NEW YORK INDEPENDENT SYSTEM OPERATOR

MANUAL 12

Transmission and Dispatching Operation Manual

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Revision History

Revision	Date	Changes
2.1	**09/04/2008**	Updated Table B-1 to reflect Exceptions to the NYSRC Reliability Rules
2.0	**11/21/2007**	Complete manual rewrite.
1.0	**9/01/99**	Initial Release

1. INTRODUCTION

The *NYISO Transmission & Dispatching Operations Manual* is one of a series of manuals within the Operations Manuals. This Manual focuses on describing each of the Transmission & Dispatching Operations with respect to the New York Independent System Operator (NYISO) facilitates and/or controls.

This Manual consists of five sections as follows:

- Section 1: Introduction
- Section 2: Overview
- Section 3: Operations Monitoring
- Section 4: Transmission Operations
- Section 5: Scheduling Operations
- Section 6: Dispatching Operations

1.1 References

The references to other documents that provide background or additional detail directly related to the *NYISO Transmission & Dispatching Operations Manual* are:

- NYISO Emergency Operations Manual
- NYISO Market Settlement Rules & Processes Manual
- NYISO Day-Ahead Scheduling Manual
- NYISO Ancillary Services Manual
- NYISO Tariffs
- New York State Reliability Council (NYSRC) Agreement
- NYSRC - Reliability Rules Manual
- Market Participant User's Guide

2. OVERVIEW

This section presents an overview of the following:

- Operating Policy
- NYISO versus Transmission Owner Responsibilities and Authorities
- Normal and Warning Operating States
- Market Operations Time Line
- Operations Functions
- Communications

2.1 Operating Policy

Under the terms of the NYISO Agreement, the NYISO/Transmission Owner Agreement, and the NYSRC Agreement, the NYISO has the authority to direct the operation of the New York State Power System (NYS Power System) to maintain system reliability in accordance with good utility practice and the Reliability Rules. The goal is to anticipate potential problems, apply preventative measures, and to respond quickly to actual problems when they occur.

To meet its obligations under the Reliability Rules with respect to maintaining the security of the NYS Power System, the NYISO shall maintain a list of transmission facilities included within the NYS Transmission System, defined as the NYISO Secured Transmission System. The NYISO is responsible for the following:

- The coordination of the operation of those facilities under its Operational Control with the responsible Transmission Owners (TO)
- The commitment and/or dispatch of supply and demand resources connected to the NYS Transmission system, and/or
- The control and/or coordination of facilities used to provide ancillary services
    - Transmission facilities that are under NYISO operational control and require NYISO notification are listed in Attachment A.1 of this Manual**.**
    - Transmission facilities that require NYISO notification are listed in Attachment A.1 of this Manual.
    - Bus Voltage Limits for buses included as part of the NYISO Secured Transmission System are listed in Attachment A.2 and Attachment A.3 of this Manual.

2.1.1 Operating States

The following five operating states are defined for the NYS Power System:

1. Normal
2. Warning
3. Alert
4. Major Emergency
5. Restoration

The NYISO Shift Supervisor shall determine the state of the NYISO Secured Transmission System by comparing system conditions against certain monitoring criteria. The NYISO Shift Supervisor shall also monitor weather conditions and forecasts.

2. When the NYISO Shift Supervisor determines the state of the NYISO Secured Transmission System is Normal or Warning, the NYISO shall operate the NYS Power System according to the procedures described in this Manual.
3. When the NYISO Shift Supervisor determines the state of the NYISO Secured Transmission System is Alert, Major Emergency, or Restoration, the NYISO shall operate the NYS Power System according to procedures in the NYISO Emergency Operations Manual.

2.1.2 NYISO Objective

It is the objective of the NYISO to operate the NYISO Secured Transmission System within the Normal State. Conditions may cause the NYISO Secured Transmission System to depart from the Normal State, however. Such conditions include, but are not limited to, the following:

1. Capacity deficiencies
2. Energy deficiencies
3. Loss of generation or transmission facilities
4. High voltage
5. Low voltage
6. Environmental episodes
7. Transmission overloads
8. Abnormal power system frequency

When the NYISO Secured Transmission System enters a condition other than the Normal State, the NYISO shall act to return the NYISO Secured Transmission System to the Normal State. When the criteria for the Normal State cannot be achieved, the NYISO shall satisfy as many of the Normal State criteria as possible, and shall minimize the consequences of any single contingency. Should a disturbance occur, the NYISO shall minimize its extent and duration.

When multiple violations occur within the same state, actual violations shall be corrected before predicted violations. Where multiple violations of differing state criteria occur, the most serious violation shall be solved first.

2.1.3 Emergency Conditions

The NYISO Schedule Coordinator, the NYISO Shift Supervisor, or both shall forecast the likelihood of the occurrence of states other than the Normal State as far in advance as possible. If it is predicted that Load Relief, either by Voltage Reduction or Load Shedding, may be necessary during a future period, the NYISO Shift Supervisor shall notify all TOs.

Refer to the *NYISO Emergency Operations Manual* for a detailed description of the procedures to be followed under these conditions.

Transmission Owners shall develop the necessary communication policies with Transmission Customers. The specific operating methods used by each TO are not necessarily identical. The NYISO Shift Supervisor shall coordinate such methods to achieve uniform results.

2.1.4 General Reliability Rules

The NYSRC has the responsibility to develop, establish, maintain, assure compliance with, and, from time-to-time, update the Reliability Rules, which must be complied with by the NYISO and all entities engaging in electric power transactions on the NYS Power System. The NYSRC relies upon the reliability standards, regulations, criteria, procedures, and rules established or imposed by:

- NERC,
- NPCC,
- FERC,
- PSC,
- NRC, and/or
- Any other government agency with jurisdiction over the reliability of the NYS Power System.

The NYSRC will initially adopt those existing rules, policies, and procedures of the NYISO that relate to or affect the reliability of the NYS Power System. The NYSRC will adopt or create from time-to-time such additional Reliability Rules that it deems necessary to meet the unique reliability needs of New York State.

The NYISO or a member of the NYSRC may petition the NYSRC Executive Committee to seek specific and limited exceptions to North American Electric Reliability Council (NERC) and Northeast Power Coordinating Council (NPCC) criteria, provided the intent of the criteria is not compromised. The NYSRC will adopt

all new mandatory compliance rules of NERC and NPCC, unless existing Reliability Rules are more stringent.

2.1.5 Local Reliability Rules

Transmission Owners in the New York Control Area (NYCA) have defined various local rules required to maintain system reliability in their respective areas. These requirements are referred to as Local Reliability Rules (LRR). These LRRs are defined in the New York State Reliability Rules, maintained by the NYSRC.

Local Reliability Rules are more stringent than the general New York-specific Reliability Rules and apply to certain NYCA zones, recognizing unique local area characteristics or reliability needs.

The commitment and/or dispatch of supply and/or demand resources in a localized area may be required to maintain the reliability of certain areas of the NYS Power System in accordance with the LRRs of a TO. Local Reliability Rules are more stringent or more specific than the basic requirements contained in NERC or NPCC standards and/or are required by regulatory order.

Existing Local Reliability Rules cannot be modified or eliminated by the NYSRC without the consent of the TO who implemented the LRR. A TO may promulgate a new LRR if that TO determines that a new LRR is necessary to protect the reliable delivery of electricity over its transmission and/or distribution facilities.

The NYISO Board of Directors (NYISO Board) or the NYSRC may request that the Public Service Commission (PSC) review a LRR. In the event the NYISO Board or the NYSRC seeks to modify or eliminate any LRR, and the TO promulgating that rule does not agree to modify or eliminate that rule, that LRR can be modified or eliminated pursuant to an order by the PSC or Federal Energy Regulatory Commission (FERC), as appropriate.

Any incremental uplift costs incurred to meet LRRs implemented by the NYISO shall be recovered by the NYISO through the application of an uplift charge. Uplift charges administered by the NYISO associated with selected LRRs that impact the NYISO Secured Transmission System will be borne by all customers, while others will be assigned to the local customers receiving the reliability benefits from the LRRs.

Transmission Owner Responsibilities

Transmission Owners are responsible for developing and maintaining procedures and requirements necessary to meet these LRRs.

At times, TOs may propose a new local rule for a system reliability concern that had not been previously observed. This new LRR will be presented to the NYSRC for consideration to be included with the NYSRC Reliability Rules.

NYISO Responsibilities

The NYISO is responsible for review and approval of any modifications to existing procedures or new procedures developed by the TOs to meet the LRRs.

This responsibility also requires the review and approval of any study or analysis that was completed that warranted modifications of existing procedures or the need for new procedures.

The LRRs of the New York TOs are listed in Attachment B.4 of this Manual.

2.1.6 Applications of Reliability Rules

To ensure the reliability of the NYISO Secured Transmission System, the NYISO complies with and enforces the Reliability Rules. However, there are specific system locations and conditions for which the NYISO cannot secure. These system locations and conditions are secured by the TO.

Transmission Owner Applications of the NYSRC Reliability Rules (or Applications of the NYSRC Reliability Rules) were assembled from existing operating procedures and LLRs as applied by the TOs. They consist of procedures that apply to very specific system locations or conditions. The current list of Applications of the NYSRC Reliability Rules is posted on the NYISO web site.

The NYISO will perform periodic compliance reviews to ensure that the TOs are complying with the TO applications of the NYSRC Reliability Rules. The Annual NYSRC Compliance Program determines the frequency and schedule for the compliance reviews.

Transmission Owner Responsibilities

Transmission Owners are responsible for implementing the TO applications of the NYSRC Reliability Rules for those portions of the NYS Transmission System not included in the NYISO Secured Transmission System. Implementation of certain Applications of the NYSRC Reliability Rules must be coordinated with the NYISO where the NYISO lacks the necessary analysis and/or monitoring capabilities.

A TO, or the NYISO, may define new or modified Applications of the NYSRC Reliability Rules. New or modified Applications of the NYSRC Reliability Rules, proposed by a TO are subject to approval by the NYISO. Upon approval by the NYISO, the NYISO will revise the Applications of the NYSRC Reliability Rules to include the change and advise the NYSRC of the change.

The NYISO will enforce the Reliability Rules for the NYISO Secured Transmission System. Certain applications of the Reliability Rules, previously implemented by the TOs, will continue to require close coordination between the TOs and the NYISO to maintain the reliability of the NYS Power System.

The TOs will:

1. Implement the Applications of the Reliability Rules for those portions of the NYS Transmission System not included in the NYISO Secured Transmission System, and
2. Coordinate with the NYISO the implementation of certain Applications to (of) the Reliability Rules where the NYISO lacks the necessary analysis and/or monitoring capabilities.

The following process will be used to define new Applications of Reliability Rules or modification of existing Applications of the Reliability Rules:

1. The following entities can define new Applications of the Reliability Rules or modify existing Applications of the Reliability Rules:
   - NYISO
   - NY Transmission Owners
2. Applications of the Reliability Rules proposed by the TOs shall be referred to the NYISO for approval.
3. Once the NYISO concurs, it shall take two actions:
   - Include them in the next version of the NYISO Transmission and Dispatching Operations Manual, and
   - Advise the NYSRC.
4. The NYSRC shall post the updated Applications of the Reliability Rules on its web site.

Any incremental uplift costs incurred to meet Applications of the Reliability Rules shall be recovered by the NYISO through a statewide uplift charge if the Application secures a facility within the NYISO Secured Transmission System. Applications of the Reliability Rules may apply to facilities that are not included in the NYISO Secured Transmission System, but are implemented by the NYISO at the TO's request. Incremental costs associated with such Applications shall generally be borne by the Load Serving Entities in the Zone or Zones of the TO(s) making the request.

The Application of the Reliability Rules and the associated cost allocations are listed in Attachment B.5 of this Manual.

2.2 NYISO, Transmission Owner, and Generator Owner Responsibilities and Authorities

The following defines the responsibilities and authorities assigned to the NYISO, TOs, and Generator Owners.

2.2.1 Background Definitions

New York State Transmission System (NYSTS)

The New York State Transmission System (NYS Transmission System) includes: (1) the Transmission Facilities Under NYISO Operational Control; (2) the Transmission Facilities Requiring NYISO Notification; and (3) all remaining transmission facilities within the NYCA.

Local Area Transmission System Facilities are the Transmission Facilities and the sub-transmission facilities that are not included in Attachment A.1.

New York State Power System (NYSPS)

The New York State Power System includes all facilities of the NYS Transmission System and all those Generators located within New York or outside New York, some of which may be from time-to-time subject to operational control by the NYISO.

