CRP 2005 Report

First Draft

For Discussion Purposes Only

June 30, 2006

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I. Executive Summary

[to be developed]

II. Introduction

The introduction of competition in the electric industry in New York State, and in many parts of the Northeast, has led to the unbundling of power generation – the separation of costs for a utility's services into distinct products and markets – and transmission development. Gone are the days of vertically integrated planning, when generation and transmission plans were tightly coordinated by the State's electric utilities.

In today's world, the power system's reliability depends on a combination of resources, provided by market forces and regulated wires companies, which continue to deliver electricity to customers' homes. To maintain the system's long-term reliability, those resources must be readily available and in development to meet future needs.

With those goals in mind, the NYISO, in conjunction with stakeholders, developed and implemented its Comprehensive Reliability Planning Process (CRPP). This document represents the first in a series of yearly CRPP studies to address the long-term reliability of New York's bulk power system. Electric system planning is a never-ending process of evaluating, monitoring and updating, which makes the CRPP invaluable. While addressing reliability concerns, the CRPP also offers informative and valuable information to the state's wholesale electricity marketplace.

Attachment Y of the NYISO's Open Access Transmission Tariff (OATT), sets forth the CRPP process; the Federal Energy Regulatory Commission (FERC) approved the process in December 2004.

The objectives of the CRPP are to:

1. Evaluate the reliability needs of the Bulk Power Transmission Facilities [BPTF];
2. Identify factors and issues that could adversely impact the reliability of the BPTF;
3. Provide a process where solutions to identified needs are proposed, evaluated, and enacted in a timely manner to maintain the reliability of the system;
4. Provide for the development of market-based solutions, while ensuring the reliability of the BPTF; and
5. Coordinate the NYISO's reliability assessments with Neighboring Control Areas.

The CRPP is an ongoing process made up of two annual reports. The first is the Reliability Needs Assessment (RNA), evaluates generation adequacy and transmission reliability over a 10-year span, and identifies future needs of the New York electric grid. Identifying potential and reliability issues for New York's bulk electrical grid is the first necessary step to maintain the system's integrity for today and the future. The RNA was issued in December 2005.

The second is the Comprehensive Reliability Plan (CRP), which identifies and evaluates solutions to ensure power system reliability. Those solutions may include market-based and

regulated backstop solutions that may result in new generation additions, transmission upgrades and improved demand response programs.

This is the first CRP study produced by the NYISO and its stakeholders. The primary objective of the CRP is to present the results of the Planning Process. As this is the first time through the process and many of the CRPP criteria and procedure documents are still under development, a secondary objective was to identify issues that resulted from implementing the process.

This report begins with an executive summary of the CRP, followed by overviews of the CRPP and a summary of the RNA report. The balance of the document provides an assessment of transmission system security and adequacy, evaluation of the solutions and concludes with a summary of the reliability plan including findings, action required and recommendation.

III. The Comprehensive Reliability Planning Process[1]

The following presents an overview of the CRPP, the reliability policies and criteria which are the foundation of the CRPP, and the analysis methodology used.

Overview of the CRPP

The CRPP is a long-range assessment of both resource adequacy and transmission reliability of the New York bulk power system conducted over five-year and 10-year planning horizons. The reliability of the bulk power system is assessed and solutions to reliability needs evaluated in accordance with existing reliability criteria of the NERC, NPCC, and NYSRC as they may change from time to time. This process is anchored in the NYISO's market-based philosophy, which posits that market solutions should be the first choice to meet identified reliability needs. However, in the event that market-based solutions do not appear to meet a reliability need in a timely manner, the NYISO will request the appropriate Transmission Owner to proceed with a regulated backstop solution in order to maintain reliability. Under the CRPP, the NYISO also has an affirmative obligation to investigate congestion on the transmission system and whether the marketplace is responding appropriately to the reliability needs of the bulk power system. If market failure is identified as the reason for the lack of a market-based solution, the NYISO will explore appropriate changes in its market rules with its stakeholders. The CRPP does not substitute for the planning that each Transmission Owner conducts to ensure the reliability of its own bulk and non-bulk systems.

As the first step in the CRPP, the NYISO conducts a Reliability Needs Assessment (RNA) to determine whether there are any violations of existing reliability rules with respect to either resource adequacy or transmission system reliability. A base case model of the electric system is assembled with inputs from stakeholders to determine the reliability needs of the electric system for a five-year period and for a 10-year period. This base case model includes plans that transmission owners have made to address the reliability needs of their own bulk and non-bulk power systems. Following the review of the RNA by the NYISO committees and final approval by the NYISO Board, the NYISO requests solutions from the marketplace to the reliability needs identified in the RNA. The RNA also identifies the responsible Transmission Owner or Owners that are obligated to prepare regulated backstop solutions for each identified need. The regulated backstop solutions also will serve as the benchmark to establish the time for a market-based solution to appear. Both market-based and regulated solutions are open to all resources: transmission, generation, and demand response. Non-transmission owner developers also have the ability to submit proposals for regulated solutions to serve as an alternative to the regulated backstop solutions provided by the responsible transmission owners. The NYISO has the responsibility to evaluate all proposed solutions to determine whether they will meet the identified reliability needs in a timely manner. The NYISO does not conduct an economic evaluation of the proposed solutions.

Following its evaluation of all proposed solutions, the NYISO prepares its Comprehensive Reliability Plan. The CRP identifies all proposed solutions that the NYISO has found will meet part or all of the identified reliability needs. If there is a viable market-based project that will

[1] A more detailed review of the CRPP is provided in the report entitled: "Comprehensive Reliability Planning Process Supporting Document and Appendices For The Draft Reliability Needs Assessment" dated December 21, 2005 and available on the NYISO web site home page.

meet the identified need in a timely manner, the CRP will so state. If there is no viable market-based proposal and the NYISO determines that a regulated backstop solution must be implemented to maintain bulk power system reliability, the CRP will so state. The NYISO will request the appropriate Transmission Owner or Owners to proceed with regulatory approval and development of its regulated backstop solution.

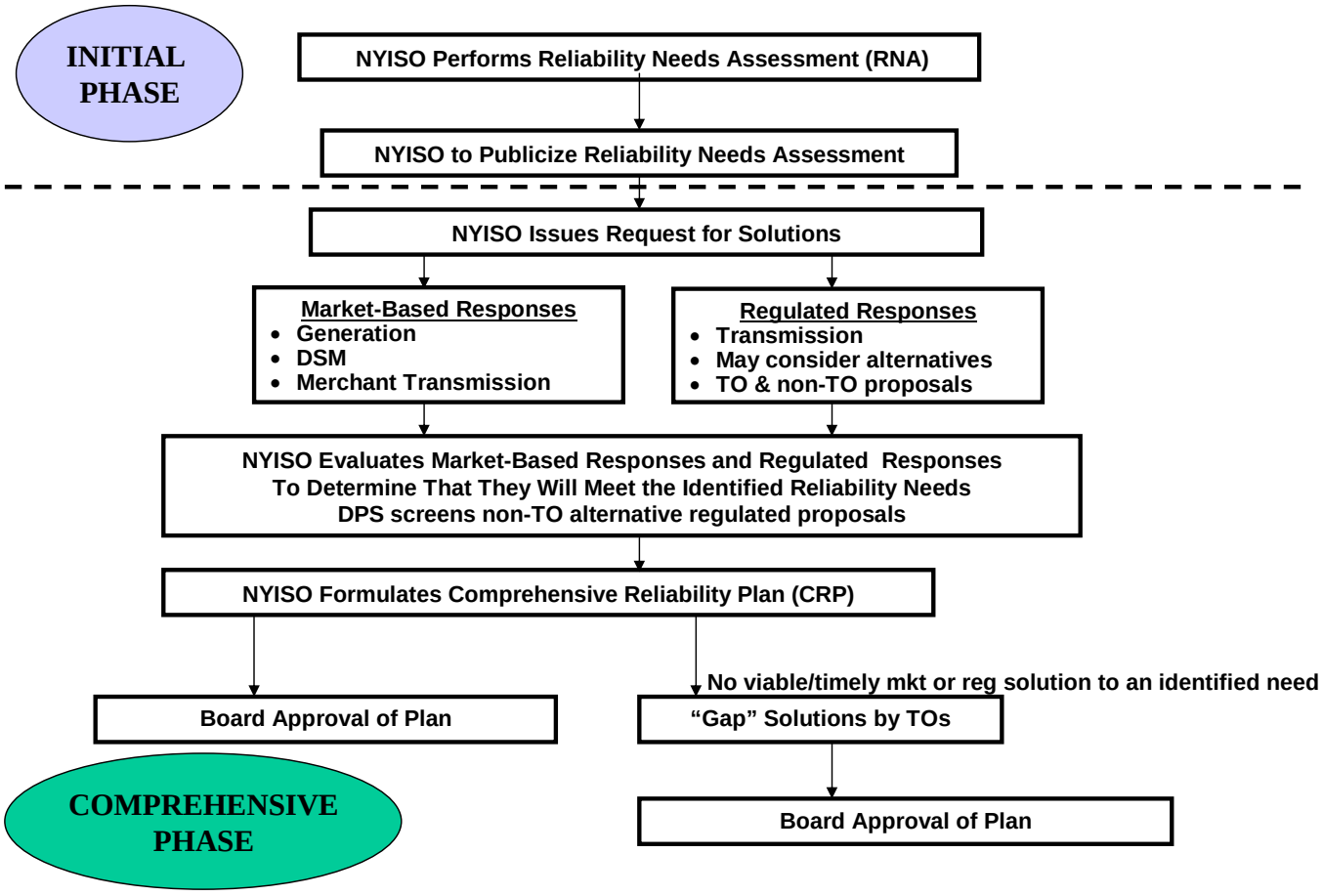
There is also a provision which will allow the NYISO Board to deal with the sudden appearance of a reliability need on an emergency basis whether during or in-between the normal CRPP cycle. In the event that there is an immediate threat to reliability, the NYISO will request the appropriate Transmission Owner to develop a "gap solution" and to pursue its completion in conjunction with the New York Public Service Commission. Such a gap solution is intended to be temporary in nature so as not to interfere with any pending market-based project.

