MIC FCP Special Session Recommendation

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May 29, 2020

IMM

Monitoring Analytics

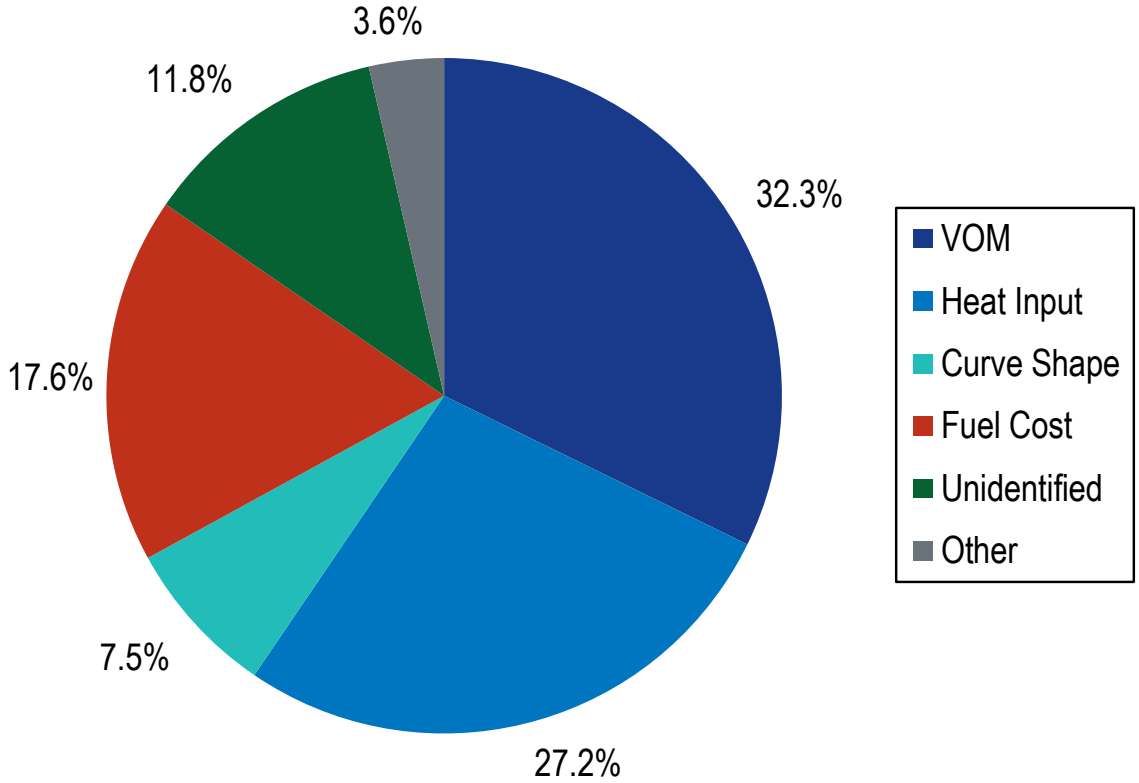
OA Schedule 2 Penalties

- **Since the implementation of the OA Schedule 2 penalties on May 15, 2017, there have been 318 penalties to generators for not complying with Schedule 2, FCPs or the Cost Development Guidelines (Manual 15).**
- **Out of the 318 penalties:**
  - **279 were identified by the IMM.**
  - **29 were identified by the Market Sellers.**
  - **10 were identified by PJM.**

IMM Identified Penalties

- **The IMM estimates generators' offers using data collected from:**
  - **MIRA (e.g. heat inputs, VOM, fuel index).**
  - **Independent fuel price sources (e.g. Platts and ICE).**
  - **PJM (e.g. schedule IDs, schedule fuel types, MW segments).**
- **The IMM uses these estimates as the basis for asking questions to the Market Seller.**
- **The Market Seller's responses make it clear when there are errors in offers.**

Causes of Penalties



Causes of Errors in Offers

- **Most penalties have not resulted from overstated fuel cost (fuel cost policy noncompliance).**
- **Most penalties (67 percent) have resulted from overstatement of VOM and incorrect heat input assumptions.**
  - **Common VOM issues: Incorrect application of a VOM adder approved by PJM or use of a VOM adder not approved by PJM.**
  - **Common heat input issues: Overstatement of actual inputs (e.g. start heat/no load heat) or incorrect calculation of incremental heat rates using correct inputs.**

Market Sellers' Responsibilities

- **It is Market Sellers' sole responsibility to make offers.**
  - **OA Schedule 1 § 6.4.2(d).**
- **It is Market Sellers' sole responsibility to make correct offers.**
- **It is Market Sellers' sole responsibility to have processes in place to avoid errors in offers.**

