

Fast-Start Pricing M-11, M-18 & M-28 Revisions

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Manual 11 – Energy & Ancillary Services Market Operations

Manual 11: Energy & Ancillary Services Market Operations,
Revision 114

- The December 17, 2020 Fast Start order included a compliance obligation to address a few items including PJM's preferred implementation date
- PJM complied with the Fast Start Compliance filing on February 16, 2021:
 - Requested a response by April 16, 2021
 - If a full order is received by April 16th, PJM will implement on May 1, 2021
 - PJM will communicate updated plan if FERC does not respond by April 16th

PJM is required to implement Fast-Start Pricing:

1. Define Fast-Start resources as those with a total time to start and minimum run time of less than or equal to one hour
2. Implement separate dispatch and pricing runs in Day-ahead and Real-time Markets
3. Amortize start-up and no-load in “effective” offer using integer relaxation
4. Use Lost Opportunity Cost (LOC) to provide incentive to follow dispatch
5. Validate composite offers greater than \$1,000/MWh prior to setting price
6. Address any issues regarding double payment stemming from implementation in Day-ahead and Real-time market

- **Section 2.1 Overview of PJM Energy Markets**
 - Existing section and language with minor modifications
- **Section 2.1.1 Fast-Start Capable Resources**
 - New Section
- **Section 2.1.2 Fast-Start Capable Adjustment Process**
 - New Section
- **Section 2.1.3 Eligible Fast-Start Resources**
 - New Section
- **Section 2.1.4 Day-ahead Energy Market**
 - New section containing existing language with minor modifications
- **Section 2.1.5 Real-time Energy Market**
 - New section containing existing language with minor modification

- Section 5.2.7 Calculation of Day-ahead Prices
 - This section was previously 5.2.6.1
- Section 5.2.7.1 Day-ahead Integer Relaxation
- Section 5.2.7.2 Energy Offers used in Day-ahead Price Calculation
- Section 5.2.7.3 Determination of LMPs for Generation Resources with Composite Energy Offers Greater Than \$1,000/MWh and equal to or below \$2,000/MWh
- Section 5.2.7.4 Determination of LMPs for Generation Resources with Offers Greater than \$2,000/MWh
- Section 5.2.7.5 Determination of LMPs for Composite Energy Offers Greater than \$2,000/MWh

- Section 2.3.6.3 Generation Resource Composite Energy Offer Screening Process for Composite Offers more than \$1,000/MWh
- Section 2.7.1 Energy Offers used in Real-time Price Calculation
- Section 2.7.3 Determination of LMPs for Generation Resources with Composite Energy Offers greater than 1,000/ MWh and equal to or below \$2,000/MWh
- Section 2.7.5 Determination of LMPs for Composite Energy Offers Greater than \$2,000/MWh
- Section 10.3.1 Economic Load Response Resource Composite Energy Offer Screening Process for Composite Offers more than \$1,000/MWh
- Section 10.3.2 Determination of LMPs for Economic Load Response Resources with Composite Energy Offers greater than 1,000/ MWh and equal to or below \$2,000/MWh
- Section 10.3.3 Determination of LMPs for Composite Energy Offers Greater than \$2,000/MWh

- Multiple sections updated to provide clarity on how Fast-Start Pricing will impact the current business rule(s)

- ❖ Section 2.2

- ❖ Section 2.3.2.3

- ❖ Section 2.3.6.1

- ❖ Section 2.5

- ❖ Section 2.7

- ❖ Section 2.8

- ❖ Section 2.9

- ❖ Section 2.9.1

- ❖ Section 2.17

- ❖ Section 3.1

- ❖ Section 3.2.7.4

- ❖ Section 3.2.7.5

- ❖ Section 4.1

- ❖ Section 4.2.6

- ❖ Section 4b.1

- ❖ Section 4b.2.4

- ❖ Section 7.2

- ❖ Section 7.3.4

- ❖ Section 11.2.3

- ❖ Section 11.2.5

- ❖ Attachment D

- Retired
 - Section 2.13
- Renumbered
 - Section 2.7.2 – previously section 2.7.1
 - Section 2.7.4 – previously section 2.7.2
 - Section 10.3.4 – previously section 10.3.1
- Retitled
 - Section 2.4 – title and language updated to use proper terminology



Manual 18 – PJM Capacity Market

Manual 18: PJM Capacity Market, Revision 48

- Clarify Scheduled MW used for Excusal and Bonus purposes in PAI settlement calculated using Dispatch Run LMP
 - Footnotes added to relevant descriptions in Section 8.4A



Manual 28 – Operating Agreement Accounting

Manual 28: Operating Agreement Accounting , Revision 85

- Dispatch Differential Lost Opportunity Cost Credits
- Double Counting of Commitment Costs

- Operating Reserve Accounting Overview – Section 5.1
- Credit for Operating Reserve – Section 5.2
 - Added applicable Fast Start component to list
 - Pool-scheduled and dispatchable self-scheduled resources eligible for Dispatch Differential Lost Opportunity Cost credits
 - Removed reference to “resources providing quick start reserve”

- Credits for Pool-Scheduled Generating Resources – Section 5.2.1
 - Describes the offset to Day-ahead Operating Reserve credits to account for double counting of commitment costs
 - Calculations for Day-ahead and Balancing Operating Reserve Targets to determine the applicable offset to Day-ahead Operating Reserve credits

- Dispatch Differential Lost Opportunity Cost (DD LOC) Credits – Section 5.2.9
 - These credits ensure that resources dispatched down to accommodate the inflexibility of Fast-Start Resources follow PJM’s dispatch instructions to maintain power balance
 - Describes the settlement calculations to determine if a resource is eligible to receive DD LOC credits
 - Applies to pool-scheduled and dispatchable self-scheduled resources that are providing only energy in the real-time market

- Charges for Operating Reserve – Section 5.3
 - Dispatch Differential Lost Opportunity Cost credits are allocated as charges to market participants based on their ratio share of real-time load plus exports

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