Developers of market solutions recover their costs from the NYISO's energy, capacity and ancillary services markets. The costs of implementing regulated backstop solutions, including gap solutions and a developer's alternative regulated solution, is undertaken through the NYISO's tariffs.

The NYISO does not itself build projects to respond to reliability needs, and the ultimate approval of those projects lies with regulatory agencies such as the NYPSC, environmental permitting agencies and local governments. The NYISO monitors the progress and continued viability of proposed market and regulated projects to meet identified needs, and reports its findings in annual plans.

Below is a diagram which presents a summary of the process.

NYISO Reliability Planning Process



Overview of Reliability Policies and Criteria

The standard industry definition of bulk power system reliability is the degree to which the performance of the elements of that system (i.e., generation and transmission) results in power being delivered to consumers within accepted standards and in the amount desired. It may be measured by the frequency, duration, and magnitude of adverse effects on consumer service.

Reliability consists of adequacy and security. Adequacy, which encompasses both generation and transmission adequacy, refers to the ability of the bulk power system to supply the aggregate requirements of consumers at all times, accounting for scheduled and unscheduled outages of system components. Security is the ability of the bulk power system to withstand disturbances such as electric short circuits or unanticipated loss of system components.

There are two different approaches to analyzing a bulk power system's security and adequacy. Adequacy is a planning concept that involves an analysis of the probability of future conditions and events. A system is adequate if the probability of having sufficient transmission and generation to meet expected demand is equal to or less than the system's standard which is expressed as a loss of load expectation (LOLE). The New York State Power System is planned to meet an LOLE that is less than or equal to a involuntary load disconnection that is not more

than once in every 10 years or 0.1 days per year. This requirement forms the basis of New York's installed capacity or resource adequacy requirement.

Security is an operating and deterministic concept. This means that possible events are identified as having significant adverse reliability consequences and the system is planned and operated so that the system can continue to serve load even if these events occur. Security requirements are sometimes referred to as N-1 or N-2. N is the number of system components; an N-1 requirement means that the system can withstand the loss of any one component without affecting service to consumers.

Overview of the CRPP Analysis Methodology[2]

The Comprehensive Reliability Planning Process (CRPP) was performed in three stages: an Input Stage, an Analysis Stage, and a Review Stage. During the Input Stage, information was gathered from various Stakeholder Groups, Neighboring Control Areas, existing reliability assessments, and existing NYISO publications and reports. The analysis and review stages were conducted first by conducting a transmission screening analysis followed by a resource adequacy assessment. These steps were conducted in sequential and iterative process to maintain internal consistency between the two steps.

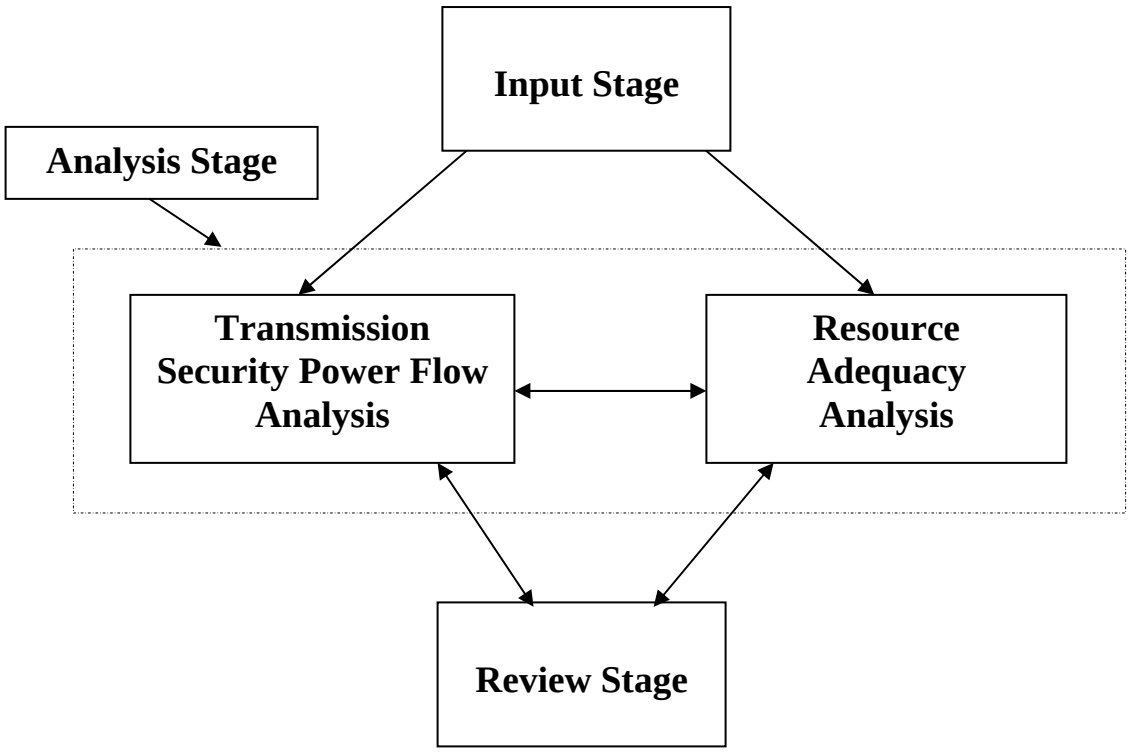
The primary tool to conduct the transmission screening is the Power System Simulator for Engineering (PSS/E) software used for electrical transmission planning in conjunction with the NYISO's voltage contingency analysis program (VCAP). PSS/E is a commercial software product offered by Siemens PTI and is currently in use in 123 Countries. Since its introduction in 1976, the PSS/E software has become one of the most comprehensive and widely used commercial programs of its type. The VCAP tool was originally developed by the New York Power Pool.

The primary tool to conduct the resource adequacy assessment is GE Energy's Multi-Area Reliability Simulation program (MARS). MARS uses a Monte Carlo simulation to compute the reliability of a generation system comprised of any number of interconnected areas or zones. MARS is able to reflect in its reliability calculations each of the factors listed in NYSRC Reliability Rule AR-1, including the impacts of the transfer capability of the transmission system.

The result of combining these tools in a sequential and iterative manner is a planning process that simultaneously addresses the "physics" or electrical properties of the grid and how changes in power system transfer capability interacts with a probabilistic resource adequacy assessment. To the best of the NYISO's knowledge, this is the first electric systems planning process that attempts to do this in such a comprehensive an integrated way while giving preference for market based solutions. The diagram below summarizes the CRP analysis process.

[2] Ibid

Flow Diagram for the CRP Analysis Process



IV. Reliability Needs Assessment (RNA)

RNA - The Basics:

The preparation of the RNA is the first step in the Comprehensive Reliability Planning Process that leads to development of the CRP. Prepared annually, the RNA evaluates the reliability of the New York Power System for a ten year Study Period. It identifies the needs of the baseline bulk power system to maintain the reliability based on system adequacy and security criteria. The Study Period for the 2005 RNA spanned 2006 to 2015. The tariff specifies that the ten year Study Period consists of two separate five year periods. The first five years of the Study Period is identified in the tariff as the Five Year Base Case and is defined as "the model representing the New York State Power System over the first five years of the Study Period". The remaining five years of the Study Period is identified in the tariff as the second five years and is not specifically defined. The baseline system is the modeled in the RNA study as the existing system together with changes that are expected to occur over the ten year Study Period. This base case is developed from inputs and criteria developed in conjunction with stakeholders, including the plans the Transmission Owners already have to implement new resources, such as transmission upgrades and demand side response programs.

The tariff provides that RNA is drafted by the NYISO Staff with assistance from its consultants and Market Participants. The Electric System Planning Working Group (ESPWG) and the Transmission Planning Advisory Subcommittee (TPAS) jointly review the draft RNA and recommend whether the draft should be sent to the NYISO Committees for Review. The tariff states that the Operating Committee reviews and votes on the draft RNA, and thereafter the draft is provided to the Management Committee for its review and vote. Minority views, if any, are presented with the RNA to the NYISO's Board of Directors. The Board then reviews and approves the RNA, either as presented, with its own changes, or after further revision by the NYISO's Committees. Final approval of the RNA triggers the next step in the Reliability Planning Process, which is a request for solutions to the reliability needs identified in the RNA.

RNA – Summary of Findings:

The first RNA[3] was approved by the NYISO's Board of Directors on December 21, 2005. In its first groundbreaking RNA the NYISO pointed out potential power generation and transmission trouble spots statewide. The needs identified in the RNA for the first five years were primarily located downstate, from the lower Hudson Valley through New York City and on Long Island. The RNA also identified the Transmission Owners (TOs) in those areas as the responsible TOs. They are Central Hudson Gas and Electric Corporation, Orange and Rockland Utilities, Inc., Consolidated Edison Company of New York, Inc., and the Long Island Power Authority.

The RNA determined that transmission and generation resources should be adequate to maintain reliable service on the bulk power system through 2007. But the New York State bulk power baseline system does not meet reliability criteria for the full five-year period, and that additional resources would be needed by 2008 to maintain reliability, according to the study.

[3] The RNA report is entitled: "Comprehensive Reliability Planning Process (CRPP) Reliability Needs Assessment," dated December 21, 2005, and is available on the NYISO web site home page, www.nyiso.com.

The resource need increased with each year of the study period. The table below summarizes RNA results for the first Five Year Base Case in terms of Loss of Load Expectation (LOLE) – that the bulk power system should be planned and operated to achieve no more than one occurrence (or 0.1 days per year of forced outage or less) of an unplanned loss of load in ten years.