IMM Role

- **It is the IMM's goal that Market Sellers make zero errors in submitted cost-based offers.**
- **The IMM is, and has been, prepared to work closely with Market Sellers in order to ensure that Market Sellers understand in detail how to construct cost-based offers.**
- **The IMM has already provided education to many Market Sellers.**
- **The IMM is prepared to provide systematic education on the details of cost-based offers to Market Sellers as part of the CDS.**

Common Issues

- **VOM:**
  - **More clarity from PJM regarding includable VOM costs is needed to avoid future penalties.**
  - **Market Sellers need to be more careful in determining relevant VOM costs.**
- **Heat Input**
  - **Errors on heat input curves could be eliminated.**
  - **The cost development guidelines (M15) are deficient in providing guidelines for the calculation of correct heat input curves and incremental heat rate curves.**

Validation

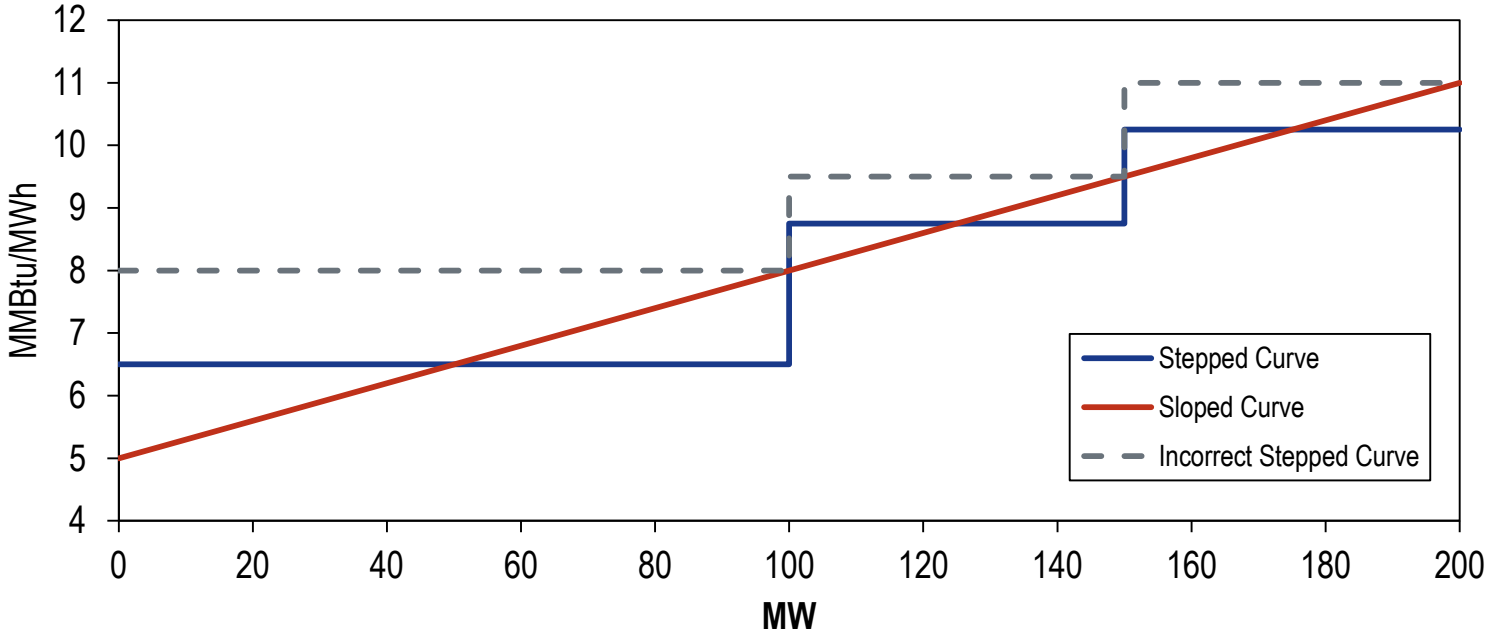
- There are two general types of errors in cost-based offers:
  - Errors that result from misunderstanding the math of cost-based offers.
  - Errors that result from incorrect input data.
- The IMM is available to provide detailed education on the construction of cost offers.
- The IMM is prepared to propose a new version of Manual 15 that is clear, internally consistent and easy to follow.

