



MIC Special Session – Opportunity Cost Calculator Final Report

May, 2020

Issue Creation

[Problem Statement](#) and [Issue Charge](#) brought forward by Panda Power Funds and approved at the March 23, 2017 Markets and Reliability Committee.

Issue Summary

The current rules pertaining to the calculation of costs used in cost-based offers into the energy market allow Market Sellers to include an opportunity cost under certain conditions, such as environmental limitations. PJM developed an opportunity cost calculator, which is included in Markets Gateway, to enable Market Sellers to calculate an opportunity cost. Separately, Monitoring Analytics has developed its own opportunity cost calculator. There is some question about whether the two different opportunity cost calculators produce the same or comparable results and whether either calculator captures all scenarios.

When PJM implemented CP, it established potential penalties for failure to deliver during emergencies. The opportunity cost calculators were not updated to reflect the penalty rates. As such, the opportunity cost calculator may be calculating an opportunity cost that is too low as the resource approaches a run hour limitation.

The following are some key work activities that should be undertaken in any stakeholder initiative to address the above stated problems.

1. Educate interested stakeholders on opportunity costs.
2. Compare the opportunity cost tools and identify if there are any differences in the results and the reasons for the differences.
3. Identify any modifications to each opportunity cost calculator needed to make the results comparable or fill any existing gaps.
4. Identify modifications needed to address how immature units are to be treated.
5. Identify modifications to incorporate non-performance charge rates into opportunity cost calculators, where appropriate.
6. Identify and propose any tariff or manual changes needed to implement revisions.

Consensus-Based Issue Resolution Process

10 special MIC meetings from 5/23/17 – 6/17/19

Vote Results:

84% support at 9/11/19 [MIC Meeting](#)

Approved by acclamation at 3/26/20 [MRC](#) (no objections, 1 abstention) and [MC](#) (no objections, 2 abstentions) meetings

[Final Matrix](#)



1. Recommended Proposal

The recommended proposal consisted of 2 components:

- 1) Retirement of the PJM OCC as of June 1, 2020. This would leave the IMM calculator as the only option for Market Sellers wishing to calculate an Opportunity Cost Adder.
- 2) Additional documentation of the IMM calculator in Manual M-15. Also a requirement for PJM to perform an annual review of the IMM calculator to ensure that the calculator still meets the requirements of OA Schedule 2 and M-15. There is also a requirement for any future changes or updates to the IMM calculator be documented in M-15.

Manual M-15 was updated and approved by the PJM Board in April, 2020. No OATT or OA changes were required for this implementation.

2. Standing Committee Results

- 9/11/19 Market Implementation Committee
 2. Opportunity Cost Calculator
 - A. Mr. James Davis, Dominion Energy, and Mr. Abhijit Rajan, Dominion Energy, presented a summary of the Panda/Dominion proposal.
 - B. Mr. Glen Boyle, PJM, presented a summary of the PJM Proposal.

The committee endorsed the Panda/Dominion proposal with 134(84%) in favor, 26(16%) opposed and 27 abstentions. The committee endorsed the PJM proposal with 61(51%) in favor, 58(49%) opposed and 59 abstentions. The committee also preferred the Panda/Dominion proposal over the Status Quo with 158(85%) in favor, 28(15%) opposed and 5 abstentions. The Panda/Dominion proposal moves to the Markets and Reliability Committee as the primary motion with the PJM proposal as the alternate motion.



- **3/26/2020 Markets and Reliability Committee**

1. Opportunity Cost Calculator (9:50-10:05)

Mr. Glen Boyle reviewed an Opportunity Cost Calculator proposal and proposed revisions to Manual 15. Following discussion the committee **endorsed** the proposed revisions by acclamation with no objections and one abstention. Mr. Bresler noted that Members Committee endorsement would be sought on the same day.

- **3/26/2020 Members Committee**

1. Opportunity Cost Calculator (1:10-1:20)

Mr. Glen Boyle reviewed an Opportunity Cost Calculator proposal and proposed revisions to Manual 15. Mr. Boyle noted that the Markets & Reliability Committee (MRC) endorsed the proposal earlier in the day. Following discussion, the proposal was endorsed by acclamation with no objections and two abstentions.