NYCA LOLE Table for the Five Year Base Case

AREA	2006	2007	2008	2009	2010
Zone-A thru Zone-F (Upstate NY)	0.000	0.000	0.000	0.000	0.000
Zone-G(Hudson Valley or SENY[4])	0.000	0.000	0.000	0.000	0.003
Zone-H(Hudson Valley or SENY)	0.000	0.000	0.001	0.007	0.010
Zone-I(Hudson Valley or SENY)	0.001	0.001	0.029	0.079	0.148
Zone-J(New York City or SENY)	0.001	0.002	0.383	0.764	2.400
Zone-K(Long Island or SENY)	0.021	0.001	0.031	0.071	0.179
NYCA	0.022	0.004	0.395	0.786	2.429

For the second five year period, the LOLE for the NYCA continues to increase reaching almost five days per year by 2015. The report highlighted the following areas of concern:

- The RNA identified significant transfer capacity reductions into and through southeastern New York because of diminishing system voltage performance. This diminished capacity is due primarily to load growth in the lower Hudson Valley, the New York City Metropolitan Area and on Long Island. The planned retirement of certain generating units in those areas will also reduce transfer capacity.

- Beginning in 2008, the lower Hudson Valley and south will need system reinforcements equivalent to 500 MW of capacity, which could consist of transmission system reinforcements, additional generation, demand side management, or a combination of the three.

- If voltage constraints on transfer capability are resolved, the Hudson Valley, New York City and Long Island will require 1,250 MW of electric capacity resources by the end of 2010 and 2,250 MW of new resources by 2015. This capacity may also come from generation, transmission system reinforcements, demand-side management, or a combination of the three.

- Although the RNA noted that the some projects are under construction (the 500 MW SCS Astoria Energy project, the Long Island Power Authority's 660 MW Neptune project, and the New York Power Authority's 500 MW project near the Poletti Station), these projects will be offset by plant retirements and an expected demand increase. Demand – or load growth – increases an average 1.6 percent yearly in southeastern New York. Statewide, it grows an average 1.2 percent per year.

- The above conclusions would be exacerbated by any additional plant retirements, especially in SENY.

[4] Southeast New York which is that part of the New York Power System that includes the lower Hudson Valley, New York City and Long Island

RNA – An Update:

Subsequent to the approval of the RNA, a modeling error was found in the resource adequacy assessment analysis tool database and software logic. The error effectively overstated the LOLE and overall needs requirements.

However, it did not change the fundamental finding of the RNA – i.e., additional resources are needed to maintain the reliability of the bulk power system beginning in 2008, and the need for new resources increases throughout the 10-year Study Period.

Using the corrected model, the 2008 LOLE dropped to 0.309 days per year; in 2010, it fell to 2.154 days per year. The corrected model was used in the evaluation of the reliability solutions provided to the NYISO.

V. Request for Solutions

The CRP will list Market-based responses and Regulatory Backstop Solutions offered by TOs, as well as Alternative Regulated Solutions to satisfy the RNA's outlined reliability needs. Proposals can be large or small generation projects – including distributed generation – demand-side programs, transmission projects, market rule changes, operating procedure changes, and other actions to answer outstanding RNA issues. Market solutions are preferred, but the TOs are responsible for submitting backstop solutions to meet the needs identified in the RNA.

The needs outlined in the RNA for 2006 through 2010 are located primarily downstate, from the lower Hudson Valley through New York City and on Long Island. Four TOs –Central Hudson Gas and Electric Corporation, Orange and Rockland Utilities, Inc., Consolidated Edison Company of New York, Inc., and the Long Island Power Authority – have been identified as TOs responsible for addressing reliability concerns in the RNA.

Because the tariff calls for the NYISO to encourage Market-based solutions to RNA reliability needs, the NYISO issued its initial request for those solutions on Dec. 22, 2005. It also requested TOs to submit Regulatory Backstop Solutions to the identified Reliability Needs, who are responsible for meeting those needs if the market-based projects don't become reality.

A Feb. 15, 2006 deadline was set for responsible TOs to provide Regulatory Backstop Solutions and for Market Participants and other stakeholders to submit Market-based Responses to the NYISO.

If the Market-based responses received by the NYISO do not fulfill all of the RNA's identified reliability needs, or if the NYISO is proceeding through the CRPP for the first time, the NYISO can solicit Alternative Regulated Responses.

Developers and TOs – including those other than the responsible TOs – may submit Alternative Regulated Responses. Like Market-based Solutions and Regulatory Backstop Solutions, these proposals may consist of transmission, generation or demand-side projects.

Market-based solutions primarily differ from Regulatory Backstop and Alternative Regulated Responses in cost recovery. Market-based project developers recover costs through he NYISO's energy, generating capacity and demand-side management markets and for certain ancillary services – some market-based and others provided at a regulated rate.

All regulatory solutions, whether backstop or alternative, recover their costs through the NYISO's OATT .

The following timeline represents the milestones in the NYISO's process for requesting solutions to the Reliability Needs:

December 21, 2005	RNA approved by the NYISO Board of Directors and issued by the NYISO.
December 22, 2005	NYISO issues formal request for Regulatory Backstop Solutions and Market Solutions
February 15, 2006	Deadline for responsible TOs to provide Regulatory Backstop Solutions and for Market Participants to provide Market Solutions to the NYISO
February 15, 2006	Responsible TOs to submit an updated set of plans and Regulatory Backstop Solutions. Three market solutions were received; all were generation proposals. Combined, TOs' plans, backstop solutions and Market Solutions do not meet Reliability Needs through entire 10-year period.
March 1, 2006	Alternative Regulatory Solutions requested by the NYISO.
April 17, 2006	Deadline for Alternative Regulatory Solutions to be submitted to the NYISO.
April 17, 2006	Four Alternative Regulatory Solutions received one generation proposal and three transmission proposals.

Responsible Transmission Owner Solutions

First Five Year Base Case – 2006 to 2010

Many of the solutions provided by the TOs were pre-existing projects to implement upgrades and programs to meet their systems' reliability needs. These additional plans did not make the cutoff for inclusion in the NYISO's Five Year Base Case. Nevertheless and notwithstanding the outcome of the CRPP, the TO's have informed the NYISO of their intentions to undertake these projects.

These projects include:

- Demand side management commitments already made in a New York State Public Service Commission rate case;
- Transmission system projects already under construction (including the addition of capacitor (cap) banks for reactive support)
- New generators, including the Caithness combined cycle unit and the FPL off-shore wind project under contract to the Long Island Power Authority (LIPA).

This table summarizes the solutions provided by the Responsible TOs for the first Five Year Base Case.

Table __
Summary of Transmission Owner Solutions

Updated Plans	Regulated Backstop
• Demand-Side Management o 340 MW In Zone J by 2010 ▪ Peak reduction 75 MW ▪ Balance is Special Case Resources o LIPA "Edge" Program 109 MW	• CH Capacitor Banks o 250 MVAr o CH 115 kV o Planned for 2009 and 2010
• Transmission o Sprainbrook to Sherman Creek ▪ 345 kV cable M29 Project o LIPA's Neptune and CSC projects treated as UDRs[1]	
• Generation (Zone K 2009) o Caithness 326 MW o Off-Shore Wind 140 MW	
• Cap Banks o LIPA 746 MVARS o O&R 180 MVARS	

1) Unforced Delivery Rights result in a transmission line becoming the equivalent of generator from a resource perspective

Second Five Years – 2011 to 2015

The TOs also provided reliability needs solutions for the CRP's second five years, spanning 2011 to 2015. TOs did not submit specific projects because the timeframe was set too far in the future to determine precisely what system investments would be necessary. Moreover, identifying specific projects would also run the risk of chilling market-based projects provided to the NYISO, or that are just beginning to be under contemplation. Since the CRPP is designed to encourage market solutions, the TOs have committed to fulfill reliability needs for New York's bulk electrical system on a generic basis from 2011-2015.

The generic solutions submitted by the responsible TOs for the second five years of the ten-year study period are presented as MW requirements in the evaluation of solutions with 250 MW beginning in 2011 and increasing to 1,500 MW by 2015.

Market Solutions

Three market solutions were submitted to the NYISO. Since these solutions were submitted on a confidential basis, they were initially described in general terms only. The market solutions include a 400 MW proposal and a 550 MW proposal in Zone J (New York City), and a 250 MW proposal in Zone K (Long Island).

The 400 MW proposal from NRG is identified as the Astoria repowering project and is scheduled to be phased in with 200 MW in service in 2008 and the remaining 200 MW in service by 2010. The project location is NYCA Zone J into the Astoria West 138kV substation and is project number 201 in the NYISO interconnection queue. The project is structured to maximize use of existing plant infrastructure while staying within existing air emission permitting limits. The initial 200 MW phase proposes to meet its targeted summer 2008 in service date by taking advantage of the following:

- Use of existing on-site oil storage for backup fuel supply;
- Use of existing gas interconnection coupled with on-site compression and secondary fuel supply noted above;
- Use of existing site property;
- Use of an existing electric interconnection point with Con Edison including use of an existing generator lead;
- Emission levels capped at current permit levels.
- Use of proven GE aeroderivative technology with improvements to mass flow resulting in greatly improved heat rate and emissions rate;
- Facilitate retirement of aging units which will be at the end of their expected useful lives in 2008, and which would reduce capacity availability at this location absent their replacement with the new units. The re-powering proposes to provide a nominal net increase from the site of approximately 120 MW in 2008 and 300 MW in 2010.

The 550 MW proposal from KeySpan is identified as the Oak Point Energy Center. It is project number 16 in the NYISO interconnection queue. An onsite electrical substation will be installed to connect the project via two underground 138 kV cables to Con Edison's Hell Gate substation. Scheduled in service date for this project is the fall of 2009. The project will be a nominal 550 MW combined cycle electric generating plant consisting of two GE Frame 7FA+e gas turbine generators capable of operating on natural gas, one steam turbine generator, two heat recovery steam generators (HRSG) with gas fired duct burners, Selective Catalytic Reduction (SCR) for control of nitrogen oxides (NOX), an oxidation catalyst for control of carbon monoxide (CO) and volatile organic compounds (VOC), and an exhaust stack. Ammonia used in the SCR will be 19% aqueous. The steam from the HRSG will be used to run the steam turbine, with a closed loop air-cooled condensing system acting as a direct heat sink for the steam cycle portion of the plant. The summer and winter (at 92ºF and 20ºF) net output ratings will be approximately 525MW and 575MW respectively.

