

NEW YORK STATE RELIABILITY COUNCIL

2005–2006 BIENNIAL REPORT



Reliability is our business !



The Edic to New Scotland 345 kV transmission line, near Schenectady, New York. *(Photo by George C. Loehr)*

On the cover: The Robert Moses Niagara Plant, located in Lewiston. The Niagara Power Project is the biggest electricity producer in New York State, generating more than 2.4 million kilowatts. *(New York Power Authority photo)*



A Letter from the Chairman

In 2006 the New York State Reliability Council (NYSRC) marked its seventh year in its role of promoting and preserving the high level of electric reliability in New York State. In addition to carrying out its regular responsibilities of developing reliability rules, monitoring compliance with the reliability rules, and establishing statewide installed capacity requirements, the NYSRC faced challenges during 2005 and 2006. These ranged from implementation of actions based on valuable lessons learned from the 2003 Blackout, to active participation in the process of establishing Electric Reliability Organization (ERO) reliability standards.

As part of its actions in response to the 2003 Blackout, the NYSRC formed a working group to explore the potential of defensive strategies for protecting the New York electric system from the impact of system disturbances originating outside New York. The Defensive Strategies Working Group is comprised of representatives of New York's Transmission Owners, New York Independent System Operator (NYISO), New York Public Service Commission (PSC) Staff, Northeast Power Coordinating Council, Inc. (NPCC), and members of the NYSRC Executive Committee. This joint effort is an example of how the NYSRC reaches out to join forces with industry and state entities to work together toward a common goal of maintaining a reliable electrical system. During 2005 and 2006 the NYSRC implemented several other actions responding to lessons learned from the 2003 Blackout.

In 2005 and 2006, the NYSRC closely followed regulatory proceedings that could impact the reliability of the New York electric system. Examples include a proceeding on a proposed Regional Greenhouse Gas Initiative (RGGI) and a proceeding to implement an increase in electricity production from renewable resources. The principle focus of NYSRC efforts in these proceedings was to support revisions in implementation processes that would protect the reliability of the New York electric system.

As the NYSRC looks forward to the challenges ahead, we are committed to providing the leadership, commitment, and skills necessary to get the job done.

Bruce B. Ellsworth
Chairman of the New York State Reliability Council



ABOUT THE NEW YORK STATE RELIABILITY COUNCIL

The New York State Reliability Council (NYSRC) was approved by the Federal Energy Regulatory Commission (FERC) in 1999 as part of the comprehensive restructuring of the electricity market in New York State. The NYSRC has carried out its mission in accordance with the FERC-approved NYSRC Agreement and the NYISO/NYSRC Agreement. The NYSRC is an independent organization whose responsibilities, duties, and obligations are defined by these Agreements.

Our Mission

To facilitate the maintenance and enhancement of reliability of New York State's electric system.

Our Vision

An excellence driven reliability organization built around a team of experts who are dedicated to promoting and preserving reliable electricity service for the 19 million residents of New York State.

To Fulfill our Mission, the NYSRC:

- Establishes NYSRC Reliability Rules, consistent with ERO and NPCC standards. The NYSRC Reliability Rules are consistent with, and generally more stringent or specific than ERO and NPCC standards.
- Monitors and assesses NYISO conformance with NYSRC Reliability Rules.

- Establishes statewide installed capacity requirements.
- Assesses New York electric system resource and transmission system adequacy.
- Initiates, monitors and/or participates in actions that have potential impact on the reliability of the New York electric system.

Our Organization

The NYSRC is a not-for-profit limited liability company, whose activities are governed by a 13-member Executive Committee (see inside back cover). Nine members come from key sectors of New York's electric industry: Transmission Owners (six members), wholesale sellers (one member), industrial and large commercial consumers (one member), and municipal electric systems and cooperatives (one member). The remaining four NYSRC members are independent members with no affiliation with any sector of New York's electric industry. A vote of nine members is needed to pass a measure.

