

DRAFT

New York Independent System Operator

CRPP Reliability Needs Assessment

Introduction

In general, electricity deregulation in New York State and, for the most part, the Northeast quadrant of the United States, has led to the unbundling of generation and transmission development. Largely gone are the days of planning in which generation and transmission plans were highly coordinated. In today's world, the reliability of the power system is ensured by a combination of resources provided by market forces and regulated wires companies. The purpose of the Comprehensive Reliability Planning Process (CRPP) is to determine whether the electric system resources provided by a combination of market forces and regulated entities is providing sufficient resources to ensure the reliability of the New York State bulk power system.

The Reliability Needs Assessment (RNA) is the first step in the development of the Comprehensive Reliability Plan (CRP). The second step in the development of the CRP is the development of solutions to reliability needs. The solutions will consist of both market-based and Transmission Owner regulated solutions. Solutions will need to satisfy reliability criteria and not necessarily the specified level of MW or MVAR need identified in the RNA. There are various combinations of resources and transmission upgrades that could meet the needs identified in the RNA. In addition, reconfiguration of transmission facilities and/or modifications to operating protocols identified in the solution phase could result in changes in transfer capability with resultant resolution of or modification of a need identified in the assessment.

This report is the first draft RNA prepared by the New York Independent System Operator. This document represents the first in a series of annual CRPP plans designed to ensure the long-term reliability of the New York State bulk power system. Just as important as the electric system plan is the process of planning itself. Electric system planning is an ongoing process of evaluating, monitoring and updating as conditions warrant. In addition to ensuring reliability, the CRPP is also designed to provide information that is both informative and of value to the NY wholesale electricity marketplace.

Reliability Needs

This reliability needs assessment concludes that the planned system does not meet reliability criteria over the ten-year study period. Load growth in excess of two percent per year in Southeast New York State (SENY), defined as load zones G-K, with the addition of approximately 1250 MW of net new generating capacity in that area over the last ten years, has led to increasing dependence on the transmission system to meet capacity and energy needs in SENY. The demands that are increasingly being placed on the transmission system in conjunction with other system changes, such as generating unit retirements, could result in voltage collapse at much lower transfer levels than have been previously observed. The result is that transfers into SENY are being limited by voltage collapse constraints and not thermal limits. The reduced capability to make power transfers to SENY and continuing load growth in SENY results in resource adequacy criteria violations as early as 2008. Below are the major findings of the RNA.

1. The ability to transfer power into SENY will be significantly limited by voltage constraints in the Lower Hudson Valley (LHV). If a reactive power compensation plan is not developed, the transfer capability through the LHV will be reduced by as early as 2008 by as much as 1000-1500 MW to meet voltage collapse criteria.
2. The Transmission Owners (TO) of the transmission facilities in the LHV should develop in conjunction with NYISO a reactive power compensation plan to eliminate the voltage constraints that will otherwise limit power transfers into SENY. Resolving this need will require an estimated minimum 1000-1500 MVARs of both static and dynamic compensation on the bulk and non-bulk transmission system and/or the reconfiguration of transmission facilities to eliminate critical contingencies that result in voltage constraints limiting total transfer capability. The actual amount of compensation required will depend on the specific combination of solutions that are adopted. The owners of transmission facilities in the LHV include Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric and Gas Corporation, the New York Power Authority and Orange and Rockland Utilities, Inc..
3. Utilizing voltage-constrained transfer limits to determine resource adequacy needs (defined as a loss-of-load-expectation or LOLE that exceeds .1 days per year) and the updated transmission topology, the first year of need for the New York Control Area (NYCA) is determined to be 2008, with an LOLE of .463 days per year. The LOLE for the NYCA increases to 2.583 days per year by 2010. The compensatory MW needed to meet the .1 days per year reliability criteria for the NYCA by 2010 would be between 2000 and 2250 MW.
4. Utilizing thermally constrained transfer limits to determine resource adequacy needs and the updated transmission topology, the first year of need for the NYCA is 2009, with an LOLE of .160 days per year, which increases to .752

days per year by 2010 and 1.049 by 2011. Compensatory MW needed to meet the .1 days per year in SENY would be 1000 MW in 2010 and between 1250 MW and 1500 MW in 2011.

5. Given the assumption that the voltage limitations in the LHV are eliminated, requests for solutions should focus on the 2009-2011 timeframe, and be based on the needs developed base on thermal transfer limits. The TOs in SENY will need to develop or provide their proposed solutions
6. Compensatory MW needs for the NYCA were developed by adding generic 250 MW generating units to the zones with the highest LOLE. However, resource needs could potentially be met by many different combinations of supply and demand-side resources in other areas in conjunction with transmission upgrades. Due to the differing natures of supply, demand and supply-side resources, the amounts of these resources needed to match the level of compensatory MW needs identified will vary. In addition, resource needs could be met in part by transmission system reconfigurations that increase transfer capability, or by changes in operating protocols.
7. The scenario in which all coal units in western NY are retired except for the Somerset and Milliken units results in a reduction in transfer limits in western NY of approximately 500 MW. However, the impact on LOLE was minimal. Also, contingency analysis for the non-bulk system was not conducted.