The 250 MW project from KeySpan for Long Island is identified as the Spagnoli Road Energy Center. It is project number 20 in the NYISO interconnection queue and is scheduled to be in service and available for the summer of 2009. The project will be a nominal 250MW combined cycle plant consisting of one GE Frame 7FA gas turbine generator, one steam turbine generator, a heat recovery steam generator (HRSG) with Selective Catalytic Reduction (SCR) for control of nitrogen oxides (NOX), an oxidation catalyst for control of carbon monoxide (CO) and volatile organic compounds (VOC), and an exhaust stack. The steam from the HRSG will be used to run

the steam turbine, with a closed loop air-cooled system acting as a direct heat sink for the condenser. The summer and winter (at 92ºF and 25ºF) net output ratings will be approximately 222MW and 262MW respectively. An additional output of approximately 8 MW may be realized at 92ºF with air inlet evaporative cooling.

Alternative Regulated Solutions

Four alternative regulated solutions were submitted. One consisted of a generation project, and three proposals involved new or upgraded transmission facility proposals.

The generation alternative regulated solution is a proposal submitted by Mirant Lovett, LLC to continue operation of at least the two coal fired units (Lovett Units 4 & 5) rather than retire them as scheduled. The proposal would keep two of the three units on site in operation, for a total of 365 MW of capacity. If requested by the NYISO, a third gas fired unit Lovett 3 could remain in service to provide an additional 68 MW of capacity. These retirements were originally scheduled for the 2007 and 2008 time frame. According to the project sponsor, the generating units proposed to remain in service would require considerable investment in their emission controls to remain operational. The owner of the projects states that the current NYISO market structure will not provide sufficient revenue to justify the investment in the emission controls.

The first of the transmission proposals consists of the New York Regional Interconnect's high voltage direct current project ("HVDC") transmission line is project number 96 in the NYISO interconnection queue. The new line would extend from the Edic Substation in the Town of Marcy, Oneida County, to the Rock Tavern Substation in the Town of New Windsor, Orange County. The HVDC transmission system would function as a bipolar, bi-directional facility operated at a rated power flow of 1200 MW at a nominal voltage of ± 400 kV DC. The developer plans to place the project in commercial operation for the summer of 2011.

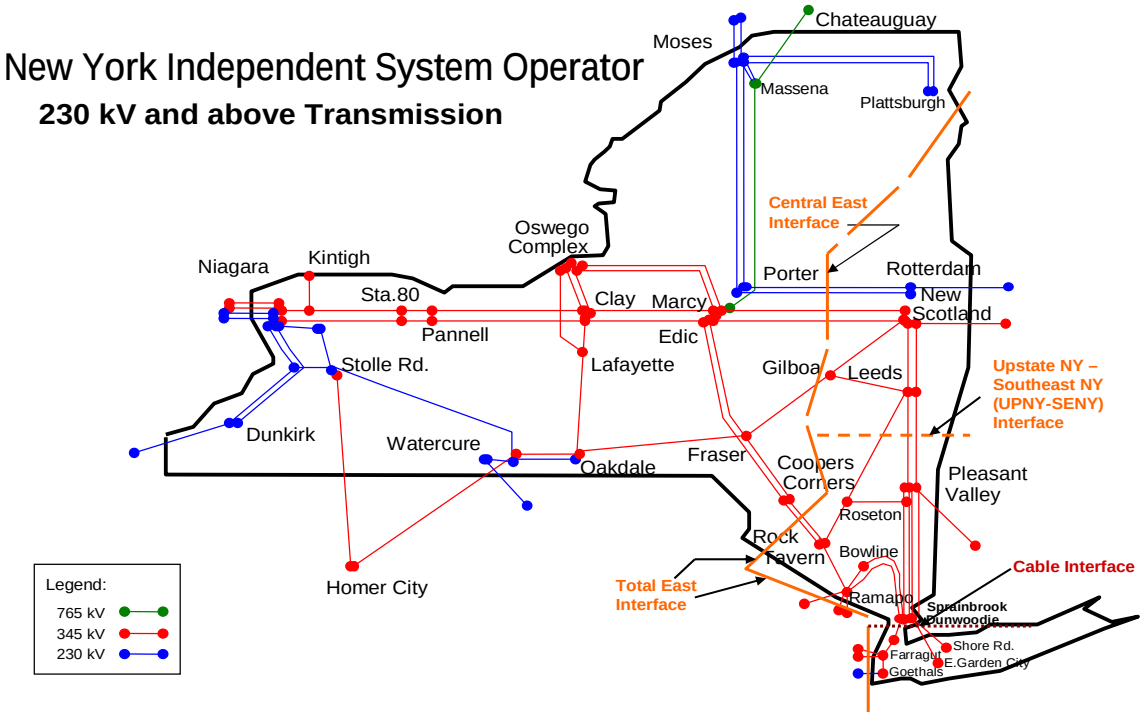
The second transmission proposal was submitted by National Grid and consists of two parts. The first proposes to reconductor the 345 kV transmission lines that run from New Scotland to Pleasant Valley. National Grid owns the majority of the facilities involved, with Consolidated Edison owning a small portion of the line and the Pleasant Valley termination point. The Pleasant Valley substation is located in Central Hudson's franchise area. It is estimated this first component could increase the summer limit of the UPNY-SENY interface by as much as 800 MW. The second component would build a new 345 kV cable between the Sprain Brook and Rainy Substations, This project would increase the transfer capability of the Bulk Power System into Zone J significantly. Together, both project components could increase transfer capability by more than if just one or the other is undertaken. However, more in depth engineering analysis would need to be conducted to make a final determination and such an analysis is beyond the scope of the CRP.

The third transmission proposal was submitted by Harbor Cable Company II, LLC and is project number 195 in the NYISO interconnection queue. The Harbor Cable Project (HCP) will provide a 500 MW fully controllable electric transmission pathway from generation resources in the PJM system to the New York City Zone J, via a back-to-back HVDC converter station located in New Jersey and an underground HVAC underground cable transmission system between the HVDC converter station and the Goethals substation in New York City. The HCP will be able to transmit energy in either direction, in a fully controllable manner. That is, precise amounts of

power could be transmitted between the PJM and New York control areas. The project sponsor states that the HCP could be in service by June 2008, or any later date to meets the NYISO's requirements.

VI. Transmission Security and Adequacy

The figure below displays the bulk power transmission system for the NYCA which is generally facilities 230 kV and above but does include certain 138 kV and very small number of 115 kV facilities. The balance of the facilities 138 kV and lower are considered non-bulk or sub-transmission facilities. Also, the figure displays key transmission interfaces for NY.



Transmission interfaces are groupings of transmission lines which measure the transfer capability between regions. The lines connecting Leeds and Pleasant Valley are known as the UPNY/SENY interface while the lines running south from Pleasant Valley and those from Ramapo to the cables feeding into New York City and Long Island are known as the UPNY/ConEd interface. These are the key transmission interfaces in the Hudson Valley.

Given that sufficient resources exist, transmission adequacy can be defined as the ability of the transmission system to deliver the aggregate of the generation to the aggregate load such that LOLE criteria are maintained. A loss-of-load event can occur either because sufficient resources are not available or because sufficient resources are available but cannot be delivered. The latter would be a transmission adequacy deficiency and the former a resource adequacy deficiency. Standard industry practice has been to address transmission adequacy (i.e., load deliverability) and resource adequacy independent of each other. These assessments are conducted simultaneously through use of the GE MARS model as was briefly described in the Section III of this report, and the iterative solution process evaluating both transfer capability and LOLE..

A key input into the MARS model is the transfer capability of key interfaces. The ability of the transmission system to deliver capacity and energy is a function of available generation and system security constraints. The inability of the system to deliver capacity is a reliability issue while the inability to deliver energy is a congestion or economic concern. System security is evaluated through contingency analysis. Contingency analysis involves the assessment of the loss of one or more system elements to determine the performance of the system and specific elements of the system with respect to the reliability criteria. The performance of the system and its elements are evaluated with respect to the thermal, voltage and stability reliability criteria. The most limiting of the criteria establishes the transfer limit for a group of lines that make up an interface.

Historically, the transmission interfaces in the Hudson Valley have been limited by thermal criteria. However, robust load growth with modest resource additions have resulted in the degrading of voltage performance of the transmission system in the Lower Hudson Valley over time (i.e., for the same power transfer the voltage profile is lower) to an extent that (historical) thermal transfer capability are not as limiting as voltage constrained transfer capability.

The criteria used for future resources to be included in the baseline results in generation additions only in New York City early in the Study Period, and none later in the period, and planned generation retirements occur during the Study Period. As a result of additional load and no net increase in resources in the Hudson Valley, voltage criteria become binding for the transmission facilities in the Lower Hudson Valley, and transfer capabilities into New York City are (thermally limited) 3,700 MW in the beginning of the Study Period and decline to 2,200 MW by the end of the first Five Year Base Case or 2010 as a result of voltage constraints.

This significant reduction in transfer capability manifests itself as an increase in resource adequacy requirements or MW because of the reduced capability of the transmission system to deliver capacity to the load downstream of the constraints. The reduced transfer capability is necessary to secure the system from voltage collapse. The NYISO also observed degradation in the underlying (non-bulk) power system voltage performance, and the overall load power factor. The sub-zone most impacted was the Orange and Rockland's non-bulk system after the retirement of the Lovett generating units. The retirement of generating capacity not only results in the loss of MW capability but also dynamic reactive capability.

Short Circuit

[to be added]

VII. Evaluation of Solutions

Evaluation of solutions is covered by Section 7 of Attachment Y of the OATT with 7.1 being the evaluation of the Regulated Backstop Solutions submitted by the Responsible Transmission Owners, 7.2 being the evaluation of Market Based Proposal and finally 7.3 being the evaluation of Alternative Regulated Responses.

