NYISO'S Comprehensive Reliability Planning Process

2008 RNA
Results and Review of Inputs

NYPSC Case 07-E-1507

All Parties Meeting

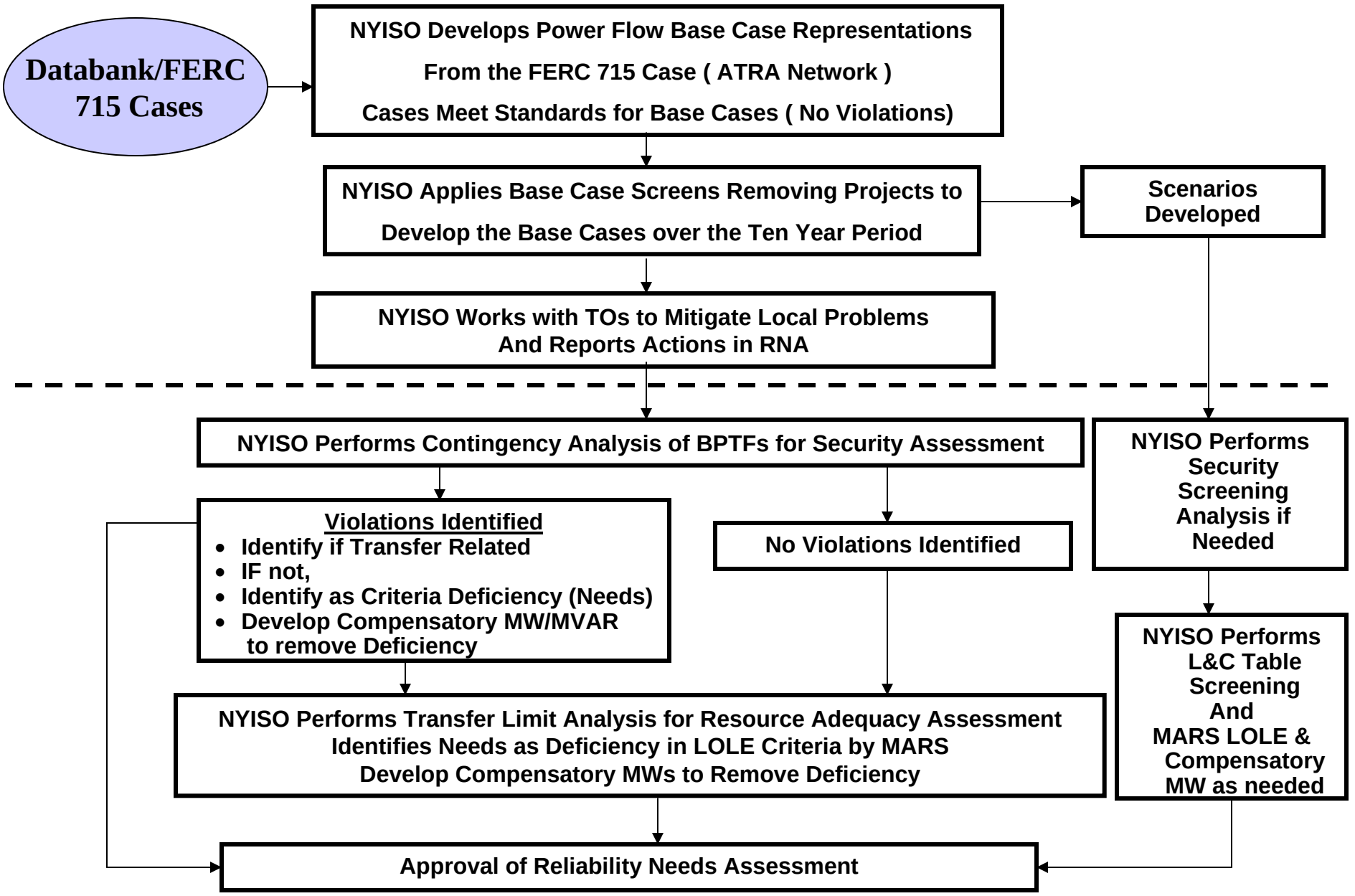
Albany, NY

January 30, 2008

Presentation Topics

- Process Overview
- Review of Input Assumptions
- Summary of Results
- Scenarios
- Next Steps

