



# The Price is Right!

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Office of Energy Market Regulation





# The Usual Warning

I do not speak for the Commission or the Commissioners. I only speak for myself.

I am an economist, not a lawyer or engineer.





# Big Points To Hit On

- The Commission's history with "price formation"
  - 2014 up to current work
  - Some principles you've seen before
  - Tripping hazards
- Acceptable Shortage/scarcity pricing
- Market Power Mitigation – what's not to like?
- Fast Start Pricing & Out-of-Market Operator Actions– if time/interest allows





# The First Price Formation Effort

White Papers Issued Oct 2014  
Shortage Pricing  
Energy Offer Mitigation

Docket No. AD14-14

Also looked at uplift and *fast start pricing*

Technical Conference  
Oct 2014

- Accepted comments from public after all conferences
- Order Directing Reports issued November 2015

Order No. 825 Settlement Intervals and Shortage Pricing  
Order No. 831 Offer Caps  
Order No. 844 Uplift Cost Allocation and Transparency  
Notice of Proposed Rulemaking on Fast Start Pricing





# Order 825 Shortage Pricing and Settlement Intervals (RM15-24)

## Problems

- (i) Some RTOs/ISOs restrict shortage pricing
- (ii) Averaging prices over a time period could hide information on system needs – after all, that’s what the price is for

## Solutions

- (i) If a shortage exists, you must invoke shortage pricing
  - (ii) Must settle on same interval prices that you commit and dispatch
- These rules apply to both energy and ancillary services





# Order 831 Energy Market Offer Caps (RM16-5)

## Problems

- (i) Existing hard offer cap of \$1000/MWh could be too low
- (ii) Could result in LMP not reflecting actual costs of production

## Solutions

- (i) Soft offer cap stays at \$1000/MWh
- (ii) Verified offers over \$1000/MWh (up to \$2000/MWh) can set LMP
- (iii) Verified offers over \$2000/MWh cannot set LMP but can recover costs





# What About Fast Start Pricing?

- Commission issued a Notice of Proposed Rulemaking (RM17-3)
- In the end, no final rule was issued – *WHY?*
- Commission found that a generic rulemaking was not appropriate for all RTOs/ISOs
- Issued an Order to Show Cause to NYISO, PJM, and SPP and dealt with them individually





# Revisiting Price Formation

- Took a break on generic actions for a little while after that round (but still processed individual tariff filings, etc.)
- A series of new technical conferences started in 2021
- Western Resource Adequacy, Extreme Weather, etc.
- Price Formation starting point: how do we get the right mix of resources for system operators, i.e., *flexible* resources?
- But the white paper and tech conference morphed into a more generic discussion of E&AS markets



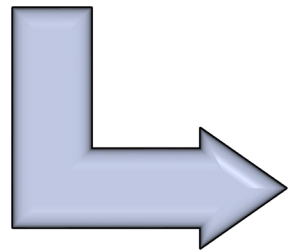




# Revisiting Price Formation

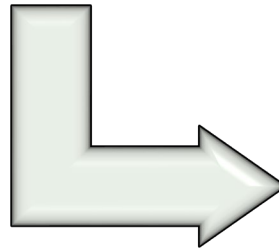
Docket No. AD21-10

White Paper Issued Sept 2021  
“Energy and Ancillary Services  
Market Reforms to Address  
Changing System Needs”



Technical Conferences  
Sept and Oct 2021

- Accepted Comments from public after all conferences



Results  
Order Directing Reports issued April 2022  
Public comments also solicited





# Principles for Price Formation

- You've seen these before and we agree
- Efficiency
  - Least cost method to achieve your goal
  - Must look at both short-run and long-run efficiency
  - Incentive compatibility – encourage truth-telling and following directions
- Transparency
  - Want prices to give useful (and accurate) information
  - If not transparent, how can market participants know what to do?
- Minimize transaction costs





# The Just and Reasonable Standard and Commission Precedent

- Federal Power Act says the Commission must find a proposal “just and reasonable and not unduly discriminatory or preferential”
- But what does J&R mean? It’s not defined
  - Economic Efficiency?
  - Fairness?
  - Lowest possible price? Highest possible price?
- Look at precedent, but... is it useful?





# The Right Shortage Price

- Penalty prices serve several purposes—in the short run, sends a signal to reduce demand and to make supply available; but also indicates a trade-off between reliability and cost
- Long-run signal for entry and retention is debatable
- Both a max you will pay in exchange for reliability and the administrative price you insert to indicate a need
- How do you determine those administrative prices?
  - Historical procurement costs – does the past indicate the future?
  - Value of Lost Load – nice in theory





# The Right Quantity Also Matters

- Quantity you procure is based on meeting NERC/WECC standards
  - Must Recover Area Control Error within a certain time
  - Cover your Most Severe Single Contingency
- How do you define MSSC?
  - One transmission line? One generator? Entire solar fleet in a geographic location? All gas plants fed by the same pipeline?
- Do you invoke shortage pricing before an actual shortage?