Responsible Transmission Owners Solutions

As stated in the in the request for solutions to the reliability needs many of the solutions provided by the TOs were pre-existing projects to implement upgrades and programs to meet their systems' reliability needs. These additional plans did not make the cutoff for inclusion in the NYISO's Five Year Base Case. Nevertheless, the TOs have informed the NYISO of their intentions to undertake these projects, notwithstanding the outcome of the CRPP.

In addition, TOs did not submit specific projects because the timeframe was set too far in the future to determine precisely what system investments would be necessary. Moreover, identifying specific projects would also run the risk of chilling market-based projects provided to the NYISO, or that are just beginning to be under contemplation. Since the CRPP is designed to encourage market solutions, the TOs have committed to fulfill reliability needs for New York's bulk electrical system on a generic basis from 2011-2015.

As a result, the evaluation of the Responsible Transmission Owner Solutions is divided into two separate five year periods.

1. First Five Year Base Case:

The first step in evaluating the effectiveness of the proposed solutions is their impact on the transfer capability of the transmission system. As identified in the RNA and discussed in the transmission security and adequacy section, load growth in Southeast New York (SENY) and its impact on the voltage performance of the transmission system resulted in significant reduction in the capability of the bulk power transmission system to deliver power reliably to the cable system feeding Long Island and New York City. This impact manifest itself as increased needs in SENY.

The TO solutions included capacitor banks which help improve the voltage performance of the transmission system. The other major change was the deferred retirement for one year of the Charles A Poletti unit from 2008 until 2009[5]. . Incorporating these changes and modeling refinements results in an improvement in the transmission capability in the Lower Hudson Valley. Table 7.1 below presents the first Five Year Base Case solution transmission system transfer capability.

[5] As stipulated in the Article X certificate for the NYPA Astoria 500MW combined cycle plant, NYPA can keep the Poletti unit in service if the NYISO determines that the retirement of the unit will result in the load to capacity ratio in New York City falling below 80%. The NYISO made the determination that the retirement of the unit in 2008 would result in the NYC zone load and capacity ratio will be less than 80%. As a result, the retirement of the unit was deferred until 2009

Table 7.1
Transmission System Transfer Limits for Key Interfaces in MW

	Year				
Interface	**2006**	**2007**	**2008**	**2009**	**2010**
Central East	2850 V	2850 V	2850 V	2850 V	2850 V
F-G	3425 T	3425 T	3425 T	3425 T	3425 T
UPNY/CE	4700 V	4600 V	4300 V	4400 V	4200 V
I-J	3700 V	3400 V	3000 V	3775 V	3500 V
I-K	1270 T	1270 T	1270 T	1270 T	1270 T
I-J&K	4950 V	4200 V	4250 V	4150 V	3775 V

The primary observation is that the transfer capability has improved significantly from the baseline. As an example, I-J or from the cable interface into New York City has improved from 2,200 MW to 3,500 in the solution case.

These updated transfer limits were incorporated into the MARS model along with the proposed resource additions. The LOLE results are presented in the Table 7.2 entitled: "Load and Resource Table with TO Base Case Solutions". As can be seen in the table the TO solutions in conjunction with the deferred retirement of the Poletti unit meet resource adequacy requirement through 2010 or the first Five Year base Case.

Table 7.2
Load and Resource Table with TO Base Case Solutions

Year	2006	2007	2008	2009	2010
Peak Load					
NYCA	32,400	32,840	33,330	33,740	34,125
Zone J	11,505	11,660	11,805	11,935	12,015
Zone K	5,320	5,410	5,500	5,580	5,680
Resources					
NYCA "Capacity"	39,420	39,160	38,679	38,260	38,260
"-SCR"	1084	1084	1084	1189	1349
"-UDR"	330	990	990	990	990
Total	40,834	41,234	40,753	40,439	40,599
Zone J "Capacity"	10,102	10,102	10,102	9,217	9,217
"-SCR"	172	172	172	277	437
"-UDR"	0	0	0	0	0
Total	10,274	10,274	10,274	9,494	9,654
Zone K "Capacity"	5,340	5,340	5,340	5,806	5,806
"-SCR"	207	207	207	207	207
"-UDR"	330	990	990	990	990
Total	5,877	6,537	6,537	7,003	7,003
NYCA Reserve Margin %	126.0%	125.6%	122.3%	119.9%	119.0%
Zone J Res/Load/ Ratio	89.3%	88.1%	87.0%	79.5%	80.3%
Zone K Res/Load Ratio	110.5%	120.8%	118.9%	125.5%	123.3%
NYCA LOLE	0.002	0.001	0.020	0.047	0.099

A sensitivity analysis was conducted to determine the LOLE benefit of deferring the Poletti unit by one year. The Poletti unit has a significant impact on the NYCA LOLE. In the initial analysis indicated in Table 7.1, it was assumed that the Poletti unit retirement was deferred until 2009. If the Polleti unit was to retire in 2008, the NYCA LOLE would increase from 0.020 to 0.191.

2. Second Five Years

As previously discussed, the responsible TOs offered generic solutions for the second five years. Table 7.3 below presents the level of generic MW needed to maintain compliance with resource adequacy criteria. It should be viewed as indicative of the MW of specific solutions that would be required but could change depending on the specific solutions that were proposed. The MW are cumulative.

Table 7.3
Load and Resource Table with TO Base Case and Generic Solutions

Year	2011	2012	2013	2014	2015
Peak Load					
NYCA	34,505	34,825	35,105	35,345	35,595
Zone J	12,142	12,219	12,351	12,484	12,573
Zone K	5,779	5,879	5,981	6,085	6,112
Resources					
NYCA "Capacity"	38,510	39,010	39,260	39,510	39,760
"-SCR"	1349	1349	1349	1349	1349
"-UDR"	990	990	990	990	990
Total	40,849	41,349	41,599	41,849	42,099
Zone J "Capacity"	9,467	9,467	9,717	9,967	10,217
"-SCR"	437	437	437	437	437
"-UDR"	0	0	0	0	0
Total	9,904	9,904	10,154	10,404	10,654
Zone K "Capacity"	5,806	5,806	5,806	5,806	5,806
"-SCR"	207	207	207	207	207
"-UDR"	990	990	990	990	990
Total	7,003	7,003	7,003	7,003	7,003
NYCA Reserve Margin %	118.4%	118.7%	118.5%	118.4%	118.3%
Zone J Res/Load/ Ratio	81.6%	81.1%	82.2%	83.3%	84.7%
Zone K Res/Load Ratio	121.2%	119.1%	117.1%	115.1%	114.6%
NYCA LOLE	0.092	0.050	0.099	0.098	0.093
Generic Solutions (MWs)	250	750	1000	1250	1500

3. Assessment of Responsible TO Regulatory Backstop Solutions

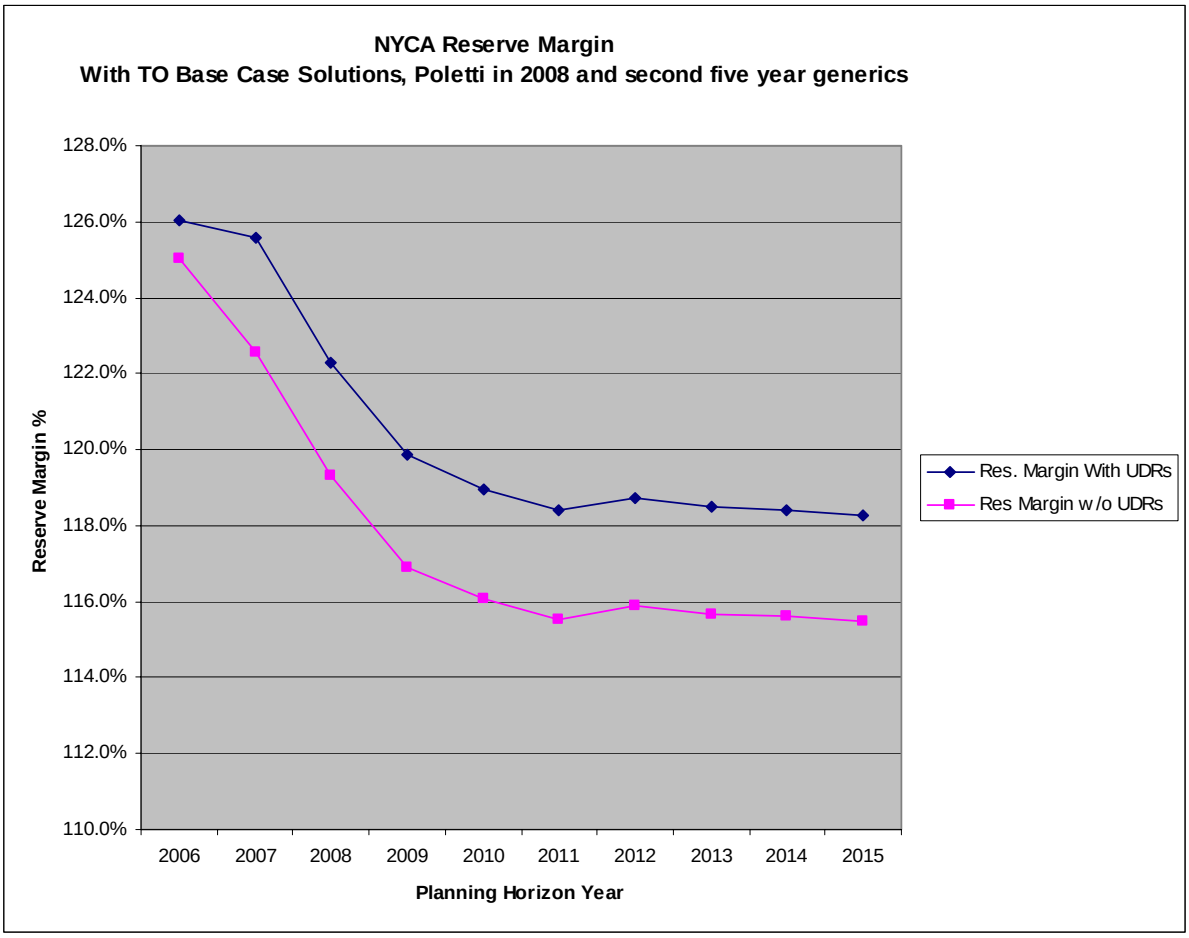
Although the solutions meet the needs through 2010, the fact that LOLE is not much below 0.1 implies there is not much room for slippage in resource additions or higher than expected load growth[6], particularly in Zone J or New York City. In addition, once a

[6] For instance, the 2006 Load and Capacity Data report contains an updated forecast which close to 3% higher than the forecast used in the current CRPP. The higher load forecast will be addressed in the next round of the CRPP.

generic solution becomes an identified need in the first Five Year Base Case, the lead time for a specific regulated backstop solution would be limited to five years or less. Also, the solutions for the first Five Year Base Case provided by the TOs has a resource mix that includes an increasing proportion of special case resources as well as increasing use of resources located in neighboring control area.

