

Long Island Offshore Wind Export PPTN: VSA Baseline Assessment Results

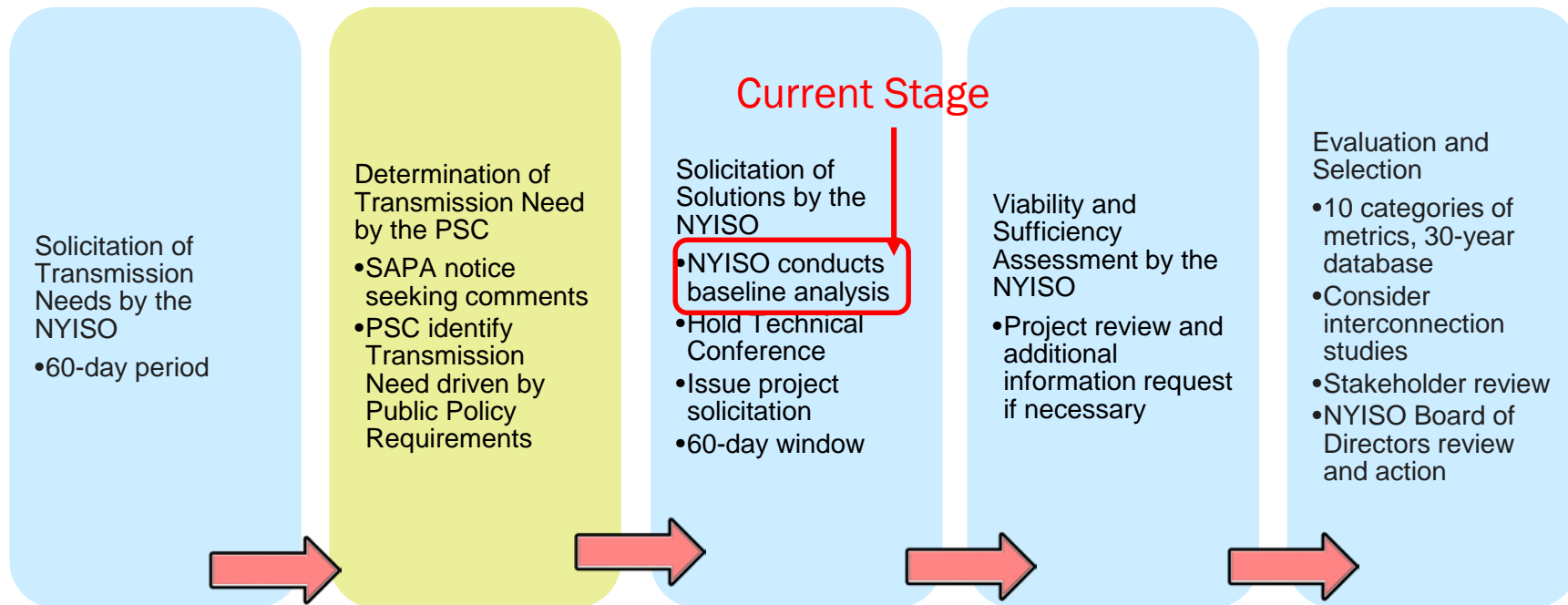
Ross Altman

Manager, Public Policy & Interregional Planning

ESPWG/TPAS

July 01, 2021

Public Policy Transmission Planning Process



Blue means NYISO steps

Green means PSC steps

Baseline Analysis

VSA Baseline Assumptions: Methodology

- **Objective: Identify system constraints impacted by LI offshore wind**
- **Steady-state N-0, N-1, and N-1-1 thermal and voltage analysis**
- **Security constrained dispatch will allow system adjustments consistent with transmission security criteria**
 - Renewables maintained at full output, but certain conventional generation may be allowed to redispatch to mitigate/reduce overloads
- **Additional reliability analysis will be performed in System Impact Study and Evaluation & Selection assessment to evaluate projects beyond the sufficiency criteria**

VSA Baseline Generation Assumptions

- Modeled generation retirements and land based renewable buildout consistent with RNA 70 x 30 scenario
- Over 8,000 MW conventional generation in Zone J and over 3,000 MW conventional generation in Zone K available
- Certain units dispatched in Zones J & K for local reliability needs
- Economic dispatch and operating requirements will be considered in production cost simulations and additional scenarios in Evaluation and Selection Phase

