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Capacity Markets in the Northeast:

A Preview of Comments at the FERC Technical Conference on Centralized Capacity Markets in RTOs/ISOs

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IPPNY Fall Conference – Saratoga Springs, NY
September 10, 2013

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Capacity markets in the Northeast

FERC Technical Conference: premises, topics, participants

My perspective: reforms are needed

My reasons why reforms are needed

FERC Technical Conference: Sept 25, 2013

Role of centralized capacity markets in assuring resource adequacy

- Panelists : Markets Executives of NYISO, PJM and ISO-NE; External IMMs
- Issues: goals, design elements, performance outcomes, metrics, challenges

Mechanics of current centralized capacity markets

- Design elements; outcomes, potential modifications, relation to other markets
- Panelists: Genco, Utility, DR, Financial Analyst, Consultant, State Regulator

Adapting to industry changes

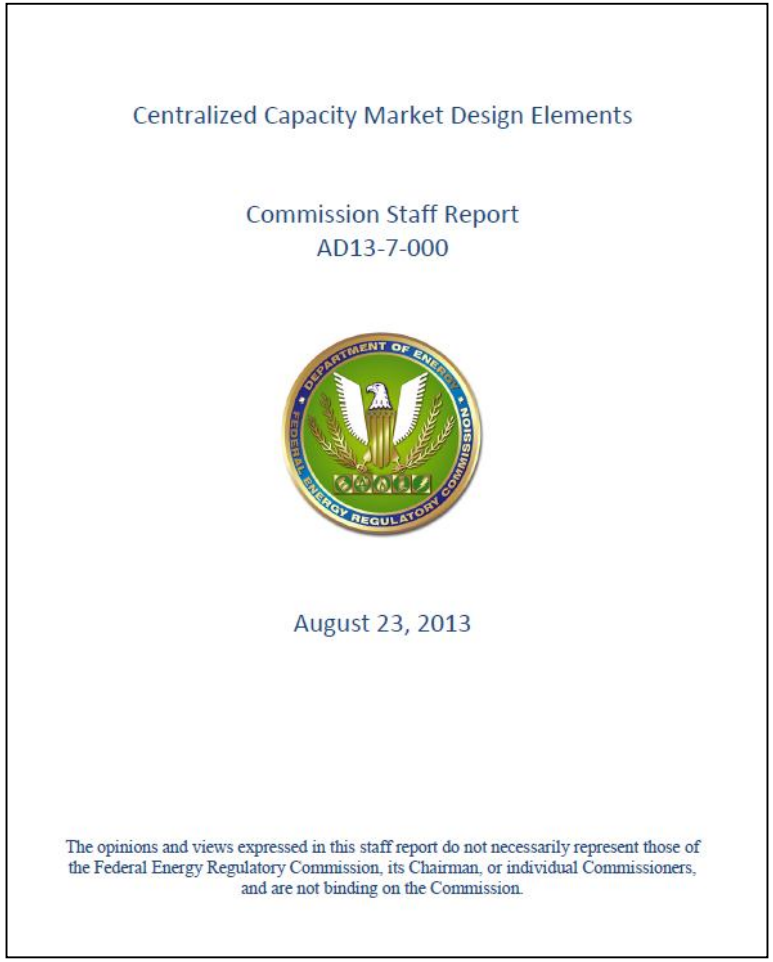
- Impact of state and federal policies, emerging technologies, fuels
- Panelists: State org, Wires & Pipe Co, Storage Co, Marketer, NGOs, Coop

Considerations for the future

- Current designs up to the challenges? Other goals or purposes?
- Panelists: Academic, NGO, Public Power, Consultants

Background:
Staff paper on capacity markets (8-23-2013)

- Prepared in advance of upcoming FERC technical conference
- Focuses on markets in PJM, NYISO, ISO-NE
- Discusses challenges for capacity market design in years ahead (including the increasing market design issues related to evolving power industry)



Centralized Capacity Market Design Elements

Commission Staff Report
AD13-7-000

August 23, 2013

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Premise for the upcoming FERC Technical Conference

- Consideration of "how current centralized capacity market rules and structures are supporting the procurement and retention of resources necessary to meet future reliability and operational needs"
- The evolution of capacity markets, particularly in light of changing extraneous conditions (*e.g.*, natural gas prices; state policies)
- Whether capacity markets are achieving their "intended goals."

