Comprehensive Shortage Pricing

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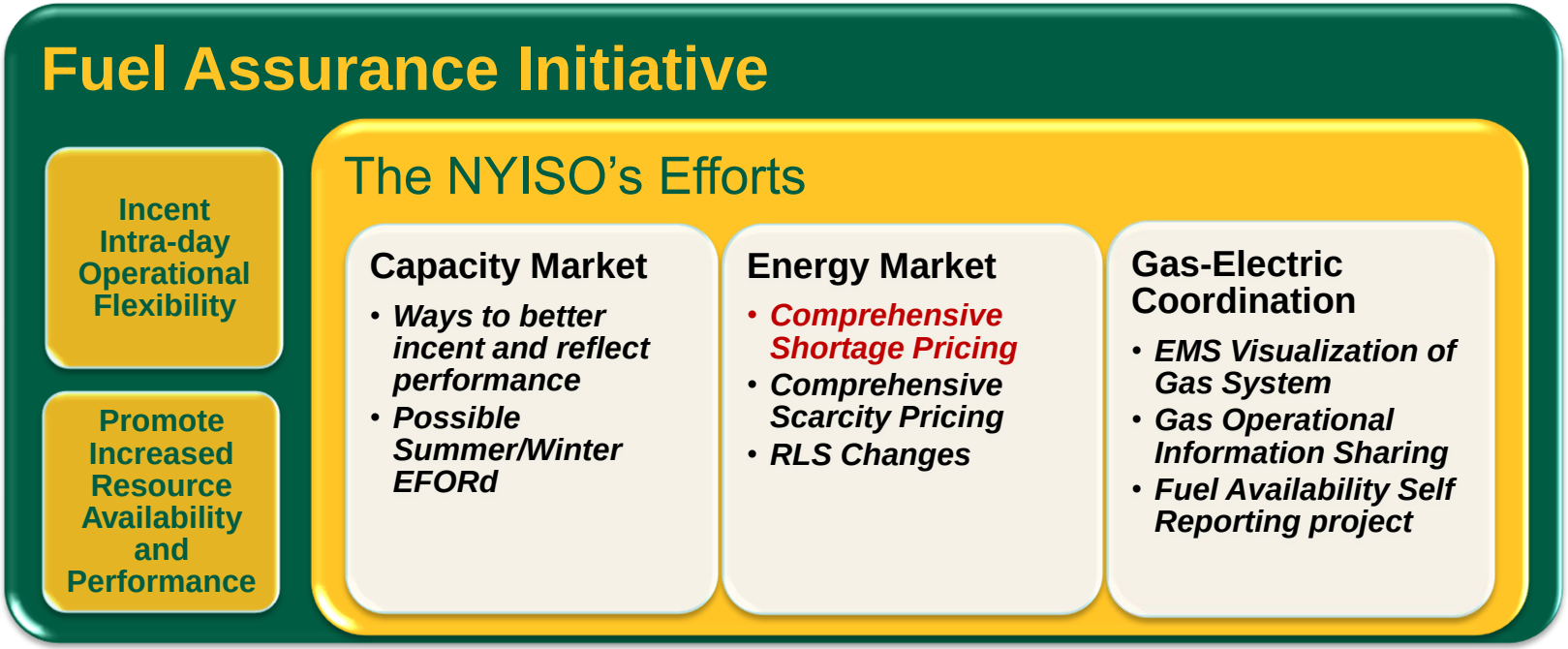
DRAFT – FOR DISCUSSION PURPOSES ONLY

Agenda

- Background
- Proposal
- LI Reserve Contribution
- Shortage Pricing
- Timeline

Background

- **Comprehensive Shortage Pricing supports the NYISO's Fuel Assurance Initiative and includes:**
  - ***Modeling a SENY reserve region***
  - ***Revising the NYCA Total Reserve procurement***
  - ***Revising reserve, transmission, and regulation shortage pricing***



Proposal

- **Proposed reserve region and shortage pricing changes based on the NYISO's Comprehensive Shortage Pricing Review**
- **Benefits:**
  - ***Improve the reflection of operator actions and system conditions in the Day-Ahead and Real Time markets***
  - ***Increase performance incentive strength and efficiency***
  - ***Maintain pricing consistency with neighboring ISOs/RTOs***