VSA Baseline Assumptions: Generation & Load

	Zone J		Zone K	
	Summer Peak	Light Load	Summer Peak	Light Load
Load (MW net)	11,195 (including 290 MW BTM solar)	4,524 (including 644 MW BTM solar)	4,423 (including 499 MW BTM solar)	1,107 MW (including 1,108 MW BTM solar)
Conventional Generation Dispatch (Pgen MW)	~2,100	~900	~2,000	~500
Conventional Reserve (Pmax - Pgen MW of committed units)	~2,400	~2,400	~900	~400
Total Conventional Generation Available (Pmax)	>8,000	>8,000	>3,000	>3,000

VSA Baseline Assumptions: Imports and Transmission Projects

- **LIPA Imports**
 - ISO-NE: Northport-Norwalk = 0, Cross Sound Cable = 0
 - PJM: Neptune = 660 MW (0 MW import in light load)
- **LIPA-NY tie lines**
 - Jamaica 138 kV ties (901/903) = 300 MW to Zone J
 - Sprain Brook-East Garden City 345 kV (Y49) reverses flow to inject power into Zone I
- **NYC Imports**
 - 1,310 MW generic HVDC injection @ Rainey 345 kV (0 MW import in light load)
- **LI and NYC LTP updates included in FERC 715**

Offshore Wind: VSA Baseline Scenario

- **~3,000 MW in Zone K at full output:**
 - LIPA/NYSERDA Awarded: 139 MW @ East Hampton 69 kV, 880 MW @ Holbrook 138 kV, 1,260 MW @ Barrett 138 kV
 - Non-Awarded: 800 MW @ Ruland Rd. 138 kV
- **~6,000 MW in Zone J at full output:**
 - NYSEERDA Awarded: 816 MW @ Gowanus 345 kV, 1,230 MW @ Astoria 138 kV
 - Non-Awarded: 1,310 MW each @ Farragut East 345 kV, Farragut West 345 kV, and West 49th St. 345 kV
- **Project sufficiency will be determined from this baseline**

Sufficiency Criteria

- Add at least one bulk transmission intertie cable connecting between Zone K and the rest of the New York Control Area
- Ensure full output of at least 3,000 MW of offshore wind connected to Long Island (Zone K) while maintaining transmission security under N-0, N-1, and N-1-1 for summer peak and light load conditions
 - Focus will be resolving constraints on bulk and ISO secured facilities impacted by Long Island offshore wind
- Further detail on Sufficiency Criteria will be provided in the PPTN Solution Solicitation

Baseline Cases and Detailed Results

- Detailed results will be available on NYISO website
- Baseline study cases and auxiliary files will be available to prospective developers
 - Must complete CEII/NDA [here](#)

Requested Information (Select all applicable): *

- MyNYISO.com access
- NYISO FERC 715 Files
- NYISO TCC Auction Data (TAD)
- Project Specific Interconnection Materials
- NYISO Direct Communications Procedure
- Dynamics and Short Circuit Databases (Non project specific)
- Other

Other Information & Acknowledgements

Specify what information you are looking for *

Long Island Offshore Wind Export Public Policy Transmission Need cases and other supporting material.

I affirm that the requested information is needed and will be used solely for the following purpose: *

The development of a LI OSW Export PPTN project.