The TO backstop solutions are also suppose to be used by the NYISO to determine a benchmark for determining the time frame within which a regulated backstop solution would needed to be implemented to meet the needs. In addition, the benchmark would be used to make a determination as to whether market solutions would meet the needs in a timely manner or when an alternative solution would be considered for evaluation. The NYISO has determined that the single backstop solution which was submitted as part of the first Five Year Base Case was not required to maintain LOLE criteria for the first Five Year Base Case. In addition, the proposed backstop solutions were capacitor banks to be installed on Central Hudson's 115 kV transmission facilities. These facilities are not designated as bulk facilities. Therefore, the NYISO is not able to establish a benchmark based on the solutions submitted except to identify that a need exist for specific solutions beyond 2010 to maintain system reliability for the second five years.

The graph below presents the installed reserve margin that results from the TOs updated plans for the first Five Year Base Case, the deferred retirement of the Poletti unit and the generic requirements for the second five years. The installed reserve margin is a generally accepted measure of the level of resources needed to maintain reliability.



Market Solutions

Three Market proposals one from NRG, and two from KeySpan, were submitted in response to NYISO's request for market-based solutions. The 400 MW NRG project and the 550 MW KeySpan project are proposed for New York City (Zone J). The KeySpan 250 MW project is proposed for Long Island (Zone K). These projects are proposed service between 2008 and 2010. Below are the Load and Resource tables that present the benefit to LOLE of the Market Proposals in conjunction with the TO updated plans and the deferred retirement of the Poletti unit. The Load and Resource tables are presented for the first Five Year Base Case and then for the second five years. The second five years does not include the TO generic solutions.

The transfer limits utilized to evaluate for the Market Proposals are the same as for the evaluation of the TO solutions. The proposed market solutions are generators located within Zones J and K. They provided reactive compensation within these zones but do not provide any additional benefits to increase transfer limits into these zones.

1. First Five Year Base Case

Table 7.4 below presents the Load and Resource table with the TO Base Case Solutions, the deferred retirement of the Poletti unit and the Market proposals for the first Five Year Base Case.

Table 7.4
Load and Resource Table
with TO Base Case Solutions and Market Solutions

Year	2006	2007	2008	2009	2010
Peak Load					
NYCA	32,400	32,840	33,330	33,740	34,125
Zone J	11,505	11,660	11,805	11,935	12,015
Zone K	5,320	5,410	5,500	5,580	5,680
Resources					
NYCA “Capacity”	39,420	39,160	38,799	38,602	39,307
“-SCR”	1084	1084	1084	1189	1349
“-UDR”	330	990	990	990	990
Total	40,834	41,234	40,873	40,781	41,646
Zone J “Capacity”	10,102	10,102	10,222	9,337	10,042
“-SCR”	172	172	172	277	437
“-UDR”	0	0	0	0	0
Total	10,274	10,274	10,394	9,614	10,479
Zone K “Capacity”	5,340	5,340	5,340	6,028	6,028
“-SCR”	207	207	207	207	207
“-UDR”	330	990	990	990	990
Total	5,877	6,537	6,537	7,225	7,225
NYCA Reserve Margin %	126.0%	125.6%	122.6%	120.9%	122.0%
Zone J Res/Load/ Ratio	89.3%	88.1%	88.0%	80.6%	87.2%
Zone K Res/Load Ratio	110.5%	120.8%	118.9%	129.5%	127.2%
NYCA LOLE	0.002	0.001	0.007	0.039	0.004
Market Additions MW	0	0	200	250	750

2. Second Five Years

Table 7.5 below presents the Load and Resource table with the TO Base Case Solutions, and the Market proposals for the second five years.

Table 7.5
Load and Resource Table with
TO Base Case Solutions and Market Solutions

Year	2011	2012	2013	2014	2015
Peak Load					
NYCA	34,505	34,825	35,105	35,345	35,595
Zone J	12,142	12,219	12,351	12,484	12,573
Zone K	5,779	5,879	5,981	6,085	6,112
Resources					
NYCA “Capacity”	39,307	39,307	39,307	39,307	39,307
“-SCR”	1349	1349	1349	1349	1349
“-UDR”	990	990	990	990	990
Total	41,646	41,646	41,646	41,646	41,646
Zone J “Capacity”	10,042	10,042	10,042	10,042	10,042
“-SCR”	437	437	437	437	437
“-UDR”	0	0	0	0	0
Total	10,479	10,479	10,479	10,479	10,479
Zone K “Capacity”	6,028	6,028	6,028	6,028	6,028
“-SCR”	207	207	207	207	207
“-UDR”	990	990	990	990	990
Total	7,225	7,225	7,225	7,225	7,225
NYCA Reserve Margin %	120.7%	119.6%	118.6%	117.8%	117.0%
Zone J Res/Load/ Ratio	86.3%	85.8%	84.8%	83.9%	83.3%
Zone K Res/Load Ratio	125.0%	122.9%	120.8%	118.7%	118.2%
NYCA LOLE	0.01	0.022	0.047	0.094	0.164
Market Additions MW	0	0	0	0	0