Thus,

NYSPS = NYSTS + Internal/External Generators Subject to NYISO Operational Control

Reliability Rules

Those rules, standards, procedures, and protocols developed and promulgated by the NYSRC (in accordance with NERC, NPCC, FERC, PSC, and Nuclear Regulatory Commission (NRC) standards, criteria, rules and regulations, and other criteria) and the LRRs pursuant to the NYSRC Agreement.

NYISO Secured Transmission System

Certain transmission facilities in the NYS Transmission System that the NYISO will be responsible to secure through: (1) the coordination of the operation of those facilities under its Operational Control with the responsible TOs, (2) the commitment and/or dispatch of supply and demand resources connected to the NYS Transmission System, and/or (3) the control and/or coordination of system elements used to provide ancillary services.

All the facilities in the NYISO Secured Transmission System are identified in Attachment A1. Bus Voltage Limits for buses included as part of the NYISO Secured Transmission System are listed in Attachment A.2.

Therefore:

1. A Transmission Facility may be under NYISO Operational Control **but not** part of the NYISO Secured Transmission System.
2. A Transmission Facility may be subject to NYISO Notification (i.e., not under NYISO Operational Control), and yet be part of the NYISO Secured Transmission System.
3. NYISO Secured Transmission System Facilities designated on the NYISO Operational Control and/or NYISO Notification Lists will be secured by the NYISO only in terms of flows on those facilities. NYISO Secured Transmission System Facilities designated on the Bus Voltage Limit list will be secured by the NYISO in terms of voltages at those buses.
4. Maintenance of the Normal State by the NYISO, and declaration of the Alert, Warning, Major Emergency, and Restorative States by the NYISO will pertain to the NYISO Secured Transmission System only.

2.2.2 General Relationships between NYISO and Transmission Owners

Operation of the NYS Power System will be a cooperative effort coordinated by the NYISO Control Center in conjunction with each TO's Control Center, and will require instantaneous exchange of all scheduling information.

In general, the NYISO will have operational control over key transmission facilities and it will be notified of any change in status for other facilities.

The NYISO enforces the Reliability Rules for the NYISO Secured Transmission System. Certain applications of the Reliability Rules, previously implemented by the TOs, will continue to require close coordination between the TOs and the NYISO to maintain the reliability of the NYS Power System.

2.2.3 NYISO Responsibilities and Authorities

The primary responsibilities and authorities of the NYISO are:

1. Control Area operations of the NYS Power System.
2. Perform balancing of generation and load while maintaining the safe, reliable, and efficient operation of the NYS Power System.
3. Mitigate the impact of Constraints on the NYS Transmission System, including nondiscriminatory redispatch and Curtailments.
4. Maintain the NYISO Secured Transmission System in Normal State based upon reliability criteria, and declare Warning, Alert, Major Emergency, and Restorative States for the NYISO Secured Transmission System.
5. Exercise Operational Control over certain facilities of the NYS Power System under normal operating conditions and system Emergencies to maintain system

reliability. For the NYISO Secured Transmission System, maintain appropriate flows and voltage levels during normal operations and order adjustments to be made under emergency conditions.

6. In the event of, or to prevent, a Major Emergency State, Eligible Customers shall comply with all directions from the NYISO concerning the avoidance, management, and alleviation of the Major Emergency and shall comply with all procedures concerning Major Emergencies set out in the NYISO Procedures and the Reliability Rules.
7. Under adverse conditions (as defined above), the NYISO will direct the adjustment of Generator output levels in certain areas of the NYS Power System to reduce power flows across the vulnerable transmission lines to reduce the likelihood of a major power system disturbance. The NYISO shall have the authority to declare that adverse conditions are imminent or present and invoke the appropriate operating procedure(s) affecting the NYS Power Systems under NYISO control in response to those conditions.
8. Maintain the safety and short-term reliability of the NYS Power System.
9. Coordinate NYS Power System equipment outages and maintenance.
10. Approve maintenance schedules for Transmission Facilities under NYISO Operational Control based on approved criteria.

2.2.4 Transmission Owner Responsibilities and Authorities

The primary responsibilities and authorities of each TO are as follows:

1. Implement the Reliability Rules for those portions of the NYS Transmission System not included in the NYISO Secured Transmission System.
2. Coordinate with the NYISO to implement certain applications to the Reliability Rules where the NYISO lacks the necessary expertise and/or monitoring capabilities.
3. Physically maintain and operate Attachment A.1 facilities under direction and control of the NYISO to assure secure operation of the NYISO Secured Transmission System.
4. Comply with maintenance schedules coordinated by the NYISO for Attachment A.1 facilities.
5. Recommend activation of applicable procedures for adverse conditions associated with a Local Reliability Rule to the NYISO. The TO and the NYISO shall coordinate implementation of the procedures that impact Attachment A.1 facilities.
6. Notify NYISO prior to any planned outage and must notify the NYISO of any change in status of Attachment A.1 facilities requiring NYISO notification.

7. Physically maintain and operate Attachment A.1 facilities requiring NYISO notification.
8. Operate Local Area Transmission System Facilities, provided it does not compromise the reliable and secure operation of the NYS Transmission System.
9. Promptly comply, to the extent practical, with a request from the NYISO to take action with respect to coordination of the operation of its Local Area Transmission System facilities.
10. Take action with respect to the operation of its facilities, as it deems necessary to maintain Safe Operations. Promptly conduct investigations of equipment malfunctions and failures, significant forced transmission outages, and provide a report of such investigations to the System Protection Advisory Subcommittee.
11. Determine the level of resources to be applied to restore facilities to service following a failure, malfunction, or forced transmission outage.
12. Each TO shall continue to receive telemetry from existing Generators in its control center and provide for the receipt of such information from new Generators.

2.2.5 Generator Owner Responsibilities

The responsibilities of the Generator Owners include Generator Response during Reserve Activation as follows:

Dispatchable Generating Units Not Providing Regulation Service:

All units that are NOT "self-committed fixed" or "ISO-committed fixed" are expected to respond to a reserve pickup 10-minute basepoint at its emergency response rate as bid. If the unit exceeds the given basepoint within the reserve pickup, it will be paid for the overgeneration. However, the unit must return to its Real-Time Dispatch (RTD) basepoint, which will be consistent with the LBMP, within three (3) RTD intervals (approximately 15 minutes) following termination of the reserve pickup. The unit will also be paid for overgeneration during that grace period.

Generating Units Providing Regulation Service:

A unit providing regulation service is expected to respond to a reserve pickup 10-minute basepoint at its stated response rates as bid. If the unit exceeds the given basepoint within the reserve pickup, it will be paid for the overgeneration. However, the unit must return to its RTD/Automatic Generation Control (AGC) basepoint, within three (3) RTD intervals following termination of the reserve pickup. The unit will be paid for overgeneration during the three (3) RTD interval grace period.

2.3 Normal and Warning Operating States

This section of the manual discusses the criteria for the Normal and Warning States.

2.3.1 Definition of Normal State

The Normal state exists when all conditions are within their normal boundaries and rating limits or after facilities have returned to within their normal operating limits. Imminent or immediate operator action is not necessary.

2.3.2 Normal State Criteria

All of the following criteria must be met for the NYCA to be operating in the Normal State:

1. Pre Contingency (Actual) Flow Criteria:
    - **Normal Transfer Criteria:** Actual loading of equipment defined as the NYS Transmission System does not exceed their associated Normal ratings.
2. Post Contingency Flow Criteria:
    - Single Circuit and Two adjacent circuits on same structure Criteria:
        - **Normal Transfer Criteria:** Loss of any single generator, single circuit, or adjacent circuits on the same structure, together with other facilities, which will trip at the same time due to pre-set automatic devices, will not cause any portion of the NYS Transmission System to exceed its Long Term Emergency (LTE) rating.

The following are exceptions to the criteria.

- The Post-Contingency loading of any underground cable may exceed its LTE rating, but not its Short Term Emergency (STE) rating, provided 10-minute reserve or phase angle control is available to return its post- contingency loading to its LTE rating within 15 minutes, without causing another facility to be loaded beyond its LTE rating.
- With prior approval of the NYISO, the post-contingency loading of any portion of the NYS Transmission System may exceed its LTE rating, provided sufficient control is available to return the loading on the facility to its LTE rating within 15 minutes, without causing another facility to exceed its LTE rating.
- Multiple circuit towers used only for station entrance and exit purposes, which do not exceed five towers at each station, are not considered adjacent circuits on the same structure. (For specific exceptions, see Attachment B.2 of this Manual.)
- Actual voltages on all buses listed in Attachment A.2 and Attachment A. 3, of this Manual are within pre-contingency limits.

3. Sufficient Operating Reserve exists to meet the requirements specified by the NYSRC.
4. NYS Power System stability limits and post-contingency flow limits associated with a voltage collapse are not exceeded.
5. Area Control Error is no greater than +/- 100 MW, or not more than +/- 500 MW for more than 10 minutes.
6. Power system frequency is not less than 59.95 Hz or greater than 60.05 Hz.
7. All communications facilities, computers, control, and indication equipment necessary to monitor these criteria are available.
8. All neighboring Control Areas are operating under Normal State conditions.

2.3.3 Definition of Warning State

The Warning state exists when specified limits have transgressed beyond the Normal state but do not severely impact or limit the operation of the NYISO Secured Transmission System unless they remain unchecked. Operator action may be required to return the system to the Normal state.

2.3.4 Warning State Criteria

The Warning State exists when any of the following conditions occur:

1. Pre Contingency (Actual) Flow Criteria:
   - **Normal Transfer Criteria:** The actual loading on any portion of NYISO Secured Transmission System is 105% or more of its associated Normal Rating, but is less than the LTE rating for not more than 30 minutes or exceeds its Normal Rating by less than 5% and corrective actions are not effective within 10 minutes.
   - **Emergency Transfer Criteria are invoked:** The actual loading of any NYISO Secured Transmission System facility does not exceed its associated Normal rating.
2. Post Contingency Flow Criteria:
   - **Normal Transfer Criteria:** A condition exists for not more than 30 minutes and the predicted post-contingency loading of a NYISO Secured Transmission System facility will exceed its associated LTE rating but not its STE rating.
   - **Emergency Transfer Criteria are invoked:** The loss of any single generator or circuit, together with other facilities, which will trip at the same time due to pre-set automatic devices, will not cause any NYS Transmission System facility to exceed its STE rating.
3. Sufficient Operating Reserve exists to meet the requirements specified by the NYSRC, but only using Emergency Transfer Criteria.

4. Area Control Error is greater than +/- 100 MW, but not more than +/- 500 MW for more than 10 minutes.
5. A neighboring Control Area is not operating under Normal State conditions, but has not implemented voltage or load reduction.
6. An Operating Reserve deficiency is predicted for the NYCA peak load forecast and reserve purchases are not available.

2.4 Market Operations Time Line

Operation of the NYCA and the Locational Based Marginal Pricing (LBMP) Market involves many activities that are performed by different operating and technical personnel. These activities occur in parallel on a continuous basis, 24 hours a day.

Figure 2.4-1 summarizes the important events that characterize the day-to-day operation of the NYISO LBMP market. Although this Manual focuses mainly on dispatch day activities, it is important to understand how day-ahead activities can impact real-time operation.

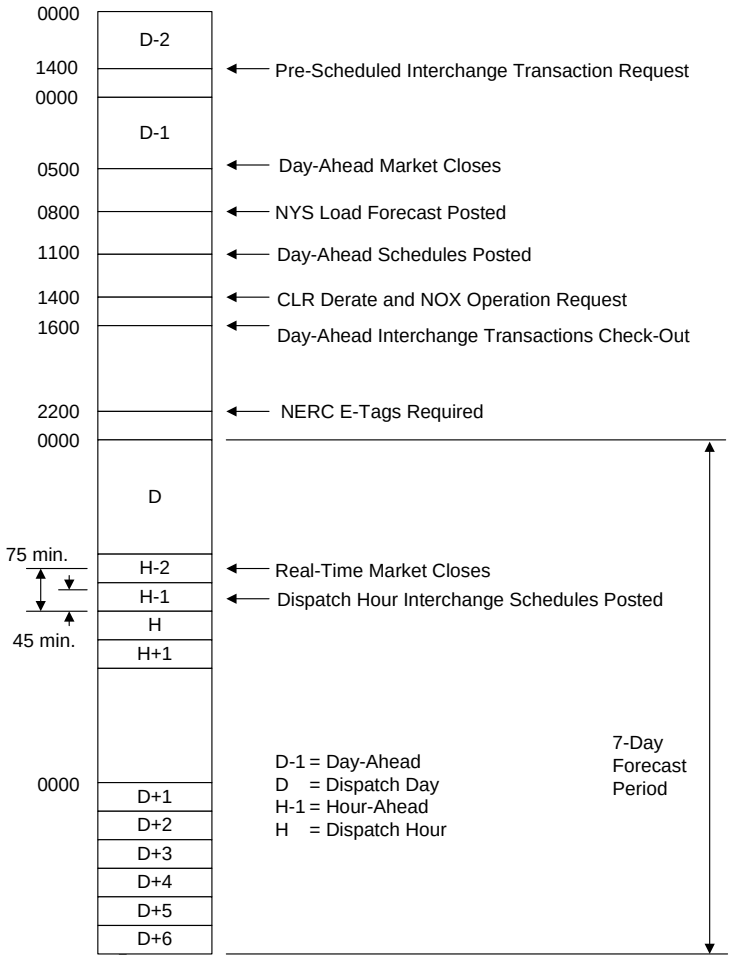

Figure 2.4-1: Energy Market Operations Time Line

For more information: See the *NYISO Day-Ahead Scheduling Manual*.