Describe in detail

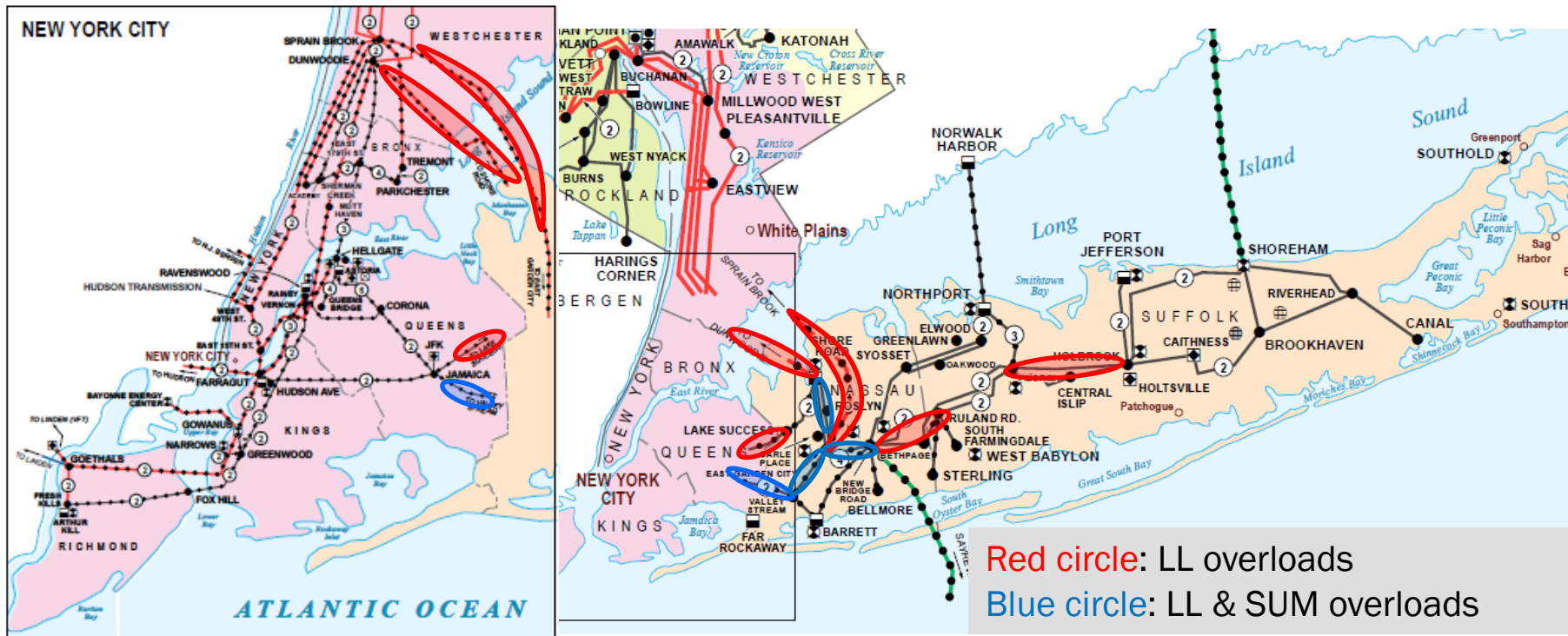
Baseline Results

Baseline Scenario: Significant N-0 Constraints

Monitored Facility	Light Load		Sum Peak	
	Rate (MVA)	Loading (%)	Rate (MVA)	Loading (%)
Long Island				
Valley Stream - East Garden City 138 kV	194	217	214	100
East Garden City - New Bridge Rd 138 kV	194	207	-	-
Carle Place - East Garden City 138 kV	320	184	-	-
New Bridge Rd - Ruland Rd 138 kV	259	108	-	-
Long Island Tie Lines				
Y50: Dunwoodie - Shore Rd 345 kV	780	167	-	-
Y49: Sprainbrook - East Garden City 345 kV	770	126	-	-

Table lists representative overloads. Full results will be included in the results spreadsheets.

Baseline Scenario: Significant N-1 Constraints



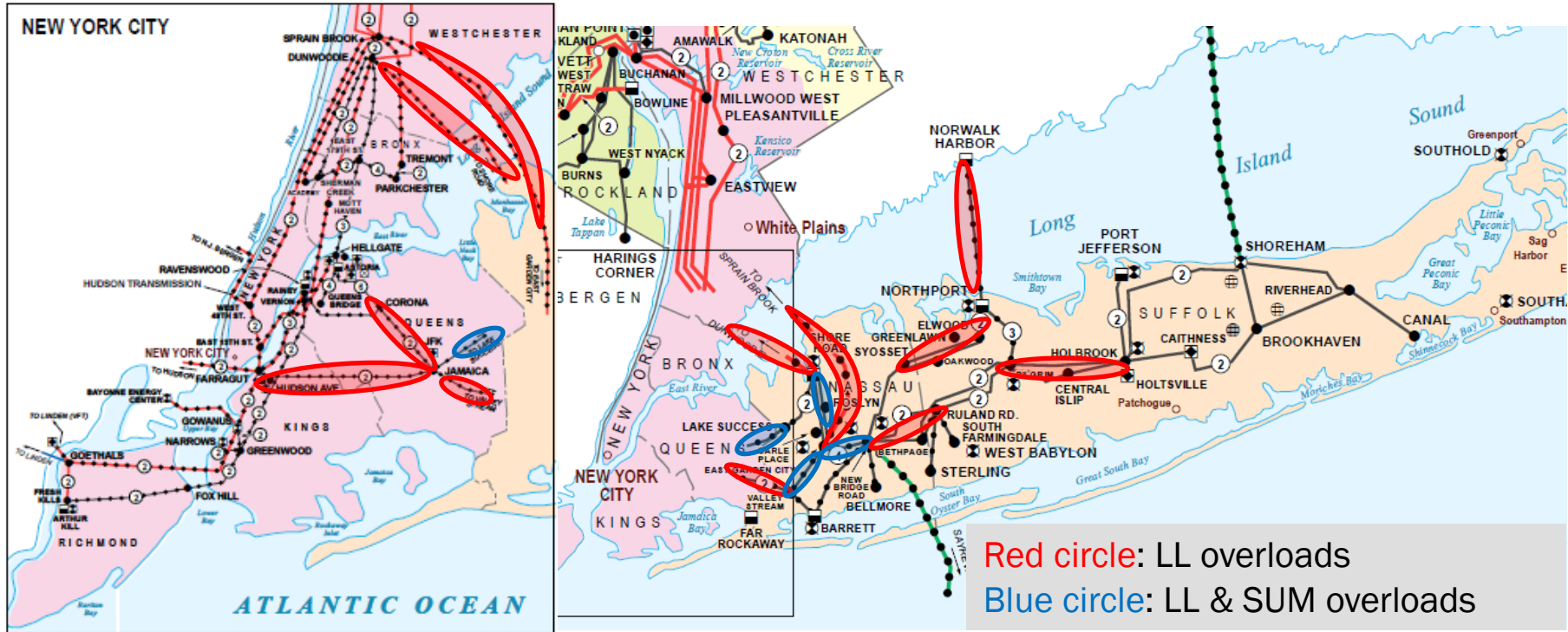
Red circle: LL overloads
Blue circle: LL & SUM overloads

