

The Brattle Group

Options for Extending Forward Certainty in Capacity Markets

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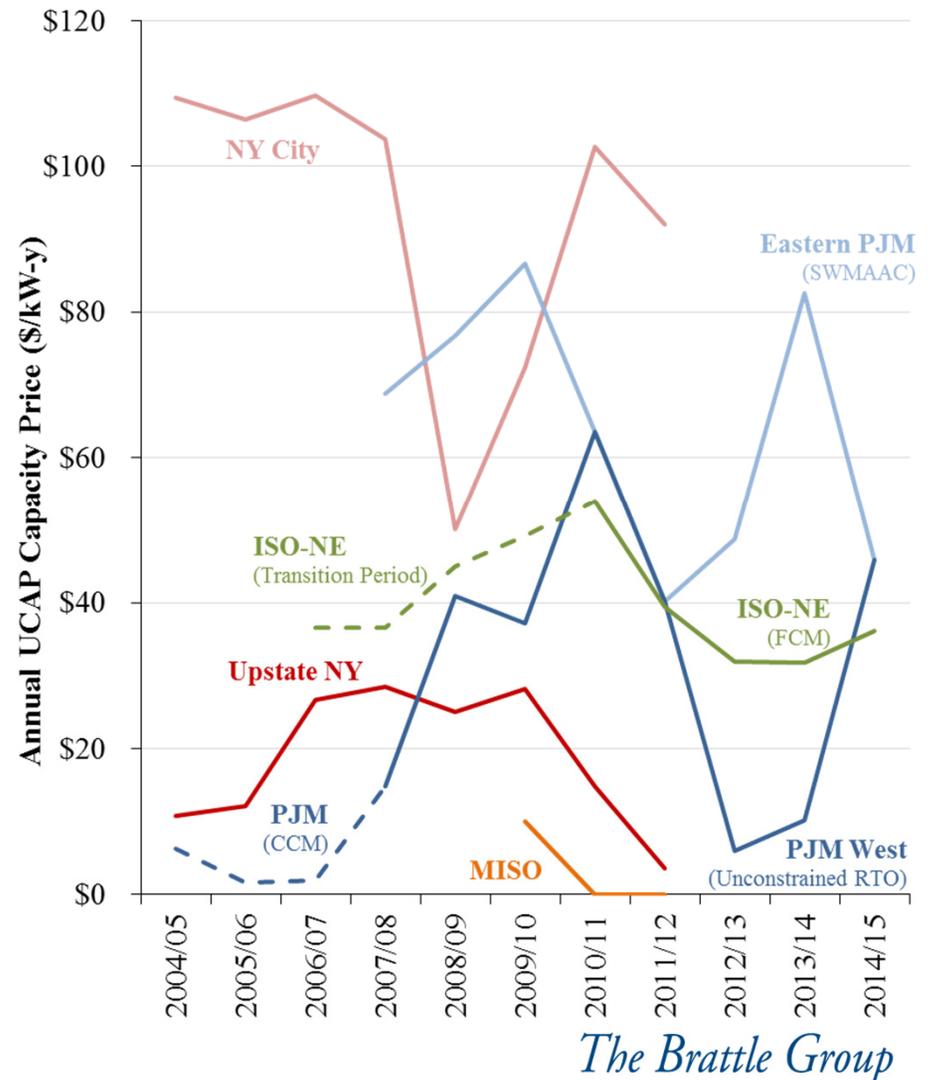
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Pressures to Extend Forward Certainty

Price Volatility and Uncertainty are Driving Concern

- ◆ Example from our recent RPM review:
 - Single biggest concern for all stakeholder sectors was price volatility and uncertainty
 - Related concerns about the lack of long-term hedging options
- ◆ Several contributing factors:
 - **Market Fundamentals** – not a concern, prices should move with market fundamentals
 - **Previous Design Changes** – one-time design changes contribute to volatility, but not a persistent concern
 - **Ongoing Administrative Uncertainties** – importance of uncertain administrative parameters is an ongoing concern

Capacity Price Comparison Across RTOs



Lack of Long-term Contracting to Support New Plants

Lack of Contracting Largely Driven by Fundamentals

- ◆ Generators, states, and lenders state that long-term contracts are unavailable but are needed to support new generation plants
- ◆ Lack of contracts is mostly explained by the existing capacity surplus:
 - New generation is not needed under current surplus conditions
 - Surplus also drives prices below Net CONE (long-run marginal cost)
 - Long-term contracts can reduce financing costs, but shift the market risk to the buyer (uncompetitive unless contract price is appreciably lower than market forecast)
- ◆ Munis/Coops have the opposite concern that long-term sellers are unavailable
 - Existing gen is unwilling lock in low current prices through long-term contracts, while buyers are unwilling to pay for cost of expensive new capacity