The activities shown by the time line are described briefly as follows:

1. **1400 (D-2):** Deadline for submitting pre-scheduled external interchange transaction requests to the NYISO.
2. **0500 (D-1):** Closing time of the day-ahead energy market.
3. **0800 (D-1):** The load forecast for the State of New York is posted.
4. **1100 (D-1):** The results of the day-ahead security constrained unit commitment (SCUC) are posted.
5. **1400 (D-1):** Deadline for Capacity Limited Resources (CLRs) to submit requests for derates and for NO_X impacted entities to submit requests for steam unit operation.
6. **1600 (D-1):** Day-ahead external interchange transaction checkout has been completed.
7. **2200 (D-1):** Deadline for NERC E-Tags to be submitted for external interchange transactions.
8. **xx45 (H-2):** Closing time of the real-time energy market.
9. **xx15 (H-1):** The Real-Time Commitment (RTC) application, that executes periodically every 15 minutes and posts the upcoming "Dispatch Hour" external interchange transaction schedules.
10. **xxxx (H):** The dispatch hour with locked offers/bids and interchange transactions.

Dispatch Day

The 24-hour period commencing at the beginning of each day (0000 hour).

Dispatch Hour

The 60-minute period commencing at the beginning of each hour of the dispatch day (xx00 hour).

Real-Time

The following applications are said to execute in "real-time":

- ***Real-Time Commitment (RTC)*** – executes every 15 minutes as described in this Manual.
- ***Real-Time Automated Mitigation Process (RT-AMP)*** – executes every 15 minutes as described in this Manual.
- ***Real-Time Dispatch (RTD)*** – executes every 5 minutes as described in this Manual.
- ***Real-Time Dispatch/Corrective Auction Mode (RTD-CAM)*** – executes on demand as described in this Manual
- ***Automatic Generation Control (AGC)*** – executes every 6 seconds as described in the *NYISO Ancillary Services Manual*.

2.5 Operations Functions

The following areas are covered by the operations functions described in this Manual:

- NYISO Secured Transmission System Monitoring
- Transmission System Operation
- Energy Market Overview
- Energy Market Functions
- Backup Operations

2.5.1 NYISO Secured Transmission System Monitoring

The NYISO Secured Transmission System is monitored on a continuous basis to evaluate its current operating state. The first step in this process is to determine which of the five States the NYISO Secured Transmission System is in. This Manual covers the Normal and Warning States.

The monitored conditions of critical concern include:

- System Load and Operating Reserves
- Regulation capability
- NYISO Secured Transmission System flows and voltages
- NYCA Control Error

This section discusses the power system monitoring requirements and procedures in further detail.

2.5.2 Transmission System Operation

The operation of the NYISO Secured Transmission System reflects the criteria that have been established for existing conditions as well as for anticipated contingency conditions. This Manual defines the secure operation of the NYISO Secured Transmission System as well as the corrective measures that need to be taken to maintain secure operation.

Section 3 of this Manual discusses the transmission system operational requirements and procedures in further detail.

2.5.3 Energy Market Overview

A review of market mechanics is presented in figure 2.5.3-1 as an introduction to the dispatch day functions. Sections 5 and 6 of this Manual provide further detail.

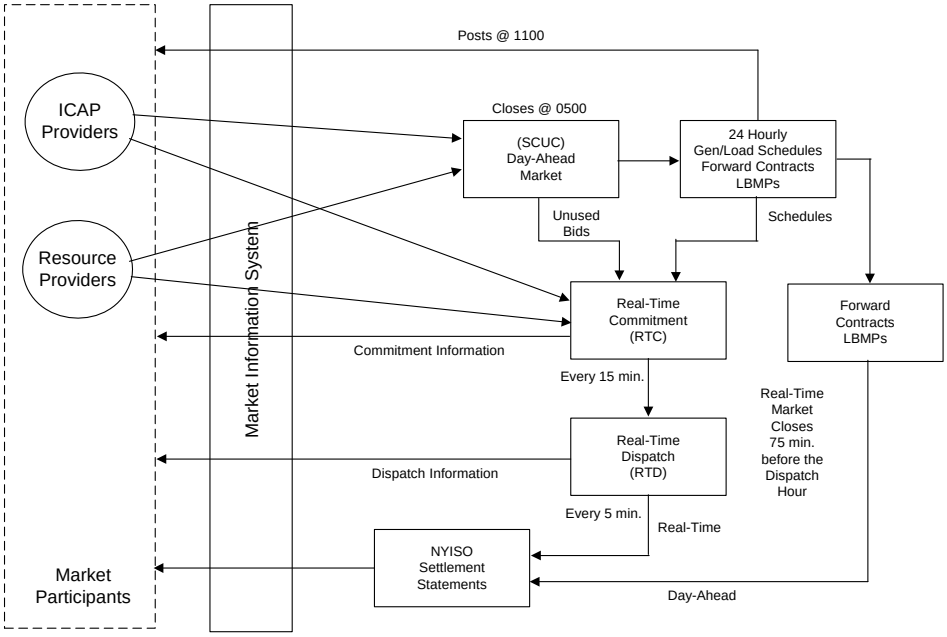

Figure 2.5.3-1: Market Overview

2.5.4 Energy Market Functions

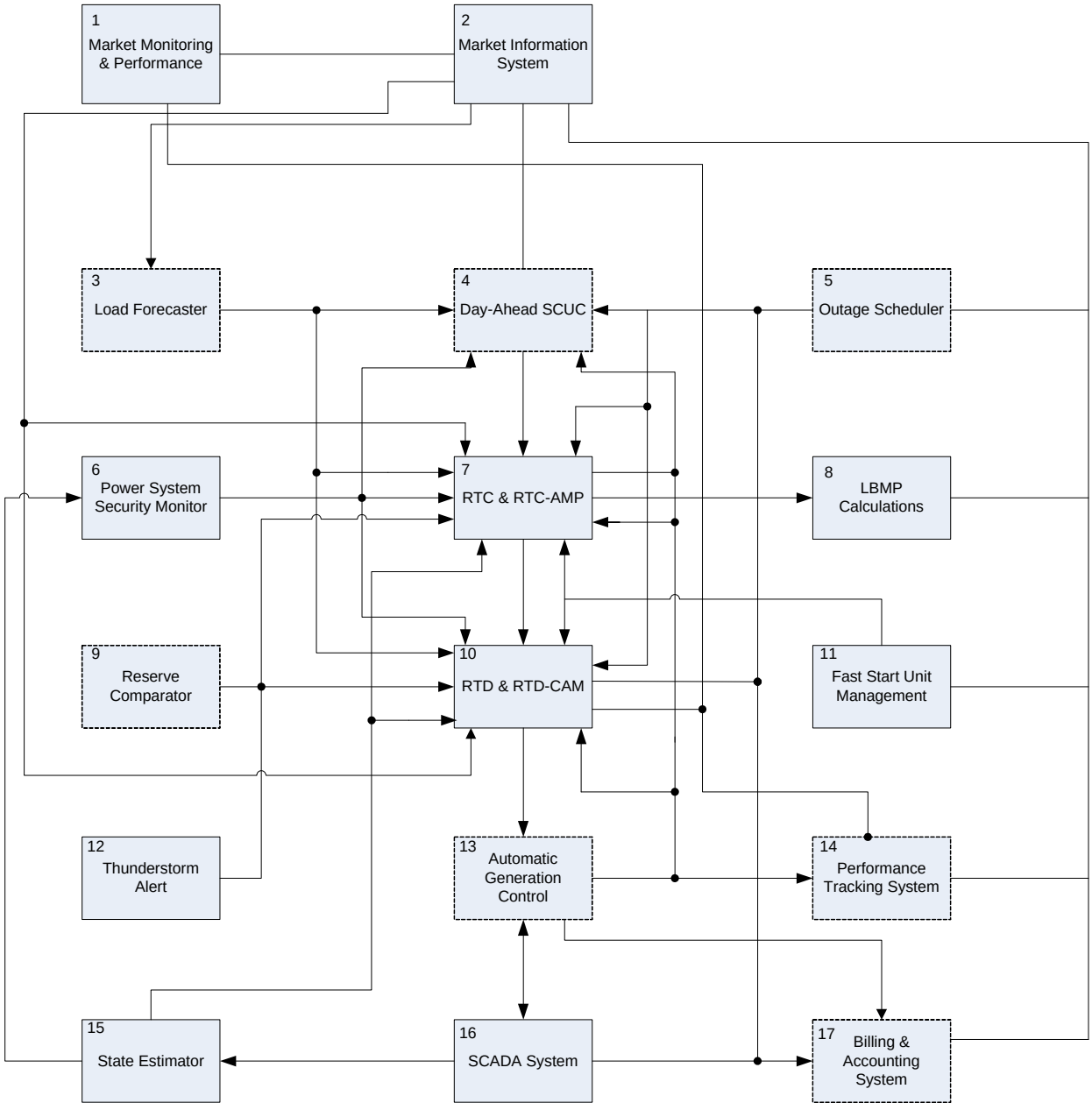

Figure 2.5.4-1: Day-Ahead and Dispatch Day Functions

The following is a brief summary of each function block in figure 2.5.4-1. The dotted boxes are described in more detail in other NYISO Manuals:

1. **Market Monitoring & Performance (MMP):** The MMP Unit is charged with analyzing market participant bids and their impact on energy market prices. MMP applies mitigation measures in the event that it detects conduct that is inconsistent with competition, e.g., physical withholding.
2. **Market Information System (MIS):** The MIS is the primary user interface between market participants and the NYISO. Market information is received and posted via the MIS. Refer to the *NYISO Market Participant User's Guide* for details.
3. **Load Forecaster (LF):** The LF application produces NYCA load forecasts for SCUC, RTC, and RTD. Refer to the *NYISO Day-Ahead Scheduling Manual* for details.
4. **Day-Ahead Security Constrained Unit Commitment (SCUC):** The SCUC program establishes the outcome of the day-ahead market (DAM) based on forecast conditions and NYS Power System reliability requirements. SCUC executes over a 24-hour load forecast horizon to produce startup, shutdown, and hourly energy schedules for the resources that have bid into the DAM. Refer to the *NYISO Day-Ahead Scheduling Manual* for details. The SCUC model serves as the basis for deriving the Day-Ahead Market transmission loss and congestion sensitivity coefficients.
5. **Outage Scheduler (OS):** The OS function maintains a record of planned and forced power system facility outages and their scheduled return to service. Outage information is available to the market applications and to the power system analysis applications. Refer to the *NYISO Outage Scheduling Manual* for details.
6. **Power System Security Monitor:** The power system security monitoring applications assess forecasted and actual power system conditions and the impact of potential contingencies. These applications also establish the list of facilities the operating limits of which must be observed by the market applications.
7. **Real-Time Commitment (RTC) & Real-Time Automated Mitigation Process (RT-AMP):** The RTC and RT-AMP functions execute periodically on a 15-minute basis with a 2¼-hour look-ahead horizon, and post their commitment and scheduling results on the quarter hour (15, 30, 45, 00).
8. **LBMP Calculations:** The RTC and RTD programs produce LBMPs for market advisory and settlement purposes.
9. **Reserve Comparator (RC):** The RC program compares actual NYCA reserves, by category, against their corresponding requirements. Refer to the *NYISO Ancillary Services Manual* for details.
10. **Real-Time Dispatch (RTD) & RTD-Corrective Action Mode (CAM):** The RTD function executes periodically on a 5-minute basis with a 50, 55, or 60-minute look-ahead horizon, and posts its results on the five-minute clock times. The RTD-CAM functions override the normal RTD executions, as determined by the NYISO Operators, to deal with "off-normal" power system conditions. The RTD model serves as the basis for deriving the Real-Time Market transmission loss and congestion sensitivity coefficients.