NYISO Reliability Planning Process



Review of Input Assumptions

- 2007 Load and Capacity Report
- Lovett 5, Russell 1-4, and Poletti Retired by 1/31/2010
- Gilboa Uprate, Prattsburgh Wind and Caithness Installed
- Updated External Representations
- Resource Adequacy Analysis Database Starts from the Latest IRM Database
- Neptune modeled as Emergency Assistance in the Study case, and Firm Capacity in Zone K in a Sensitivity case
- Besicorp 635 MW Net Generation Analyzed as Scenario

RNA 2008 Load & Resource Table

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Peak Load										
NYCA	33,871	34,300	34,734	35,141	35,566	35,962	36,366	36,749	37,141	37,631
Zone J	11,975	12,150	12,325	12,480	12,645	12,780	12,915	13,030	13,140	13,360
Zone K	5,485	5,541	5,607	5,664	5,730	5,791	5,855	5,919	6,002	6,076
Resources										
NYCA										
"- Capacity"	38,917	39,257	38,396	38,396	38,396	38,284	38,284	38,284	38,284	38,284
"- SCR"	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323
Total	40,240	40,580	39,719	39,719	39,719	39,607	39,607	39,607	39,607	39,607
Zone J										
"- Capacity"	10,019	10,019	9,128	9,128	9,128	9,015	9,015	9,015	9,015	9,015
"- SCR"	468.7	468.7	468.7	468.7	468.7	468.7	468.7	468.7	468.7	468.7
Total	10,487	10,487	9,596	9,596	9,596	9,484	9,484	9,484	9,484	9,484
Zone K										
"- Capacity"	5,612	5,922	5,922	5,922	5,922	5,922	5,922	5,922	5,922	5,922
"- SCR"	159.5	159.5	159.5	159.5	159.5	159.5	159.5	159.5	159.5	159.5
Total	5,772	6,082	6,082	6,082	6,082	6,082	6,082	6,082	6,082	6,082
NYCA Resource Margin % (1)	118.8%	118.3%	114.4%	113.0%	111.7%	110.1%	108.9%	107.8%	106.6%	105.3%
Zons J Res./Load/ Ratio	87.6%	86.3%	77.9%	76.9%	75.9%	74.2%	73.4%	72.8%	72.2%	71.0%
Zons K Res./Load Ratio	105.2%	109.8%	108.5%	107.4%	106.1%	105.0%	103.9%	102.7%	101.3%	100.1%