SENY and NYCA Reserve Proposal

- **The SENY reserve region would have a 30 Minute Total Reserve requirement of 1300MWs**
  - ***Requirement is based on the amount of reserves necessary to restore SENY power flows to within applicable transmission limits following a contingency event***
  - ***SENY reserves will be procured every market day***
- **Additionally, the NYCA 30 Minute Total Reserve requirement will be updated to 2620MWs**
  - ***This adjustment ensures NYCA reliability to re-establish 10 minute operating reserves following the loss of single largest supply contingency***
  - ***The additional NYCA reserves will be procured every market day***

LI Reserve Contribution

- **Propose to hold 1300 MW of 30 Minute Reserve in SENY**
  - ***The proposed reserve requirements updates increase the possibility that reserves may be scheduled on LI that may be undeliverable***
  - ***There is a limited ability to export energy from LI***
- **The NYISO proposes to limit the amount of reserves on LI that can contribute to NYCA, EAST, and SENY reserve requirements**

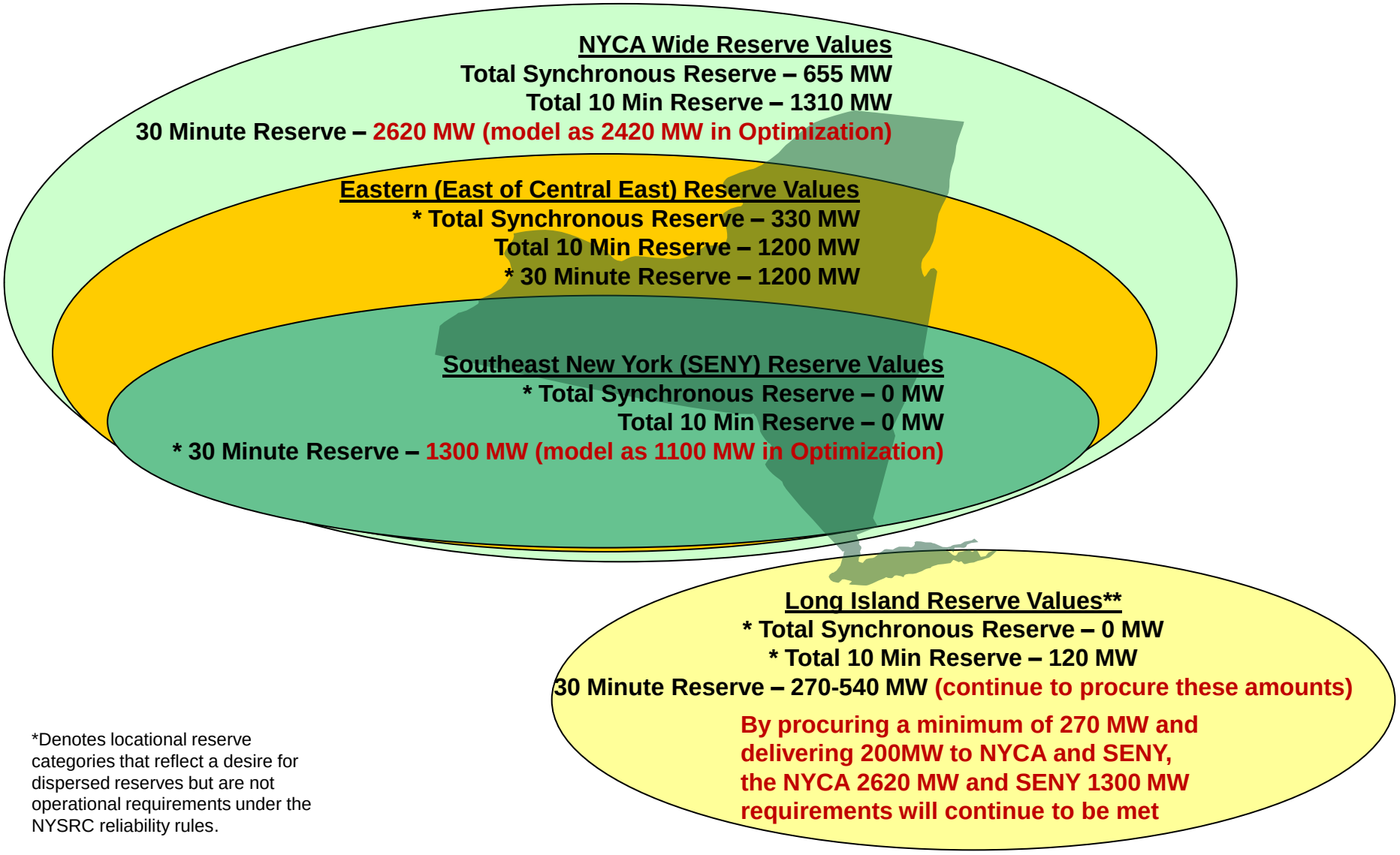
LI Reserve Contribution

- **The NYISO has considered several approaches to limiting the amount of reserves on LI that can contribute to NYCA, EAST, and SENY reserve requirements including:**
  - ***New Constraint Option - (i) Maintain the nesting of LI reserves with NYCA, EAST and SENY reserve regions, and (ii)model a new type of constraint in the optimization that would cap the amount of reserves on LI that can contribute to NYCA, EAST and SENY***
  - ***Remove LI from Nesting Option – (i) Remove the LI reserve region from being nested with NYCA, EAST and SENY, (ii) continue to procure 30 minute reserves on LI as is done today, and (iii) reduce the NYCA and SENY 30 minute reserve requirements by a typical amount (200MW) considered always deliverable***

LI Reserve Contribution

- **The NYISO proposes to implement the "Remove LI from Nesting Option"**
  - ***Although the NYISO believes the "New Constraint Option" is more elegant, it would place completing this initiative by June 2015 at risk and would need to be further explored for technical feasibility***
  - ***The NYISO considers the "Remove LI from Nesting Option" to be a close approximation of how the "New Constraint Option" was envisioned to work***
- **The next slide illustrates the "Remove LI from Nesting Option"**

Remove LI from Nesting Option



*Denotes locational reserve categories that reflect a desire for dispersed reserves but are not operational requirements under the NYSRC reliability rules.

LI Reserve Contribution

- **The changes to the reserve modeling to limit the amount of reserves on LI that can contribute to NYCA and SENY reserve requirements also has minor implications to the NYCA 30 Minute Reserve Shortage pricing**