11. **Fast Start Unit Management (FSM):** The FSM function provides the facility for the NYISO Operators to coordinate the commitment schedules produced by RTC and RTD-CAM. The FSM is used to approve/disapprove commitment schedules from RTC/RTD-CAM, and to manually commit/decommit other fast-start units.
12. **Thunderstorm Alert (TSA):** TSA is declared by NYISO Operators when severe operating conditions are detected. A predetermined set of pre- and post-contingency constraints are passed to the RTC and RTD programs while TSA is in effect.
13. **Automatic Generation Control (AGC):** The AGC program regulates the generation resources to balance load, generation, and interchange and help to maintain the Eastern Interconnection power system frequency. Refer to the *NYISO Ancillary Services Manual* for details.
14. **Performance Tracking System (PTS):** The PTS monitors the on/off-line status of generating units and their actual MW output versus their scheduled output. Refer to the *NYISO Ancillary Services Manual* for details.
15. **State Estimator (SE):** The SE produces an accurate real-time model of the NYS Power System, including a representation (equivalent) of the power system external to the NYISO. The SE is used to verify metered data and to estimate data values that are not metered.
16. **Supervisory Control & Data Acquisition (SCADA) System:** The SCADA system provides direct communications between the NYISO Control Center and the remote transmission owner and power plant control centers. The NYISO transmits (telemeters) desired control actions to the remote control centers and receives current operational feedback data from these control centers.
17. **Billing & Accounting System (BAS):** The BAS itemizes those data elements that are stored or produced by the various subsystems so that line item settlement statements can be calculated after-the-fact on a monthly basis. Refer to the *NYISO Accounting & Billing Manual* for details.

2.5.5 Backup Operations

The Backup Operations is a comprehensive set of procedures that address the possible loss of functionality of the NYISO Control Center, TOs' Control Centers, and NYISO/TO communications facilities. Backup Operations is comprised of the following principle components and procedures:

- Manual Dispatch Systems – NYISO Power Control Center (PCC) & NYISO Alternate Control Center (ACC)
- Market Suspension Criteria
- Interim NYCA Operation – Transition period between PCC and ACC operation
- NYISO Alternate Control Center

Figure 2.5.5-1 illustrates the components that comprise backup operations. Refer to the *NYISO Backup Operations Manual* for details.

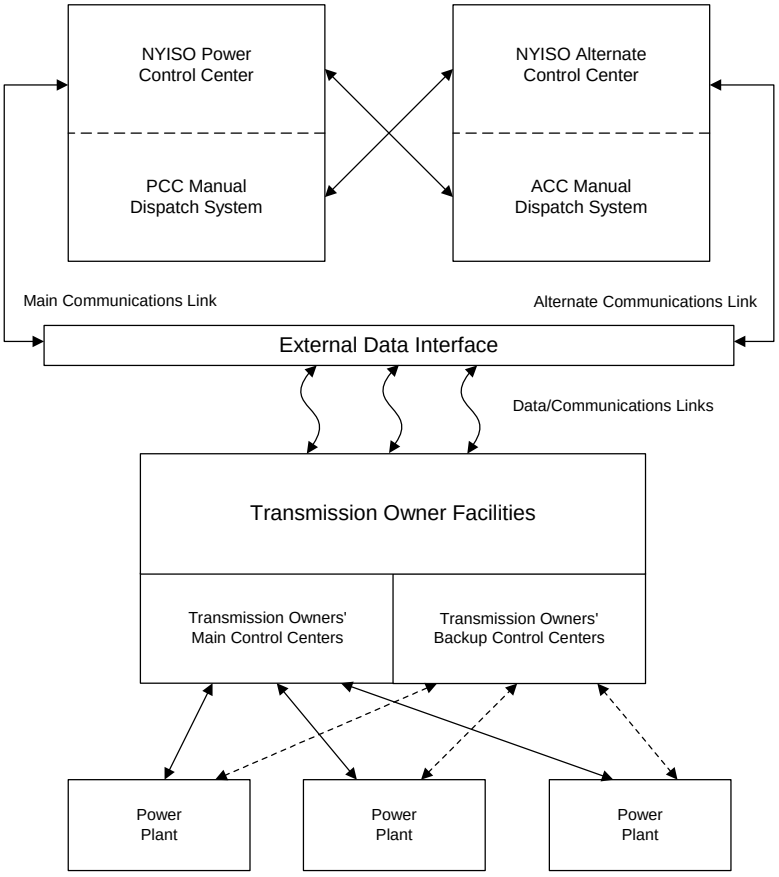

Figure 2.5.5-1: Backup Operations Configuration

2.6 Communications

This subsection describes the NYISO hotline and interregional communications systems.

2.6.1 Hotline Communications

The NYISO Hotline can be operated in two ways:

- Initiated by the NYISO
- Initiated by a Local TO Control Center

Initiated by the NYISO Shift Supervisor

A single pushbutton is used by the NYISO Shift Supervisor to ring a hotline phone in each local TO Control Center. The communications is two-way broadcast. That is, if a local TO Control Center operator speaks, it is heard by all the hotline phones.

Initiated by a Local Control Center System Operator

A local TO Control Center System Operator can call the NYISO Shift Supervisor on the hotline. In this situation, the NYISO Shift Supervisor hotline is the only hotline phone that rings. TOs' Control Center System Operators should only use this method of communication with the NYISO Shift Supervisor under urgent conditions.

Interregional Communications Network

When the NYISO receives information via the NERC conference feature, it is relayed to Ontario, Hydro-Quebec, and New England by means of automatic ringdown leased lines. If the information is of an emergency nature, those three locations may be conferenced together for one announcement. ISO-NE relays the information to the Maritimes via an automatic ring-down leased line to New Brunswick. Figure 2.6.1-1 illustrates the interregional communications network.

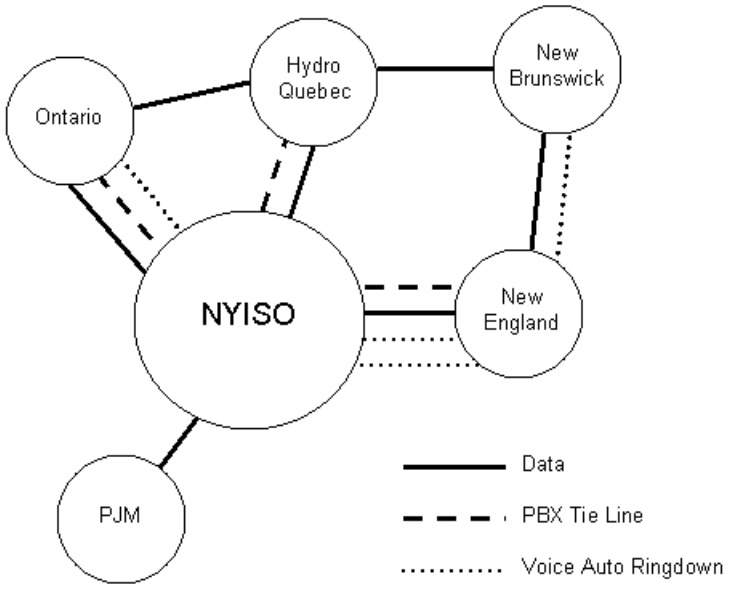

Figure 2.6.1-1: Interregional Communications Network

3. OPERATIONS MONITORING

This section describes the NYS Power System operations monitoring requirements and procedures.

3.1 Operations Monitoring Requirements

This section identifies the requirements for monitoring the operation of the NYCA. The conditions that are monitored include the following:

- Current Operating State
- System Load
- Operating Reserve
- Regulation
- NYISO Secured Transmission System
- Ancillary Services
- Communications
- Weather Conditions
- Telemetered Data

Reliability Assessment

The NYISO performs a Real-Time assessment of the reliability of the NYISO Secured Power System periodically upon status change, and upon operator demand. The main functions that are performed are:

- Real-Time Data Monitoring and Alarming
- DC Thermal Security Analysis
- Reserve Calculation
- Regulation Requirement

3.1.1 Real-Time Data Monitoring and Alarming

This function is executed, nominally every six (6) seconds for SCADA data and thirty (30) seconds for state estimated values.

NYISO Actions

The following are performed:

1. Determines whether to use: (1) metered values (2) state estimated values or (3) NYISO override/substitution values for:

    a. Switch status data
    b. Analog data

2. Checks the analog data against limits for voltage, flows on lines and transformer banks, and interface flows.
3. Finds and opens "modeled" breakers corresponding to non-metered outaged facilities, based on NYISO activation.
4. Executes the network configuration function, which processes the user switch data from (1) and (3) above.
5. Derives confirmation page alarms for NYISO review and validation.
6. Produces the following results:
    a. User analog data
    b. Audible alarms, text alarms, mimic board outputs
    c. Confirmed switch status
    d. Updated outage schedules

3.1.2 Security Assessment

The security assessment is triggered to execute on:

- Network configuration status change
- Periodic, nominally every 30 seconds
- Operator demand

NYISO Actions

The following are performed:

1. Executes the network configurator and state estimator functions based on confirmed switch status
2. Performs a contingency analysis based on the state estimator solution of the NYS Transmission System, using:
    a. Pre-defined single and multiple contingencies
    b. Facility Line ratings and interface transfer limits
    c. Active RTD constraints
3. Produces a list of potential transmission system violations for NYISO Operations review based on actual SCADA (actual violations only) or state-estimated values (contingency violations only).

3.1.3 Reserve Calculation

The NYISO monitors NYCA reserve every five minutes (Reserve Monitor Program using actual generation). These reserve calculations indicate the reserve available for the NYCA. Corrective action is taken by the NYISO only if the NYCA is deficient in reserve. Reserve calculations and constraints are also performed by RTC and RTD.

Minimum Operating Reserve Requirement

The Minimum Operating Reserve Requirement of the NYCA is defined as:

1. Sufficient Synchronized Reserve Available in 10 minutes to replace one-half of the operating capability loss caused by the most severe contingency observed under Normal Transfer Criteria multiplied by the contingency reserve adjustment factor.
2. Sufficient Reserve Available in 10 minutes (which includes synchronous reserve available in 10 minutes) to replace the operating capability loss caused by the most severe contingency observed under Normal Transfer Criteria multiplied by the contingency reserve adjustment factor.
3. Sufficient Reserve Available in 30 minutes (which includes reserve available in 10 minutes) equal to one and one-half times the operating capability loss caused by the most severe contingency observed under Normal Transfer Criteria.
4. Sufficient Reserve in 10 minutes to return the system to a Normal State following the most severe transmission contingency multiplied by the contingency reserve adjustment factor.

At all times sufficient 10 Minute Reserve shall be maintained to cover 1) the energy loss due to the most severe Normal Transfer Criteria contingency within NYCA or 2) the energy loss associated with recallable import transactions from another control area, whichever is greater.

3.1.4 Regulation Requirement

The NYCA Regulation requirements, in MW/minute, are established by analyzing NYCA daily load patterns and actual operating conditions. The NYISO establishes the regulation and frequency response requirements consistent with criteria established by NERC, which may vary by hour and season.

This Manual describes the process by which the NYCA regulation requirement is allocated to the generating units.

The NYISO will determine the amount of regulation required for different time periods and load conditions in accordance with procedures defined in the NYISO Ancillary Services Manual.

3.1.5 Operations Monitoring Procedures

This section describes the procedures associated with monitoring the operation of the NYS Power System. General procedures dealing with the Normal State and Warning State are given first, followed by specific procedures to be carried out under Normal and Warning State conditions.

Specific procedures cover the following:

- Response to Normal State Conditions
- Response to Warning State Conditions
- Reliability Assessment Support
- Automatic Voltage Regulators / Power System Stabilizer Outages
- Communication of NYCA Operating Conditions
- Hourly Inadvertent Accounting
- Local Reliability Rules
- Applications of the NYSRC Reliability Rules
- Daily Operation for Monitoring Operating Reserve

3.1.6 Response to Normal State Conditions

NYISO Actions

The NYISO shall monitor NYS Power System conditions at all times, and determine and apply the applicable actions listed below that are necessary to remain in the Normal State:

1. Coordinate actions with TOs and other Control Areas.
2. Initiate one or more of the following actions:
    a. Adjust phase angle regulators.
    b. Shift or start generation by NYISO request to obtain additional reactive power (MVAr) control.
    c. Activate reserves.
    d. Adjust reactive sources and transformer taps.
    e. Perform Generation shifts.
    f. Modify Interchange Schedules.
    g. Request NYS Transmission System facilities that are out of service for maintenance to be returned to service.
    h. For high voltage conditions only, request NYS Transmission System facilities that are in service to be removed from service where appropriate.
    i. Implement manual voltage reduction.
    j. May call for a reserve pickup to return to schedule if the NYISO Area Control Error exceeds 100 MW.
    k. Take actions to maintain operating reserve, in accordance with the procedures described in this Manual.

