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 116

- The December 17, 2020 Fast Start order included a compliance obligation to address a few items including PJM's preferred implementation date

  – PJM Fast Start Compliance filing on February 16, 2021 to address the December 2020 order

- FERC order accepting PJM's filing on May 20, 2021

  – Provided an effective date of July 1, 2021

- PJM filed a request to move the effective date to September 1, 2021 to avoid implementation during summer peak period

- FERC approved PJM's request. Fast Start Pricing is set to go-live on September 1, 2021

Fast-Start Pricing Order Highlights:

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 4.2.9
❖ 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

- In addition to the Fast-Start changes, clarifying language was added to Section 9.1 in regard to intraday updates for Ramp Rate parameters.
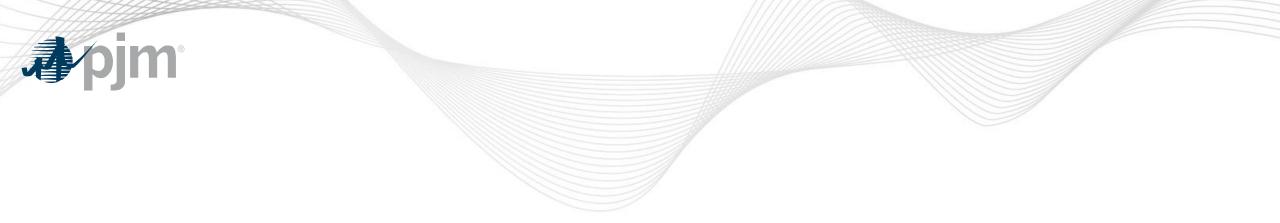
Manual 18 – PJM Capacity Market

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

  – Change from the April 2021 MIC

    - Capitalized Real-time Settlement Interval

- 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

  – No changes from the April 2021 MIC

- 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

  - Changes from the April MIC

    - Moved the sentence from the beginning under new section (5.3.6)

    - Removed a bullet at the end that re-summarized the calculation

    - See the June MIC item #6 for Manual 28 periodic review

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