Baseline Scenario: Significant N-1 Constraints

Monitored Facility	Light Load			Sum Peak		
	Rate (MVA)	Loading (%)	Contingency	Rate (MVA)	Loading (%)	Contingency
Long Island						
East Garden City - New Bridge Rd 138 kV	284	278	EGC Bus Con	287	107	EGC Bus Con
Carle Place - East Garden City 138 kV	352	255	EGC Stuck Breaker Con	303	102	EGC Stuck Breaker Con
Valley Stream - East Garden City 138 kV	284	230	Valley Stream - EGC	298	124	Valley Stream - EGC
New Bridge Rd - Ruland Rd 138 kV	388	135	Ruland - NB	-	-	-
Hauptague - C. Islip 138 kV	288	118	Holbrook - Ruland	-	-	-
Long Island Tie Lines						
Jamaica - Valley Stream 138 KV	375	231	EGC Bus Con	365	102	EGC Bus Con
Jamaica - Lake Success 138 KV	368	193	Y50	-	-	-
Y50: Dunwoodie - Shore Rd 345 kV	1028	170	Y49	-	-	-
Y49: Sprainbrook - East Garden City 345 kV	990	142	ShoreRd Bus Con	-	-	-

Table lists representative overloads. Full results will be included in the results spreadsheets.

Baseline Scenario: Significant N-1-1 Constraints



Baseline Scenario: Significant N-1-1 Constraints

Monitored Facility	Light Load				Sum Peak			
	Rate (MVA)	Loading (%)	1st Contingency	2nd Contingency	Rate (MVA)	Loading (%)	1st Contingency	2nd Contingency
Long Island								
East Garden City - New Bridge Rd 138 kV	284	497	EGC - NewBridge	EGC Bus Con	287	229	EGC - NewBridge	EGC Bus Con
Glenwood - Shore Road 138 kV	388	365	Y49	Glenwood Bus Con	324	133	Y49	EGC - Roslyn
Valley Stream - East Garden City 138 kV	284	346	Valley Stream - EGC	Ruland OSW	298	173	EGC - Roslyn	Barrett Bus Con
New Bridge Rd - Ruland Rd 138 kV	331	167	NewBridge - Ruland	NewBridge - Ruland	-	-	-	-
Syosset - Greenlawn 138 kV	368	120	Carle - EGC	Elwood Bus Con	-	-	-	-
Hauapague - C. Islip 138 kV	288	120	Holbrook - Ruland	Pilgram xfmr	-	-	-	-
Long Island Tie Lines								
Jamaica - Lake Success 138 KV	368	295	Y49	Y50	345	113	901	Astoria OSW
Jamaica - Valley Stream 138 KV	375	250	Y50	Y49	-	-	-	-
Y50: Dunwoodie - Shore Rd 345 kV	1028	206	Y49	901	-	-	-	-
Y49: Sprainbrook - East Garden City 345 kV	990	169	Y50	NNC	-	-	-	-
Norwalk - Northport 138 kV	210	152	Y49	Y50	-	-	-	-
New York City								
Farragut West 345/138 kV xfmr	177	174	Y49	Y50	-	-	-	-
Corona - Jamaica 138 kV	250	162	Y49	Y50	-	-	-	-
Hudson Ave - Jamaica 138 kV	363	144	Y49	Y50	-	-	-	-

Table lists representative overloads. Full results will be included in the results spreadsheets.

