2011 Interim Area Transmission Review

Of the New York State Bulk Power Transmission System

FINAL REPORT

March 1, 2012

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Introduction

The New York Independent System Operator (NYISO) conducts an annual assessment of the reliability of the planned New York State Bulk Power Transmission Facilities (BPTF) as required in accordance with established North American Electric Reliability Corporation (NERC) Reliability Standards, Northeast Power Coordinating Council (NPCC), New York State Reliability Council (NYSRC), and NYISO criteria, rules, and procedures. The 2011 Interim Area Transmission Review (ATR) is conducted for the near-term (years one through five) planning horizon, assessing the planned year 2016 system.

The Guidelines and Procedures for NPCC Area Transmission Reviews require each Area to conduct a Comprehensive Area Transmission Review (CATR) at least every five years and either an Interim or an Intermediate ATR in each of the years between CATRs, as appropriate. The most recent NYISO CATR (2010) performed by NYISO was approved by the NPCC Reliability Coordinating Council (RCC) in June 2011.

This assessment is conducted in accordance with the requirements for an Interim Review as described in the Directory #1 - Appendix B "Guidelines and Procedures for NPCC Area Transmission Reviews" and the NYSRC Procedure for New York Control Area Transmission Reviews. The 2011 Interim ATR assesses the reliability impacts of changes in forecasted system conditions and planned New York State BPTF since the 2010 NYISO CATR.

1. Forecasted System Conditions and Planned Facilities

The forecasted system conditions and planned generation and transmission facilities assessed in the NYISO 2010 CATR were based on the 2010 NYISO Load and Capacity Data Report. This Interim Review is based on the forecasted conditions and planned facilities from the 2011 NYISO Load and Capacity Data for the year 2016 and contains additional proposed or recently approved projects not included in the 2010 Load and Capacity Data Report. Table 1 summarizes the forecasted conditions and planned facilities for this review and the 2010 Comprehensive Review for comparison.

a. Load Forecast

Table 1 provides a comparison between the statewide coincident peak load forecast in the 2011 Interim ATR and the 2010 CATR. The 2011 statewide coincident peak load forecast for Summer 2016 for the New York Control Area (NYCA) is 33,749 MW, which is 272 MW (0.8 %) less than the Summer 2015 forecast of 34,021 MW used in the NYISO 2010 CATR.

b. Capacity Resources

The 2011 forecast from the NYISO 2011 Load and Capacity Data report for generating facilities (existing or under construction) in New York in 2016 is 39,064 MW. This Interim ATR also includes an additional 2,490 MW of proposed Class Year generation projects (projects at the Facilities Study stage of the NYISO Interconnection Study) and 1,904 MW of net capacity transactions from external areas which count towards the NYCA installed capacity. The corresponding installed capacity for the 2016 summer is 45,511 MW, including Special Case Resources (SCR, or demand response) of 2,053 MW. The reserve margin is 34.9%, which is well above the required Installed Reserve Margin (IRM) of 15.5% approved by the NYSRC for the 2011-2012 capability period. This increase in capacity from 45,245 MW in the last CATR results in an increase in the reserve margin of 1.9%.

Proposed generation projects and announced generation shutdowns or derates are shown in Table 2 and reflect any changes since the NYISO 2010 CATR. Upon announcement from the Generator Owner, generation shutdowns and derates are evaluated to determine if they would have an adverse impact on the reliability of the BPTF. The NYISO performed a transmission security assessment for each announced generation shutdown listed in Table 2 and found no significant adverse impacts on the reliability of the BPTF.

c. Transmission Facilities

The transmission plans shown in Table 3 reflect changes since the NYISO 2010 CATR including project cancellations and new projects. There has been no additional bulk power projects proposed for the NYCA beyond those in the NYISO 2011 Load and Capacity Data.

The Jordanville Wind Project (Q#186) proposed interconnection point was the Porter – Rotterdam 230 kV line. The cancellation of the Jordanville Wind Project does not materially impact the system topology or analysis of the New York State BPTF from the 2010 CATR.