My perspective ("considerations for the future")

Continue to support competitive markets to assure efficient, reliable power supply

- Also respect states' ability to establish policies
- Also support need to move to decarbonize energy systems

Capacity markets in the Northeast (New York and New England) need reform:

- In conjunction with short-term markets:
  - They appear not to be providing the "missing money"
  - They may not support retention of existing assets or entry of new ones that do/could provide value to the system

Reforms now versus in the future

The premise of FERC's Technical Conference:

- "A changing resource mix will pose different reliability and operational needs in the future…."

My view:

- We don't need to wait to see that changes are needed

Reforms now versus in the future

Already:

- Natural gas prices are providing benefits to consumers, but putting pressure on returns in energy and ancillary-services markets
- Public policies are introducing efficiencies and benefits, but also creating challenges for ensuring reliable supplies
- Extreme weather events are testing the ability of the industry to maintain/restore service in ways consistent with customer expectations
- The market depends on private capital, and private actors are sending signals that current compensation to investors is inadequate.

My view: reforms are needed sooner versus later

Capacity markets are, of course, part of larger markets

Wholesale Power Markets in the Northeast

Centralized Markets administered by the RTO:

- Energy markets (DA, RT)
- Ancillary services markets
- Forward *capacity* markets
- Transmission congestion markets

Bilateral markets not administered by the RTO:

- Contracts for various combinations of energy, capacity, ancillary services, RECs, other attributes

The critical success factors in the wholesale markets

- **Good market design:**
  - Combination of market products
  - Essential underpinnings (e.g., RTO, transmission access, market monitoring and mitigation)
  - Attentive and clear regulation
- **Good market implementation:**
  - Willingness to allow efficient prices to occur
    - Without getting mitigated
    - Without political intervention

Healthy degree of skepticism that *all* of those critical success factors will/can persist

Sustainable competitive wholesale markets….

Must solve a complex "simultaneous equation"

Wholesale electricity markets
(including centralized capacity markets)
=
Designed (in theory) to provide
Efficient, clean, reliable electricity supply to customers

But they also have to satisfy:

Other requirements, constraints, aspirations, goals:

- Customer
- Op's. Engineer'g
- Legal
- Economic
- Financial
- Policy
- Political

Centralized wholesale electric markets:

- Are influenced every day by multiple parties' natural tendencies to act in their own self interest:
  - This is the "genius" of competitive markets
  - But in a market affected by the public interest, the challenge is to make sure that the sum of the parts is not less than the whole
    - In light of various influences from public actors with different interests
    - In light of unintended consequences
    - In light of the need for the overall system to still provide basic services