Appendix I: Supplemental Documents

[Market Implementation Committee](#)

[Issue Tracking: Opportunity Cost Calculator](#)

Appendix II: PJM Participation

Facilitator: Glen Boyle

Secretary: Melissa Pilon

Advocate: Tom Hauske

Subject Matter Expert: Jennifer Freeman

Subject Matter Expert: John Hyatt (IMM)

Subject Matter Expert: Devendra Canchi (IMM)

PJM Legal: Chen Lu

Appendix III: Stakeholder Participation

Boyle, Glen (Facilitator)	PJM Interconnection, LLC	Not Applicable
Pilon, Melissa (Secretary)	PJM Interconnection, LLC	Not Applicable
Anders, David	PJM Interconnection, LLC	Not Applicable
Canchi, Devendra	Monitoring Analytics, LLC	Not Applicable
Clemence, Walter	NextEra Energy Marketing, LLC	Other Supplier
Croop, Danielle	PJM Interconnection, LLC	Not Applicable
D'Alessandris, Lou	FirstEnergy Solutions Corp.	Transmission Owner
Davis, Becky	PJM Interconnection, LLC	Not Applicable
Davis, Jim	Dominion Energy Marketing,	Generation Owner



Filomena, Guy	Inc.	
	Customized Energy Solutions, Ltd.	Not Applicable
Foladare, Kenneth	Tangibl	Not Applicable
Ford, Adrien	Old Dominion Electric Cooperative	Electric Distributor
Garnett, Bryan	Duke Energy Ohio, Inc.	Transmission Owner
Genuario, Gabrielle	PJM Interconnection, LLC	Not Applicable
Hauske, Thomas	PJM Interconnection, LLC	Not Applicable
Heisey, Bradley	Wolf Hills Energy, LLC	Generation Owner
Hendrzak, Chantal	PJM Interconnection, LLC	Not Applicable
Hoatson, Tom	Riverside Generating, LLC	Other Supplier
Horning, Lynn	Customized Energy Solutions, Ltd.	Not Applicable
Hsia, Eric	PJM Interconnection, LLC	Not Applicable
Hyatt, John	Monitoring Analytics, LLC	Not Applicable
Hyzinski, Tom	GT Power Group	Not Applicable
Johnson, Carl	Customized Energy Solutions, Ltd.	Not Applicable
Kelly, Stephen	Brookfield Energy Marketing LP	Other Supplier
Kimmel, David	PJM Interconnection, LLC	Not Applicable
Kogut, George	New York Power Authority	Other Supplier
Liang-Nicol, Cecilia	Monongahela Power Company d/b/a Allegheny Power	Transmission Owner
Libbos, Robin	FirstEnergy Solutions Corp.	Transmission Owner
Lu, Chenchao	PJM Interconnection, LLC	Not Applicable
Mabry, David	McNees Wallace & Nurick LLC	Not Applicable
Midgley, Sharon	Exelon Business Services Company, LLC	Transmission Owner
Mooney, Jeff	FirstEnergy Solutions Corp.	Transmission Owner
O'Connell, Robert	PPGI Fund A/B Development, LLC	Generation Owner
O'Neill, Jack	PJM Interconnection, LLC	Not Applicable
Rajan, Abhijit	Dominion Resources	Not Applicable
Rohrbach, John	Southern Maryland Electric Cooperative	Electric Distributor
Rumsey, Amanda	PPL Electric Utilities Corp. dba PPL Utilities	Transmission Owner
Sasser, Jonathan	Customized Energy Solutions, Ltd.*	Not Applicable
Scarpignato, David	Calpine Energy Services, L.P.	Generation Owner
Scheidecker, Paul	PJM Interconnection, LLC	Not Applicable
Smith, Christen	RTO Insider	Not Applicable
Sobotka, Shane	Allied Resources Collective,	Not Applicable



Whitehead, Jeff
Wilson, Bram

LLC
GT Power Group
Diamond State Generation
Partners, LLC

Not Applicable
Generation Owner