

Problem Statement /Issue Charge Overview

RMISTF

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Howard Haas



Monitoring Analytics

Regulation: Efficient, least cost market design requirements

- **Market design intended to minimize the cost to provide regulation using two different products but clearing the resources in a single market requires:**
 - **An accurate marginal rate of substitution (marginal benefit factor) in the optimization**
 - **A single price (or a single two part price pair) for settlement**
 - **That the two products be defined, cleared and settled in equivalent units throughout**

Current Design

- **Potentially incorrectly defined marginal benefit factor function (BF/MBF)**
 - Evidence that MBF between RegA and RegD may be incorrectly defined.
- **Incorrectly applying the (BF/MBF) in the optimization**
 - MBF use not consistent with derivation.
 - Inefficient displacement of RegA MW.
 - Incorrect calculation of contribution of RegD to total effective regulation.
- **BF/MBF inconsistently used in pricing and settlement**
 - Assumes MBF in offers/price but not settlement



Problem Statement

- **The marginal benefit function is not correctly defined and it is not consistently applied throughout market construct.**
- **This problem warrants consideration in the PJM stakeholder process as it has contributed to known operational and market issues.**
- **The marginal benefit factor function used in the regulation market should be reviewed and revised as appropriate.**

Problem Statement

- **The use of the marginal benefit function in the regulation market optimization should be reviewed and revised as appropriate.**
- **The application of the marginal benefit function in pricing and settlement be reviewed and revised as appropriate**



Issue Charge

Issue Source

- **IMM is bringing forth this issue due to observed market and operational issues in the Regulation Market associated with the definition and inconsistent application of the marginal benefit factor in the Regulation Market construct.**



Issue Charge

Key Work Activities

- Regulation market education.
- Re-evaluating marginal benefits curve and proscribed RegA/Reg-D commitment percentages.
- Re-evaluating how the marginal benefit curve is applied within the regulation market optimization and settlement.



Issue Charge

Expected Deliverables

- **Analysis of alternatives to for solutions to the observed market and operational issues associated with the current definition and inconsistent application of the marginal benefit factor in the Regulation Market construct.**
- **Tariff modifications and M-11 and M-12 updates to reflect any decisions.**



Review Current Market Design

- **Determine correct BF/MBF function**
 - Determine correct BF (RTS) between RegA and RegD.
- **Align BF/MBF definition with application of in optimization**
 - Correct RegD/RegA amount and proportions in market solution
- **Consistent application of BF/MBF throughout construct: optimization to settlement**
 - Price and compensate on equivalent terms