Internal market factors

Starting point: Very strong design components

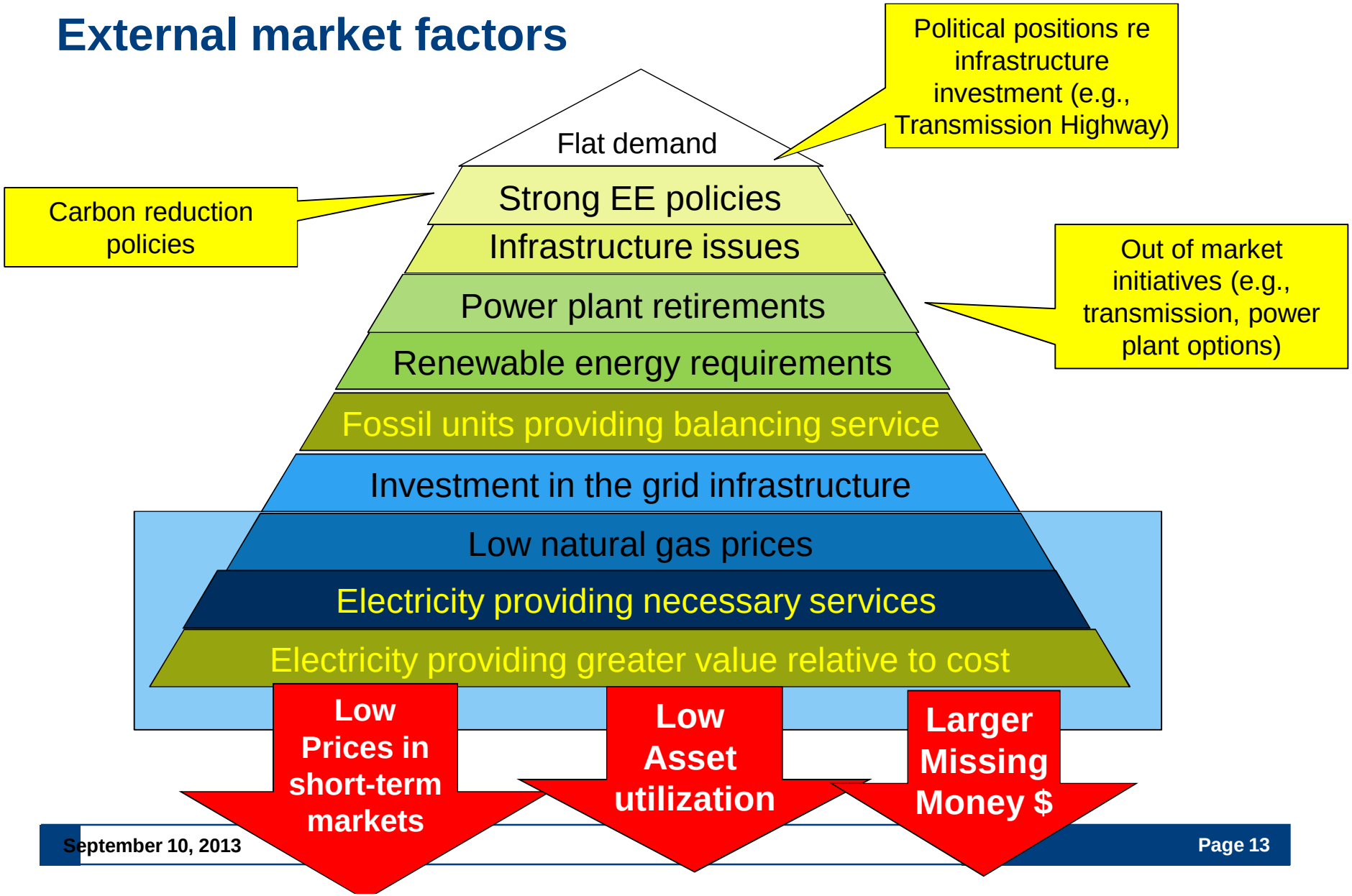
- **Good track record of outcomes**

Lots of tweaks over time in particular elements of the system – to solve specific reliability or market power issues

Over time, the cumulative effects:

- **not necessarily providing efficient prices or a system that compensates resources for the value(s) they provide to the system**
  - RMR contracts – not in energy prices
  - Min-gen – not in energy prices
  - Governance rules leading to negotiations, settlements

External market factors



Outcomes:

- If one key part of the equation is off, then the system is not sustainable.
- A sustainable system must satisfy all of the following constraints:

System Operator's technical requirements

Consumers' implicit needs and explicit demands

Investors requirements

Policy makers demands and requirements

So, back to the purpose of centralized capacity markets:

- **Purpose = to provide the "missing money"**

  (i.e., the residual needed after taking into account the revenues from short-term energy and ancillary services markets)

- **Missing money = necessary, but not sufficient:**

  If short-term markets (for energy, ancillary services) do not compensate for attribute of importance to the grid operator and relevant parties (e.g., the RTO, state policy makers, investors), then the situation is not sustainable in the long run.

Signs of problems in the markets:

Two sources of capacity with "valuable attributes to the system" have announced that they are exiting the market:

- Demand Response providers:
  - EnerNOC announced in the Spring of 2013 that it was exiting the New England market, due it part to market rules.
- Nuclear providers:
  - Entergy Vermont Yankee announced in August 2013 that it planned to exit the New England market at the end of 2014.