  - ***Since 200 MW of NYCA reserves will be procured on LI and the LI 30 Minute Reserve Shortage price is $25, the NYCA 30 Minute Reserve Shortage curve breakpoints will be changed to reflect the shift of 200 MW to LI as illustrated on Slide 13***

Shortage Pricing

- **Although the 4 to 6 hour obligation change may not be implemented by June 2015, the NYISO proposes to maintain the final 30 Minute reserve demand curve price at $750**
  - ***This $750 30 Minute demand curve point ensures energy market shortage price comparability with neighboring ISO/RTOs shortage pricing***
  - ***The NYISO is not proposing to change the $500 Scarcity Pricing level at this time***

Shortage Pricing

- **The SENY1300 MW 30 Minute reserve requirement will be priced at $25, consistent with:**
  - ***Operator actions***
  - ***Other reserve products carried to meet thermal transmission security***
  - ***The desire for distributed reserves throughout NY***
- **Operations anticipates the DAM will procure the requirement and will only need to SRE should conditions change from the DAM**
  - ***The 1300 MW requirement will be procured in the DAM***
- **Operations would call SCRs if necessary to maintain 30 Minute reserves within SENY**

Shortage Pricing

Proposed Reserve Demand Curve Prices			
Reserve Region	**Current**	**Proposed**	**Rationale**
	10 Min Spin		
NYCA	$500	$775	10 Min Synch reserves are equally important to maintaining 10 minute reserves in the EAST
EAST	$25	$25	Facilitates distribution of reserves throughout NY
SENY	N/A	$25	Facilitates distribution of reserves throughout NY
LI	$25	$25	Facilitates distribution of reserves throughout NY
Reserve Region	**10 Min Total**		**Rationale**
NYCA	$450	$750	Cost to replenish by converting 30 Min GTs to energy, consistent with operator actions
EAST	$500	$775	10 Min reserves for Central East post-contingency voltage IROL exceedence
SENY	N/A	$25	Facilitates distribution of reserves throughout NY
LI	$25	$25	Facilitates distribution of reserves throughout NY
Reserve Region	**30 Min Total**		**Rationale**
NYCA	N/A	100 MW at $25	Allow a portion of the increased 30 Minute Total reserves to be forgone to protect against price volatility, 200 MW of LI Reserve adds to this 100 MW point
	200 MW at $50	355 MW at $100	Consistent with operator actions to maintain 30 minute reserves (GT OOMs)
	200 MW at $100	300 MW at $200	Consistent with operator actions to maintain 30 minute reserves (SREs)
	Remainder at $200	Remainder at $750	Consistent with operator actions to maintain 30 minute reserves (SCRs) and maintain comparable shortage pricing with neighboring ISO/RTOs
EAST	$25	$25	Facilitates distribution of reserves throughout NY
SENY	N/A	$25	Facilitates distribution of reserves throughout NY
LI	$25	$25	Facilitates distribution of reserves throughout NY