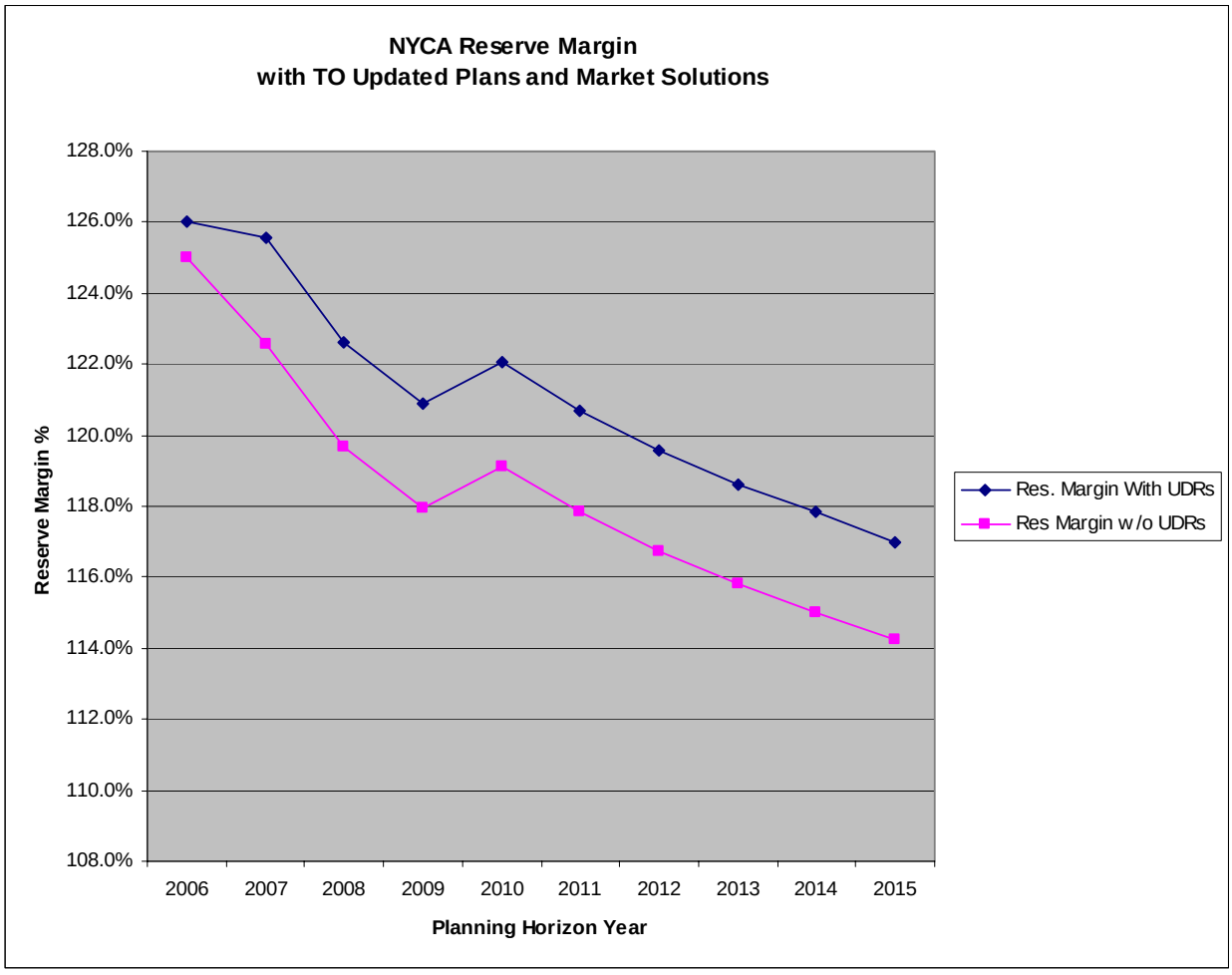
3. Assessment of the Market Proposals

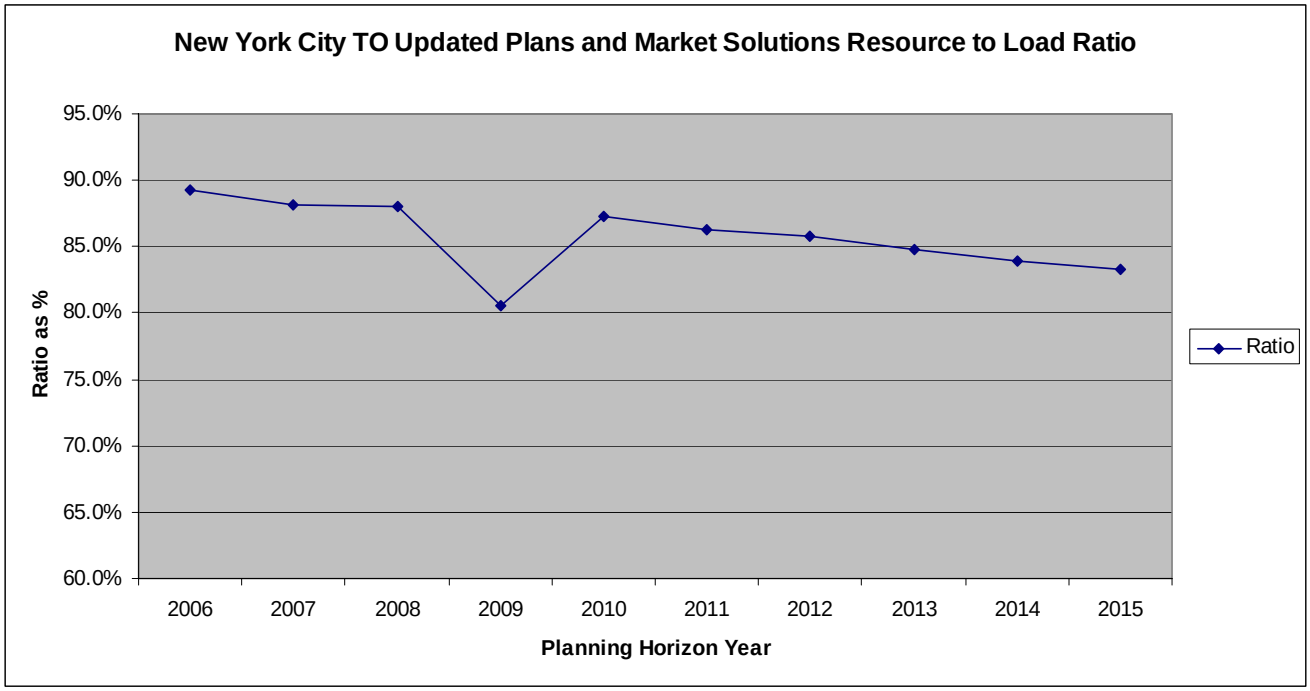
Given the updated TO plans, deferred retirement of the Poletti unit and current load forecast, the Market Proposal are not required to maintain LOLE criteria for the first Five Year Base Case but are necessary for the second five year period for maintaining LOLE criteria, in particular, the New York City projects. Because of planning uncertainties and clearly identified needs for the second five years, the NYISO believes that these projects should maintain their current in service schedules.

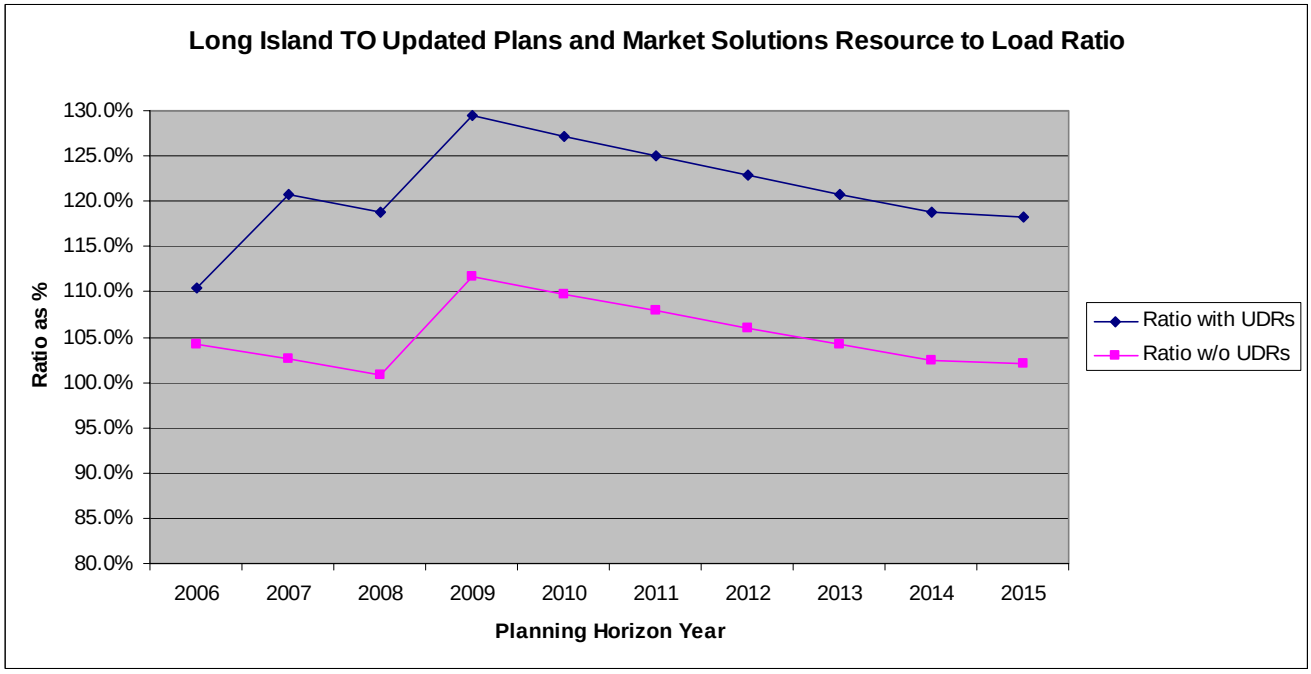
However, the NYISO has identified two areas of concern with respect to these projects going forward and their potential overall benefits. The first is, although theses developers have significant financial resources available to them, it is the NYISO view that the probability of these projects moving forward on their current schedule is highly dependent on a purchase power agreement (PPA) or off-take contract. Absent a PPA, it is the NYISO view that the capacity market would have to be in a near shortage condition before these projects are finally committed to.

The second concern with these projects is their point of interconnection. Both of these projects are proposing to connect to Consolidated Edison's 138 kV system. There have been a significant number of recent capacity additions to the New York City 138 kV system in the vicinity of Astoria, Queens. Additional capacity being added to the 138 kV system could potentially raise some load deliverability issues that have not been evaluated as part of this CRP. This is an issue that will need to be addressed in the next CRP.

The graph below presents the installed reserve margin that results from the TOs updated plans for the first Five Year Base Case, the deferred retirement of the Poletti unit and the Market Proposals for the full ten year Study Period. The installed reserve margin is a generally accepted measure of the level of resources needed to maintain reliability. Also, below are graphs that present the resource to capacity ratios for New York City and Long Island.




New York City TO Updated Plans and Market Solutions Resource to Load Ratio
95.0%
90.0%
85.0%
80.0%
75.0%
70.0%
65.0%
60.0%
Ratio as %
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Planning Horizon Year
Ratio


Long Island TO Updated Plans and Market Solutions Resource to Load Ratio
130.0%
125.0%
120.0%
115.0%
110.0%
105.0%
100.0%
95.0%
90.0%
85.0%
80.0%
Ratio as %
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Planning Horizon Year
Ratio with UDRs
Ratio w/o UDRs

Evaluation of Alternative Regulated Responses

Having determined that the initial set of TO solutions and Market Proposals did not meet the needs for the entire ten year Study period, the NYISO initiated a request for alternative regulated responses. As discussed previously, four alternative regulated responses were submitted. The responses consisted of one generation proposal and three transmission proposals. Below is an evaluation of the generation alternative followed by an evaluation of the transmission alternatives.

1. **Regulated Generation Alternative**.

The regulated generation alternative is a proposal by Mirant Lovett, LLC to keep the Lovett coal fired units 4 & 5 in service by upgrading the emission controls for the units in order to meet State and Federal emission requirements. The Load and Resource tables (Tables 7.6 and 7.7) below present the impact of the Lovett units remaining in service on the NYCA LOLE for the first Five Year Base Case and the second five years. The generator alternative was evaluated in conjunction with the TO updated plans and Market Proposals

Table 7.6
Load and Resource Table with TO Base Case Solutions, Market Solutions and the Generator Alternative first Five Year Base Case

Year	2006	2007	2008	2009	2010
Peak Load					
NYCA	32,400	32,840	33,330	33,740	34,125
Zone J	11,505	11,660	11,805	11,935	12,015
Zone K	5,320	5,410	5,500	5,580	5,680
Resources					
NYCA “Capacity”	39,420	39,348	39,164	38,967	39,672
“-SCR”	1084	1084	1084	1189	1349
“-UDR”	330	990	990	990	990
Total	40,834	41,422	41,238	41,146	42,011
Zone J “Capacity”	10,102	10,102	10,222	9,337	10,042
“-SCR”	172	172	172	277	437
“-UDR”	0	0	0	0	0
Total	10,274	10,274	10,394	9,614	10,479
Zone K “Capacity”	5,340	5,340	5,340	6,028	6,028
“-SCR”	207	207	207	207	207
“-UDR”	330	990	990	990	990
Total	5,877	6,537	6,537	7,225	7,225
NYCA Reserve Margin %	126.0%	126.1%	123.7%	122.0%	123.1%
Zone J Res/Load/ Ratio	89.3%	88.1%	88.0%	80.6%	87.2%
Zone K Res/Load Ratio	110.5%	120.8%	118.9%	129.5%	127.2%
NYCA LOLE	0.002	0.001	0.005	0.024	0.002

Table 7.7
Load and Resource Table with TO Base Case Solutions, Market Proposals and Generation Alternative for the second five years