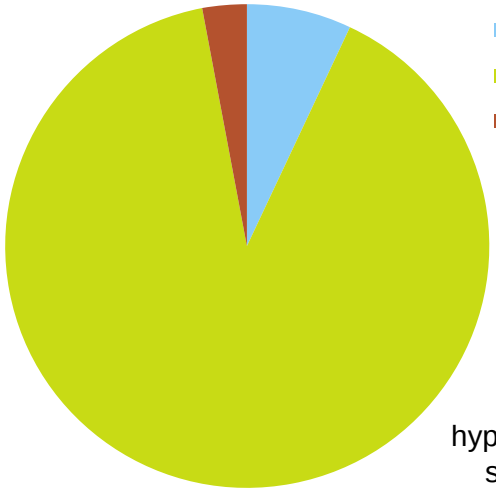
Both suppliers were in capacity markets, and provided services (e.g., low-variable-cost energy supply at low (to zero) GHG emissions; inertia/voltage support)

Consider the "future" scenario:

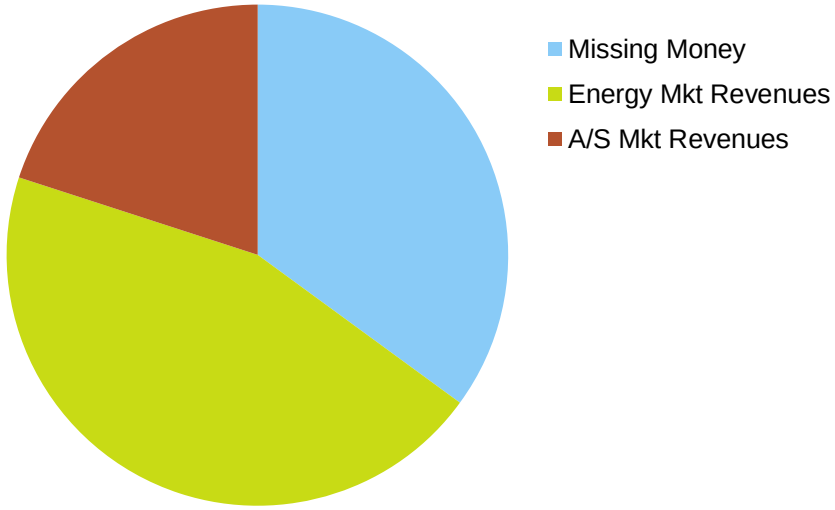
- **Public policies leading to resources that emit less carbon**
- **Flat demand**
- **Low natural gas prices for the foreseeable future;**
- **High dependence of fleet on natural gas**
- **Increasing zero-carbon resources (price takers….price suppression)**
- **Overall asset mix with lower capacity utilization:**
  - Intermittent renewables
  - Other plants providing less energy, more balancing
- **Lack of sufficient commercially available / competitively priced storage and/or load-shifting capabilities**
- **Even suppliers of resources with "desirable attributes" (e.g., DR and nuclear) are exiting – leading to more gas dependency**

Missing money, capacity utilization, Smart Power system

Shares of revenues from wholesale markets



Note:
hypothetical / illustrative revenue shares for the entire market



Today's system:
High capacity utilization, with significant share of revenues derived from energy and A/S markets with insignificant price suppression

Power system:
Low capacity utilization, with lower revenues derived from energy and A/S markets in light of low natural gas prices and much price suppression

So, back to centralized capacity markets:

- **Need to provide *more* "missing money"**
- **Need to be part of a system that delivers "the right resource" attributes (e.g.,….**
  - Resource adequacy
  - Efficient energy production
  - Flexible resources
  - Inertia, voltage support
  - Consistent with policy requirements

Need mechanisms to support investment in efficient resource retention and entry in this context

- In a market that assumes:
  - Low natural gas prices for the foreseeable (affecting KWh prices)
  - More "price takers" (affecting KWh prices)
  - Continued efficiency, customer-side resources (affecting KWh prices)

Options ????

- **New short-term products to provide incentives for suppliers to offer attributes needed for reliable and efficient operation**
  - (e.g., the "Bill Hogan" answer)
- **New centralized capacity market products/designs**
  - (e.g., the "Mike Hogan" answer)

Why I lean to both, including serious exploration of the latter:

- **Lower capacity utilization, lower prices in operating markets**
- **Bigger missing money resulting from short-term markets**
- **Less ability to predict sufficient revenue stream in energy markets to induce financing from private investors**
- **Need to assure a strong toolkit of system attributes**

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