Recommendations

- **The IMM recommended in 2018 that the Cost Development Subcommittee (CDS) be in charge of the MIC FCP problem statement. PJM and stakeholders did not agree.**
- **The IMM recommends that this MIC Special Session be put on hiatus or terminated.**
- **The primary issue appears to be Market Seller errors that lead to penalties. The issue should be addressed directly: how to systematically reduce errors.**
- **The IMM recommends restarting regular Cost Development Subcommittee meetings to address cost development issues.**

Manual 15 Issues - Example 1

- **Manual 15 does not differentiate between sloped and stepped incremental heat rate curves:**



Manual 15 Issues - Example 1

- **Stepped Curve Incremental Heat Rate**

$$H'(MW_i) = \frac{H(MW_i) - H(MW_{i-1})}{MW_i - MW_{i-1}}$$

- **Sloped Curve Incremental Heat Rate (Second Degree)**

$$H'(MW) = 2 \times X_2 \times MW + X_1$$

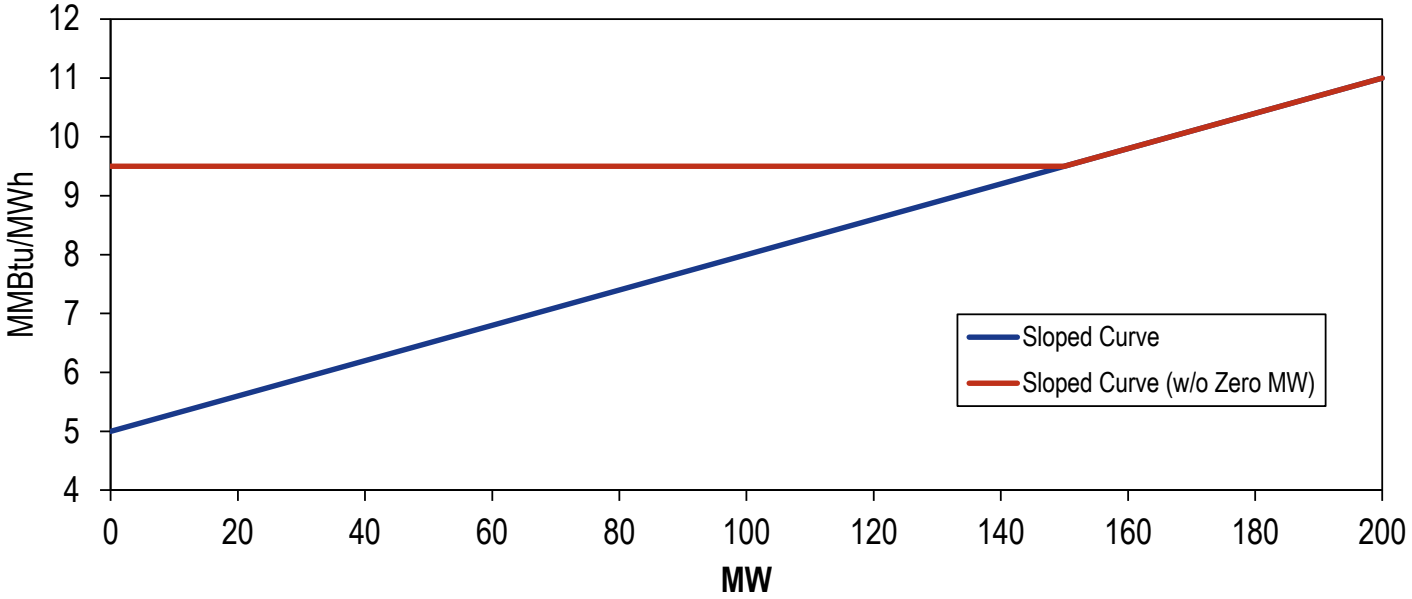
- **Changing the shape of the curve requires changing the incremental heat rate calculation.**
- **Failure to calculate incremental heat rates correctly results in overstated heat input.**

Manual 15 Issues - Example 2

- **Manual 15 incorrectly defines no load cost as:**
  - **The hourly cost required to create the starting point of a monotonically increasing incremental offer curve.**
- **No load cost is the theoretical cost of running a unit at zero MW (no load).**
- **No load cost should be calculated using the intercept of the heat input curve as long as the incremental curve is calculated properly.**
- **Proper incremental curves are either stepped curves or sloped curves with a zero MW segment.**

Manual 15 Issues - Example 2

- **Some units do not start their sloped incremental offer curve at zero MW.**



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Manual 15 Issues - Example 2

- **Manual 15 requires units to reduce their no load cost by the amount overstated in their incremental offer curve (area between the red curve and the blue curve).**
- **Failure to do so results in overstated heat input.**
- **Problem could also be avoided by using correct incremental offer curve.**

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