EDRP/SCR Scarcity Pricing Outcomes: Aug. 12, 2016

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Agenda

- Background
- Review of Scarcity Pricing rules
- Key Highlights from NYISO Operations – Summer Conditions: August 12, 2016
- EDRP/SCR event on August 12, 2016
- Pricing outcomes
- Key highlights from Potomac Economics
- Q&A
- Appendix

Background

- Market Participants expressed interest in another discussion of the Emergency Demand Response Program ("EDRP")/Special Case Resource ("SCR") activation on August 12, 2016, including the pricing outcomes
- The August 12th activation is the only one since the new Scarcity Pricing rules went into effect in June 2016

Background, cont'd

Date	Working Group	Discussion points and links to materials
10-28-15	Management Committee (MC)	Presentation on Comprehensive Scarcity Pricing
09-19-16	Operating Committee (OC)	Presentation and discussion on NYISO Summer 2016 Hot Weather Operations (Aaron Markham)
09-28-16	Management Committee (MC)	Presentation and discussion on NYISO Summer 2016 Hot Weather Operations (Wes Yeomans)
11-29-16	Market Issues Working Group (MIWG)	Discussion of highlights from Potomac Economics' Quarterly State of the Market Report – Q3 2016

Review of Scarcity Pricing Rules

- **The expected load reduction from EDRP/SCR resources is used as an input for calculating the Scarcity Reserve Requirement within each Scarcity Reserve Region**
  - Scarcity Reserve Region is the collection of zones in which EDRP/SCR resources were activated
- **RTD and RTC procure additional 30-minute reserves during EDRP/SCR activations (i.e., scarcity reserves)**
  - Amount of scarcity reserves procured (i.e., the Scarcity Reserve Requirement) is set equal to Expected EDRP/SCR MW less Available Operating Capacity* for the Load Zones included in a Scarcity Reserve Region, with a floor value of zero

*Available Operating Capacity is energy production capability that could be provided by available resources in greater than 30 minutes and less than or equal to 60 minutes

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Review of Scarcity Pricing Rules, cont'd

- **Is Scarcity Reserve Region the same as an existing locational reserve region? (i.e. NYCA, East, SENY, LI)**
  - If yes → the 30-minute reserve demand curve for the existing region is adjusted in real-time to account for Scarcity Reserve Requirement, with demand curve price set to $500/MW
  - If no → a Scarcity Reserve Demand Curve will be created for the Scarcity Reserve Region, with demand curve price set to $500/MW
- **NYCA 30-minute reserve demand curve values priced at less than $500/MW are set to $500/MW in real-time during <u>any</u> EDRP/SCR activation**

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Key Highlights from NYISO Operations