Baseline Constraints Beyond Sufficiency Criteria

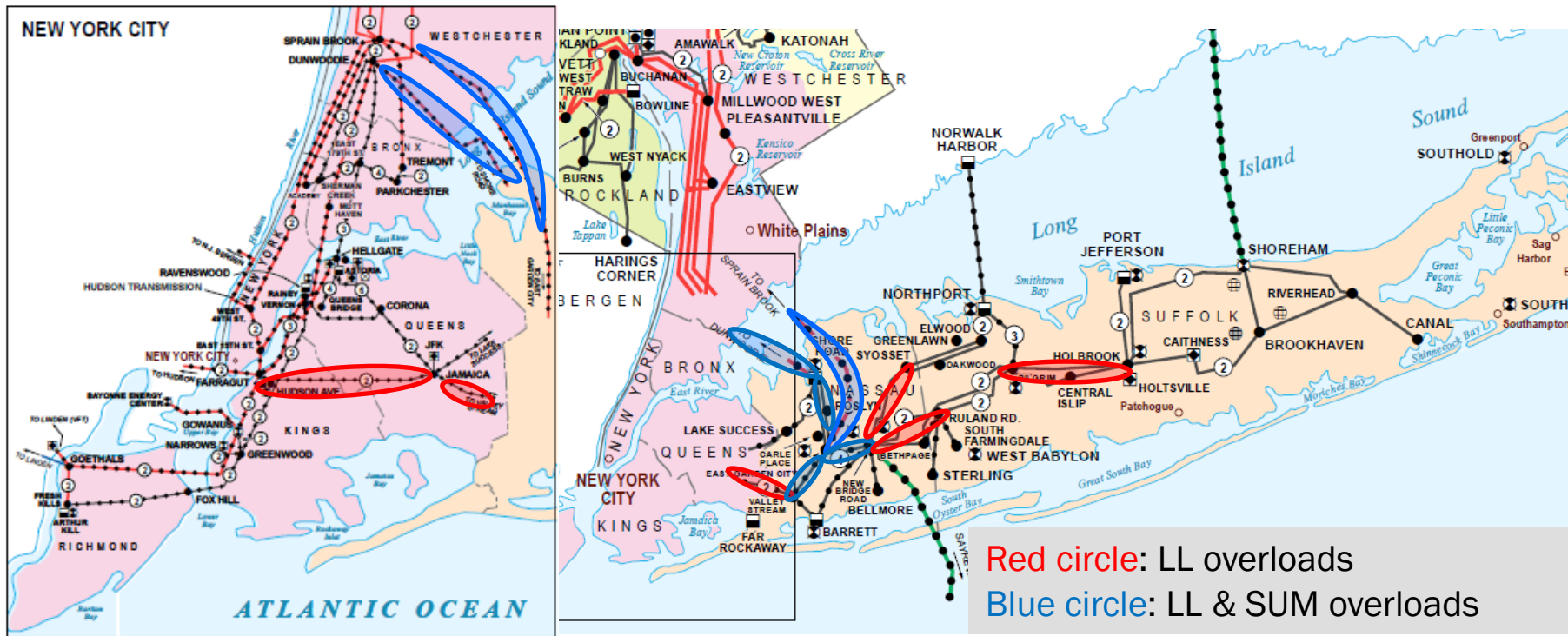
- **Barrett-Valley Stream & Barrett-New Bridge Rd constraints are assumed to be resolved by the offshore wind developer**
- **Several overloads in Zones I & J are impacted by NYC offshore wind and other study assumptions, but are not significantly impacted by LI offshore wind export**

