wind LOC compensation is currently not comparable to traditional dispatchable resources
- Problem statement was drafted and Tariff changes were required
- IRTF updated its charter to accommodate the issue
- 5 IRTF meetings occurred to discuss wind LOC with consensus around PJM proposal
- MIC endorsed the IRTF proposal on July 12, 2011
 - 90 in favor, 45 opposed, 5 abstentions

- MRC reviewed IRTF proposal with conforming change for reduced compensation while failing to operate according to governing agreements
- Based on stakeholder feedback, reduced compensation discussion is a separate issue. Discussions held at September MIC on:
 - Wind LOC
 - Reduced compensation for failure to operate consistent with governing agreements

- 11/9: Post for 11/16 MRC
- 11/15: Post for 11/22 MC
- 11/16 MRC: Vote
- 11/22 MC: Vote

- Current approach (Jan 2011 – October 2011)
 - Actual Wind LOC payments – \$ 3,393,745.66
 - Actual Wind LOC hours – 939 hours
 - Wind LOC payments are 0.92% of BOR
- Estimated upper bound under proposed approach
 - Wind LOC payments estimated to be \$5,500,000 total for the same period; 1.49% of BOR
 - Estimated impact is approximately \$2.1 million for the period



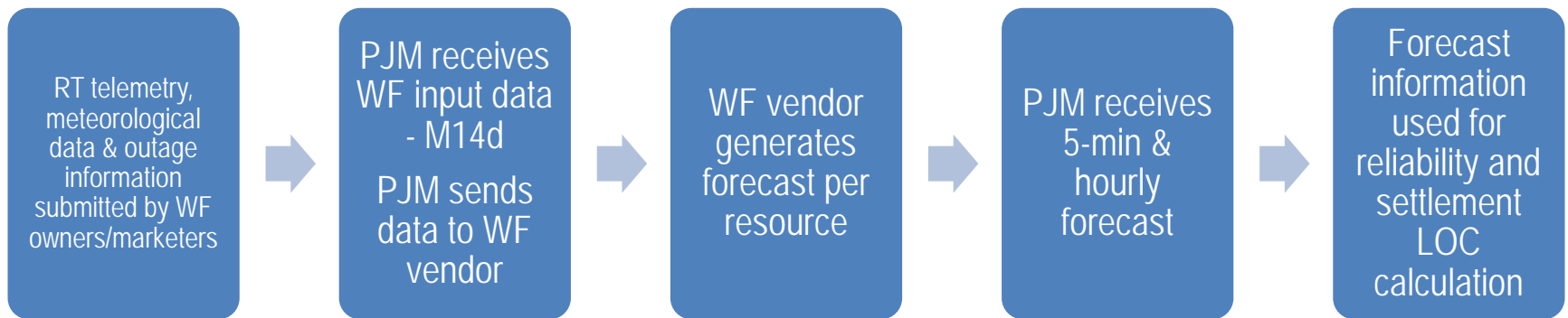
Assumptions

- Constraint binds and LMP remains high
- PJM requests unit to reduce output to control for constraint
- Unit offers 50 MW @ \$5
- Forecast MW value is greater than desired MW

