

# Opportunity Cost Calculator

Glen Boyle

Manager, Operations Analysis and Compliance

Markets and Reliability Committee

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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

- After a detailed analysis, PJM has approved the IMM calculator for Market Seller use on October 24, 2018
- PJM is obligated by the tariff to maintain its own calculator
- Packages for voting
  - Main package – Panda/Dominion package
    - 84% support at MIC
  - Alternate package – PJM package
    - 51% support at MIC
  - Non-binding question
    - 85% prefer Panda/Dominion package over status quo

- 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