Shortage Pricing

Proposed Regulation Service Demand Curve Prices			
Reserve Region	Regulation		Rationale
	Current	Proposed	
NYCA	<=25 MW at $80	<=25 MW at $25	Provide additional ramp flexibility for meeting gen-load balance and operating reserve constraints
	>25 and <=80 MW at $180	>25 and <=80 MW at $400	Maintain Regulation during small 30 minute reserve shortages; Regulation is more valuable than 30 minute reserves
	>80 MW at $400	>80 MW at $775	Valued as much as 10 Min Synch to ensure some Regulation Service is procured because any unused Regulation Capacity can be counted as 10 Min Synch

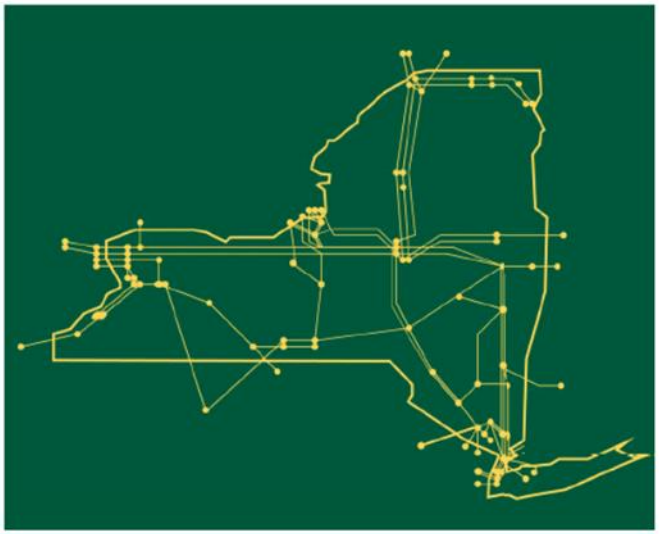
Proposed Transmission Shortage Costs			
Reserve Region	Transmission Shortage		Rationale
	Current	Proposed	
NYCA	<=5 MW at $350	<=5 MW at $350	Approved for implementation in Q4 2014
	>5 and <=20 MW at $1,175	>5 and <=20 MW at $2,350	Cascaded cost of going shortage EAST & SENY 10 Min Total
	>20 MW at $4,000	>20 MW at $4,000	Approved for implementation in Q4 2014

Timeline

- ✓ **June 2014 BIC**
  - ✓ ***BIC endorsed the NYISO's proposal to continue review and further define recommendations***
- ✓ **August 26, 2014 MIWG**
  - ✓ ***Propose SENY and NYCA Reserves***
  - ✓ ***Define Critical Operating Day Usage***
  - ✓ ***Propose revised shortage prices***
- ✓ **September 19, 2014 MIWG**
  - ✓ ***Address questions/concerns raised by stakeholders***
- ◆ **October 7, 2014 MIWG**
  - ▪ ***Propose LI reserve changes***
  - ▪ ***Continue to address questions/concerns raised by stakeholders***
- ◆ **October 2014 MIWG**
  - ▪ ***Continue to address questions/concerns raised by stakeholders***
  - ▪ ***Work through tariff changes***
- ◆ **November/ December 2014 BIC/MC**
  - ▪ ***Request endorsement on Comprehensive Shortage Pricing***
- ◆ **Q2 2015 – Implement Comprehensive Shortage Pricing Changes**

Comments and feedback are requested throughout this review process

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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