Under the Executive Committee are three subcommittees:

1. The Reliability Rules Subcommittee (RRS) manages the review, development, and modification of NYSRC Reliability Rules to maintain or enhance the reliability of the New York State Bulk Power System.
2. The Reliability Compliance Monitoring Subcommittee (RCMS) manages the NYSRC compliance monitoring process, develops procedures for measuring and documenting compliance, and assesses compliance with the NYSRC Reliability Rules.
3. The Installed Capacity Subcommittee (ICS) oversees the development and analysis of studies related to the NYSRC's adoption of the annual

statewide installed capacity requirement for the New York Control Area (NYCA).

The industry sectors and independent members represented on the NYSRC Executive Committee also are represented on these subcommittees, as are the NYSRC's consultants and representatives of the PSC Staff. Collectively, subcommittee members provide expertise in the planning and operating aspects of the reliable operation of the New York electric system.

2006 saw the launch of a redesigned, easier to use NYSRC Web site (at www.nysrc.org). The new Web site provides improved access to NYSRC meeting information, reliability rule development, documents, and other useful information for New York stakeholders.

The NYSRC conducted its first-ever bulk power system transmission workshop in 2005. Over 150 people from the NYISO and Market Participants attended this very successful workshop; a follow-up was held specifically for the PSC Staff. Because of the favorable feed-back received, a second transmission workshop has been planned for 2007. A resource adequacy workshop is also being planned for 2007 – the previous one was held in 2003.



VALUABLE LESSONS LEARNED FROM THE 2003 BLACKOUT

The NYSRC's mission of maintaining and enhancing reliability was underscored by the power system collapse that originated in the Midwest and affected much of the Northeast and Midwestern U.S. and southern Canada in August 2003. The NYSRC learned valuable lessons from the 2003 Blackout and is in the process of implementing them.

Although New York had strong reliability standards and rules in place, and the NYISO was in full compliance with all of them during the period of the Blackout, the New York electric system was seriously impacted. This experience clearly demonstrated that weaker reliability standards and compliance requirements in any region could adversely affect the reliability in another region, even though the affected region had adopted more stringent reliability standards. Therefore, the NYSRC concluded it must continue to carefully review proposed ERO reliability standards to ensure that implementation of weaker national standards do not result in lower reliability for the NYCA. The NYSRC has been active in submitting comments on proposed standards to the North American Electric Reliability Corporation (NERC) and FERC, and in the NERC standards balloting process. (In 2006 NERC was designated as the ERO in the development of mandatory, national reliability standards. These standards will become ERO standards. See "NYSRC Reliability Rule Development".)

NYSRC Actions

The NYSRC took an active role in tracking and responding to recommendations in the "U.S. – Canada Power System Outage Task Force Report" (2005). Soon after the Blackout event, the NYSRC initiated a series of actions to determine

whether the NYISO was in compliance with NYSRC Reliability Rules and NERC and NPCC Standards. The NYSRC reviewed conditions leading up to, during, and following the Blackout. The latter focused on system restoration. The primary goal of these reviews was to determine whether modifications to the existing NYSRC Reliability Rules were warranted. The NYISO was requested to furnish frequent status reports on the progress of its Blackout investigations and to provide a final self-assessment regarding whether or not the NYISO was in compliance with the NYSRC Reliability Rules and NERC and NPCC Standards during the period of the Blackout.

The NYSRC concurred with the NYISO self-assessment that concluded that the NYISO was in full compliance with all applicable NYSRC Reliability Rules and NERC and NPCC Standards during the period of the August 14, 2003 system disturbance.

In addition, the NYSRC voluntarily initiated a series of actions related to several Task Force Report recommendations. They are as follows:

- **Enhance NYSRC Reliability Rules pertaining to system restoration:** Although NYISO operations during system restoration on August 14-15, 2003 were in compliance with NYSRC Reliability Rules, the NYSRC concluded that its existing system restoration reliability rules should be amended to make them more stringent and more specific. Accordingly, system restoration rule modifications, including rules related to system restoration training, were adopted in March 2006. A NYSRC compliance review, completed in January 2007, concluded that the NYISO was in full compliance with the newly modified system restoration rules.
- **Develop a new NYSRC Reliability Rule on voltage and reactive control:** During 2005 and 2006 the NYSRC actively followed, and will continue to follow, the progress of a NYISO Reactive Power Working

Group and the development of new ERO and NPCC standards for ensuring adequate voltage levels and reactive resources. This information will form the basis for development of a new NYSRC Reliability Rule covering voltage and reactive requirements to ensure the reliable operation of the NYCA.

