The Brattle Group

Market Power Mitigation in Organized Electricity Markets

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AAI 2008 Energy Roundtable

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Agenda

I. Background

II. “Market Power” and “Abuse of Market Power”

III. Review of Market Monitoring in U.S. Electricity Markets

IV. “Best Practices” Guidelines

V. Closing Thoughts

Background

- We were asked by PJM to examine market power mitigation processes in PJM and other electricity markets.
- This included:
  - Developing appropriate definitions of market power and market power abuse…and clarify standards that should be applied to market power in electricity markets

Background (cont.)

- Documenting mitigation approaches used in other electricity markets, considering differences in market structure and design
- Assessing effectiveness of these mitigation approaches, identifying what should be considered “best practices”
- Recommending possible modifications to PJM’s current market mitigation processes

Background (cont.)

- We did not address:
  - Changes in market structure or design options that might reduce market power;

  or

  - Governance of RTOs, including their market monitoring functions

Background (cont.)

- Complete draft was shared with market monitors of US RTO markets and knowledgeable academics
- Reviews and comments were generously provided by Keith Casey, Diana Moss, Karsten Neuhoff, Andy Ott, and Frank Wolak

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Defining Market Power – Ability Versus Incentive to Exercise Market Power?

- Reviewed antitrust, academic, court, regulatory, and RTO definitions of market power
  - Various FERC definitions appear to be concerned mostly about ability to exercise market power;
  - Antitrust agencies (and many economists) are concerned about combination of ability and incentive

Defining Market Power

- Profitability is key to incentive:

  a firm with the ability to raise price (*e.g.*, through output withholding) will not do so unless it perceives that it is likely to be profitable

Defining Market Power

- Recommend that market power be defined consistent with antitrust agencies as:

> *"The ability of an individual supplier or group of suppliers to profitably maintain prices above competitive levels for a significant period of time."*

- "Significant period of time" may be as short as several dispatch periods in electricity markets

Market Power vs. Abuse of Market Power

- Market monitoring and mitigation in electric power markets is geared toward eliminating "abuse" of market power.

- Almost all markets have some degree of market power
  - Long recognized that perfect competition (*i.e.*, the complete absence of market power) is not an achievable standard
  - Possession of market power is not uncommon or *per se* illegal

Market Power vs. Abuse of Market Power

- Workable competition -- realistic alternative to perfect competition in liberalized markets subject to regulatory scrutiny

Market Power vs. Abuse of Market Power

- The identification of "market power abuse" may require the market monitor to distinguish between a reasonable and an unreasonable degree of market power

  - This distinction is a regulatory creation, not particularly an antitrust one.

What is a Substantial Deviation from a Competitive Outcome?

- Market monitors (and the FERC) need to clarify what should be deemed a substantial deviation from a fully competitive outcome that warrants mitigation.
  - Such thresholds differ substantially across RTOs and different product markets
  - Impact thresholds are FERC's clearest indication of substantial deviations to date

"Just and Reasonable" Prices and Market Power Abuse

- Regulatory notion of just and reasonable prices (FPA)
  - Compensatory to producers but not excessive to consumers
  - Market power abuse presumably linked to prices that are not just and reasonable
  - So mitigation against market power abuse is aimed at alleviating excessive prices

"Just and Reasonable" Energy Prices and Capacity Markets

- FPA requires prices to be compensatory to producers
- Key question:
  - Does increasingly strict mitigation in energy market require adjustments to "demand curve" or price caps in capacity market to ensure compensatory prices on balance?

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U.S. RTO Markets

- Documented mitigation approaches used by various U.S. RTOs (PJM, NYISO, ISO-NE, MISO, ERCOT and CAISO)
  - Compared RTO market structures and designs
  - Documented mitigation approaches in DA and RT energy, capacity, and ancillary services markets with respect to physical withholding, uneconomic production, and load bidding
  - Focused particular attention on automatic *ex ante* mitigation processes in energy markets

U.S. RTO Market Insights – Structural v. Conduct-and-Impact Based Mitigation

- Despite similar market designs and structures across RTOs, two substantially different *ex ante* mitigation approaches arise:

  (1) structural tests (PJM, new CAISO, and ERCOT)

  - PJM and CA MRTU uses 3JPS screen to trigger mitigation

  (2) conduct-and-impact tests (NYISO, ISO-NE, and MISO)