2. Impact Assessments

The 2010 Comprehensive Area Transmission Review assessed and evaluated thermal, voltage, and stability performance of the New York State BPTFs for design and extreme contingencies as required by NERC TPL standards, NPCC Directory #1, and NYSRC Reliability Rules B-R1 (Section 2.3), B-R2 (Section 2.4), B-R3 (Section 2.5), and B-R4 (Section 4). The 2010 CATR results confirm that the base case meets criteria, and by limiting power transfers consistent with the transfer limits reported in the 2010 CATR, the security of the New York State BPTFs will be maintained and projected demand will be supplied. System conditions have not changed sufficiently to impact the findings of these 2010 CATR assessments.

a. Special Protection Systems

New York has not added nor changed any Type 1 SPS, nor planned any new Type 1 SPS since the 2010 Comprehensive Review. System conditions have not changed sufficiently to impact the operation or classification of existing SPS.

b. Dynamic Control Systems

System conditions have not changed sufficiently to impact the operation or classification of previously reviewed DCS since the 2010 Comprehensive Review.

c. Short Circuit Assessment

System fault duty levels are evaluated in the annual interconnection process. Mitigation plans are developed for all potential over-duty problems that are identified during those processes. The short circuit assessment is currently under evaluation in the Class Year 2011 study.

d. Review of Exclusions from NPCC Basic Criteria

The NPCC Directory #1 contains a provision that allows a member to request an exclusion from criteria contingencies that are "simultaneous permanent phase to ground faults on different phases of each of two adjacent transmission circuits on a multiple circuit tower, with normal fault clearing." NYISO does not have any such exclusion at this time therefore none were reviewed. Furthermore, NYISO does not anticipate requesting any exclusion in the near future.

e. System Restoration Assessment

NYSRC Reliability Rule B-R5 requires the NYISO to evaluate the impacts of system expansion plans on the NYCA System Restoration Plan. The RG&E Rochester Transmission Reinforcement is a planned 345/115 kV substation located approximately 2 miles west of Station 80 connecting to the two Niagara – Rochester 345 kV lines. The impact of this new substation will be evaluated for the NYISO System Restoration Plan prior to being placed in-service. These potential impacts have been communicated to NYISO Operations Engineering for consideration in the annual review and update of the NYCA System Restoration Plan.

f. NYSRC Local Rules Assessment

The NYSRC has adopted local reliability rules that apply to the New York City and Long Island zones to protect the reliable delivery of electricity for specific electric system characteristics and demographics relative to these zones. The NYISO base cases are developed using the forecasted NYCA system conditions and planned facilities described in this Interim Review, consistent with NYSRC Reliability Rules I-R1 through I-R5.

I-R1 Operating Reserves/Unit Commitment, I-R2 Locational Reserves (New York City)

Local operating reserve rules are considered in the development of the base cases used for all reliability assessments.

I-R3 Loss of Generator Gas Supply (New York City), I-R5 Loss of Generator Gas Supply (Long Island)

Specific loss of generator gas supply studies are performed by ConEdison and LIPA and reviewed by the NYISO. The planned system is expected to be compatible with local rules regarding loss of generator gas supply.

I-R4 Thunderstorm Watch (New York City)

Proposed facilities included in this assessment do not impact the Thunderstorm Watch contingency list.

g. Extreme System Condition Assessment

NYSRC Reliability Rule K-R3 requires assessment of extreme system conditions, which have a low probability of occurrence, such as loss of major gas supply and extreme peak load level resulting from extreme weather conditions. The 2010 CATR (Section 5) found no significant voltage violations, thermal overloads, or stability issues under evaluated gas shortage and extreme weather conditions. System conditions have not changed sufficiently to impact the findings of the 2010 CATR.

3. Overview Summary

The annual reliability assessment performed in this Interim Review of the changes in forecasted NYCA system conditions and planned facilities indicate the New York State Bulk Power Transmission Facilities, as planned through the year 2016, conform to the reliability criteria described in the NYSRC Reliability Rules, NPCC Directory #1 "Design and Operation of the Bulk Power System", and applicable NERC Reliability Standards. The CATR confirms that no additional upgrades are necessary to meet the performance requirements of the NYSRC Reliability Rules, NPCC Directory #1, or NERC TPL Reliability Standard Categories A, B, and C of Table I.

Table 1
Load and Capacity Schedule

	Comprehensive Review: 2010 Forecast for Summer 2015	Interim Review: 2011 Forecast for Summer 2016	Change From Previous CATR
Peak Load (MW)	34,021 (1)	33,749	-272
Total Capacity (MW)	45,245 (2)	45,511 (3)	266
Reserve Margin	33%	34.9%	1.9%

Notes:

1. The 2015 forecast considers Alcoa and Reynolds industrial loads in-service in Zone D.
2. This is derived from the NYISO 2010 Load and Capacity Data. The Total Capacity represents the 2015 Total Resource Capability (43,581.2 MW), from Table V-2a in NYISO 2010 Load and Capacity Data, plus Proposed Resource Additions (1,663.9 MW) from Table IV-1 in NYISO 2010 Load and Capacity Data. This value includes SCR (demand response) and net capacity transactions from external areas.
3. This is derived from the NYISO 2011 Load and Capacity Data. The Total Capacity represents the 2016 Total Resource Capability (43,021 MW), from Table V-2a in NYISO 2011 Load and Capacity Data, plus Proposed Resource Additions (2490 MW) from Table IV-1 in NYISO 2011 Load and Capacity Data. This value includes SCR (demand response) and net capacity transactions from external areas. Berrians GT III nameplate has changed from 744 MW to 250 MW.