- **Adopt other NYSRC Reliability Rules:** Several new reliability rules were adopted covering disturbance monitoring, system modeling, and power control center communications.
- **Identify possible “defensive strategies” that may be implemented to protect the New York electric system from a disturbance that develops in a neighboring system:** A NYSRC initiative to explore the feasibility of implementing defensive strategies commenced immediately following the events of August 14, 2003. The objective of this initiative is to explore the potential for mitigation of the impact of major system disturbances on the NYCA, with particular emphasis on events originating outside of the NYCA. Subsequently, representatives of the NYSRC Executive Committee held a series of meetings with key NYISO staff to explore in more depth possible defensive strategies and develop an appropriate course of action.

A NYSRC Defensive Strategies Working Group (DSWG) was formed comprised of representatives of the NYCA Transmission Owners, NYISO, PSC Staff, NPCC, and members of the NYSRC Executive Committee. The NPCC representatives included members of the its Task Force on System Studies, and a key member of an ad hoc NPCC working group responsible for the dynamic studies related to the August 14, 2003 Blackout.

The DSWG will continue to monitor an ongoing NPCC Blackout Study and participate by providing input reflecting the interests of the NYCA. The present phase of the NPCC work is targeted for completion in the summer of 2007. In addition, the NYSRC Executive Committee, through the DSWG, will continue to keep abreast of new technology developments with potential for application for defensive strategies.

- **Monitor the implementation by the NYISO and Market Participants of recommendations of the PSC Blackout Final Report:** As part of the NYSRC 2006 Reliability Compliance Monitoring Program, the NYISO and Market Participants were requested to inform the NYSRC on actions for implementing PSC Blackout Report recommendations.



NYSRC RELIABILITY RULE DEVELOPMENT

The NYSRC Reliability Rule development process is fair and open. Consistent with this open process, drafts of proposed reliability rules can be viewed on the NYSRC Web site and comments from the NYISO, Market Participants and other entities within the industry will be considered. Recommendations from these parties are encouraged and carefully considered. Any entity may propose new or revised Reliability Rules. The RRS oversees the NYSRC Reliability Rule development process.

In August 2005 President Bush signed the Energy Policy Act into law, authorizing the creation of a single ERO to develop mandatory and enforceable national reliability standards, subject to FERC oversight. NERC was certified by FERC as the ERO. During 2005 and 2006, the NYSRC actively participated with FERC and NERC efforts to implement the Energy Policy Act. In 2006 the NYSRC filed comments in response to FERC NOPRs on issues related to FERC approval and adoption of the initial group of ERO reliability standards, including compliance monitoring and enforcement of these mandatory standards. The NYSRC continued to review and prepare comments on ERO standards under development and, as a member of the NERC Registered Ballot Body, voted on a number of proposed standards. A NYSRC Executive Committee member participates on one of the NERC standard drafting teams. The NYSRC will continue to support and be active in the ERO standards development process. We will also continue to work with the NYISO and NPCC to ensure that future ERO reliability standards do not result in weakening of present national criteria, thereby threatening NYCA reliability interests.

In 2006 the PSC adopted in their entirety the NYSRC Reliability Rules. As such, the Rules will serve as the State of New York's Reliability Rules, specifically as provided by the Energy Policy Act. This action was taken by the PSC to avoid any uncertainty in the application of NYSRC Reliability Rules while FERC approves and adopts national standards developed by NERC.

Most NYSRC Reliability Rules are more stringent or specific than ERO and NPCC standards, to address the special reliability needs of the NYCA. Also, as the ERO and NPCC develop new standards, the NYSRC ensures that its reliability rules remain consistent with any new requirements. In 2005 and 2006, the NYSRC adopted seven new or modified Reliability Rules. Also adopted during this period were 20 new or modified rule measurements that define the requirements for compliance with the NYSRC Reliability Rules. By the end of 2006, the NYSRC maintained a total of 50 reliability rules and 57 measurements.