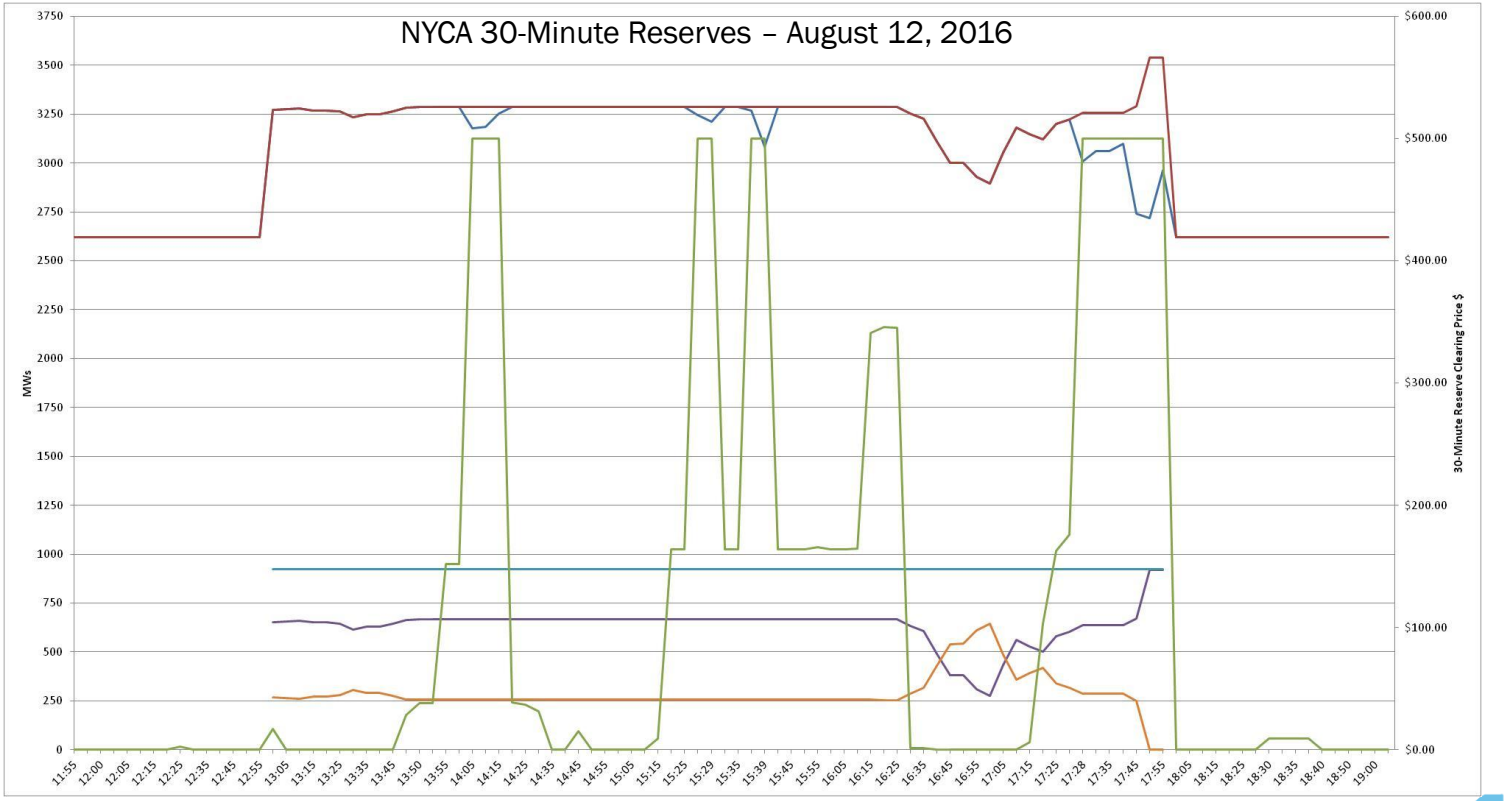
Summer Conditions: August 12, 2016

- August 12 peak load was 31,477 MW
  - Estimated peak of 32,415 MW if demand response had not been activated
- Updated peak load forecast and loss of 600 MW generating unit resulted in projected reserve shortage
  - NYISO scheduled two supplemental capacity resource commitments
- All utilities activated their own retail demand response programs
- Governor's office issued public statement directing state agencies to curtail non-essential electric usage and encouraging all residential and business consumers to reduce energy usage where possible
- There were seven Thunderstorm Alerts for a total of 25 hours from August 11-15, 2016

EDRP/SCR event on August 12, 2016

- NYISO activated EDRP/SCR resources on August 12 for all zones from 13:00-18:00 due to projected reserve shortages
  - 921 Expected MWs for each hour of event
- The average increase in NYCA 30-minute reserve requirements was 633 MW
  - Expected EDRP/SCR MWs – Average Available Operating Capacity = 921 MW – 288 MW = 633 MW
- 14 real-time pricing intervals with $500 clearing price for NYCA 30-minute reserves
  - HB14: 3 intervals
  - HB15: 4 intervals
  - HB17: 7 intervals

Pricing Outcomes – NYCA 30-Minute Reserves



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Key Highlights from Potomac Economics

Summarized from Quarterly Report on NYISO Electricity Markets – Third Quarter 2016:

- The use of EDRP/SCR resources is complicated by scheduling lead times and other inflexibilities, which have significant implications:
  - The NYISO must determine how much demand response to activate when there is still considerable uncertainty about the needs of the system; and
  - The demand response may not be needed for the entire duration of the DR activation period
  - Hence, there may be substantial surplus capacity during portions of the event