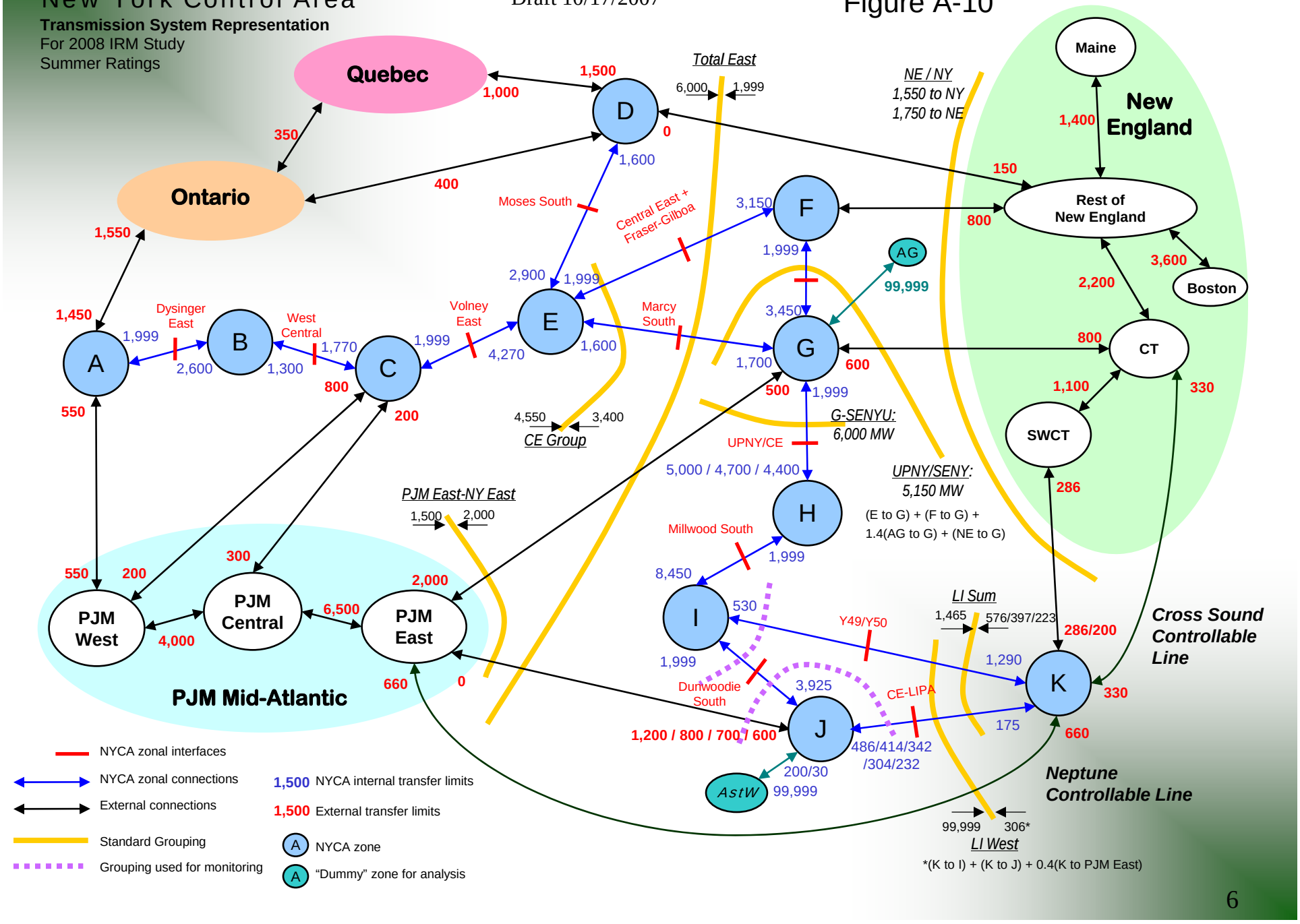
Note: LIPA Edge program of about 40MW not accounted in Zone K; impact to LOLE is not observable

