Going Long –
Capacity Markets in Action

Presentation by Mary Lynch,
Constellation Energy Commodities Group
to Harvard Electricity Policy Group:

Forty-Eighth Plenary Session

October 5, 2007
Discussion Agenda - Key Issues

• The Mandate to Go Long – Resource Adequacy Requirements ("RAR") – Reliability Targets

• The Problem with Energy Only Markets

• Similarities and Differences in Capacity Market Models

• The Long Term Contract Conundrum - The Regulatory Threat

• Impact on Wholesale and Retail Markets

• Some Market Results
Goals of RAR/capacity markets –
The mandate to go long – at a crossroad?

• Ensure that necessary grid resources are committed to meet the forecasted reliability requirements – planning reserve margins in excess of operating reserves

• Provide the market structures capable of supporting investment in existing and new resources.

• The Big Question: Can markets support merchant investment?
Why RAR/Capacity Markets Are Necessary –

The problem with energy only markets

- Price signals should incent capital expenditure on existing resources and the investment in new facilities when and where necessary

- Mitigation (Bid Caps, RMR, Out-of-Merit dispatch) blunts the energy and ancillary services price signal that would otherwise occur during periods of scarcity

- The separate RAR product provides the mechanism to support investors’ expectation of reasonable returns on investment (the “missing money”)

- Provides a market structure that supports sustainable merchant generation investment
RAR and Capacity Markets -
What the market models have in common

• Planning reserve margins that exceed operating reserves

• Differentiation for load pockets

• Mechanism to provide new entry price signals

• Procedures to qualify resources

• Performance incentives and/or obligations

• Market power mitigation measures
RAR and Capacity Markets -
Where they differ

• Resource commitment verification
  • Several years in advance of delivery or “real time”

• Role of backstop procurement
  • “On-behalf-of” procurement
  • “Out-of-market” costs

• Price discovery mechanism
  • Demand curve clearing or bid clearing
The Long Term Contract Conundrum – Supporting Investment

• What type of commitment is necessary to induce new investment?

  • Long Term (multi-year) regulatory guarantee, including rate-base and/or long term utility-backed contracts?
  
    • Or

  • Stable Market Structures that provides forward prices that allow hedging of risks?
Regulatory guarantee contracts -
The Market Implications

- Long term tolling agreements and/or rate-base (both backed by regulatory guarantees) will further impede market price signals in centrally dispatched markets

- Create a cycle of needing more regulatory guarantees to ensure new investment

- Undermine and preclude the possibility of merchant investment

- Limit the role of market intermediaries who provide portfolio and risk management services


Regulatory guarantee contracts - The Market Implications (cont’d)

- Efforts to improve energy price signals to incent demand response will not achieve their full potential

- Full life cycle risks, including fuel price risks and operating risks will be treated as cost pass throughs; “central planning” as opposed to active risk management

- Command and control approach to investment will reduce competitive pressures for increased efficiencies, technological innovation needed for environmental improvements, discourage new entry, and impose investment risks on consumers
Market Stability and Ability to Hedge -
The Market Implications

• The long-term utility contract is replaced by long term market stability

• Portfolio risk management emerges to optimize products and services – varying terms and conditions

• Forward risk management eliminates after-the-fact cost recovery exercises, stranded costs

• New investments are deployed when they provide better service offerings

• Creates robust wholesale competition; provides framework for retail competition.
Achieving Stable Markets

The implications for capacity market design

• Commitment to market based investment must be real

• Resist the urge to mandate forward compliance demonstrations

• Limit (eliminate) backstop procurement (after all, backstop looks a lot like a utility-backed contract)

• Make continuous improvements in energy and ancillary service pricing – key for increased demand response/ reduce the capacity component value

• Link capacity price signal to energy and ancillary services
The New York Approach –

Green = differences from other NE models

• Capacity obligation (peak load plus planning reserve margin) announced one year forward

• Demand curve pricing established for each location (NYC, LI, ROS); adjusted every three years.

• Commitments verified each month of delivery period

• Resources not committed through bilaterals may participate on month-to-month basis

• Implemented in 2003
Specific NY market results:

- Excess above minimum capacity requirement

<table>
<thead>
<tr>
<th>Year</th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>5.5%</td>
<td>8.4%</td>
</tr>
<tr>
<td>2004-2005</td>
<td>9.6%</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>10.3%</td>
<td>9.6%</td>
</tr>
</tbody>
</table>

- Level of imported capacity (summer)

<table>
<thead>
<tr>
<th>Year</th>
<th>Imports</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>1,650 MW</td>
<td>0</td>
</tr>
<tr>
<td>2004-2006</td>
<td>2,755 MW (max)</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>2,755 MW (max)</td>
<td>600 MW</td>
</tr>
</tbody>
</table>
Specific NY market results:

- Generation in interconnect queue has increased.
  - 24 new fossil generation (8000+ MW)
  - 54 wind project (6000+ MW)
  - 4 nuclear repowering project (360 MW)
  - 1 coal project (536 MW)
  - 2 Hydro upgrades (160 MW)
- 16 transmission projects
- Demand response participation in markets has increased to over 1000 MW in Summer of 2007, 12.5% increase from prior year.
- Installed reserve margin has been reduced from 18% to 16.5% due to improved reliability of existing units.
Specific PJM market results:

- 1300 MW of new resources cleared the auction, including upgrades of existing facilities.
- 536 MW of which were demand response resources.
- 2300 MW of postponed retirements.
Going Long –
Capacity Markets in Action

Questions?