Market Monitor Report

MC Webinar

September 28, 2015

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Competition in Wholesale Power Markets

- **Role of competition under the Federal Power Act**
  - **Mechanism to regulate prices**
  - **Competitive outcome = just and reasonable**
- **Relevant model of competition is not laissez faire**
- **Competitive outcomes are not automatic**
- **Competitive outcomes mean the lowest possible cost of energy**
- **Detailed rules required – like other markets and exchanges**

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FERC – Market Power Mitigation

- **"Our goal is perfect competition, textbook competition, competition that is so beautiful it would make an economist weep."**

    Statement of Chairman Joseph T. Kelliher State of US Competitive Wholesale Power Markets CERAWEEK 2008—Quest for Security: Strategies for a New Energy Future (February 15, 2008).

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FERC – Market Power Mitigation

- **Where a market-based rate applicant is found to have market power, it is incumbent upon the Commission to either reject such rates or to ensure that adequate mitigation measures are in place to ensure that the rates are just and reasonable.**

    AEP Power Marketing, Inc., et al., Order on Rehearing and Modifying Interim Generation Market Power Analysis and Mitigation Policy, 107 FERC (p) 61,018, April 14, 2004.

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FERC – Market Power Mitigation

- **"It is the possession of market power (and therefore the potential to exercise it), not the actual exercise of market power, that triggers the need for mitigation…Once it is determined that an entity has market power, adequate mitigation of the potential to exercise market power becomes essential."**

  FERC Order on Rehearing re: the California MRTU market rules; paragraph 490.

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Market Power

- **Ability to increase/decrease market clearing price above/below competitive price level**
  - **Market structure permits participant behavior with an impact on market performance**
- **Competitive price level is the short run marginal cost of unit setting market clearing price**

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Market Power

- **Local market power is market power in a local market, e.g. a local market created by a transmission constraint**

- **Aggregate market power is market power in the entire market**

Three Pivotal Supplier Test (TPS)

- **The TPS test is used to determine whether there is structural market power in:**
  - **Local energy markets defined by transmission constraints in the day ahead and real time energy markets;**
  - **Capacity market;**
  - **Regulation market.**

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TPS: Relevant Market

- **The three pivotal supplier test measures the degree to which the supply from three suppliers is required in order to meet the demand in the relevant market.**

- **Relevant demand is demand for relief of a constraint, which defines the relevant market.**

- **Relevant supply tested in the energy market is constraint relief MW for a particular constraint.**

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TPS Calculation

$$RSI_3 = \frac{Total\ Effective\ Supply\ - (Supply1 + Supply2 + SupplyX)}{Relief\ Demand}$$

- **Score >1 : Pass. Score ≤1: Fail.**

- **Total Effective Supply: Total available relief MW**

- **Relief Demand: Incremental MW needed to relieve the binding constraint**

- **Supply1, Supply2, SupplyX: Available incremental relief MW from defined suppliers**

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Relevant Market

- **Two key variables in the analysis are the demand for and the supply of constraint relief MW**
  - **Demand consists of the incremental, effective MW required to relieve the constraint.**
  - **Supply consists of effective MW of supply incrementally available to relieve the constraint at a distribution factor (DFAX) greater than or equal to the DFAX used by PJM in operations**

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Relevant Market

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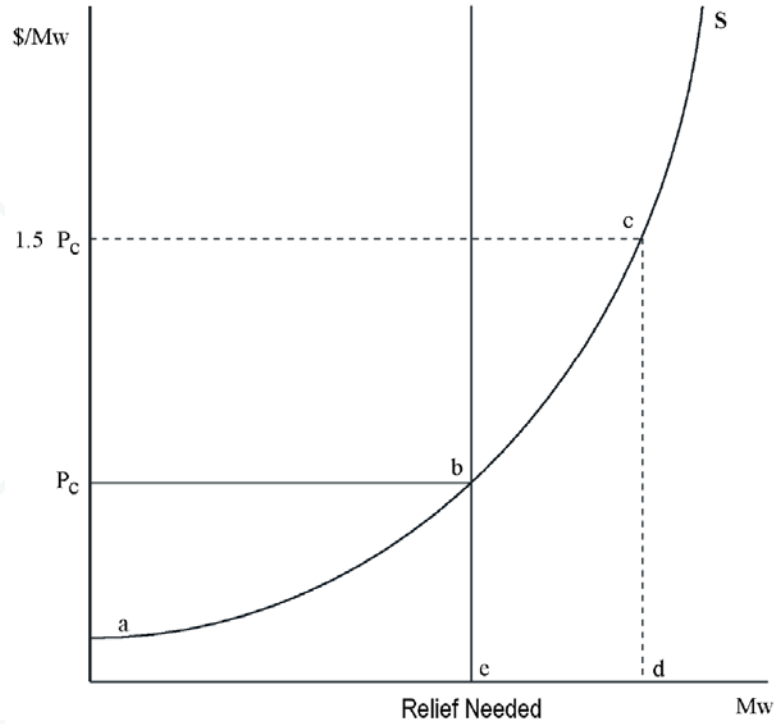
TPS: Real Time Energy Market