New York Control Area

Transmission System Representation
For 2008 IRM Study
Summer Ratings

Draft 10/17/2007

Figure A-10



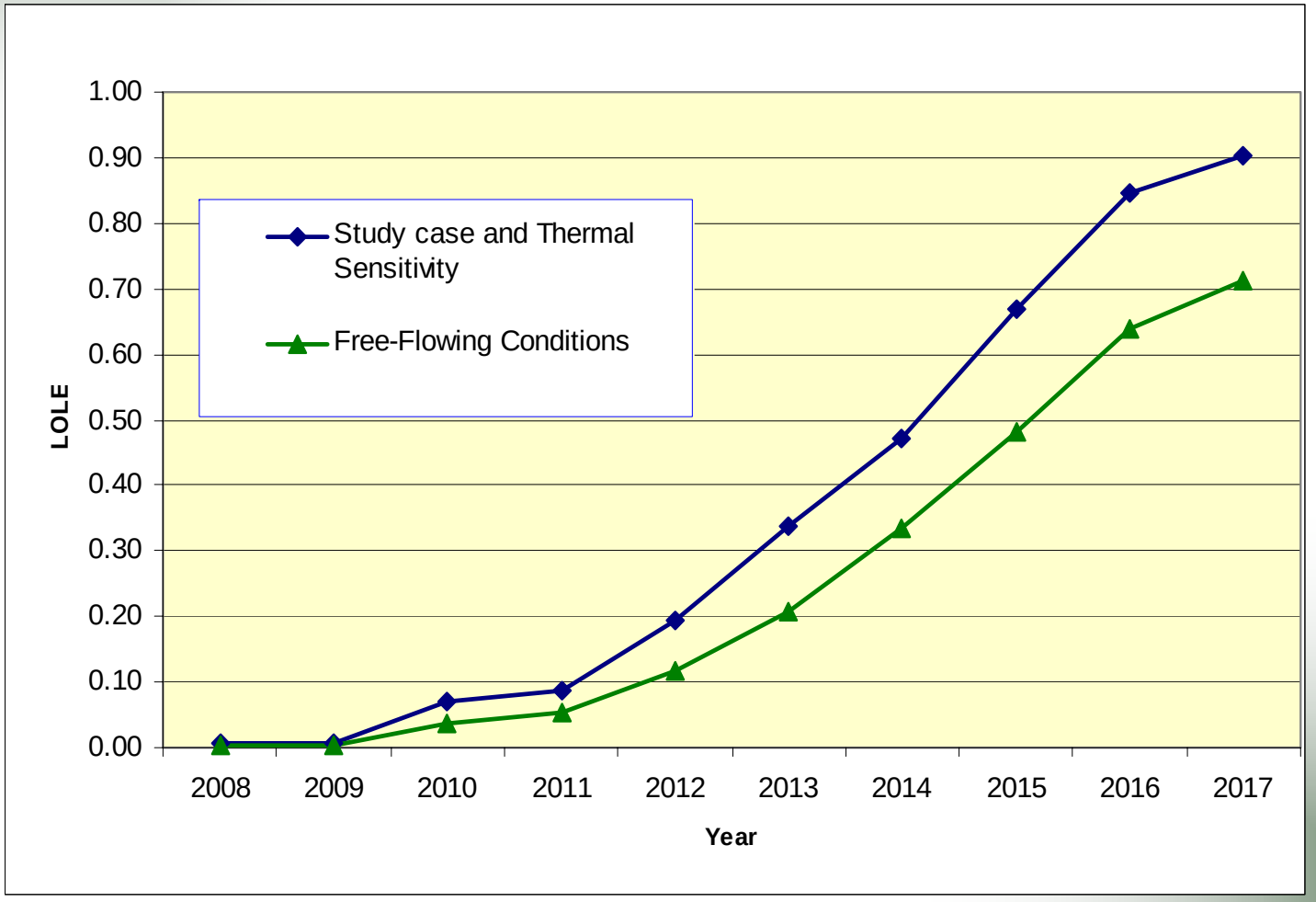
Summary of Study Case Results

- Initial year of need is 2012 for 500 MW in J or 250 MW each in F, G (or H and I), and J
  - *Same For Study, Thermal, and Free Flow Limits(within lumpiness)*
  - *Initial year of need changes to 2013 if Neptune has Firm Capacity Contract in PJM*
  - *Transmission upgrades have brought transfer limits closer to thermal limits for key interfaces*
- Approximate need in 2017 of 2750 MW with 1250 MW downstream of DunSth, 1250 MW downstream of UPNY/SENY, 250 MW anywhere in NYCA
  - *Load growth is nearly 1000MW above 2007 RNA (comparing 2017 with 2016)*