Alternate Scenario Results

Alternate Scenario

- **~6,000 MW Offshore Wind in Zone K at full output:**
 - LIPA/NYSERDA Awarded: 139 MW @ East Hampton 69 kV, 1,050 MW @ Holbrook 138 kV, 1,350 MW @ Barrett 138 kV
 - Non-Awarded: 1,150 MW each @ Ruland Rd. 138 kV, East Garden City 345 kV, Northport 138 kV
- **~6,000 MW Offshore Wind in Zone J at full output:**
 - NYSEERDA Awarded: 816 MW @ Gowanus 345 kV, 1,230 MW @ Astoria 138 kV
 - Non-Awarded: 1,310 MW each @ Farragut East 345 kV, Farragut West 345 kV, and West 49th St. 345 kV
- **Other major assumptions consistent with Baseline Scenario**
- **This scenario, potentially along with other scenarios, will be used in the Evaluation and Selection phase to evaluate and rank projects' performance in the expandability metric**

Alternate Scenario: Significant N-0 Constraints

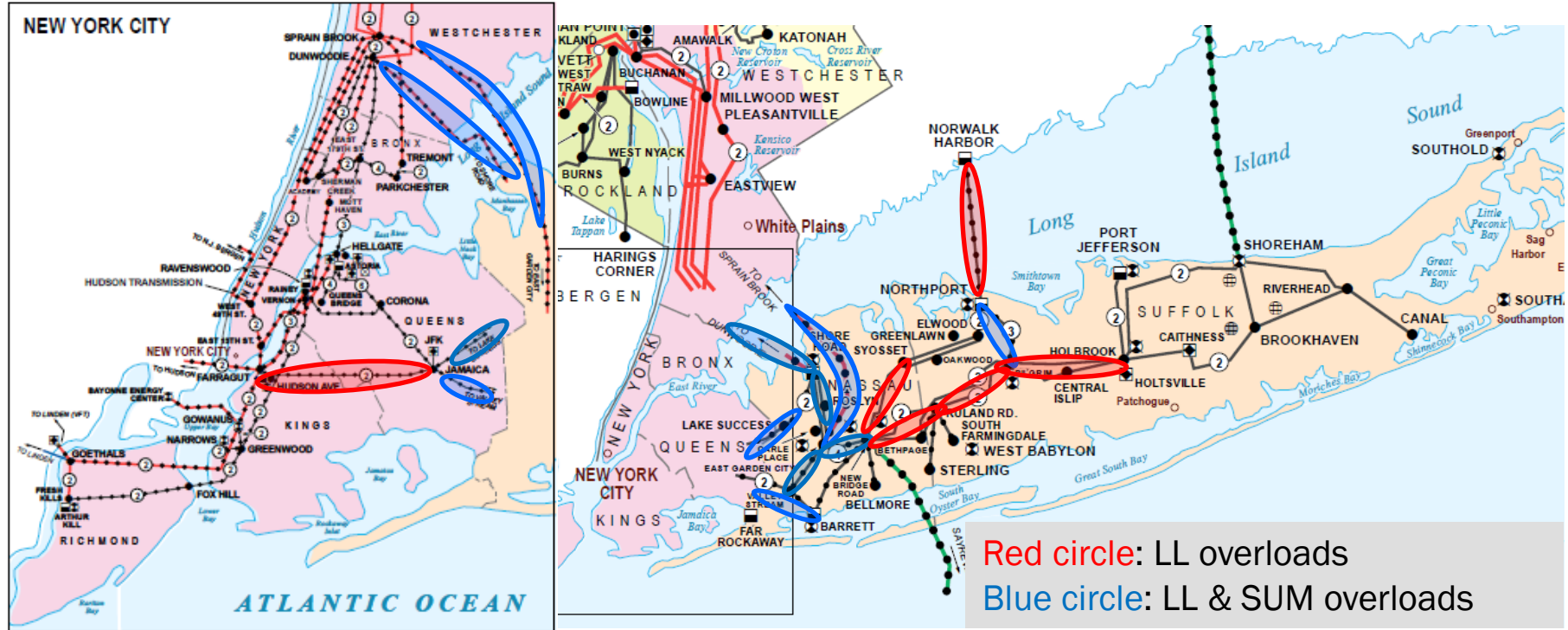


Alternate Scenario: Significant N-0 Constraints

Monitored Facility	Light Load		Sum Peak	
	Rate (MVA)	Loading (%)	Rate (MVA)	Loading (%)
Long Island				
East Garden City - New Bridge Rd 138 kV	194	354	207	159
Glenwood - Shore Road 138 kV	351	328	264	189
New Bridge Rd - Ruland Rd 138 kV	259	200	-	-
Valley Stream - East Garden City 138 kV	194	150	214	107
Locust Grove - New Bridge Rd 138 kV	365	130	-	-
Hauptague - C. Islip 138 kV	215	126	-	-
Long Island Tie Lines				
Y50: Dunwoodie - Shore Rd 345 kV	780	340	690	112
Y49: Sprainbrook - East Garden City 345 kV	770	301	708	191
Jamaica - Valley Stream 138 KV	320	142	-	-
New York City				
Hudson Ave - Jamaica 138 kV	178	186	-	-
Farragut West 345/138 kV xfmr	143	127	-	-

Table lists representative overloads. Full results will be included in the results spreadsheets.

