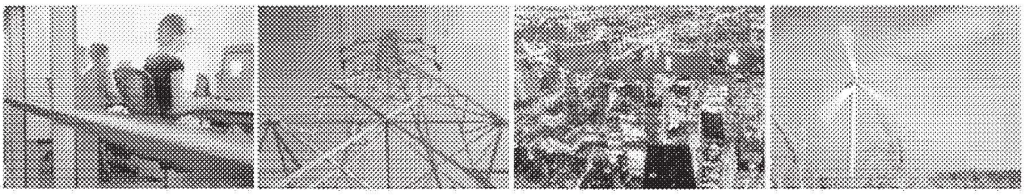
2010 Reliability Needs Assessment



New York Independent System Operator

FINAL REPORT

September 2010

Executive Summary

The 2010 Reliability Needs Assessment (RNA) commences the fifth cycle of the NYISO's reliability planning processes provided for in its Comprehensive System Planning Process (CSPP). The NYISO's CSPP encompasses the existing reliability planning processes with the new economic planning process called the Congestion Analysis and Resource Integration Study (CARIS). The RNA provides a long-range reliability assessment of both resource adequacy and transmission security of the New York bulk power system conducted over a 10-year planning horizon. This 2010 RNA builds upon the results and analyses contained in the NYISO's prior Comprehensive Reliability Plans (CRP) in 2005, 2007, 2008 and 2009 respectively. The first three CRPs responded to the Reliability Needs identified by their respective RNAs. The 2009 RNA, with the reduced forecast associated with energy efficiency peak load reductions, increased generation and increased demand response, identified no Reliability Needs. The fourth CRP indicated that the system was reliable and no solutions were necessary in response to the 2009 RNA.

The 2010 RNA identified no Reliability Need, assuming that all modeled transmission and generation facilities, including Indian Point, remain in service during the next 10 years from 2011 through 2020. The study of the Base Case indicates that the baseline system meets all applicable Reliability Criteria. However pending regulatory initiatives may affect Base Case facilities and could result in unanticipated retirement of capacity in New York. The NYISO will continue to monitor these developments and will conduct appropriate reliability studies as necessary.

There are three primary reasons this year's RNA continues to find no Reliability Needs for the next 10 years:

1. **Generation additions** – Two new proposed generating plants totaling 1060 MW located in Zone J are included in the 2010 RNA Base Case, but were not included in the previous RNAs.

2. **Lower Energy Forecast** – two factors contributed to this outcome:

   The 2009 Recession – The effect of the 2009 recession was to reduce the peak demand forecast for 2011 by 1400 MW, before any energy efficiency adjustments. This also reduced the projections of peak load in subsequent years.

   Statewide Energy Efficiency Programs (15 x 15) – This refers to the Governor's initiative to lower energy consumption on the electric system by 15% of the 2007 forecasted levels in 2015. Based on seven factors set forth in the 2010 RNA, the projected impact of these energy efficiency programs has increased from the 2009 RNA. The 2009 RNA included cumulative energy savings of 10,235 GWh by 2018. In the 2010 RNA, this value increased to 13,040 GWh by the year 2018 and to 13,684 GWh by the year 2020.

Table 2-1: Current Status of Tracked Market-Based Solutions & TOs' Plans in the 2008 CRP

Project Type	NYISO Queue #	Submitted	MW	Zone	Original In-Service Date	Current Status[1]	Included in 2010 RNA Base Case?
Resource Proposals							
Gas Turbine NRG Astoria Re-powering[2]	**201 and 224**	CRP 2005, CRP 2007, CRP 2008	520 MW	J	Jan - 2011	New Target June 2012	No
Simple Cycle GT Indian Point		CRP 2007, CRP 2008	300	H	May - 2011	Withdrawn	No
Empire Generation Project	**69**	CRP 2008	635	F	Q1 2010	New Target July 2010 Under Construction	Yes
Transmission Proposals							
Controllable AC Transmission Linden VFT	**125**	CRP 2007, CRP 2008	300 (No specific capacity identified)	PJM - J	Q4 2009 PJM Queue G22	Placed In-Service November, 2009	Yes
Back-to-Back HVDC, AC Line HTP	**206**	CRP 2007, CRP 2008 and was an alternative regulated proposal in CRP 2005	660 (500 MW specific capacity identified)	PJM - J	Q2/2011 PJM Queue O66	New Target Q2 2012 Article VII Pending	No
Cross Hudson	**255**	CRP 2008	550	J	Jun - 2010	Withdrawn as Solution Replaced with queue # 295	No
Cross Hudson II	**295**	CRP 2008	800	J	Jun - 2010	Project No Longer Considered Viable as Solution	No
TOs' Plans							
ConEd M29 Project	**153**	CRP 2005	N/A	J	May - 2011	On Target Under Construction	Yes
Caithness	**107**	CRP 2005	310	K	Jan - 2009	Placed In-Service August, 2009	Yes
Millwood Cap Bank	**N/A**	CRP 2007	240 MVAr	H	Q1 2009	Placed In-Service May, 2009	Yes

[1] Status as provided by Market Participant as of March 31, 2010

[2] NRG sumbitted three proposals, one of them was withdrawn. For the purposes of the Market-Based solutions' evaluation NYISO assumed the lowest MW proposal. There is a retirement of 112 MWs at this location reflected in the base case.