Summary of Compensatory MWS

Alternative	B	F	G	H	J	K	NYCA	LOLE
2012 A1			250		250		500	0.11
2012 A2			500				500	0.11
2012 A3			250		500		750	0.07
2012 A4		250	250		250		750	0.09
2012 A5					500		500	0.10
2012 A6				250	250		500	0.11
2012 A7		250		250	250		750	0.09
2013 A1			250		750		1000	0.10
2013 A1		250	250		500		1000	0.12
2013 A3		500	250		500		1250	0.09
2013 A4					1000		1000	0.09
2013 A5				250	750		1000	0.09
2014 A1			500		1000		1500	0.08
2014 A2				500	1000		1500	0.08
2015 A1			750		1000		1750	0.10
2015 A2			250	500	1000		1750	0.10
2016 A1			500		1000		1500	0.15
2016 A2	250		1000		1250		2500	0.09
2016 A3	250			1000	1250		2500	0.09
2017 A1	250		1250		1250		2750	0.08
2017 A2	250		1000		1250		2500	0.11
2017 A3	250		1000		1000	250	2500	0.11
2017 A4	250	250	1000		1000	250	2750	0.09
2017 A5	250	250		1000	1000	250	2750	0.09

Summary of the LOLE Results for the RNA Study Case, Thermal and "Free Flowing" Sensitivities



	Year of Need	LOLE 2012	LOLE 2017
Study Case	2012	0.19	0.90
Neptune Sensitivity	2013	0.09	0.72
Scenarios			
1. High Economic Growth (+1700 MW L)	2010	0.73	2.21
2.1. NOx ("HEDD") Init. (-2300 MW G)	2009	0.33	2.86
2.2. CO2 RGGI (52 million tons Allowances required in 2010 for LOLE ≤ 0.1 day/year)			
3. The 15x15 Conserv (-3300 MW L)	*None*	0.01	0.03
4. Besicorp 635 MW Net Generation	2012	0.16	0.79
5. In-City 500 MW Generation	2013	0.10	0.62
6. External Capacity(+800 MW G)	2012	0.13	0.75

Scenario: HEDD in 2009

- Reliability criteria are violated in 2009, if 50.8ton/day reduction is required
- Additional options will need to be developed in order to simultaneously achieve the necessary NOx reductions while satisfying reliability criteria
  - *Emission control retrofits where feasible*
  - *Flexible source averaging plans*
  - *Timely permitting and construction of new low emitting generation*
  - *Focused and measurable energy efficiency and demand response programs*

Table 4.12: HEDD Scenario LOLE Results

Area/Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
AREA-A									
AREA-B	0.06	0.10	0.13	0.21	0.27	0.40	0.60	0.80	0.96
AREA-C									
AREA-D					0.00	0.00	0.00	0.00	0.00
AREA-E	0.02	0.06	0.06	0.12	0.16	0.26	0.41	0.54	0.64
AREA-F				0.00	0.00	0.00	0.00	0.00	0.00
AREA-G	0.03	0.11	0.11	0.20	0.28	0.38	0.53	0.66	0.62
AREA-H									
AREA-I	0.27	0.74	0.63	1.05	1.39	1.75	2.15	2.50	2.60
AREA-J	0.29	0.79	0.66	1.08	1.42	1.77	2.22	2.62	2.75
AREA-K	0.11	0.14	0.13	0.28	0.39	0.53	0.70	0.93	1.00
NYCA	0.33	0.83	0.71	1.15	1.52	1.90	2.34	2.75	2.86

Scenarios: CO2 or "RGGI" Case

- NYS cap: 64 million tons of CO2
- Year 2010 was analyzed
  - *Poletti retired*
  - *1250 MW of additional carbon intensive units restricted*
- Analysis was performed to determine the minimum number of allowances needed to meet reliability criteria.
  - *Result: 52 million tons.*
  - *Risk to reliability if allowances are restricted below this level*
  - *RPS could reduce this amount by 3.1 million tons in 2013*

Next Steps

- 2008 CRPP is in Request For Solutions Phase
  - Solutions are due March 1st
- Requested Regulated Backstop, Market Based and Alternative Regulated Solutions
- Market Solutions are Preferred
- Solutions Can be Capacity Resources, Transmission Resources, or DSM
- Compensatory MWs Serve as Guide for Development of Solutions