Alternate Scenario: Significant N-1 Constraints



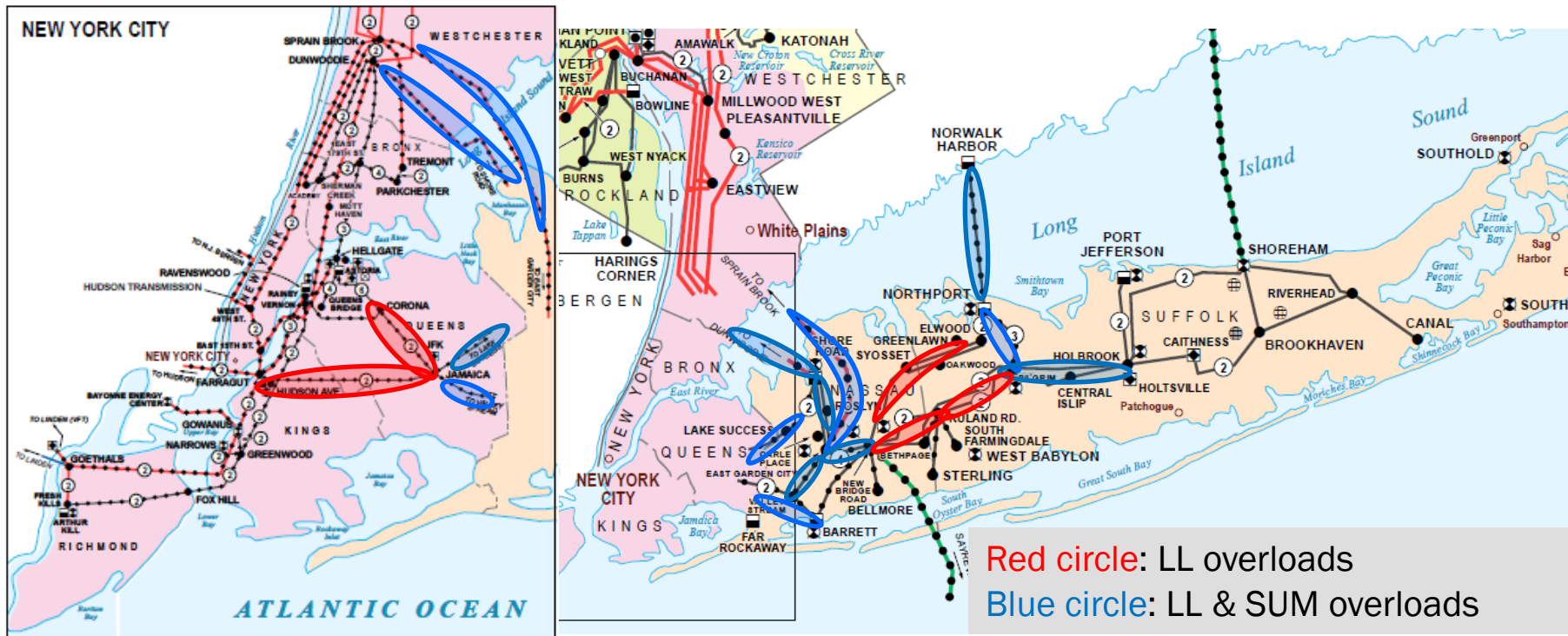
Red circle: LL overloads
 Blue circle: LL & SUM overloads