Structural v. Conduct-and-Impact Screens

- Structural tests impose automatic mitigation based on structural conditions that are consistent with the ability (if not the incentive) to exercise market power
  - Since they focus on ability rather than the incentive to exercise market power in many cases, strict structural tests may be prone to over-mitigation (*i.e.*, imposing mitigation when a market participant is not engaging in market power abuse)

Structural v. Conduct-and-Impact Screens

- Conduct-and-impact tests impose mitigation only if a firm's actual bidding behavior is inconsistent with a competitive benchmark and has a material impact on market-clearing prices

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"Best Practice" Ex-Ante Mitigation Framework

- Clearly define market power abuse
- Develop screens that balance costs of testing errors (false positives vs. false negatives)
  - **"False Negatives" lead to under-mitigation** and associated costs (*e.g.*, adverse consumer impacts in the near term)
  - **"False Positives" lead to over-mitigation** and associated costs (*e.g.*, costly changes in plant operations, and price distortions that adversely affect long-term investment, contracting behavior, and demand response)

Structural vs. Conduct-and-Impact Tests

- Pronounced differences apparently exist between those advocating structural tests and those advocating conduct-and-impact tests with respect to the perceived costs of "false positives."

- Advocates of structural tend tend to view "false positives"– (that is, the imposition of automatic bid mitigation in the absence of actual market power) – as being of limited harm.

  - Particularly if mitigation is based on unit marginal costs.

Structural vs. Conduct-and-Impact Tests (cont.)

Advocates of conduct-and-impact tests seem to be more wary about impact of "excessive" mitigation on investment incentives:

- Excessive mitigation may reduce market prices, and impede investment (raising resource adequacy issues);
- Potentially costly changes in plant operations resulting from automatic bid mitigation.

"Best Practice" – Structural vs. Conduct-and-Impact

- Structural vs. conduct-and-impact approaches
  - Approaches are complementary, not substitutes
  - Use structural screen to identify conditions causing concern
  - Add conduct-and-impact screen to impose mitigation when market power abuse is truly occurring
  - Complementary use of the two screening approaches may reduce "false positives" with limited impact on "false negatives."

Other "Best Practices" in Market Monitoring

- Other considerations
  - Need transparent screen that evaluates "relevant" geographic markets
  - *Ex ante* mitigation process in RT and DA is constrained by short evaluation periods
  - Need to periodically re-examine the effectiveness of the mitigation process

Other considerations

- Market power mitigation process ideally should allow for transition to workably competitive markets
  - otherwise, risk arises of continual regulation
  - unless it is deemed that benefits of regulation outweigh their associated costs.

Market Monitoring and Investment Incentives

- Arguably, providing incentives in the energy and capacity markets to invest in new generation is essential to transition to "workable competition" (as is demand response), because such investment will mitigate market power concerns by:
  - increasing reserve margins;
  - helping to "deconcentrate" the generation sector.

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Closing Thoughts: Where Are We?

- Current paradigm of wholesale electricity markets is that of a regulated oligopoly, which is unusual.
  - Despite frequent mitigation of generation bids down toward marginal cost in transmission-constrained areas (under certain structural screening tests), incentives still remain under this form of regulation for generators to lower their costs further to earn infra-marginal rents.
  - So, while the current nature of market power mitigation constitutes a strange form of regulation, more investigation is needed as to its costs and benefits.

Closing Thoughts: Dangers of "False Positives"

- Aggressive *ex ante* mitigation that results from the current application of certain stringent structural tests may produce "false positives" when no significant market power exists.
  - This is potentially problematic unless there is limited harm in overmitigating.

Closing Thoughts: Stringent Mitigation and Resource Adequacy

- By constraining energy prices to levels associated with incremental production costs, aggressive *ex ante* mitigation places a considerable burden on the capacity markets to produce remuneration to generators and spur resource adequacy.

Closing Thoughts: Market Monitoring Approach and Market Design

- Arguably, conduct-and-impact-based mitigation is applied in a more relaxed fashion than mitigation based on structural tests.

- In this situation, one might argue that investment incentives facing generators are less directly driven by the design and behavior of capacity markets in these jurisdictions

  - There is more "margin for error" in the regulatory design pertaining to the capacity market.

Closing Thoughts: The Key Concern

- The potential downside to overly stringent mitigation of market power in the near term is the lack of investment that makes market power abuse a longer-term problem.
- The potential downside to insufficient mitigation is substantial consumer harm in the near term.
- What is the right balance?