Market Monitoring, Mitigation & Analysis

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Objectives

- Upon completion of this session, participants will be able to:

  - Identify the responsibilities of the Market Monitoring Unit (MMU) and the Market Mitigation and Analysis Department (MMA)
  - Describe the purpose of the market mitigation measures
  - List examples of monitored activities
  - Distinguish between economic withholding and physical withholding
  - Explain the significance of reference levels and their relationship to mitigation
  - Describe the relationship between conduct and impact with respect to mitigation
Market Monitoring

- Market Monitoring Plan
  - *Attachment O of the Market Services Tariff (MST)*

- Market Mitigation Measures
  - *Attachment H of the MST*

- Two groups are responsible
  - *Market Monitoring Unit (MMU)*
  - *Market Mitigation and Analysis Department (MMA)*
Responsibilities of MMU and MMA

**MMU**

- External – Potomac Economics
- Evaluate market rules and Tariff provisions
- Report on market performance
- Refer possible market violations and market design flaws to FERC

**MMA**

- Internal – NYISO
- Administer Market Mitigation Measures (MST, Attach H)
- Implement other requirements of the NYISO Tariffs
- Respond to data requests
- Develop Reference Levels
- Develop Load Pocket Thresholds

- **Ensure competitive market outcomes**
- **Ensure market signals are appropriate**
- **Ensure transparency of market signals**
Terminology

- A **Reference Level** is a "proxy" that is intended to reflect the offer(s) that a Market Participant would submit for a generator if it was in a competitive market and could not exercise Market Power. The methods used to develop Reference Levels are set forth in Attachment H to the NYISO Market Administration and Control Area Services Tariff.

  -From the Reference Level Software User’s Guide

- Reference levels will be discussed in more detail later in the presentation

- A **Load Pocket Threshold** is a value associated with a particular constrained location that is used for the conduct and impact tests for mitigation.
Physical vs. Economic Withholding

- **Physical Withholding:** Failing to offer services that a generator is capable of providing (i.e. Incremental Energy, Ancillary Services, Capacity, etc.)

- **Economic Withholding:** Submitting bids that are unjustifiably high so that the generator will not be dispatched or scheduled, or the bids will set a high market clearing price.
Market Mitigation Measures

 Monitor market outcomes and market participant conduct

 Attachment H of the MST
  • “Intended to provide the means for the ISO to mitigate the market effects of any conduct that would substantially distort competitive outcomes in the ISO Administered Markets, while avoiding unnecessary interference with competitive price signals.”

 Authorize the mitigation of specific conduct that has market impact
Market Mitigation Measures

- Monitor for exercise of market power that departs significantly from outcomes expected under competitive market conditions

- Administer inputs into the mitigation process, including reference levels and load pocket thresholds

- Identify and respond to inappropriate conduct that materially changes market prices, market outcomes or increases guarantee payments
Let’s Review

Which of the following is NOT true of the Market Monitoring Unit (MMU)?

a) Ensures competitive market outcomes
b) Reports on Market Performance
c) Refers possible Market violations / market design flaws to FERC
d) Is an internal group to the NYISO
e) Works collaboratively with MMA
Monitored Market Areas

- Energy and Ancillary Service Market Outcomes
  - Including Bid Production Cost Guarantee Payments
- Virtual Market Outcomes
- Transactions (multi-hour, single-hour, and 15-minute)
- Transmission Congestion Contracts (TCCs)
  - Including TCC Auction Outcomes
- Installed Capacity (ICAP)
  - Including ICAP Auction Outcomes
Monitored MP Activities

- Energy Market Bidding
- ICAP Providers DAM Bid Compliance
- Virtual Bidding
- TCC Contract Paths
- Actions that Cause Operational Impact
  - Uneconomic Production
  - Persistent Under Bidding by LSEs
- Physical facilities
  - Generator Audits
  - Generating Availability Data System (GADS) Reporting
Conduct and Impact

- NYISO monitors behavior of a market participant (Conduct) and results of said behavior (Impact)
  - Conduct – identify potential market power
  - Impact – identify price and cost guarantee payments

- Conduct and Impact Tests
  - Categories
  - Thresholds for each product within a category
  - Constrained area vs. Rest-of-State (ROS)

- Apply mitigation when both Conduct and Impact tests are violated - [when thresholds are exceeded]
## Conduct and Impact

### Conduct Categories
- Physical Withholding
- Economic Withholding
- Uneconomic Production

### Impact Categories
- Market Clearing Price
- Bid Production Cost Guarantee
Additional Conduct and Impact Categories

- **Virtual Bidding**
  - Persistent deviation of RT and DAM LBMPs

- **Load Bid**
  - Average percentage of DAM scheduled load
  - Persistent deviation of RT and DAM LBMPs

- **ICAP Market Mitigation**
  - Supply-Side Mitigation (Physical Withholding & Economic Withholding)
  - Buyer-Side Mitigation (including UDRs and SCRs)

*Refer to MST, Attach. H for complete description*
Let’s Review

NYISO’s monitoring of market participant behavior to identify potential market power is known as

a) Conduct

b) Impact

c) Mitigation

d) None of the above
Conduct Thresholds for Physical Withholding in the Energy Market

- Exceeds 10% of a Generator’s capability or 100 MW
- Exceeds 5% of the total capability of a Market Party and its Affiliates or 200 MW
- Other thresholds for Generators in Constrained Areas

*Refer to MST Attachment H for additional details regarding thresholds*
Conduct Thresholds for Economic Withholding in the Energy Market

- For Non-Constrained Area
  - Incremental Energy and Minimum Generation Bids: Bids exceeding the lower of a 300% increase above reference level or $100 per MWh
  - Operating Reserves and Regulation Capacity Bids: Bids exceeding the lower of a 300% increase above reference level or $50 per MW
  - Regulation Movement Bids: 300% increase above Regulation Movement reference
  - Start-Up Bids: 200% increase above Start-Up reference

- Load Pocket Thresholds (NYC Only)

*Refer to MST Attachment H for additional details regarding thresholds
Let’s Review

NOT offering to sell electrical energy is an example of

a) Physical Withholding
b) Economic Withholding
c) Uneconomic Production
d) None of the above
Let’s Review

When a bid dollar exceeds a threshold as defined by Attachment H, this is classified as

a) Physical Withholding
b) Under bidding by LSE
c) Economic Withholding
d) Uneconomic Production
Reference Levels

- The reference level for a Generator’s Energy Bid is intended to reflect the Generator’s marginal costs.