Alternate Scenario: Significant N-1 Constraints

Monitored Facility	Light Load			Sum Peak		
	Rate (MVA)	Loading (%)	Contingency	Rate (MVA)	Loading (%)	Contingency
Long Island						
Glenwood - Shore Road 138 kV	388	459	Y49	324	261	Y49
East Garden City - New Bridge Rd 138 kV	284	430	EGC Bus Con	287	237	EGC Bus Con
New Bridge Rd - Ruland Rd 138 kV	388	253	Ruland - NewBridge	-	-	-
Valley Stream - East Garden City 138 kV	284	177	Jamaica - VS	298	137	EGC - Valley Stream
Haupague - C. Islip 138 kV	288	177	Holbrook OSW	-	-	-
Northport 138 kV PAR	591	140	Ruland Rd Bus Con	482	104	Pilgram Bus Con
Locust Grove - Syosset 138 kV	591	134	Ruland Rd Bus Con	-	-	-
Bagatelle Rd - Pilgram 138 kV	617	122	Ruland Rd Bus Con	-	-	-
Long Island Tie Lines						
Y50: Dunwoodie - Shore Rd 345 kV	1028	385	Y49	963	153	Y49
Jamaica - Valley Stream 138 KV	375	296	EGC - CP	366	166	EGC Bus Con
Y49: Sprainbrook - East Garden City 345 kV	990	290	EGC - CP	948	190	ShoreRd Bus Con
Jamaica - Lake Success 138 KV	368	164	Y49	345	127	Y50
Norwalk - Northport 138 kV	210	121	Y49	-	-	-
New York City						
Farragut West 345/138 kV xfmr	177	215	Y49	-	-	-
Hudson Ave - Jamaica 138 kV	363	160	Y49	-	-	-

Table lists representative overloads. Full results will be included in the results spreadsheets.

Alternate Scenario: Significant N-1-1 Constraints



Alternate Scenario: Significant N-1-1 Constraints

Monitored Facility	Light Load				Sum Peak			
	Rate (MVA)	Loading (%)	1st Contingency	2nd Contingency	Rate (MVA)	Loading (%)	1st Contingency	2nd Contingency
Long Island								
East Garden City - New Bridge Rd 138 kV	284	676	EGC - NB	EGC Bus Con	287	420	EGC - NB	EGC Bus Con
Glenwood - Shore Road 138 kV	388	595	Glwd- Roslyn	Y49	324	449	ShoreRd - Glwd	Y49
Valley Stream - East Garden City 138 kV	284	278	VlyStr xfmr	VlyStrm - EGC	298	178	VlyStrm - EGC	Barrett Bus Con
New Bridge Rd - Ruland Rd 138 kV	331	266	NB - Ruland	NB - Ruland	-	-	-	-
Northport 138 kV PAR	591	199	Northport - Pilgram	Northport Bus Con	482	241	Northport - Pilgram	Northport Bus Con
Haupague - C. Islip 138 kV	288	181	Ruland - Holbrook	Pilgram xfmr	281	159	Holdbrook OSW	Pilgram xfmr
Syosset - Greenlawn 138 kV	368	157	Elwood xfmr	Northport Bus Con	-	-	-	-
Bagatelle Rd - Pilgram 138 kV	617	111	NNC	LG - Syosset	-	-	-	-
Long Island Tie Lines								
Jamaica - Valley Stream 138 KV	375	390	Y49	ShoreRd Bus Con	365	238	Y50	Y49
Y50: Dunwoodie - Shore Rd 345 kV	1028	375	Y49	ValleyStream Bus Con	963	174	901	Y49
Norwalk - Northport 138 kV	210	343	NNC	NNC	192	138	Y50	Y49
Y49: Sprainbrook - East Garden City 345 kV	990	321	ShoreRd xfmr	ShoreRd Bus Con	948	230	Y50	EGC - Carle
Jamaica - Lake Success 138 KV	368	313	Rainy - Farragut	Y50	345	241	Y50	Y49
New York City								
Corona - Jamaica 138 kV	250	200	Y49	Astoria OSW	235	153	Y50	Y49
Farragut West 345/138 kV xfmr	177	191	HG - Astoria	Y50	-	-	-	-
Hudson Ave - Jamaica 138 kV	363	161	HG - Astoria	Y50	-	-	-	-

Table lists representative overloads. Full results will be included in the results spreadsheets.

Next Steps

Estimated Schedule for Next Steps in Solicitation Phase

- VSA baseline cases and detailed results made available for prospective Developers
- July 8: Technical Conference(s) for prospective Developers
- Early August: Issue Solution Solicitation Letter

Technical Conference Logistics

- July 8th 11-3:30 via webex
- Invitation and instruction to register will be sent via email to ESPWG members and Qualified Developers
 - Prospective developers and interested parties who did not receive the invite may reach out to Kirk Dixon, kdixon@nyiso.com
- Developers may send questions/suggested topics ahead of time by July 1st to PublicPolicyPlanningMailbox@nyiso.com
- The NYISO may hold more than one technical conference

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system



Questions?