3.1. Impact of Energy Efficiency Programs on the Forecast

The 2010 Gold Book contains two of the three forecasts used in the 2010 RNA. The first forecast produced is an econometric forecast[2] of annual energy and peak demand that does not include the impacts of the statewide 15x15 energy efficiency programs. The second forecast, which is used for the 2010 RNA Base Case, includes a reduction to the econometric forecast for a portion of the full impact of the statewide 15 x 15 energy efficiency initiative. The second forecast reflects an achievement of 51% of the statewide goal by the end of the forecast horizon in 2020. The third forecast was prepared for the 45 x 15 scenario and reflects 100% of the 15 x 15 energy goal by 2015.

As part of the EEPS Proceeding, the NYS PSC directed a series of working groups composed of all interested parties to the Proceeding to obtain information needed to further elaborate its goal. The NYS PSC issued an Order on June 23, 2008, setting short-term goals for programs to be implemented in the 2008-2011 period to begin the process of satisfying the NYS PSC's goal as applied to the entities over which it has jurisdiction. The NYS PSC anticipated that LIPA, NYPA and other state agencies would implement their own programs, including energy efficiency, improvements in building codes and new appliance standards.

The NYISO has been a party to the EEPS proceeding from its inception and is a member of the Evaluation Advisory Group, responsible for advising the NYDPS on the methods to be used to track program participation and measure the program costs, benefits, and impacts on electric energy usage. In conjunction with the consensus view of market participants in the Electric System Planning Working Group, the NYISO developed energy forecasts for the potential impact of the EEPS over the 10-year planning period. The following factors were considered in developing the 2010 RNA Base Case forecast:

- NYS PSC-approved spending levels for the programs under its jurisdiction, including the Systems Benefit Charge and utility-specific programs
- Expectation of increased spending levels after 2011
- Expected realization rates, participation rates and timing of planned energy efficiency programs
- Degree to which energy efficiency is already included in the NYISO's econometric energy forecast
- Impacts of new appliance efficiency standards, and building codes and standards

[2] See Appendix C

Table 3-1 (a): 2010 RNA Forecast

2010 RNA Annual Energy Forecasts

Annual GWh	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2010 Econometric Forecast	161,334	163,305	166,616	170,360	172,969	175,286	177,827	179,844	182,172	184,540	187,015
2010 RNA Base Case Forecast	160,358	160,446	161,618	163,594	164,556	165,372	166,472	167,517	169,132	171,161	173,332
2010 RNA 15x15 Forecast	159,914	159,402	158,892	158,384	157,877	157,380	159,660	161,469	163,558	165,682	167,902

2010 RNA Peak Forecasts

Annual MW	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2010 Econometric Forecast	33,199	33,651	34,192	34,844	35,285	35,696	36,147	36,565	36,983	37,401	37,843
2010 RNA Base Case Forecast	33,025	33,160	33,367	33,737	33,897	34,021	34,193	34,414	34,672	34,986	35,334
2010 RNA 15x15 Forecast	32,934	32,945	32,805	32,662	32,521	32,377	32,794	33,172	33,529	33,866	34,227

Statewide Energy Efficiency Impacts, Measured from 2010 Econometric Forecast (GWh)

Cumulative GWh	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2010 RNA Base Case	976	2,860	4,997	6,765	8,413	9,914	11,355	12,327	13,040	13,379	13,684
2010 RNA 15x15 Forecast	1,420	3,903	7,723	11,976	15,092	17,906	18,167	18,375	18,615	18,858	19,113

Statewide Energy Efficiency Impacts, Measured from 2010 Econometric Forecast (MW)

Cumulative MW	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2010 RNA Base Case	174	491	825	1,107	1,388	1,675	1,954	2,151	2,311	2,415	2,510
2010 RNA 15x15 Forecast	266	706	1,387	2,181	2,764	3,320	3,353	3,393	3,453	3,535	3,616