- Attachment H requires that Generators maintain accurate reference levels at all times.
Reference Levels – cont’d

- Updated for fuel prices when appropriate
- Physical parameters, including time, and dollar based references are established for each Generator
- Reference Level Consultation Request Process
- Fuel Cost Update Functionality
Reference Levels – cont’d

- Attachment H hierarchy for determining the most appropriate reference level:
  1. Bid-based
  2. LBMP-based
  3. Cost-based or NYISO determined

  • Marginal operating costs submitted for a unit, reviewed by MMA and approved by NYISO
  • Can include review of bids for similarly-situated units, unit operating cost data, and best available information to NYISO
Reference Levels – cont’d

- Relationship between reference levels and mitigation
  - A comparison of Reference Levels to Generator Bids are used to perform conduct and impact tests
Reference Levels – cont’d

- Two interfaces available for users to manage reference level data and/or correspondence

- Reference Level System (RLS)
  - Energy Market
  - [https://reference.nyiso.com/rls/](https://reference.nyiso.com/rls/)

- ICAP Reference System (IRS)*
  - ICAP Market

* Access limited to specific users
Reference Level Software (RLS)

- Marketplace User Interface
  - Access to current and historical reference levels
  - Mechanism to submit and check status of cost-based data submissions and reference level adjustment requests (either normal or urgent)
  - Allows for dynamic web-based form submission and upload/download options
Reference Level Software (RLS)

- RLS generates DAM and RT market reference levels by unit on a daily and hourly basis

  - Incorporates updated fuel and emission cost data
Let’s Review

RLS allows users to

a) Submit cost-based data to support reference level development
b) Submit reference level adjustment requests
c) Access historical reference levels
d) All of the above
Reference Levels and Conduct

Conduct Violation Test Example to identify Economic Withholding  *For a Generator in non-constrained area

- Based on a Generator’s Incremental Energy Bid in Energy Market

- Conduct is determined for every generator that is available and bidding
  - Bid $ : $90
  - Reference $ : $10
  - Threshold : lower of (300% of Ref $ or $100)
    - ($10 X 300%) vs. $100
    - Lower ($30 vs. $100)
  - Calculated Target (Ref $ + Threshold $): $10 + $30 = $40

- If the Bid $ is > the Calculated Target $, the bid “fails conduct”
  - $90 (Bid) > $40 (Target) - therefore fails conduct test
Reference Levels and Impact

Impact Violation Test Example to identify Economic Withholding *For a Generator in non-constrained area

- Based on a Generator’s Incremental Energy Bid in Energy Market
- Impact is only determined when a generator fails conduct
  - Market clearing price (LBMP) impact
  - Guarantee payment impact

- For example, LBMP impact is calculated using:
  - LBMP calculated at Bid: $200
  - LBMP calculated at Reference: $60
  - Threshold: lower of (200% of LBMP at Ref or $100)
    - ($60 X 200%) vs. $100
    - Lower of $120 vs. $100
  - Calculated Target (LBMP at Ref $ + Threshold $): $60 + $100 = $160

- If the LBMP or Guarantee Payment calculated based on the original Generator Bid $ is > Calculated Target $, the generator “has impact”
  - LBMP $200 (Bid) > $160 (Target) - therefore fails impact test
When MMA and MMU Act

- If reporting indicates non-competitive outcomes (price divergence)
  - Gather data/determine cause
  - Rule Changes
  - May be necessary to contact FERC enforcement

- Not all investigations / conversations lead to mitigation or action
Mitigation Measures

If MMA finds behavior violating defined conduct and impact thresholds

- **Operational Directives / Actions**
  - *NYISO adjustment of bid dollar*
  - *NYISO adjustment of physical parameters such as time or min gen*

- **Sanction/Penalty**
  - *Financial*

- **Suspension or Revocation of Bidding Privileges**

- **Section 205 filing**
  - *FERC-ordered measures*
Let’s Review

Market mitigation measures would be imposed for which of the following conditions

a) **Only when a conduct test is violated**

b) **Only when an impact test is violated**

c) **When both conduct and impact tests are violated**

d) **None of the above**
Summary

- Responsibilities of the Market Monitoring Unit (MMU) and the Market Mitigation and Analysis Department (MMA)

- Purpose of the market mitigation measures

- Examples of monitored activities

- Difference between economic withholding and physical withholding

- Reference levels and their relationship to mitigation

- Conduct and Impact examples
Additional Resources

♦ Market Services Tariff

  - MST 23 Attachment H – Market Mitigation Measures
  - MST 30 Attachment O – Market Monitoring Plan

♦ Monthly, Quarterly and Annual Statistics

  - Monthly Reports
  - Quarterly Reports
  - State of the Market Annual Reports
Additional Resources

- Reference Level Manual
- Reference Level Software User’s Guide
- ICAP Reference System User’s Guide
- Technical Bulletin 104 – Requesting a formal NYISO investigation
The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state’s bulk electricity grid, administering New York’s competitive wholesale electricity markets, conducting comprehensive long-term planning for the state’s electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

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