Table 2
Changes in Generation Facilities

Additions/Uprates > 100 MW:	***Size (MW)***	***2010 CATR: Forecast for Summer 2015***	***2011 Interim ATR: Forecast for Summer 2016***
		Included / IS Date	***Included / IS Date***
Moresville Energy Wind Project (Q#152) [2]	99	N / NA	Y / 2012-Q4
AES St. Lawrence Wind Project (Q#166) [2]	130	Y / 2012F	Y / 2013F
Alabama Ledge Wind Project (Q#169) [2]	79.8	N / NA	Y / NA
Marble River I & II (Q#161, Q#171) [2]	218	Y / 2011F	Y / 2012F
Howard Wind (Q#182) [2]	58.4	N / NA	Y / 2011 W
Jordanville Wind Project (Q#186) [2]	150	Y / 2011W	N / Cancelled
Arkwright Wind Project (Q#198) [2]	79.8	N / NA	Y / NA
Cape Vincent Wind Project (Q#207) [2]	210	Y / 2012W	Y / 2013F
Noble Ellenberg II Windfield (Q#213) [2]	21	Y / 2011W	Y / 2011W
Nine Mile Point Uprate (Q#216)	168	Y / 2012-Q2	Y / 2012S & 2014S
Ball Hill Wind Park (Q#222) [2]	90	Y / 2011W	Y / 2011W
Berrians I & II (Q#201, Q224)	250	N / NA	Y / 2014S
Bayonne Energy Center (Q#232)	500	Y / 2011S	Y / 2012S
Allegany Wind Project (Q#237) [2]	72.5	Y / 2011F	Y / 2011F
CPV Valley (Q#251)	656	Y / 2010F	Y / 2012F
Ripley-Westfield Wind Project (Q#254) [2]	124.2	Y / NA	Y / 2011W
South Pier Improvement (Q#261)	103.7	Y / 2012S	Y / 2012S
Stony Creek Wind Farm (Q#263) [2]	88.5	Y / NA	Y / 2012S
Berrians GT III (Q#266)	250	Y / 2012S	Y / 2013S
Astoria Energy II (Q#308)	576	Y / 2011S	Y / In-service
AP Dutchess (Q#310)	1002	N / NA	Y / 2014W
Shutdowns/Deratings:	***Size***	***Included / OS Date***	***Included / OS Date***
Greenidge 4 [1]	108	Y / 2011-03	N / Retired
Westover 8 [1]	80	Y / 2011-03	N / Retired
Ravenswood GT 3-4	30	Y / NA	N / 2011-06
Barrett#7	18	Y / NA	N / 2011-10
Far Rockaway 4	100	Y / NA	N / 2012S
Glenwood 4	100	Y / NA	N / 2012S
Glenwood 5	100	Y / NA	N / 2012S

Note:
1 – Unit included in the base case because retirement or lay-up announcement received after the study started
2– For wind plants, 10% of their nameplate rating counts towards their seasonal capability rating
NA – Not Applicable or Not Available

Table 3
Changes in Bulk Power Transmission Facilities

	2010 CATR: Forecast for Summer 2015	2011 Interim ATR: Forecast for Summer 2016
Bulk Transmission:	**Included/IS Date**	**Included/IS Date**
Patnode 230 kV Substation (Q#161)	Y / 2011S	Y / 2012S
Jordanville 230 kV Substation (Q#186)	Y / 2011-Q4	N / Cancelled
Hudson Transmission Project HVdc (Q#206)	Y / 2013	Y / 2013
Ball Hill 230 kV Substation (Q#222)	Y / 2011-Q4	Y / 2011-Q4
Bayonne Energy Center Gowanus 345 kV Substation Upgrade (Q#232)	Y / 2012-Q2	Y / 2012-Q2
CPV Valley 345 kV Substation (Q#251)	Y / 2012-Q4	Y / 2012-Q4
South Ripley 230 kV Substation (Q#254)	Y / 2011-Q4	Y / 2011-Q4
Stony Creek 230 kV Substation (Q#263)	Y / NA	Y / 2012-Q4
AP Dutchess 345 kV Substation (Q#310)	N / NA	Y / 2014W
Rochester Transmission Reinforcement 345 kV Substation (Q#339)	N / NA	Y / 2013W