Transmission Owner Actions

NYISO operational contact is generally with the TO. The TOs are responsible for controlling or coordinating the operation of Generators connected to their systems, as follows:

1. Coordinate and implement corrective actions, as requested by the NYISO Shift Supervisor.
2. Monitor conditions with respect to their own systems.
3. Perform the following actions when the NYCA is operating in the Normal State and Normal State Criteria are not met:

   a. Notify the NYISO Shift Supervisor.
   b. Request assistance from the NYISO Shift Supervisor, as required.
   c. Initiate unilateral corrective action, if the violation is severe enough to require immediate action.

Other Considerations

1. All schedule changes should be analyzed in advance of implementation in an effort to avoid violation of the Normal State criteria.
2. The NYISO shall dispatch the system such that the removal of any facility for scheduled work will not result in the violation of these criteria in the Normal State. Transmission Owners are responsible for providing appropriate advance notice of such switching.
3. During periods when adverse conditions such as tornadoes or hurricanes exist, or are forecast to occur within the service area of the NYISO Systems, it may be necessary to take steps in addition to those procedures normally followed to maintain system security.

   It is the responsibility of the NYISO to monitor weather conditions and forecasts issued by the National Weather Bureau. Should local adverse conditions occur or if they are predicted to occur, it is the responsibility of the TO to inform the NYISO. If a situation involving impending severe weather exists, the NYISO shall notify all TOs and consider declaration of the Alert State.
4. The actual voltage on all busses listed in Attachment A.2 and A.3 shall be monitored by the NYISO and TOs. It shall be the TO responsibility to maintain voltage levels within limits specified in Attachment A.2 and A.3 and to coordinate actions, which would affect voltage levels on busses of other TOs or Neighboring Systems.

   If the NYISO anticipates conditions, which would cause the voltage at any bus listed in Attachment A.2 and A.3 to violate Normal State Criteria, the NYISO shall notify the TOs, and together they shall formulate a corrective strategy. If implementation of the corrective strategy does not produce the desired result, and the NYISO determines that further corrective action is necessary to remain in the Normal State, the NYISO shall request such actions in accordance with Normal State Responses. TOs must coordinate and implement corrective actions as requested by the NYISO.

5. It may be necessary to schedule energy transactions from neighboring control areas for reliability reasons in accordance with Interconnection Agreements.

3.1.7 Response to Warning State Conditions

NYISO Actions

The NYISO shall monitor system conditions at all times and determine the action(s) listed below that are necessary to return the system to the Normal State:

1. Coordinate actions with TOs and other Control Areas.
2. Initiate one or more of the following actions:
    a. Adjust phase angle regulators.
    b. Shift or start generation by NYISO request to obtain additional reactive power (MVAr) control.
    c. Activate reserves.
    d. Adjust reactive sources and transformer taps.
    e. Perform Generation shifts.
    f. Modify Interchange Schedules.
    g. Request NYS Transmission System facilities that are out of service for maintenance to be returned to service.
    h. For high voltage conditions only, request NYS Transmission System facilities that are in service to be removed from service where appropriate.
    i. Implement manual Voltage Reduction.
    j. May call for a reserve pickup to return to schedule if the NYISO Area Control Error (ACE) exceeds 100 MW.
    k. Take actions to maintain operating reserve, in accordance with the procedures described in this Manual.
    l. Curtail non-essential TO and Generation Owner load.
    m. Order Generation to full operating capability.
3. Take the following actions if the above measures are insufficient to comply with Normal Transfer Criteria within 30 minutes or Operating Reserve cannot be delivered due to transmission limitations for 30 minutes:
    a. Notify all TOs, via the Hotline communications system, that Emergency Transfer Criteria are in effect for the facility (ies) involved.
    b. Take actions, as required, to stay within Emergency Transfer Criteria.
    c. Confer with TOs that will have Post-Contingency loading or voltage conditions that exceed allowable limits. Jointly develop strategies to be followed in the event a contingency occurs, including preparation for a rapid Voltage Reduction and/or Load Shedding.
4. If following the implementation of the actions listed above all Normal State criteria cannot be achieved, satisfy as many of the Normal State criteria as possible.

Transmission Owner Actions

Transmission Owners shall perform the following actions:

a. Coordinate and implement corrective actions, as requested by the NYISO Shift Supervisor.
b. Monitor conditions with respect to their own systems.
c. Perform the following actions when the NYCA is operating in the Warning State and Warning State Criteria are not met:
d. Notify the NYISO.
e. Request assistance from the NYISO, as required.
f. Initiate unilateral corrective action, if the violation is severe enough to require immediate action.

Other Considerations

1. For all contingencies that would result in a violation of the Warning State criteria, corrective action that would be necessary if the contingency occurs shall be determined through coordination between the NYISO and the affected TO.
2. If the NYISO foresees an extended period of operation in the Warning State, a canvass of the TO Systems shall be made to determine if assistance can be provided.
3. If the situation involving impending adverse conditions exists, the NYISO shall notify all TOs and consider declaration of the Alert State.

3.1.8 Reliability Assessment Support

NYISO Actions

The NYISO shall perform the following actions in support of the Reliability Assessment function:

1. Execute the Reliability Assessment function on demand following a power system disturbance.
2. Override and substitute SCADA analog and status data that is incorrect or missing.
3. Activate outages in the network model by “opening” the appropriate breakers or switches in the model.
4. Review and acknowledge any alarm messages.
5. Review the “Confirmation” display and make any necessary corrections or adjustments to the incoming data.
6. Review and acknowledge potential transmission system violations produced by the state estimator and Security Analysis functions.

3.1.9 Automatic Voltage Regulator / Power System Stabilizer Outages

NYISO Actions

The NYISO shall perform the following actions:

1. Coordination of generating unit Automatic Voltage Regulator (AVR) and Power System Stabilizer (PSS) outage requests provided the following criteria have been met:
    a. No more than six AVRs shall be allowed out-of-service simultaneously throughout the NYCA, with a limit of three in the Area east of the Central/East Interface, and three more west of the Central/East Interface.
    b. No more than one generating unit PSS shall be allowed out-of-service throughout the NYCA. If a generating unit PSS is out-of-service, then ensure all applicable system transmission limits have been adjusted to account for such outages.
2. Maintain a log of the AVRs and PSSs taken out-of-service and their return to service. The form is shown in Attachment D and shall be included with the daily transmission outage summary sheets.

Generator Owner Actions

Generator Owners shall coordinate the outage of AVRs and PSSs on generating units with 40 MW capability or larger with the NYISO.

3.1.10 Communication of NY Control Area Operating Conditions

NYISO Actions

The NYISO shall perform the following actions:

1. Obtain the following data for the NYCA Report, prior to 0530 hours:
    - Generator anticipated operating capability for the NYCA peak hour, including all purchases and sales.
    - Forecast NYCA load requirements.
2. Determine the following information for the NY Control Capacity Report display, using the acquired data:
    - NYCA forecast peak hour load
    - NYCA reserve requirements
    - NYCA generation available capability
    - Interchange summary and peak hour Desired Net Interchange (DNI)
    - Total anticipated reserve for the NYCA peak hour
    - Previous day's peak load and hour

3. Post the NYCA Capacity Report.
4. Immediately report any critical change in the status of the NYCA, either via the emergency telephone system or the NYCA Status Report.
5. Report all NYCA disturbances, e.g., loss of a major generator, when appropriate.
6. Notify the NYISO designated media contact (or the designated alternate) when system conditions exist that would result in general public awareness of an actual or impending situation.

3.1.11 Hourly Inadvertent Accounting

The following procedures apply only to the NYISO. The *NYISO Accounting & Billing Manual* describes the Inadvertent Interchange accounting procedure in further detail.

NYISO Actions

The NYISO shall perform the following checks on an hourly basis:

1. Prior to each hour – The sum of External transaction schedules should be equal to the NYCA DNI schedule.
2. After each hour – The sum of the interconnection readings should be equal to the NYCA Actual Net Interchange (ANI).
3. After each hour – The NYCA Inadvertent Interchange should be equal to the difference between the DNI and ANI.
4. After each hour – Reconcile any inadvertent variances with neighboring Control Areas.
5. After each day – Reconcile any inadvertent variances with neighboring Control Areas.

3.2 Daily Operation for Monitoring Operating Reserve

The NYISO Shift Supervisor will monitor the Operating Reserve both as forecast for the expected system peak each day and under actual conditions as the day progresses.

Peak Load Forecast

The NYISO Shift Supervisor (or designee) shall prepare the NYISO daily status report twice daily, in anticipation of the morning peak and evening peak as indicated in this Manual.

If a shortage of energy, reserves, or Ancillary Services is projected, the NYISO will take actions as directed in the *NYISO Emergency Operations Manual*.

4. TRANSMISSION OPERATIONS

This section describes the NYS Transmission System operations requirements and procedures.

4.1 Transmission Operations Requirements

This section addresses the operation of the NYISO Secured Transmission System when it is in the Normal State or Warning State. The following requirements and guidelines are discussed:

- NYISO Secured Transmission System Operating Limits
- Corrective Control Strategies
- Transmission Service Reduction & Curtailment
- Solar Magnetic Disturbances

The Transmission Facilities Under NYISO Operational Control and subject to *Orders* from the NYISO are identified in Attachment A.1. The Transmission Facilities Requiring NYISO Notification are also identified in Attachment A.1.

4.1.1 NYISO Secured Transmission System Operating Limits

Limits that are used in the operation of the NYCA are classified as follows:

1. Thermal (Summer/Winter): MW
   Normal: Continuous
   Long Term Emergency (LTE): 4-hours within 24-hour period
   Short term Emergency (STE): 15-minutes
2. Voltage: kV
   Pre-contingency High/Low
   Post-contingency High/Low
3. Frequency: Hz
   Normal High
   Normal Low
4. Interface Transfer: MW
   Stability
   Voltage Collapse

4.1.2 Corrective Control Strategies

The major electrical network problems that can occur in the NYCA and the primary (or most effective) means of overcoming these problems are identified in table 4.1.2-1. The major problems are:

- Facility overloads and excessive transfers
- NYISO Secured Transmission System low voltage conditions
- NYISO Secured Transmission System high voltage conditions
- System low frequency conditions
- System high frequency conditions

Table 4.1.2-1: Corrective Control Strategies

	NY Control Area Problems				
Typical Means of Control	**Overloads & Excess Transfer**	**Low Trans. Voltage**	**High Trans. Voltage**	**Low Frequency**	**High Frequency**
Generator MW	✔	✔	✔	✔	✔
Phase Angle Regulator (PAR)	✔	✔	✔		
Control Area Interchange	✔		✔		
Generator MVAr (AVR)		✔	✔		
Transformer Tap (LTC)		✔	✔		
Shunt Capacitor		IN	OUT		
Shunt Inductor		OUT	IN		
Synchronous Condenser MVAr (AVR)		✔	✔		
Static Var Compensation (SVC)		✔	✔		
Transmission Lines	✔		OUT		
Circuit Breaker	✔			✔	✔
PS Pump Operation	✔	✔	✔	OFF	ON
PS Generator Operation	✔	✔	✔	ON	OFF
Voltage Reduction	✔	✔		✔	
Load Curtailment	✔	✔		✔	
Load Shed	✔	✔		✔	

Some of the controls listed in table 4.1.2-1 are automatically applied by local closed-loop control while other controls are acted on by the TOs upon NYISO request. The NYISO has no direct means (via SCADA) of controlling the generation, transmission, and distribution systems.

4.1.3 Transmission Service Reduction & Curtailment

Firm Transmission Service

If a Transmission Customer's Firm Transmission Service is supporting a Bilateral Transaction supplied by an Internal Generator and that Generator is dispatched downward, the NYISO shall not curtail the Transmission Service. The NYISO shall continue to supply the Load or Transmission Customer in an Export with Energy from the Real-Time LBMP Market.

Non-Firm Transmission Service

If the Transmission Customer was receiving non-Firm Transmission Service and its Transmission Service was Reduced or Curtailed, the replacement Energy will be purchased in the Real-Time LBMP Market by the Internal Load. An Internal Generator supplying Energy for such a Transmission Service that is Reduced or Curtailed will sell its Energy in the Real-Time LBMP Market.

The NYISO will not automatically reinstate non-Firm Transmission Service that was Reduced or Curtailed. Transmission Customers need to submit new schedules to restore the Transmission Service associated with their Transaction in the next RTC execution.