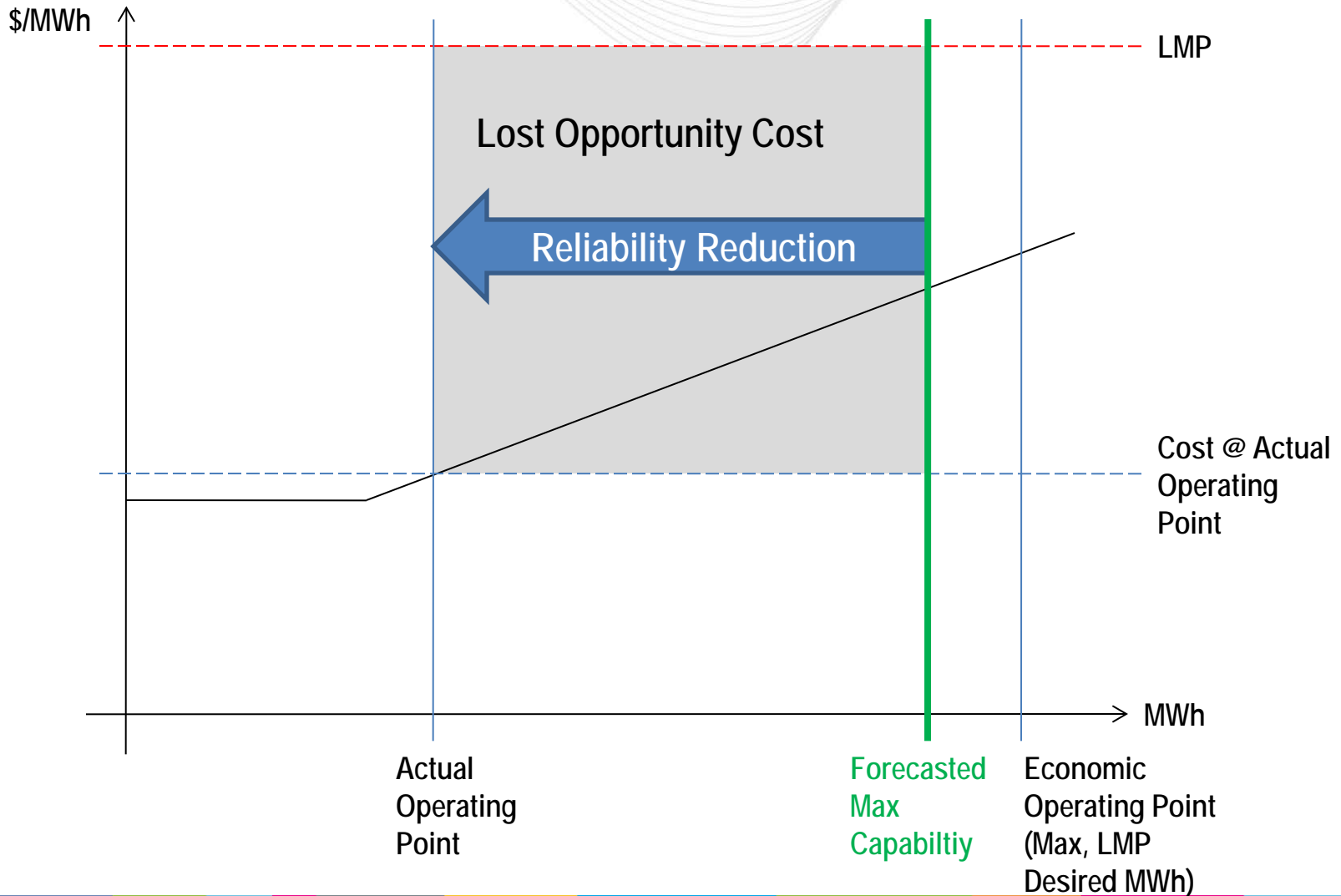
- Solution
 - Hourly integrated RTLMP = \$100/MWh
 - Hourly integrated MWh = 25 MWh
- LOC
 - Level of desired output resulting from PJM dispatch, based on the hourly integrated RTLMP bounced off the unit's offer curve, is greater than the hourly integrated output for the unit.
 - RTLMP is \$100/MWh so unit output should be at least 50 MWh, based on offer curve, but hourly integrated output is 25 MWh
 - $LOC = (50 \text{ MWh} - 25 \text{ MWh}) * (\$100/\text{MWh} - \$5/\text{MWh}) = \$2,375$

- Currently PJM compensates all wind resources that are cleared in the DA Market for LOC upon request when they are reduced for reliability
- The intent of the methodology is to make these resources whole to their daily DA value
- This methodology was put in place when wind resources were not dispatchable as all are today
- It may not be ideal for wind resources that are dispatchable and following PJM's instructions
- Compensation is different than traditional dispatchable resources

- The new methodology from IRTF is analogous to what is done for traditional dispatchable resources
- Provides incentives to follow dispatch instructions to mitigate reliability issues
- The calculation will be the same except PJM will use the lesser of the forecasted capability or economic max or desired MW to determine the maximum output of the wind resource
- The forecasted capability will be determined by PJM using its own wind forecasting tool



- In the event of a technical issue resulting in an erroneous forecast, PJM and market participant will determine a mutually agreeable settlement value. Guidelines published in PJM Manual 28
- The calculation is the difference between the actual operating cost based on the offer curve and the LMP times the reduced MWs
- LOC payments contingent on compliance with applicable requirements in Tariff, Operating Agreement and PJM Manuals as outlined in PJM Manual 28



- Endorsement of proposal at November MRC, MC
- FERC filing
- Targeting implementation Q1 2012
- Wind LOC statistics added to MIC markets report

Questions?