Contracting Also Discouraged by Default Service

- ◆ Competitive retail providers and LSEs with captive customers may have a portfolio of physical assets and supply contracts of various durations, likely representing a “healthy” amount of long-term contracting
- ◆ Portfolio contracting is inconsistent with state default service auctions
 - Default service contracts procured at auction are for short-term supply (1-3 years)
 - May result in sub-optimal levels of long-term contracting

Pressures to Extend Forward Certainty

...but Not All Complaints Are Supported by the Facts

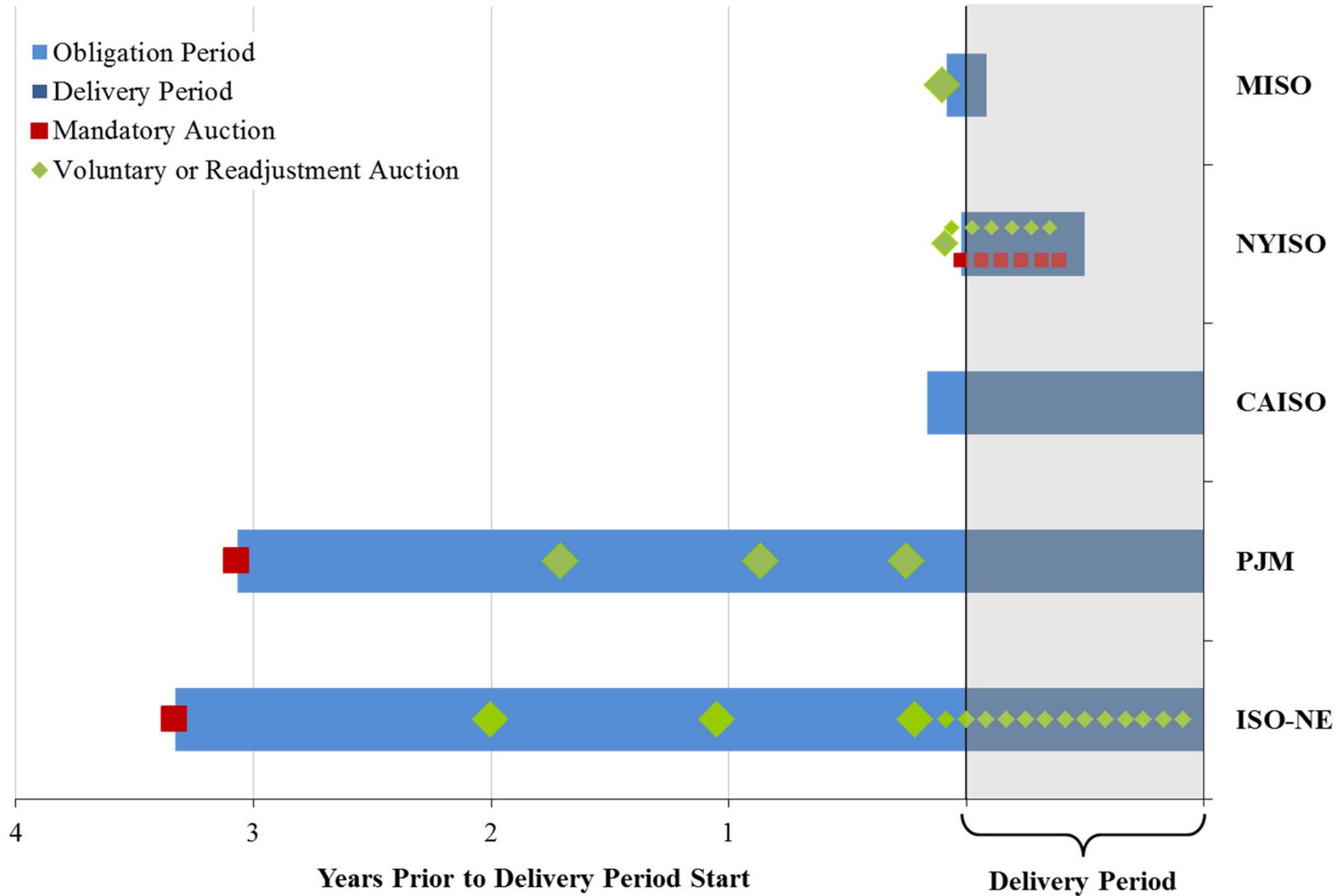
Concern

- ◆ “Capacity prices are too high (or too low)”
- ◆ “Capacity markets have not attracted new generation”
- ◆ “Capacity markets cannot maintain reliability under environmental regulations”

Reality

- ◆ Prices have been consistent with the fundamentals, mostly below Net CONE (reflecting surplus)
- ◆ ISO-NE exception, with price floor contributing to supply excess
- ◆ New generation has not been needed in most places, and cheaper alternatives have been available (DR, uprates, reinvestment)
- ◆ 4.8 GW of new gen added in RPM
- ◆ PJM and ISO-NE 2014/15 auctions cleared excesses despite NESHAP
- ◆ Some new safeguards needed (e.g. for co-located retirements)

