



Opportunity Cost Calculator

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- A opportunity cost adder can be included in a unit's Cost Offer when
 - A regulatory agency imposes an environmental run hour restriction
 - An OEM imposes an operational restriction due to a physical equipment limitation
 - The unit experiences a fuel limitation resulting from event of force majeure
- Not related to Lost Opportunity Cost (LOC) uplift payment
- Opportunity Cost Calculator calculates this adder value based on historical LMP data and forecasted future fuel prices
- Objective is to make a generator whole for being scheduled by PJM outside its most economic periods
- PJM and IMM have separate Opportunity Cost Calculators
 - Documented in Section 12 of Manual15

- Issue Charge approved at March 2017 MRC meeting
- Special MIC sessions began in May 2017
 - 10 total meetings
- Key Work Activities
 - Education on Opportunity Cost Calculator
 - Compare PJM/IMM calculator and identify differences
 - Identify modifications to each calculator
 - Address how immature units are treated
 - Incorporate non-performance charge rates into calculator if appropriate
 - Identify tariff and manual changes

- Packages voted at 9/11/19 MIC meeting
 - Main package – Panda/Dominion package
 - 84% support at MIC
 - Included changes to PJM calculator and improved documentation to IMM calculator
 - Alternate package – PJM package
 - 51% support at MIC
 - Minor documentation changes to PJM calculator
- Voting was deferred at 12/5/19 MRC meeting until the 3/26/20 MRC meeting
- Continued discussions between PJM, IMM and package sponsors

- Retire PJM calculator as of 6/1/20
 - Very little usage
 - IMM calculator would be the required tool for calculation of opportunity cost
- Ensure documentation of IMM calculator
 - Expand current M-15 description
 - Future changes to be documented in M-15
 - PJM, with IMM, performs annual review of IMM calculator to ensure compliance with OA and M-15

APPENDIX

- Make modest improvements in PJM calculator aimed to make the results more reasonable, accurate and consistent with IMM's calculator
 - Incorporate start emissions
 - Incorporate dispatch range between eco min and eco max
 - Remove negative margins from multi year average
 - Use spot emissions price when forward emissions pricing unavailable
- Ensure documentation of IMM calculator
 - Expand current M-15 description
 - Document bid behavior modeling
 - Document dual fuel units sharing the same quota of emissions
 - Document future changes in M-15 and use upon approval
 - Interim changes allowed with PJM approval with intent to incorporate in M-15
- Maintain both PJM and IMM calculators
 - Provides market participants an approved and ready to use alternative
 - Provides an alternative to market participants if one of the calculators is unable to model a specific constraint

- PJM is not proposing any changes to its existing calculator
- Package is minor, clarifying changes to M-15
 - PJM and IMM will work together to determine an appropriate pricing point for immature units
 - Method of modeling dual fuel units sharing same quota of emissions using PJM calculator
- These changes also included in the Panda/Dominion package