Negative Congestion

The following rules apply to negative congestion and non-firm transmission service:

1. Non-Firm transmission service that encounters negative congestion will not be curtailed. The rationale for this is that any transaction that relieves congestion should not be curtailed.
2. Non-Firm transmission service that encounters negative congestion will not be paid for the negative congestion. The rationale for this is as follows:

A non-firm transaction is not willing to pay positive congestion (and thereby reduce overall transmission costs); therefore, it should not be entitled to receive negative congestion costs. Furthermore, a payout of negative congestion to non-firms would increase overall uplift.

A transaction wishing to receive a payment for negative congestion can request firm transmission service for that transaction.

4.2 Transmission Operations Procedures

These procedures apply mainly to the operation of the NYISO Secured Transmission System network facilities. Procedures for the following are covered:

- Developing & Approving Operating Limits
- Voltage Control
- Guidelines for Leeds and Fraser SVCs to Control Voltage
- Phase Angle Regulators – ConEd/PSE&G
- Phase Angle Regulators Operations
- Implementing Special Multiple Contingencies
- Exceptions to the NYSRC Reliability Rules
- Security Violation Relief
- Operating Under Adverse Conditions
- Solar Magnetic Disturbances

4.2.1 Developing & Approving Operating Limits

Procedures have been established for the following:

1. The approval and implementation of operating limits developed from off-line computer studies conducted by the NYISO.
2. The collection of operating data required to determine voltage limits for selected buses in the NYCA.

NYISO Actions

The NYISO shall perform the following actions:

1. Prepare Seasonal studies of thermal transfer limits for the “all-lines in” condition.
2. Prepare stability transfer limits for the “all-lines in” condition. These limits will be used for the secure operation of the NYISO Secured Transmission System.
3. Prepare pre-contingency (high/low) and post-contingency (high/low) voltage limits for the “all-lines in” and prevailing conditions. These limits will be used for the secure operation of the NYISO Secured Transmission System.
4. Review and update the data maintained by the NYISO Data Bank program. This data will be used for network, stability and voltage control parameters, in preparation of seasonal, and/or for specific operating studies base cases.

NYISO Operating Committee Actions

The NYISO Operating Committee shall review and approve the recommended limits developed by the NYISO staff.

4.2.2 Voltage Control

These procedures are for coordinating and controlling the voltage of the NYISO Secured Transmission System and define the respective actions to be taken by the NYISO and the TOs. The purpose is to provide adequate voltages necessary to maintain power transfer capabilities and to keep voltages within prescribed limits to avoid damage to equipment.

NYISO Actions – General

The NYISO shall perform the following actions:

1. Anticipate the effects, voltage levels, and trends in the NYCA and adjacent Control Areas.
2. Determine and request corrective actions that need to be taken to remain in the Normal State.
3. Coordinate requests for corrective actions with the TOs and adjacent Control Areas that can assist in adjusting voltage on the buses being corrected.
4. Inform the affected TOs of anticipated changes in reactive support from pumped hydro units, Static Var Compensators, or neighboring Control Areas.
5. Request Generators (via their TOs) to adjust machine excitation as required to maintain desired NYISO Secured Transmission System voltages within limits.

Transmission Owner Actions – General

The TO shall perform the following actions:

1. Observe the status and availability of major reactive resources on its system and determine any restrictions on those sources.
2. Control the voltage on its transmission system to be within its internal limits. Under normal conditions, maintain reactive power flows on tie lines with adjacent Control Areas in accordance with mutually agreed upon schedules and NPCC Inter-Control Area Voltage Control Procedures.
3. Provide assistance (consistent with its internal limits) to other TOs as requested by the NYISO.
4. Coordinate and notify the operation (prior to execution) of the following devices with the NYISO and TOs: (1) switching of shunt capacitors and inductors and (2) changing of SVC mode or state. Under Emergency conditions a TO may perform the control actions prior to notification of the NYISO TO and affected TOs, but shall inform them as soon as possible.

NYISO Actions – High Voltage Conditions

The NYISO shall request the TOs to perform the following normal steps to alleviate high voltage conditions:

1. Switch out shunt capacitors
2. Switch in shunt inductors
3. Request that machine excitation be decreased to decrease the reactive power output
4. Adjust load tap changing (LTC) transformer tap positions
5. Reschedule pumped hydro units to pump
6. Adjust SVC output
7. Start fast response units with reactive power absorption capability
8. Switch out lines, as a last resort, without dropping load or generation

NYISO Actions – Low Voltage Conditions

The NYISO shall request the TOs to perform the following normal steps to alleviate low voltage conditions:

1. Switch in shunt capacitors
2. Switch out shunt inductors
3. Request that machine excitation be increased to increase the reactive power output
4. Adjust load tap changing (LTC) transformer tap positions
5. Reschedule pumped hydro units to generate
6. Motor pumped hydro units to produce reactive power
7. Adjust SVC output
8. Start fast response units with reactive power export capability to help raise the system voltage
9. Switch in lines where available

Transmission Owners Actions – SVC Operation

Static Var Compensators (SVCs) are intended to be used for mitigating post-contingency voltage oscillations and voltage control when the power system is loaded close to the transfer limits. SVCs are not intended for steady state pre-contingency voltage support. The TO shall perform the following actions:

1. Maintain the SVC in the automatic mode and in the minimum output state within a deadband around zero reactive power output, under normal conditions.

2. Return the SVC to its minimum output state, after a disturbance has been cleared.
3. Coordinate the use of the SVC for bus voltage regulation with the NYISO and other affected TOs.

4.2.3 Guidelines for Leeds and Fraser SVCs to Control High Voltage

The guidelines for the operation of the Leeds and Fraser SVCs to control high voltage are given as follows:

1. General Requirements:

- The HQ/NY Import/Export on the Chateauguay - Massena 7040 line is at or below 1000 MW.
- Central - East and Total - East transfers are at or below transfer limits that assume the SVCs are unavailable.
- All appropriate switchable shunt capacitors have been taken out-of-service. All appropriate switchable inductors have been placed in-service.
- The maximum reactive capability of any Gilboa units or pumps currently in-service is being used. The effect of a Gilboa unit or pump to go in-service should be taken into account.
- The SVCs must be able to automatically respond to contingencies.

2. ***Specific Conditions to Use the Fraser SVC:***

Subject to the above general requirements, the inductive capability of the Fraser SVC may be used to control high voltage in the area of the Marcy-South transmission lines subject to the following specific conditions:

- The capacitors at Marcy, Fraser, Coopers Corners, and Rock Tavern are out-of-service.
- The Marcy inductor is in-service.
- The capacitors at Gilboa should also be switched out-of-service, and any Gilboa units/pumps currently in-service should be absorbing maximum reactive power, provided that this does not cause unacceptably low voltage at Gilboa, New Scotland, or Leeds.
- The Oakdale 345 kV bus voltage is maintained above its pre-contingency low voltage limit.

3. Specific Conditions to Use the Leeds SVC:

Subject to the above general requirements, the inductive capability of the Leeds SVC may be used to control high voltage on the Eastern New York 345 kV Transmission System where it would be effective subject to the following specific conditions:

- The Marcy inductor is in-service.

The Fraser capacitors should be switched out-of-service, provided this does not cause unacceptably low voltage at Fraser, Oakdale, Marcy, Edic, or Coopers Corners.

4. Specific Conditions for the 7040 Line Out-of-Service:

Subject to the above requirements and conditions, the inductive capability of the Leeds and/or Fraser SVCs may be used to control high voltage when the 7040 line is out-of-service, with the additional provision that either both shunt reactors on the Massena-Marcy MSU-1 line are in-service, or the MSU-1 line is out-of-service.

4.2.4 Phase Angle Regulators Operations

Normal Operating Conditions

Under normal operating conditions, TOs shall determine power flows on PAR controlled lines and normally will implement PAR adjustments to avoid the need for generation redispatch if NYISO Secured transmission constraints can be mitigated by such adjustments. Significant schedule changes (100 MW or more) on inter-Control Area or inter-company tie lines shall be coordinated with the NYISO. However, small changes of 1 or 2 taps during changing load conditions, such as morning load pickup or evening load drop, that are within operating guidelines on inter-Control Area or inter-company ties may be coordinated between the affected companies.

The maximum loading of overhead lines controlled by PARs shall be the lesser of the normal rating or a level such that the post-contingency flow will not exceed its LTE rating. The post-contingency loading of any underground cable may exceed its LTE rating, but not its STE rating, provided 10-minute reserve or phase angle control is available to return its post-contingency loading to its LTE rating within 15 minutes without causing another facility to be loaded beyond its LTE rating.

Power flows on PAR controlled lines that are within a TO's system shall be monitored and controlled by that TO. Power flows on other PAR controlled lines shall be monitored by the NYISO and appropriate action shall be coordinated with the TOs.

The following PAR actions apply to normal conditions.

NYISO Actions

The NYISO shall perform the following actions:

1. Coordinate the operation of the PARs that affect the transfer of power between the NYCA and adjacent Control Areas.
2. Request the TOs and adjacent Control Areas to adjust PAR taps.

Transmission Owner Actions

Transmission Owners shall perform the following actions:

1. Set the PAR taps and normally implement PAR adjustments to avoid the need for generation redispatch if NYISO-secured transmission constraints can be mitigated by such PAR adjustments.

4.2.5 Phase Angle Regulators – Con Ed/PSE&G Systems

Con Edison and PSE&G are interconnected at several locations with the following Phase Angle Regulators (PARs) to control the transfer of power over the circuits connecting the two companies:

1. A 345 kV phase angle regulating transformer with a range of ± 25° installed at the Con Edison Goethals substation.
2. Two 345 kV phase angle regulating transformers each with a range of ± 30°, installed at the Con Edison Farragut substation.
3. A 230 kV phase angle regulating transformer with a range of ± 25°, installed in the Waldwick-Hillsdale-New Milford Circuit located at the PSE&G Waldwick Switching Station.
4. A 230 kV phase angle regulating transformer with a range of ± 25°, installed in the Waldwick-Fair Lawn Circuit located at the PSE&G Waldwick Switching Station.
5. A 230 kV phase angle regulating transformer with a range of ± 25°, installed in the Waldwick-Hawthorne Circuit located at the PSE&G Waldwick Switching Station.

A FERC approved Operating Protocol (NYISO Market Service Tariff Attachment M-1) has been developed that is used by the NYISO and the Pennsylvania, New Jersey, Maryland Interconnection (PJM) in preparing to operate, and operating in real-time, the hourly flow of energy over the Consolidated Edison (ConEd) and Public Service Electric & Gas Company (PSEG) interconnections.

4.2.6 Implementing Special Multiple Contingencies

The SCUC and RTC/RTD programs normally incorporate the contingencies that are applicable to the power system as it is being operated. These procedures apply to special operating conditions when additional contingencies are required due to certain maintenance outage conditions.

NYISO Actions

The NYISO shall perform the following actions:

1. Validate the need for special multiple contingencies and request the TOs to submit the required information as defined.

2. Following notification by the TO to the NYISO Outage Scheduling Department and Transmission System Operator, the NYISO will implement the special multiple contingency for the Day-Ahead and Real-Time Market operation.

Transmission Owner Actions

The TO shall perform the following actions:

1. Notify the NYISO and request the need for monitoring of special contingencies.
2. Supply a description of the special operating maintenance condition, a list of the components making up the multiple contingency, the limiting element(s) the date/time to initiate the monitoring and the date/time to terminate the monitoring.
3. Observe the following lead times to implement such a contingency:
   - The necessary data must be provided to the NYISO Outage Scheduling Department at least by the morning of the previous working day, prior to the closing of the Day-Ahead Market.
   - Notification must be provided to the Transmission System Operator at least one hour in advance of the special operating condition.
4. Provide special contingency data when required and requested by the NYISO.

4.2.7 Security Violation Relief

When a security violation occurs or is anticipated to occur on the NYISO Secured Transmission System, the NYISO shall attempt to relieve the violation by using the following procedures:

1. Reduce non-Firm Transmission Service.
2. Curtail non-Firm Transmission Service.
3. Re-dispatch internal Generators, based on Incremental and Decremental Bids.
4. Adjust the NYCA's DNI by manually curtailing Firm Transmission Service associated with Transactions supplied by External Generators. The NYISO shall decide which Transmission Service is to be curtailed based on the Decremental Bids in conjunction with NERC procedures, and shall curtail Transmission Service until the transmission violation is relieved or all such Transmission Service has been curtailed.
5. Request Internal Generators to voluntarily operate in manual mode below minimum dispatchable levels.
6. Decommit Internal Generators based on their minimum generation Bid rate in descending order.
7. Attempt to purchase emergency energy from other control areas that will provide relief to the security violation.