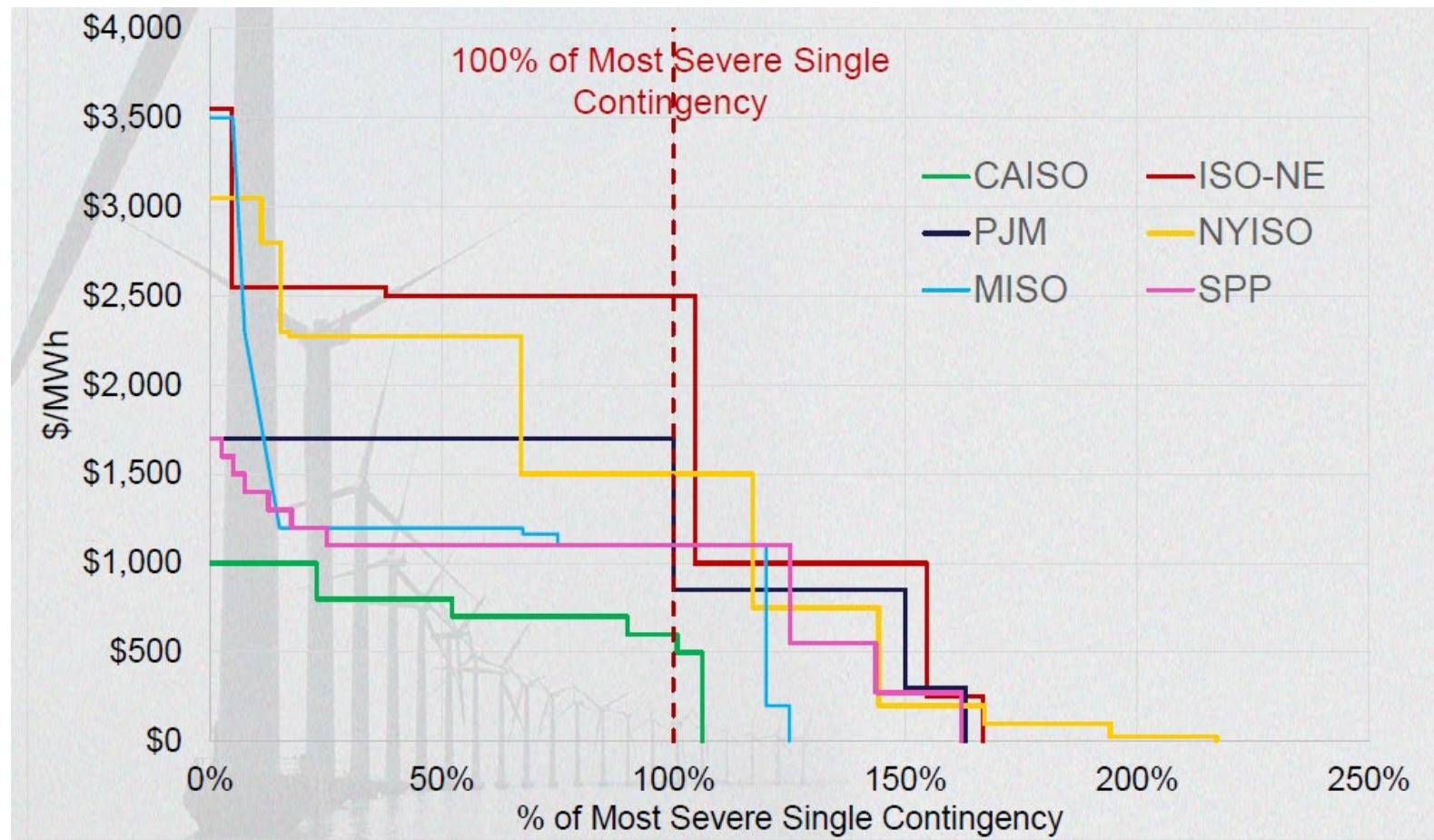






# The Value of “Regional Flexibility”

- RTO/ISO Operating Reserve Demand Curves
- Lots of variety here, isn't there?
  - Max Price
  - Max Quantity
  - Slope





# But Not All “High” Prices Are Good

- You must have market power mitigation in place
  - Must screen for it
  - Must mitigate it
  - RTO/ISO MPM rules provide rebuttable presumption of no market power in your Market-Based Rates application
- But *how* you do it can vary (of course)
  - Conduct and Impact test – thresholds vary wildly
  - Pivotal supplier test – a little more standard





# System-Wide Market Power

- Might have market power across the footprint
- DMM June 2019 study of the Day-Ahead Market
  - Three pivotal supplier test
  - Approximately 300 hours/year failed
- But DMM has found the market to be “generally competitive” in its annual reports
- Why not have the rules in place, just in case?







# Important Questions to Ask About Fast Start Pricing

- Remember that this is a math and policy problem that infringes on the ideal economic theory – how far away from the theoretical ideal are you willing to move?
- Does this solve a problem you are facing? Or do you have a different equally-effective solution?
- What is “fast” start?
  - PJM: Two-hour start-up? Commission: No.
  - MISO: One-hour start-up? Commission: Yes.
- Can off-line resources be fast start and set LMP?
- How do you ensure incentive compatibility?





# Unpriced Operator Actions

- The point is to ensure that price signals send accurate information – when are resources needed, etc.
- Market operator actions with no accompanying price – doesn't that defeat the purpose?
  - Demand response – if unpriced will tank price
  - Load biasing – built into optimization
  - What about other emergency actions?
- How do you either (i) reduce these actions or (ii) put a price on them?





# Happy to Take Questions

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