NYSRC RELIABILITY COMPLIANCE PROGRAM

The NYSRC monitors NYISO compliance with the NYSRC Reliability Rules through an annual NYSRC Compliance Monitoring Program. The process begins by establishing a schedule of reporting dates and descriptions of compliance documentation requirements and obligations for the rule measurements that have been selected for review. The RCMS manages this program. Further, the RCMS provides oversight with respect to NYISO compliance reviews for those NYSRC Reliability Rules for which Market Participants have compliance responsibility.

If non-compliance by the NYISO is identified by the RCMS, mitigation plans and corrective actions are developed to achieve compliance. In addition, when a non-compliance finding is made, a letter reporting non-compliance is sent to the NYISO and other appropriate entities. The NYSRC also provides oversight review of NYISO compliance with ERO and NPCC standards, which are separately monitored and assessed by NPCC.

In 2005 compliance with 23 measurements was monitored through the NYSRC Compliance Monitoring Program; in 2006 compliance with 34 measurements was monitored. We are pleased that the NYISO and the Market Participants were in full compliance with every measurement assessed during 2005 and 2006.

The NYSRC Reliability Rules require the NYISO to conduct annual long term comprehensive reliability adequacy and security assessments of NYCA resource adequacy and transmission reliability. The NYSRC concluded that the NYISO 2005 and 2006 assessments were in full compliance with NYSRC Reliability Rules.

The NYSRC closely follows regulatory proceedings that could impact the reliability of the New York electric system. In 2005 the NYSRC raised concerns related to the effects of the proposed Regional Greenhouse Gas Initiative (RGGI) on system reliability. Accordingly, the NYSRC submitted comments to the New York State Department of Environmental Conservation, PSC, and the New York State Energy Research Development Authority, and encouraged these agencies to consider potential reliability impacts in the RGGI analyses. The NYSRC has also been active in a PSC proceeding to implement an increase in electricity production from renewable resources. The principle focus of the NYSRC effort in this proceeding was to support revisions in the renewable resource implementation process that would protect the reliability of the New York electric system.

On August 1, 2006 a new all-time record for electricity demand in New York State was established – 33,879 MW. Despite this record-breaking demand, power supplies were adequate and the NYCA operated reliably – clear evidence of the close cooperation between the NYISO and New York’s Transmission and Generation Owners. It also demonstrates the benefits of New York’s excellent operator training and compliance with reliability standards and rules.



NYCA INSTALLED CAPACITY REQUIREMENTS

The NYSRC has the responsibility to establish an annual statewide installed capacity requirement, which determines the amount of resource capacity that must be available in the NYCA to ensure an acceptable level of reliability. The ICS studies for determining and setting the statewide installed capacity requirement utilize state-of-the-art Loss of Load Expectation (LOLE) computer modeling techniques. The statewide installed capacity requirement is implemented by the NYISO. In accordance with NYSRC requirements, the NYISO establishes NYCA load serving entity capacity requirements as well as locational capacity requirements (LCRs) for New York City and Long Island.

For many years the New York power industry has pioneered the application of probability methods for capacity planning, including the development of computer models, reliability evaluation techniques and methods, and resource adequacy criteria. Studies for establishing statewide capacity requirements using probabilistic techniques go back to the early days of the New York Power Pool during the early 1970's. In 2005 the NYSRC and the NYISO jointly undertook a major study to further enhance technical study procedures for establishing NYCA installed reserve margin (IRM) requirements and LCRs. This cooperative effort produced methods for analyzing the relationship between IRM requirements and LCRs, and for identifying base case and sensitivity case values. The NYSRC and the NYISO coordinated the use of these methods on a consistent basis in their respective IRM and LCR studies. Also during 2005 and 2006, the NYSRC made significant progress at improving capacity and load modeling representations.