Key Highlights from Potomac Economics, cont'd

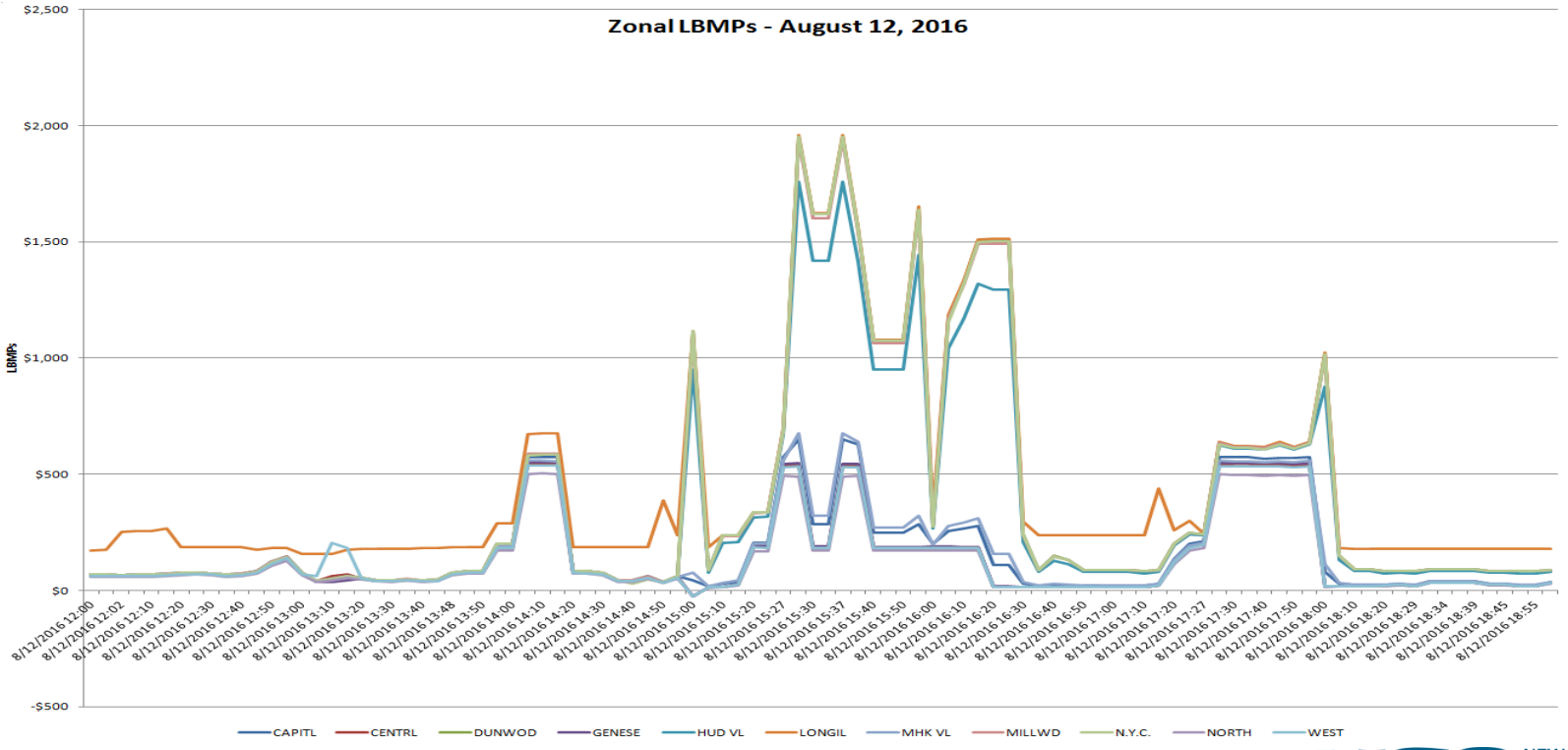
Summarized from Quarterly Report on NYISO Electricity Markets – Third Quarter 2016:

- **The evaluation suggests that:**
  - In retrospect, demand response was needed to prevent a capacity deficiency in a total of 18 intervals during the 5-hour deployment period
  - 30-minute reserves were priced at $500/MWh during all 18 intervals
    - The improved consistency between price signals and actual system needs is a significant enhancement under the new Scarcity Pricing rules
- **Nonetheless, in retrospect, the actual amount of demand response that was needed to avoid a reserve shortage was approximately 350 MW**
  - This implies an over-deployment of demand response, including approximately 150 MW that was activated by utilities from their own retail demand response programs
  - A total of $1.1 million of guarantee payments were made to demand response resources for their deployments

Questions?