- **Objective, ex ante test of market structure, behavior and impact for local markets for incremental relief**

- **TPS replaced approach that capped local energy markets all the time**

  - **Pass the test, taken on current offer, price or cost**

  - **Fail the test, taken on the lower of price or cost**

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TPS and Type I vs. Type II Error

- **Type 1 error is TPS detecting market power when none exists**
  - **Mitigation results in setting offer equal to MC**
  - **Mitigation results in a competitive outcome**
  - **Cost of type 1 error is zero**
- **Type 2 error is a failure to detect market power when it exists**
  - **Failure to mitigate results in market power and prices above competitive level**
  - **Cost of type 2 error is large**

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TPS with Hourly Offer Changes

- **Changes needed to ensure TPS is effective with hourly offer changes:**
    - **Eliminate crossed price and cost curves: constant markup**
    - **MW segments the same in both price and cost offers**
    - **Physically based parameters (most flexible) in both price and cost offers**
    - **Changing offers within day requires approved fuel cost policy**

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TPS with Hourly Offer Changes

- **Changes needed to ensure TPS is effective with hourly offer changes:**
  - **Require that available cost and price offers use same fuel**
    - **Avoid low cost fuel in price offer and high cost fuel in cost offer**
  - **Apply offer capping to company and not unit**
    - **Consistent with current application of TPS**

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# TPS with Hourly Offer Changes

- **Changes needed to ensure TPS is effective with hourly offer changes:**
  - **Establish clear rules for applying TPS in Day-Ahead Energy Market**
    - **Number of failed hours as condition for offer capping**
    - **No clear current rule**

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Market Power Mitigation with Hourly Offer Changes

- **Changes needed to ensure market power mitigation is effective with hourly offer changes:**
  - **Changing cost and price offers within day based only on changes in cost**
  - **Changing offers within day requires approved fuel cost policy**
- **Uplift rules that do not create opportunities for gaming**
- **Uplift rules that provide incentives to follow dispatch**

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TPS: Effective Mitigation with Hourly Offers

- **Which is the lower?**
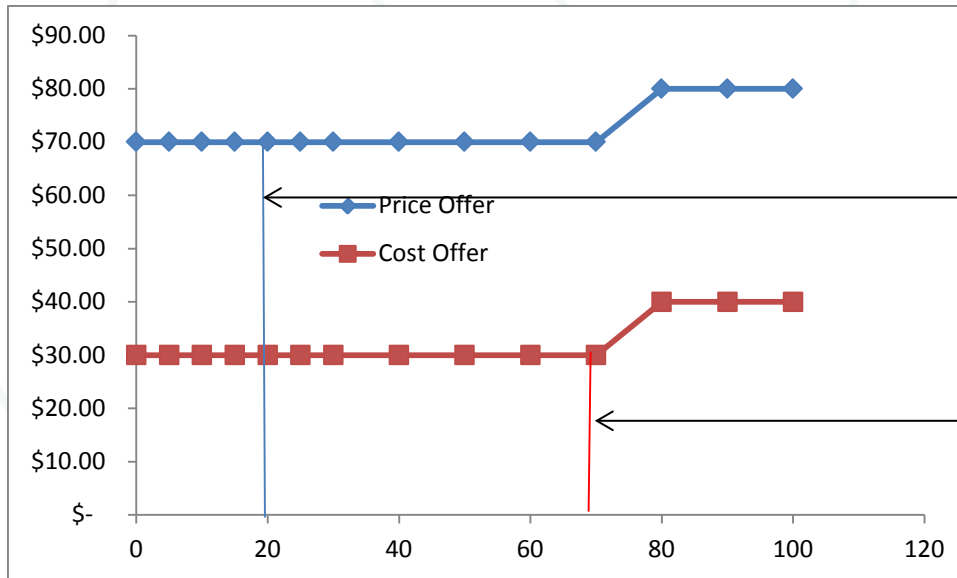- **Eliminate crossed price and cost curves: constant markup**