Year	2011	2012	2013	2014	2015
Peak Load					
NYCA	34,505	34,825	35,105	35,345	35,595
Zone J	12,142	12,219	12,351	12,484	12,573
Zone K	5,779	5,879	5,981	6,085	6,112
Resources					
NYCA "Capacity"	39,672	39,672	39,672	39,672	39,672
"-SCR"	1349	1349	1349	1349	1349
"-UDR"	990	990	990	990	990
Total	42,011	42,011	42,011	42,011	42,011
Zone J "Capacity"	10,042	10,042	10,042	10,042	10,042
"-SCR"	437	437	437	437	437
"-UDR"	0	0	0	0	0
Total	10,479	10,479	10,479	10,479	10,479
Zone K "Capacity"	6,028	6,028	6,028	6,028	6,028
"-SCR"	207	207	207	207	207
"-UDR"	990	990	990	990	990
Total	7,225	7,225	7,225	7,225	7,225
NYCA Reserve Margin %	121.8%	120.6%	119.7%	118.9%	118.0%
Zone J Res/Load/ Ratio	86.3%	85.8%	84.8%	83.9%	83.3%
Zone K Res/Load Ratio	125.0%	122.9%	120.8%	118.7%	118.2%
NYCA LOLE	0.005	0.011	0.019	0.049	0.068

The generation alternative results in increased capacity in Zone G or SENY and provides additional reactive power capability. The additional reactive capability results in an increase in transfer limits across the UPNY/CE and I-J transmission interfaces of approximately 200 MW. In addition, the additional reactive capability helps address a local or non-bulk reliability violation that the NYISO had observed. Finally, the alternative improves NYCA LOLE, results in LOLE criteria being maintained throughout the entire 10 year study period and helps maintain a more diverse fuel mix.

2. Alternative Transmission Responses

As discussed, the NYISO received three alternative transmission responses. Two of these projects were all in the early stages in the NYISO interconnection process and the other was not in the queue. Given this fact, the time constraints of the CRP and there was no regulated backstop proposal to evaluate against, the transmission proposals were not evaluated specifically. They were evaluated generically.

To evaluate the benefits of increased transfer capability selected interfaces in the MARS modeled were increased to simulate the potential benefits of additional transmission capability. These simulations were performed for year 2015 of the study period. The baseline case for the study year was the updated transmission owner plans without generic solutions. The LOLE for year 2015 without generics was 1.545 days per year.

The initial simulation increased transfer limits between Upstate NY and the Lower Hudson Valley by a 1000 MW. The resulting NYCA LOLE decreased from the 1.545 days per year to 0.996 days per year. The second step was to further increase transfer capability by increasing transfer capability from the Lower Hudson Valley into New York City by another 1,000 MW. The LOLE reduced the LOLE from 0.996 days per year to 0.349 days per year.

Simulations were also conducted that increased transfer capability between PJM and New York City by 500 MW. The MARS simulations performed for the year 2015 LOLE resulted in a reduction of the LOLE from 1.545 days per year to 1.025 days per year. The analysis of this transmission proposal does not include potential intra-Zone transmission constraints between Staten Island and the rest of Zone J.

3. Assessment of the Alternative Regulated Responses

The above analysis clearly indicates the alternative responses would clearly provide reliability benefits. Clearly, increasing transfer capability only has benefits if there is capacity available to deliver. These analyses indicate that such capacity is available most likely external to NY but would provide the flexibility to site additional resources in upstate NY. Also, each of these projects has their own unique characteristic that could provide other benefits. For instance, the New York Regional Interconnect has included a reactive capability for the Rock Tavern terminal which would provide additional reactive capability for the Lower Hudson Valley.

The bottom line however is that the TO updated plans in conjunction with the Market Proposal maintain LOLE criteria throughout the study period except for the last year. As a result, the NYISO has concluded that neither a regulated backstop solutions nor an alternative regulated response needs to be implemented or evaluated at this time. The critical path on a going forward basis is the next cycle of CRPP and the monitoring of proposed resource addition to determine that planned resources are available in timely manner.

VIII. Findings, Conclusions and Recommendation

Introduction

Attachment Y of the NYISO OATT states in Section 8:"Following the NYISO's evaluation of the proposed market-based and regulated solutions to Reliability Needs, the NYISO will prepare a draft Comprehensive Reliability Plan ("CRP"). The draft CRP shall set forth the NYISO's findings and recommendations, including any determination that implementation of a regulated solution (which may be a Gap Solution) is necessary to ensure system reliability."

The Reliability Plan – A Summary

The NYISO had determined based on the RNA that additional resources would be needed over the 10-year study period in order for the NYCA to remain compliant with all applicable reliability criteria. As a result, the NYISO as provided for in Attachment Y of the NYISO OATT initiated a request for solutions. As previously discussed a broad range of solutions were submitted. Based on the evaluations of the market proposals and Transmission Owner plans, the NYISO has determined sufficient resource additions to the NYCA are planned or under development such that the NYCA can meet reliability criteria for the first Five Year Base Case and through most of the second five years of the study period. Further, the NYISO has determined that no action needs to be taken at this time to implement any regulated backstop solution or an alternative regulated solution to address any reliability need shortfall.

The plan consists of the following actions:

1. The deferred retirement of the New York Power Authority's Charles A Poletti generating unit in New York City from 2008 until 2009.
2. The implementation of the Responsible Transmission Owner plans which include transmission upgrades, reactive resource additions, capacity additions totaling 466 MW, capacity equivalent UDRs totaling 990 MW which would be supported by (firm resource and deliverability rights to) generation in neighboring control areas, and demand-side management programs totaling 449 MW. This results in total resource additions of 1,905 MW through 2010.
3. The development of 1,200 MW of merchant or market generation in New York City and Long Island, in particular, the 950 MW proposed for New York City. It is important that this generation be in service as scheduled but no later than the summer of 2011.
4. Planned resource additions total 3,105 MW by 2015.

Findings, Conclusion and Recommendation

Finding Number One – Transmission Security and Adequacy:

The criteria used to establish the baseline for the 10-year Study Period resulted in a significant reduction in transfer limits in order to maintain the security of the transmission system. The reduction in transfer limits manifested themselves as reduction in the ability of the transmission system to deliver capacity downstream of the constraints. The result was an increase in the LOLE that translates into increased resource requirements. The major factor driving the reduction in transfer limits was the voltage performance of the New York Transmission System which is being adversely impacted by load growth and generator retirements many of which interconnect to the non-bulk transmission system.

Action Required: The primary action required from finding number one is the criteria and process for establishing the baseline system for the 10-year study period need to be reviewed especially how reductions in the baseline system transfer limits that result from more limiting transmission security constraints over time are going to be addressed prior to conducting the LOLE analysis and subsequent determination of the reliability needs.

A secondary action item is to re-emphasize the importance of continued progress on the part of a number of NYISO related initiatives to address issues and concerns with the voltage performance of the bulk power system as well as the non-bulk system. They include:

1. Continuation of the initiative to complete a comprehensive analysis of reactive power demand and resources in the NYCA. Analysis would be similar to that analysis regularly performed by ISO New England to set OP-17 load power factor requirements.
2. Development of a work plan and time table for the Reactive Power Working Group to complete its initiative to improve modeling of reactive power sinks and sources in the NYCA power system model.
3. A benchmarking of New York's reactive power planning and voltage control practices to the "best practices" identified in NERC Blackout Recommendation 7a.
4. A review of NERC's other blackout recommendations related to voltage such as load modeling and generator performance to identify factors that could enhance or improve the voltage performance of the New York's transmission system.

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Finding Number Two – Plan Risk Factors:

Although the planned system meets reliability criteria based on the conditions studied, the NYISO has identified a number of risk factors that could adversely affect the plan. These factors will require ongoing review and assessment.

They are:

1. First and foremost is the construction of the planned resources and transmission upgrades moves forward. The NYISO in conjunction with stakeholders is developing criteria and procedures to monitor the ongoing viability of solutions and the need to make a determination as to when other solutions would need to be "triggered".

   Action required: The monitoring processes for tracking all planned system additions that are identified as necessary to maintain reliability that are currently under development by the Electric System Planning Working Group must be finalized, approved and implemented by September 2006.

2. Except for the 140 MW of off-shore wind, all the planned generator additions in this plan will be natural gas fired units with number 2 oil as the back up.

   Action Required: The supply, reliability and price concerns being raised by the increasing use of natural gas as a primary fuel for generating electricity will need to be monitored on a continuous basis.

3. The plan depends increasingly on the availability of capacity resources in neighboring control areas in order for New York to maintain its compliance with reliability criteria.

   Action Required: The development of the Northeast System Plan as specified in the Northeast Planning Protocol will to need assess whether sufficient resources are being developed on regional basis to maintain resource adequacy in all areas. In addition, as capacity markets become increasingly more regional in nature, New York will need to monitor its capacity market prices to determine that they remain competitive with neighboring markets.

4. Based on the Market Proposals provided by developers the ability to obtain longer term financial commitment would significantly enhance the ability to finance and move forward with their proposed projects. In fact, without some form of purchase power contract these projects are less likely to move forward. Also, besides the issues identified by the Market Proposals, the nature of an issues raised or implied in the Alternative Regulated Response that were submitted indicate underlying market structure issues might exist. In fact, the alternative response submitted by National Grid concludes that current methodology for establishing the statewide installed capacity and locational capacity requirements does not result in accurate price signals for where resources are most needed to maintain reliability and proposes a market rule change.

Action Required: An overall review of whether the current market structure provides appropriate longer-term incentives that will result in development of new resources be they generation which would include the repowering or replacement of existing generation, transmission or demand-side resources.

5. Increased load growth or retirement of additional generating units beyond those already included in the plan for either economic and/or environmental factors, as well as, continued degradation of the voltage performance of the New York System will adversely affect reliability.

   Action Required: The next round of the CRPP process needs to progress on schedule. Just as important as is the plan itself is the process of planning and the ongoing monitoring it provides.

Recommendation

This CRP has determined that under the condition studied and solution submitted and TO plans that the planned system upgrades will maintain the reliability of the New York power system without the need require action with regards to any regulated backstop or alternative regulated solution at this time. Therefore, the NYISO recommends that the CRP 2005 be approved as expeditiously as possible.