Appendix

Pricing Outcomes – Zonal LBMPs



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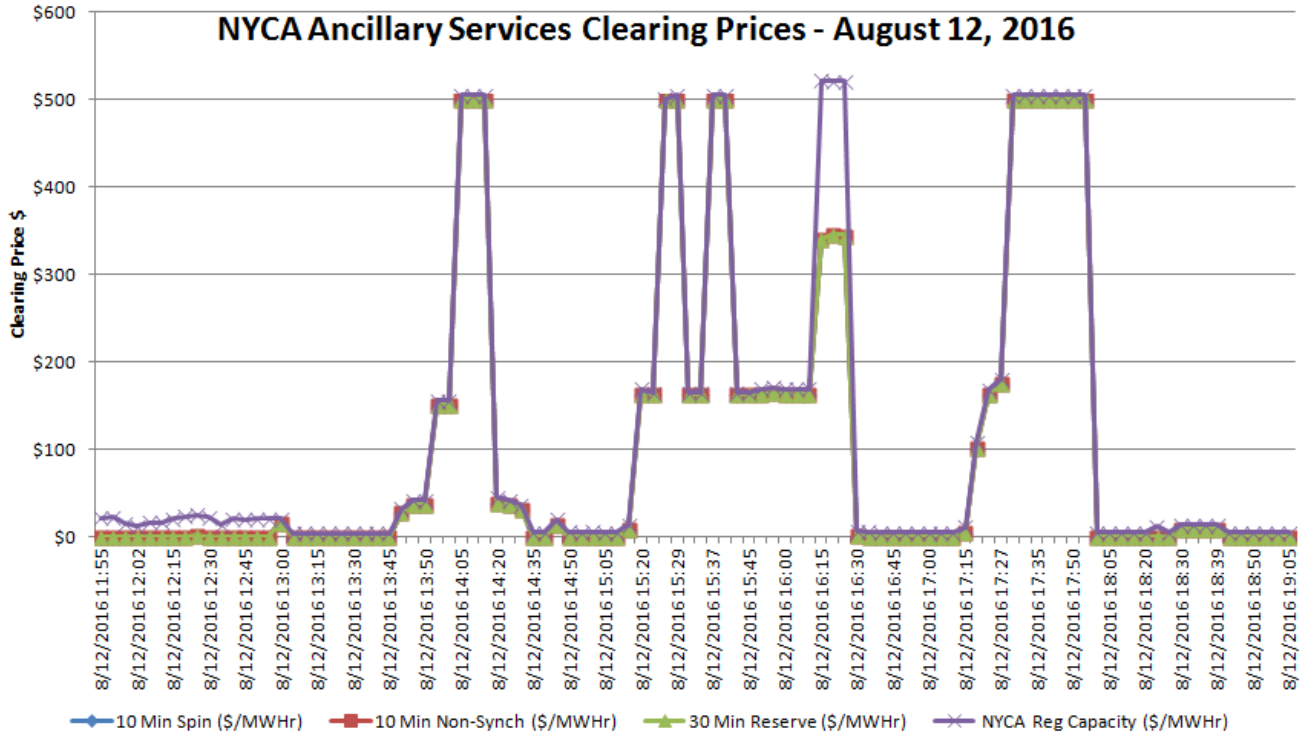
Pricing Outcomes – NYCA Ancillary Services



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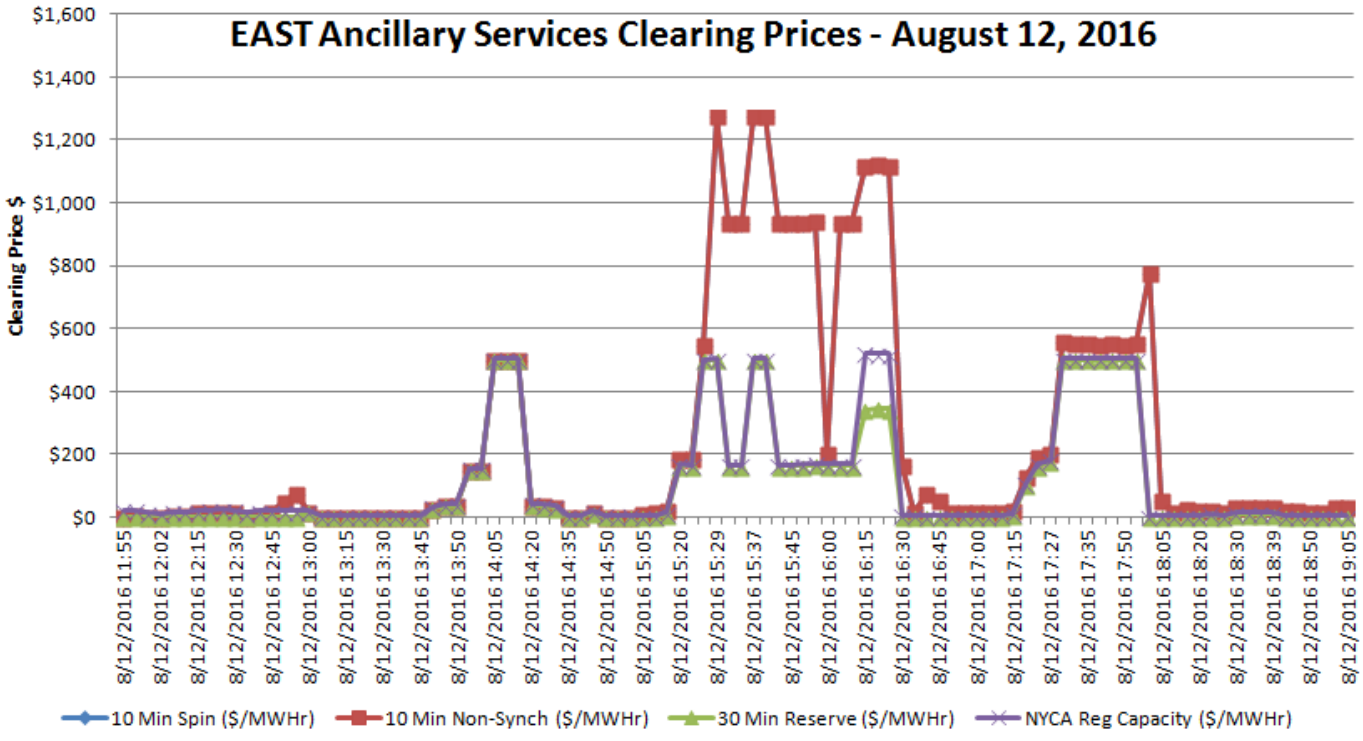
Pricing Outcomes – EAST Ancillary Services