4.2.8 Procedure for Relief of Potential Overloads on Non- ISO Secured Facilities

The NYISO Security Analysis Program identifies and alerts the dispatchers to actual and potential overloads on the NYISO-secured transmission system. Occasionally actual or post-contingency potential overloads on non- secured facilities occur which, if uncorrected, could lead to cascading outages and subsequent overloads on NYISO secured transmission facilities.

This section defines actions to be taken by the NYISO Shift Supervisor (NYISO SS) when such conditions exist to coordinate an appropriate action plan.

1. During normal operation, the NYISO shall monitor the state of the system utilizing the Security Analysis Program. Whenever the actual or predicted post-contingency power flow on a monitored facility that is not secured by the NYISO exceeds its applicable rating, the NYISO shall notify the affected TO (rating authority).
2. If the predicted post-contingency loading is greater than LTE, but less than or equal to the STE rating of the facility, an action plan should be formulated, or refer to previously agreed upon operating practice for implementation by the TO.
3. If the predicted post-contingency flow exceeds the STE rating of the facility, the NYISO shall determine if the loss of the facility would cause other facilities to exceed their STE post-contingency ratings. If the affected facility's loss would cause other non- secured facilities to exceed their STE rating or any Secured facilities to exceed their LTE rating* the NYISO shall inform the TO (rating authority) and they shall jointly develop a strategy for correcting the condition. The TO shall carry out the corrective action to relieve the condition within 30 minutes, excluding voltage reduction and load shedding.
4. If the TO cannot relieve the problem using its own resources, the TO shall request the NYISO to obtain assistance from other systems.
5. If the condition cannot be corrected within 30 minutes of the initial violation the NYISO shall, through coordination with the TO and neighboring systems, determine and request the actions necessary to provide relief. Such actions shall include:
    - Modifications of energy transactions
    - Phase angle regulator adjustments
    - Generation Shift
    - Reserve activation

    Generation may be ordered to full operating capability and transmission facilities that are out of service for maintenance may be ordered restored to service.

6. If these measures are insufficient to comply with Normal Transfer Criteria on secured facilities or Emergency Transfer Criteria for facilities that are not secured by the NYISO within 30 minutes of the initial violation or Operating Reserve cannot be delivered due to transmission limitations for 30 minutes, the NYISO shall take the following actions:
    - Notify all TOs Systems via the Emergency Alarm System (Hot Line) that Emergency Transfer Criteria are in effect, for the facility(ies) involved.
    - Take action as required to stay within Emergency Transfer Criteria.
    - The NYISO shall confer with affected TOs. They shall jointly develop strategies to be followed in the event a contingency occurs. Strategies may include preparation for rapid voltage reduction and/or load shedding.

    *Except where post-contingency flows up to STE ratings are permitted by exceptions noted in the *NYISO Emergency Operations Manual* Appendix Attachment A-2.

Scheduling

The NYISO Outage Scheduling Department shall attempt to avoid scheduling outages which might result in conditions that may jeopardize the security of the non-BPS Facilities.

4.2.9 Operating Under Adverse Conditions

The NYISO shall operate the NYISO secured transmission system during adverse conditions, including but not limited to peak load system conditions, thunderstorms alerts, hurricanes, tornadoes, solar magnetic flares and threat of terrorist activities, in accordance with the Reliability Rules, inclusive of LRRs and related PSC orders. Consistent with such Rules, the NYISO shall maintain reliability of the NYISO Secured Transmission System by directing the adjustment of the Generator output levels in certain areas of the system to reduce power flows across transmission lines vulnerable to outages due to these adverse conditions, thereby reducing the likelihood of major power system disturbances.

The NYISO shall have the sole authority to declare that adverse conditions are imminent or present and invoke the appropriate operating procedure(s) affecting the NYISO secured transmission system in response to those conditions. Activation of a procedure in compliance with a LRR shall involve a two step process. The TO, directly involved with such LRR, such as Storm Watch shall advise the NYISO that adverse conditions are imminent or present and recommend to the NYISO the activation of applicable procedures in support of that rule. Consistent with the LRR, the NYISO shall declare the activation of the appropriate procedures. The TO and the NYISO shall coordinate the implementation of the applicable procedures to the extent that NYISO secured transmission system facilities are impacted. Records pertaining to the activation of such procedures and the response in accordance with those procedures shall be maintained and made available upon request.

Adjusted generation levels in response to activation of these procedures shall set the real time LBMPs. Revenue shortfalls may occur if the redispatch of the system curtails energy scheduled Day-Ahead and more expensive energy is dispatched subsequent to the Day-Ahead settlement. These revenue shortfalls shall be recovered through the NYISO's Scheduling, System Control, and Dispatch Service (Ancillary Service) charges.

4.2.10 Adverse Operating Conditions

NYISO Actions

The NYISO may perform the following actions under adverse operating conditions:

1. Notify all TOs and NPCC Control Areas.
2. Reduce RTC/RTD Stability Transfer Limits and RTC/RTD Central East Voltage Transfer Limits to 90% of the Stability Transfer Limit and Central East Voltage Transfer Limits where appropriate.
3. Reduce flows on inter-area and internal NYISO Secured Transmission System transmission lines to a maximum of 90% of the Normal Rating.
4. Cancel in-service relay and hot line work on A-1 transmission facilities. Recommend TO cancel in-service relay and hot line work on A-2 transmission facilities.
5. Restore out-of-service A-1 transmission facilities where possible. Recommend TO restore of out-of-service A-2 transmission facilities where possible.
6. Request TOs to implement appropriate emergency procedures when a contingency occurs.

Transmission Owner Actions

1. Implement NYISO requests to cancel in-service relay and hot line work on A-1 transmission facilities. Evaluate cancellation in-service relay and hot line work on A-2 transmission facilities.
2. Implement NYISO requests to restore out-of-service A-1 transmission facilities. Evaluate restoration of out-of-service A-2 transmission facilities.
3. Notify the NYISO of all actions taken related to this section.
4. Implement Emergency procedures, as requested by the NYISO.

4.2.11 Solar Magnetic Disturbances

Background

The sun emits streams of charged protons and electrons known as the solar wind. The intensity of the solar wind is determined by sunspot activities (solar flares, disappearing filaments, and coronal holes). The solar wind interacts with the earth's

magnetic field producing auroral currents at altitudes of 100 kilometers that follow circular paths around the earth's geomagnetic poles. These non-uniform currents then cause time-varying fluctuations in the earth's magnetic field, which in turn induce a potential difference on the surface of the earth. This Earth-Surface Potential (ESP) is measured in volts per kilometer and its magnitude and direction are functions of the change in magnetic field, earth resistivity, and geographic latitude. ESP increases with increasing latitudes and its gradient is highest on facilities having an east-west orientation. ESP is highest in igneous rock areas. The resulting ESP appears as an ideal voltage source applied between grounded neutrals of wye-connected transformers in a power system, causing Geomagnetically Induced Current (GIC) to flow between grounded neutrals via transmission lines.

During a severe Solar Magnetic Disturbance (SMD), the quasi-dc ground induced current superimposed on the normal 60 Hertz power flow can result in half-cycle saturation of the cores of grounded, wye-connected power transformers. This over-excitation may cause the following power system problems:

1. Transformer overheating resulting in premature transformer failure
2. Increased system reactive losses resulting in the depletion of MVAr reserve
3. Decreased bus voltages resulting in a possible system voltage collapse
4. Increased 60 Hertz harmonics resulting in overheating and eventual tripping of static var compensators (SVCs) and shunt capacitors, protective relay misoperations, and interference with communication systems
5. Saturation of current transformers resulting in metering errors and relay misoperations
6. System voltage distortions resulting in improper operation of generator automatic voltage regulators and commutation failures in HVDC terminals and SVCs.

Monitoring

The NYISO receives SMD forecasts and alerts from three agencies:

1. Electronically, via the Solar Terrestrial Dispatch Geomagnetic Storm Mitigation System (STD GSMS).
2. National Oceanic and Atmospheric Administration (NOAA), Space Environment Services Center (SESC) in Boulder, Colorado via the NERC Time Error Channel Network (TECN) in accordance with NERC Operating Guide No. 12, Appendix 12D.
3. Geographic Division, Geographical Survey of Canada, Energy, Mines, and Resources (EMR) in Ottawa, Canada via the Ontario Control Center.

In event of failure of the STD GSMS, the Space Environment Center (SEC) in Boulder, Colorado will verbally contact the NYISO to relay the SMD information.

An SMD forecast indicates that the condition is expected. An SMD alert indicates that the condition has occurred.

These agencies measure the disruption in the horizontal component of the earth's magnetic flux with magnometer. The STD GSMS is kept continuously up to date by Solar Weather Specialists located at www.spacew.com. SESC measures the geomagnetic activity in Boulder, Colorado and EMR measures the geomagnetic activity from 13 observatories in the Canadian Automatic Magnetic Observation System (AMOS). This information is quantified into A and K indices for forecasting and alerting purposes. The impact of an SMD on the power system increases with the intensity of the storm.

Information pertaining to Solar Magnetic Disturbances and the level of the disturbance will be disseminated by means of the STD GSMS.

SMD Forecasts

STD through the GSMS allows for continuous updating on current Solar Magnetic Disturbance activity, as well as 24-, 48- and 72-hour predictions on SMD activity. Currently, the STD uses a Kp Index, but does not specify by level what Forecast or an Alert is issued, merely they are issued depending on the activity seen by their satellite in regards to predicted SMD activity vs. actual observed SMD activity.

SESC (Boulder) issues forecasts in the form of a daily "A" index for up to three days in advance. The "A" index is a measure of the expected geomagnetic activity at Fredericksburg, Virginia. SESC (Boulder) transmits forecasts of the following two classifications of geomagnetic activity to the NYISO:

1. Minor Storm ("A" index 30-49)
2. Major Storm ("A" index above 50)

EMR (Ottawa) issues forecasts based on daily range predictions for up to three days in advance in the sub-auroral zone in which most of the NPCC Areas are located. Ontario and Hydro Quebec receive forecasts for the auroral zones separately. EMR (Ottawa) transmits forecasts of the following two classifications of geomagnetic activity to the NYISO:

1. Active Conditions (approximate "K" index of 5 or 6)
2. Major Storm Conditions (approximate "K" index of 7, 8 or 9)

SMD Alerts

STD through the GSMS allows for continuous updating on current Solar Magnetic Disturbance activity, as well as 24-, 48- and 72-hour predictions on SMD activity. Currently, the STD uses a Kp Index, but does not specify by level what Forecast or an Alert is issued, merely they are issued depending on the activity seen by their satellite in regards to predicted SMD activity vs. actual observed SMD activity.

SESC (Boulder) issues alerts in the form of a three-hour "K" index that is based on the average of the last three hours of disruption in the horizontal component of the earth's

magnetic flux measured in Boulder, Colorado. SESC (Boulder) transmits alerts of the following classification of geomagnetic activity to the NYISO:

"K" index of K5 or greater

EMR (Ottawa) issues alerts based on a three hour average range index for the last three hours of disruption in the X (geographical northward) component of the earth's magnetic flux measured by the AMOS system. EMR (Ottawa) issues alerts for the following two classifications of geomagnetic activity to the NYISO:

1. Active Conditions (approximate "K" index of 5 or 6)
2. Major Storm Conditions (approximate "K" index of 7, 8 or 9)

All time references in SMD Forecasts and SMD Alerts received from SESC (Boulder) and EMR (Ottawa) are to Universal Time (which is the same as Greenwich Mean Time), a constant scientific time reference. Eastern Standard Time lags Universal Time by 5 hours. The NYISO converts all time references to prevailing Eastern Time (Standard Time or Daylight Saving Time) as shown in table 4.2.11-1.

Table 4.2.11-1: Conversion from Universal Time

If the prevailing Eastern time is:	Then 0600 UTC (GMT) converts to:
Standard Time	0100 EST
Daylight Savings Time	0200 EDT

No NYISO actions are required if:

- SMD Forecast of an A-index is equal to or less than 29 and
- SMD Alert is equal to K4 or less

Minor storm active conditions exist when:

- A-index is greater 29 but less than or equal to 50 and
- Alert is greater than K4 but less than or equal to K6

NYISO Actions

The NYISO shall perform the following actions:

1. Complete the Solar Magnetic Disturbance Form shown in Attachment C of this Manual, upon notification of an SMD Forecast of an A-index greater than 50 or an SMD Alert of K6 or greater.
2. Notify all TOs and NPCC Control Areas.
3. If an Alert of K7 or greater has been issued on the STD with significant GIC (Ground Induced Currents) activity observed by a neighboring Control Area or a Transmission Owner, the NYSIO shall initiate the following actions:

Declare Alert State

1. Notify TOs to reduce normal limits on inter-area and internal NYS Power System transmission lines and transformers to a maximum of 90% of the normal rating where appropriate.
2. Request generators (via their TOs) to adjust machine excitation, to maintain the NYISO Secured Transmission System voltages within acceptable operating ranges to protect against voltage swings.
3. Reduce RTC/RTD Stability Transfer Limits and RTC/RTD Central East Voltage Contingency Limits to 90% of the Stability Transfer Limit and Central East Voltage Contingency Limits where appropriate.
4. Request TOs to implement appropriate emergency procedures, when a contingency occurs.
5. Reduce flows on inter-area and internal NYISO Secured Transmission System transmission lines to a maximum of 90% of the Normal Rating.
6. Activate Thunder Storm Warning cases (TSW) when an alert of K9 has been issued and significant GIC activity has been observed.