Table 3-3: Unit Additions

	Queue	Project Name [4]	2010	2011	2012	2013	Total MW
New Thermal Units							
	69	Empire Generating (July 2010) [3]	635				635
	232	Bayonne Energy (June 2011)		513			513
	308	Astoria Energy II (June 2011)		550			550
	237A	Chautauqua Landfill (Feb 2010)	6				6
	N/A[1]	Riverbay (June 2010) [3]	24				24
		New Thermal Units Sub-Total	**665**	**1063**	**0**	**0**	**1728**
New Wind							
	234	Steel Winds II (Nov 2010)* [3]	15				15
		New Wind Sub-Total	**15**	**0**	**0**	**0**	**15**
Unit Uprates							
	185	Blenheim-Gilboa Unit 4 uprate (June 2010) [3]	30				30
	216	Nine Mile Point II (June 2012) [3]			168		168
	127A	Munnsville Wind Power (Dec 2013) [3]				6	6
		Unit Uprates Sub-Total	**30**	**0**	**168**	**6**	**204**
Other							
	260	Stephentown 20 MW Flywheel (Sept. 2010)[2]					
Retired Units							
		Retired Units	**0**	**0**	**0**	**0**	**0**
		Grand Total	**710**	**1063**	**168**	**6**	**1947**

Notes:

(1) Riverbay did not go through the NYISO Interconnection study process since it is connected to a non-FERC jurisdictional line. Only the available capacity is shown.

(2) Stephentown is modeled as a voltage regulation resource.

(3) Included in 2009 RNA.

(4) Subsequent to publication of the 2010 Gold Book, NYISO standardized the way in which Class Year (CY) ratings are set. Gold Books will continue to be consistent with CY ratings at time of publication.

C-2. Historical Overview

C-2.1. NYCA System

Table C-3 shows the New York Control Area's (NYCA) historic peak and energy growth since 2000.

Table C-3: Historic Peak and Energy Data with Growth Rates

			Summer Capability Period		Winter Capability Period		
Year	Annual GWh	Percent Growth	Summer MW	Percent Growth	Year	Winter MW	Percent Growth
2000	156,631		28,138		2000-01	23,774	
2001	156,801	0.11%	30,982	10.11%	2001-02	23,713	-0.26%
2002	158,752	1.24%	30,664	-1.03%	2002-03	24,454	3.12%
2003	158,012	-0.47%	30,333	-1.08%	2003-04	25,262	3.30%
2004	160,211	1.39%	28,433	-6.26%	2004-05	25,541	1.10%
2005	167,208	4.37%	32,075	12.81%	2005-06	25,060	-1.88%
2006	162,237	-2.97%	33,939	5.81%	2006-07	25,057	-0.01%
2007	167,341	3.15%	32,169	-5.21%	2007-08	25,021	-0.14%
2008	165,613	-1.03%	32,432	0.82%	2008-09	24,673	-1.39%
2009	158,780	-4.13%	30,844	-4.90%	2009-10	24,074	-2.43%
Annual Avg Growth:		0.15%		1.03%			0.14%

NYCA is a summer peaking system and its summer peak has grown faster than annual energy and winter peak over this period. Both summer and winter peaks show considerable year-to-year variability due to the influence of extreme weather conditions on the seasonal peaks. Annual energy is influenced by weather conditions over an entire year, which is much less variable.

C-2.2. Regional Energy and Seasonal Peaks

Table C-4 shows historic and forecast growth rates of annual energy for the different regions in New York. The Upstate region includes Zones A – I. The NYCA's most critical load centers are Zones J (New York City) and K (Long Island) are shown individually.

Table C-4: Actual and Forecast Annual Energy- GWh

Year	Upstate Region	New York City	Long Island	NYCA
2000	87,376	49,183	20,072	156,631
2001	85,851	50,227	20,723	156,801
2002	85,852	51,356	21,544	158,752
2003	85,223	50,829	21,960	158,012
2004	85,935	52,073	22,203	160,211
2005	90,253	54,007	22,948	167,208
2006	86,956	53,096	22,185	162,237
2007	89,843	54,750	22,748	167,341
2008	88,316	54,835	22,461	165,613
2009	83,788	53,100	21,892	158,780
2010	85,334	52,838	22,187	160,358
2011	85,458	52,697	22,290	160,446
2012	86,131	53,026	22,461	161,618
2013	87,614	53,437	22,544	163,594
2014	87,967	53,966	22,623	164,556
2015	88,139	54,466	22,767	165,372
2016	88,412	54,939	23,122	166,472
2017	88,872	55,305	23,340	167,517
2018	89,600	55,886	23,646	169,132
2019	90,501	56,630	24,031	171,161
2020	91,412	57,385	24,535	173,332
2000-09	-0.5%	0.9%	1.0%	0.2%
2010-20	0.7%	0.8%	1.0%	0.8%
2000-04	-0.4%	1.4%	2.6%	0.6%
2004-09	-0.5%	0.4%	-0.3%	-0.2%
2010-15	0.6%	0.6%	0.5%	0.6%
2015-20	0.7%	1.0%	1.5%	0.9%

C-3. Trends Affecting Electricity in New York

C-3.1. *2010 Employment Forecast*

The 2010 economic outlook for employment shows a slow recovery from the 2009 recession. Total employment growth does not become positive until 2011. It reaches a rate of 3% by 2013, and then slows to a rate of 0.5% thereafter.