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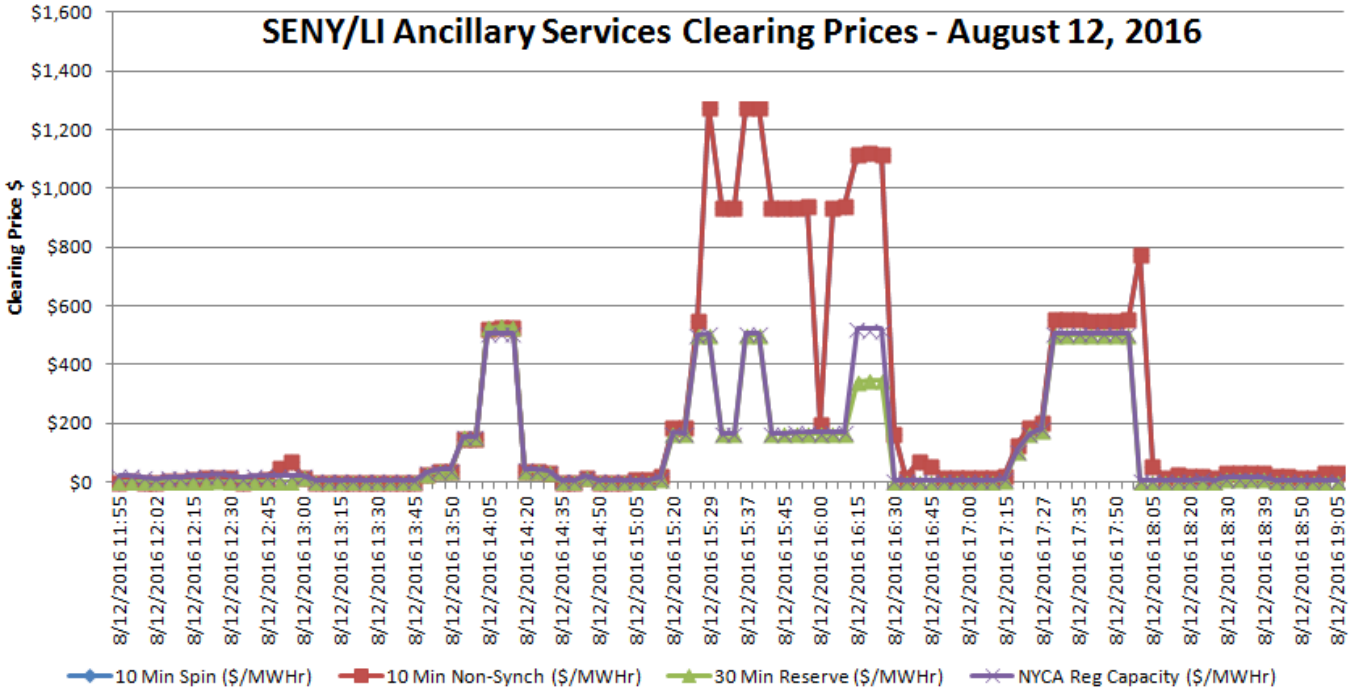
Pricing Outcomes – SENY/LI Ancillary Services



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