Based on the results of its annual technical studies – utilizing these improved study methods and modeling – the NYSRC adopted statewide IRMs for the

2006–2007 and 2007–2008 capability years of 18.0% and 16.5%, respectively. The NYSRC Agreement requires the NYSRC to make a filing with FERC for approval of a change to the IRM. The NYSRC made a filing with FERC for approval of the 16.5% IRM for the 2007–2008 capability year. After considering comments from various parties, FERC accepted the IRM adopted by the NYSRC. In a separate proceeding, the PSC adopted the 16.5% IRM.

Emergency assistance to New York from its neighboring control areas, including New England, has a significant influence on NYCA resource adequacy requirements. To improve emergency assistance system modeling capability, in 2006 the NYSRC initiated a joint study with the NYISO and ISO New England to assess the reliability benefits of transmission interfaces between New York and New England. This assessment of interconnection reliability benefits will allow for better modeling of emergency assistance resulting in improved reliability calculations and more accurate determination of the NYCA IRM and LCRs for Long Island and New York City. Completion of this study is expected in 2007.



THE CHALLENGES AHEAD

In addition to the emphasis the NYSRC places on annual compliance monitoring and system performance measures, the NYSRC is aware of the need to identify longer term reliability characteristics or signals. These signals are particularly significant because they afford the lead-time necessary to affect transmission transfers and generator capacity installations/locations and to sustain adequate annual reliability performance. The NYSRC will consider a wide range of actions to protect the integrity of the New York electric system.

- Support for mandatory ERO, Regional and Sub-Regional Reliability Standards that are at least as stringent as current ERO standards. The NYSRC also supports more stringent Regional and/or Sub-Regional Rules, if necessary, and a clear Federal regulatory back-stop for reliability standards.
- Evaluation of the impact of dependency of electric system reliability on a long-term and dependable supply of natural gas and petroleum based fuels, and assessment of Federal and State policies and requirements for mitigating against fuel supply shortages.
- Consideration of defensive strategies to mitigate the NYCA's vulnerability over time to (1) expanding system disturbances caused by gradual change to an electrically "tighter" grid, coupled with shrinking system inertia for maintaining synchronous operation, (2) disturbances initiated beyond the NYCA borders, particularly if neighboring systems are allowed to reduce reliability requirements, and (3) the consequences of terrorist attacks.

- Evaluation of the impact of expanding environmental requirements on resource adequacy and dual fuel requirements for reliability purposes.
- Performance of horizon year assessments of NYCA IRM and LCRs to provide increased lead-time for the development of viable solutions to address reliability problems.
- Support for the PSC, U.S. Department of Health & Human Services, and the Department of Homeland Security in establishing effective lines of communication between the public and private sectors and encourage preparedness planning among the private infrastructure owners to enable at least minimal operations, under the conditions of a widespread influenza pandemic.

The NYSRC is confident that a diligent process of scrutinizing both short and longer term reliability characteristics – and taking corrective actions as necessary – will lessen the risk of major electrical system disturbances. However, no single entity can protect reliability. State and Federal government, the NYISO, and Market Participants must constantly be alert to the impact on reliability of governmental action, market rules and market participant actions. Open electric markets, cleaner air, and more renewable resources are laudable goals. Each of these goals, however, may have a potentially negative impact on reliability. The NYSRC hopes that the actions it takes will help bring together different viewpoints by (1) broadening the understanding of reliability issues, (2) working toward solutions that fairly balance the priorities of parties without jeopardizing electric system reliability, and (3) enhancing awareness of private infrastructure owners and related support industries of the necessity for including Pandemic Planning as a major part of their business continuity plan.

**New York State Reliability Council
Executive Committee Members**

Bruce B. Ellsworth ... *Chairman, Unaffiliated Member*

Thomas J. Gentile ... *Vice Chairman, National Grid, USA*

Richard J. Bolbrock ... *Long Island Power Authority*

William H. Clagett ... *Unaffiliated Member*

Mark J. Cordeiro ... *Municipals & Electric Co-Op Sector*

Thomas C. Duffy ... *Central Hudson Gas & Electric Corporation*

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Glenn D. Haake ... *Wholesale Sellers Sector*

George C. Loehr ... *Unaffiliated Member*

Michael Mager ... *Industrial and Large Commercial Consumers Sector*

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