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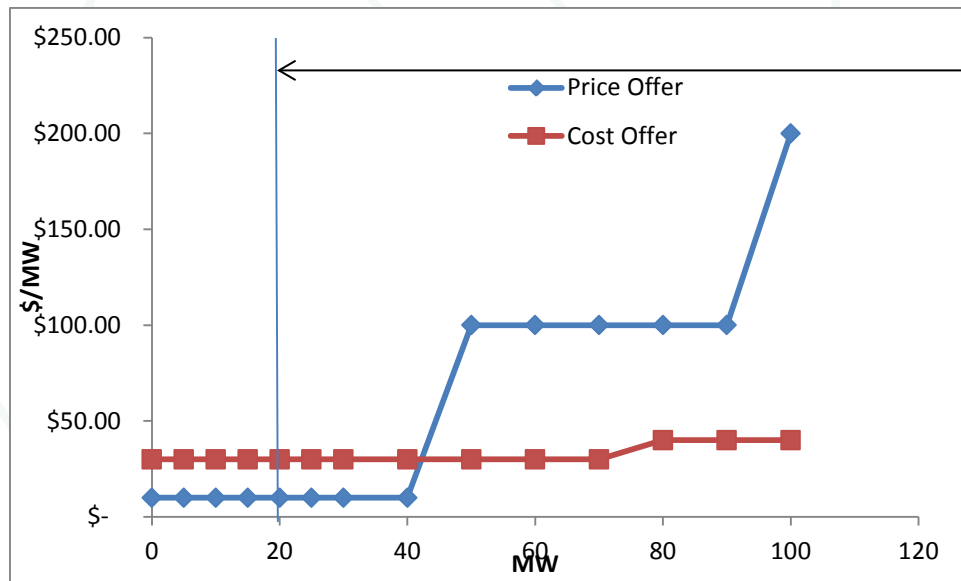
TPS: Effective Mitigation with Hourly Offers

- **Constant markup**
- **Same MW segments in price and cost offers**
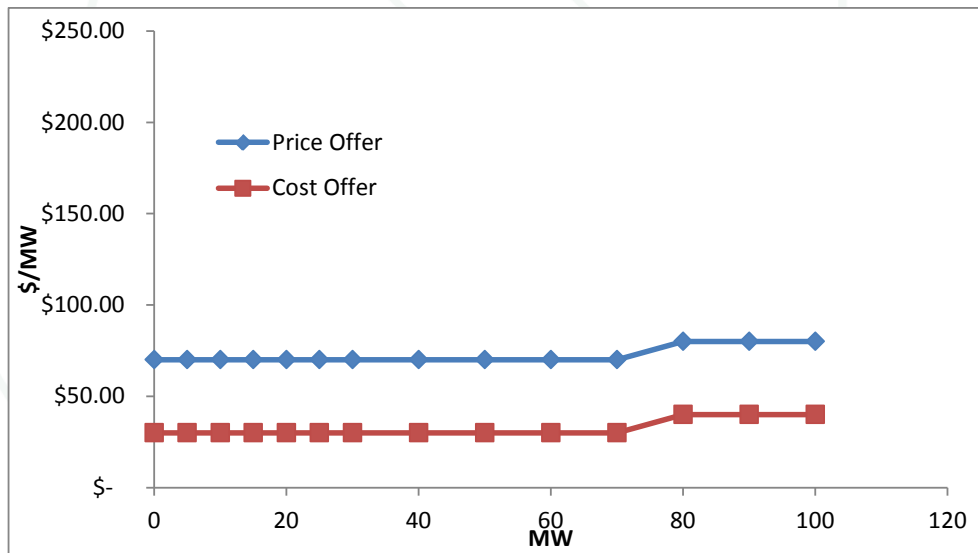
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TPS: Effective Mitigation with Hourly Offers

- **Physical parameters (most flexible) applied to price and cost offers**

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TPS: Effective Mitigation with Hourly Offers

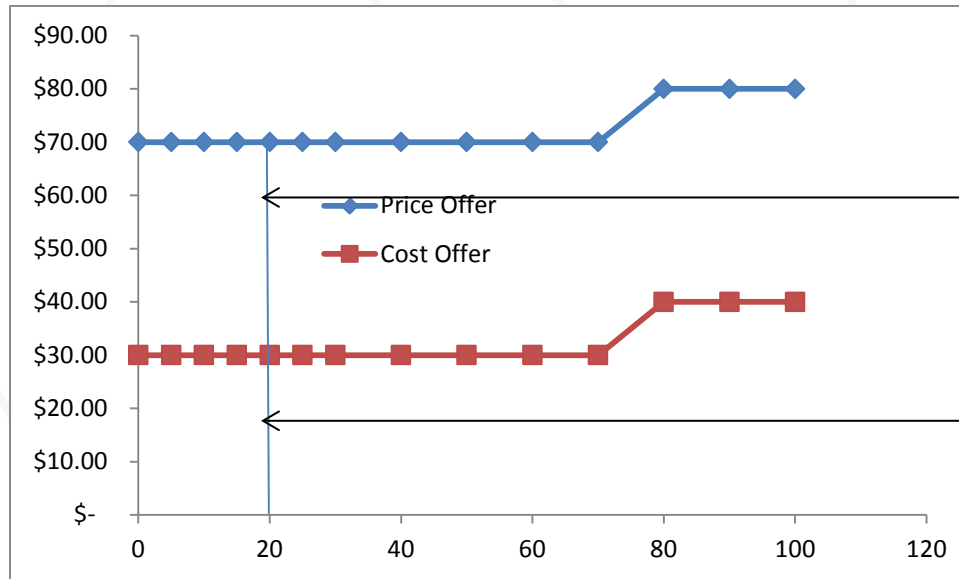- **Physical parameters (most flexible) applied to price and cost offers**

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