Forward Term of the Current Capacity Markets



New Entry Price Lock-ins

- ◆ One frequently proposed option is to expand price lock-ins:
 - Guarantees the price from the initial auction where the new entrant first clears
 - Developers propose to expand the lock-in period to 7 or 10+ years
 - Incumbents propose to expand the lock-in for existing supply
- ◆ Substantial inefficiencies make the option unattractive, although select suppliers would benefit

Advantages

- ◆ Possibly useful in limited circumstances, e.g. small subzones where one plant can crash the price

Disadvantages

- ◆ Price distortion due to new gen bidding as if for a 7-10 year contract (other suppliers still bid for a 1-year contract)
- ◆ Price discrimination favors costlier new gen over cheaper alternatives can attract new gen when unneeded (e.g., right before transmission lines will eliminate need)

Mandatory Forward Design Options

Extending Forward Period or Delivery Period

- ◆ Other options involve moving the mandatory RTO procurement forward:
 - Forward procurement timeline extended from 3 years to 5+ years forward (but delivery period obligation kept at one year), or
 - Expanding delivery period of obligation to 3-10 years
- ◆ New Italian capacity market proposal will be a valuable example to watch (staggered 3-10 year contracts, 4+ years forward)

Advantages

- ◆ Closer alignment with transmission planning
- ◆ Greater price certainty aids investment decisions
- ◆ Can be structured to (imperfectly) compensate for lack of portfolio procurement

Disadvantages

- ◆ Higher load forecast and parameter uncertainty will cause higher error and greater costs (risk shifted to load)
- ◆ Higher supply risks disadvantage DR and aging generators
- ◆ Design flaws “baked in” for 10+ years
- ◆ RTOs or states less likely to develop optimal portfolio of long-term contracts than private load interests

Voluntary Bilateral, Exchange-Traded, or Auction

- ◆ Voluntary forward options are valuable with relatively little downside:
 - **Bilateral:** create standard forward product (e.g. MISO forward PRC proposals)
 - **Exchange-Traded:** create exchange platform for forward capacity for continuous trading, w/ publicly posted prices, volumes, and bid-ask spread (e.g. gas futures)
 - **Voluntary Auction:** RTO conducts voluntary forward auctions for longer-term or farther-forward commitments (e.g. NYISO strip and monthly auctions)

Advantages

- ◆ Greater forward liquidity; exchange trades not tied to RTO schedule
- ◆ Greater price visibility if not bilateral (even if only bid-ask spread)
- ◆ Standard product reduces transaction costs
- ◆ RTO credit requirements (enables more and smaller transactions)
- ◆ Market determines the amount of forward contracting that is useful

Disadvantages

- ◆ Risk that nature of traded product could change over many years (e.g. who bears risk of new zones?)
- ◆ Likely that volumes on the scale of a large new plant will still be mostly bilateral
- ◆ Must not sidestep MOPR

State Procurement and Default Service

Concerns

- ◆ Short-term default service auctions may contribute to sub-optimal levels of long-term contracting
- ◆ RFPs for new generation distort market signals
 - Excluding DR and existing gen results in higher cost procurement
 - Price suppression strategies may work in the short-term, but market response and price convergence into larger competitive markets will mute longer term impact
 - Can leave customers stuck with above-market contracts for many years

Workable Options

- ◆ Careful integrated resources planning for load obligation
- ◆ Revisions to default service provisions:
 - Assign a portion of the capacity procurement responsibility to a single LSE, utility, or retailer for longer durations (e.g., 10 years)
 - Reduce reliance on default service auctions in favor of traditional default service
- ◆ Non-discriminatory long-term RFPs (publicly posted price results)

Take Aways

- ◆ Lack of forward contracting
 - Explained by fundamentals (some impact from state default service)
 - Forward contracting likely to increase as prices rise to Net CONE
- ◆ Does the RTO need to do long-term contracting?
 - Second-best alternative with considerable disadvantages
 - Only advisable if strong evidence of design shortcomings emerged (e.g. persistent capacity shortages despite prices above Net CONE)
 - Better to let market participants develop desired portfolio
- ◆ Voluntary forward options
 - Possibility of low volumes 3+ years out
 - Would be informative to have a variety of options (multi-year vs. single year, auctions vs. exchange)
 - Bid-ask spread can provide price visibility even w/ low volumes
 - Some design risks (e.g. changing capacity product, changing zones, MOPR sidestep)

Additional Reading

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Kathleen Spees is an associate of The Brattle Group with expertise in electric resource adequacy and capacity market design. Her project work for RTOs has included independent market design reviews and market design development related to resource adequacy in energy-only markets, capacity market design, and energy and capacity market seams. For market participants and regulators, she has developed market models for wholesale energy, capacity, and ancillary price projections; energy and ancillary dispatch; asset valuation; and coal fleet retirement risk analysis.

Kathleen earned a B.S. in Mechanical Engineering and Physics from Iowa State University. She earned an M.S. in Electrical and Computer Engineering and a Ph.D. in Engineering and Public Policy from Carnegie Mellon University.



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