Transmission Owner Actions

Upon notification of an SMD Forecast or an SMD Alert of a Major Storm Condition (K7-K9), TOs shall perform the following actions:

1. Restore out-of-service transmission facilities, where possible, and avoid taking long transmission lines out of service.
2. Review all in-service work, evaluate the impact of the loss of these facilities on the NYISO Secured Transmission System, and cancel in-service work on critical facilities.
3. Monitor the MVAr and voltage displays on their SCADA systems for unusual voltage and/or MVAr variations.
4. Keep area substation capacitor banks in service, where possible, and evaluate the impact of the loss of transmission shunt capacitor banks.
5. Notify the NYISO of all actions taken related to this section.
6. Implement Emergency procedures, as requested by the NYISO.

5. SCHEDULING OPERATIONS

This section describes the Dispatch Day scheduling process, covering the following:

- Real-Time Commitment
- Scheduling Operations Requirements
- Scheduling Operations Procedures
- Supplemental Resource Evaluation Procedures

5.1 Real-Time Commitment

Real-Time Commitment (RTC) is a multi-period security constrained unit commitment and dispatch process that co-optimizes to solve simultaneously for Load, Operating Reserves, and Regulation Service on a least as-bid production cost basis over a two-hour and fifteen-minute optimization period. The optimization evaluates the next ten points in time separated by fifteen-minute intervals. Each RTC run within an hour shall have a designation indicating the time at which its results are posted; "RTC_{00}," RTC_{15}," RTC_{30}," and RTC_{45}" post on the hour, and at fifteen, thirty, and forty-five minutes after the hour, respectively. Each RTC run will produce binding commitment instructions for the periods beginning at fifteen and thirty minutes after its scheduled posting time, and will produce advisory commitment guidance for the remainder of the optimization period. RTC_{15} will also establish External Transaction schedules. Figure 5.1-1presents the timeline for RTC_{15}.

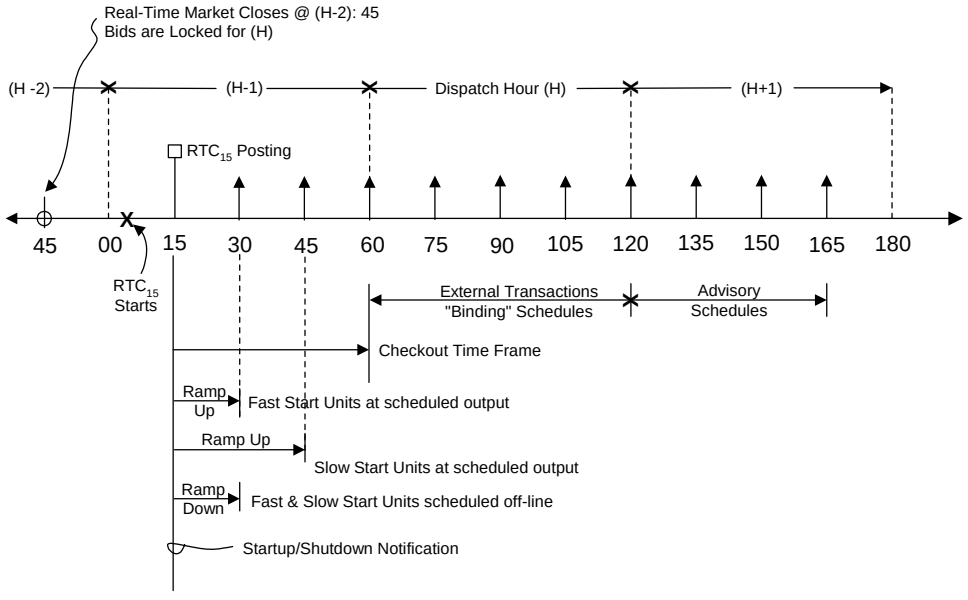

Figure 5.1-1: RTC_{15} Time Line

5.1.1 Real-Time Commitment Process

RTC will make binding unit commitment and de-commitment decisions for the periods beginning fifteen minutes (in the case of Resources that can respond in ten minutes) and thirty minutes (in the case of Resources that can respond in thirty minutes) after the scheduled posting time of each RTC run, will provide advisory commitment information for the remainder of the two and a half hour optimization period, and will produce binding schedules for External Transactions to begin at the start of each hour. RTC will co-optimize to solve simultaneously for all Load, Operating Reserves and Regulation Service requirements and to minimize the total as-bid production costs over its optimization timeframe. RTC will consider SCUC's Resource commitment for the day, load forecasts from the load forecasting program and loss forecasts that RTC itself will produce each quarter hour, binding transmission constraints, and all Real-Time Bids and Bid parameters.

After the Day-Ahead schedule is published and no later than 75 minutes before each hour, Customers may submit Real-Time Bids into RTC for real-time evaluation.

Real-Time Bids to Supply Energy and Ancillary Services

Eligible Customers may submit new or revised Bids to supply Energy, Operating Reserves and/or Regulation Service. Customers that submit such Bids may specify different Bid parameters in RTC than they did Day-Ahead. However, NYISO-Committed Fixed Generators and NYISO-Committed Flexible Generators may not increase their Incremental Bids for capacity that received a Day-Ahead Market energy schedule, or their Minimum Generation Bids or Start-Up Bids for hours in which they received a Day-Ahead energy schedule. Bids to supply Energy or Ancillary Services shall be subject to the rules set forth in the *NYISO Ancillary Services Manual*.

Generators that did not submit a Day-Ahead Bid for a given hour may offer to be NYISO-Committed Flexible, Self-Committed Flexible, or Self-Committed Fixed in real-time or ISO-Committed Fixed (with ISO approval). Generators that submitted a Day-Ahead Bid but did not receive a Day-Ahead schedule for a given hour may change their bidding mode for that hour in real-time without restriction except for ISO-Committed Fixed which requires ISO approval. Generators that received a Day-Ahead schedule for a given hour may change their bidding mode between Day-Ahead and real-time subject to the following restrictions:

1. Generators that were scheduled Day-Ahead in NYISO-Committed Flexible mode may not switch to NYISO-Committed Fixed or Self-Committed Fixed mode unless a real-time physical operating problem makes it impossible for them to bid in any other mode.
2. Generators that were scheduled Day-Ahead in Self-Committed Flexible mode may not switch to NYISO-Committed Fixed or NYISO-Committed Flexible mode and may only switch to Self-Committed Fixed mode if a real-time physical operating problem makes it impossible for them to bid in any other mode.

3. Generators that were scheduled Day-Ahead in NYISO-Committed Fixed mode must be in Self-Committed Fixed mode in real-time unless ISO approves a request to operate in ISO-Committed Fixed mode in real-time.
4. Generators that were scheduled Day-Ahead in Self-Committed Fixed mode may not switch to a different bidding mode in real-time except that they can switch to ISO-Committed Fixed mode in real-time with ISO approval.

Generators may not submit separate Operating Reserves Availability Bids in real-time and will instead automatically be assigned a real-time Operating Reserves Availability Bid of zero for the amount of Operating Reserves they are capable of providing in light of their response rate (as determined under Rate Schedule 4 of the Services Tariff).

Bids Associated with Internal and External Bilateral Transactions

Customers may seek to modify Bilateral Transactions that were previously scheduled Day-Ahead or propose new Bilateral Transactions, including External Transactions, for economic evaluation by RTC. Bids associated with Internal Bilateral Transactions shall be subject to the rules set forth in this Manual.

Sink Price Cap Bids or Decremental Bids for External Transactions may be submitted into RTC up to 75 minutes before the hour in which the External Transaction would flow. External Transaction Bids must have a one-hour duration, must start and stop on the hour, and must have constant magnitude for the hour. Intra-hour schedule changes, or Bid modifications, associated with External Transactions will not be accommodated.

Self-Commitment Requests

Self-Committed Flexible Resources must provide the NYISO with schedules of their expected minimum operating points in quarter hour increments. Self-Committed Fixed Resources must provide their expected actual operating points in quarter hour increments.

External Transaction Scheduling

RTC15 will schedule External Transactions on an hour-ahead basis as part of its development of a co-optimized least-bid cost real-time commitment. RTC will alert the NYISO when it appears that scheduled External Transactions need to be reduced for reliability reasons but will not automatically Curtail them. Curtailment decisions will be made by the NYISO, guided by the information that RTC provides.

Posting Commitment/De-Commitment and External Transaction Scheduling Decisions

RTC will also produce advisory commitment information and advisory real-time prices. RTC will make decisions and post information in a series of fifteen-minute "runs" which are described below.

RTC_{15}

RTC_{15} will begin at the start of the first hour of the RTC co-optimization period and will post its commitment, de-commitment, and External Transaction scheduling decisions no later than fifteen minutes after the start of that hour. During the RTC_{15} run, RTC will:

1. Commit Resources with 10-minute start-up times that should be synchronized by the time that the results of the next RTC run are posted so that they will be synchronized and running at their minimum generation levels by that time.
2. Commit Resources with 30-minute start-up times that should be synchronized by the time that the results of the RTC run following the next RTC run are posted so that they will be synchronized and running at their minimum generation levels by that time.
3. De-commit Resources that should be disconnected from the network by the time that the results of the next RTC run are posted so that they will be disconnected by that time.
4. Issue advisory commitment and de-commitment guidance for periods more than thirty minutes in the future and advisory dispatch information.
5. Schedule Pre-Scheduled Transactions and economic External Transactions to run during the entirety of the next hour.
6. Issue real-time schedules for resources in ISO-Committed Fixed mode.

Subsequent RTC Runs

All subsequent RTC runs in the hour, i.e., RTC_{30}, RTC_{45}, and RTC_{00} will begin executing at fifteen minutes before their designated posting times (for example, RTC_{30} will begin in the 15th minute of the hour), and will take the following steps:

1. Commit Resources with 10-minute start-up times that should be synchronized by the time that the results of the next RTC run are posted so that they will be synchronized and running at that time.
2. Commit Resources with 30-minute start-up times that should be synchronized by the time that the results of the RTC run following the next RTC run are posted so that they will be synchronized and running at that time.
3. De-commit Resources that should be disconnected from the network by the time that the results of the next RTC run are posted so that they will be disconnected at that time.
4. Issue advisory commitment, de-commitment, and dispatching guidance for the period from 30 minutes in the future until the end of the RTC co-optimization period.

5. Either reaffirm that the External Transactions scheduled by RTC_{15} to flow in the next hour should flow, or inform the NYISO that External Transactions may need to be reduced.
6. Issue real-time schedules for resources in ISO-Committed Fixed mode.

External Transaction Settlements

RTC_{15} will calculate the Real-Time LBMP for all External Transactions if constraints at the interface associated with that External Transaction are binding. In addition, RTC_{15} will calculate Real-Time LBMPs at Proxy Generator Buses for any hour in which:

1. Proposed economic Transactions over the Interface between the NYCA and the External Control Area that the Proxy Generator Bus is associated with would exceed the Available Transfer Capability for that Interface.
2. Proposed interchange schedule changes pertaining to the NYCA as a whole would exceed any Ramp Capacity limits in place for the NYCA as a whole.
3. Proposed interchange schedule changes pertaining to the Interface between the NYCA and the External Control Area that the Proxy Generator Bus is associated with would exceed any Ramp Capacity limit imposed by the NYISO for that Interface.

Finally, RTC_{15} will also calculate Real-Time LBMPs at certain times at Non-Competitive Proxy Generator Buses.

Real-Time LBMPs will be calculated by RTD for all other purposes, including for pricing External Transactions during intervals when the interface associated with an External Transaction is not binding.

5.1.2 Real-Time Automated Mitigation Process

The real-time automated mitigation process (RT-AMP) incorporates both conduct tests (performed in the MIS) and impact tests (performed in RTC-AMP sequence). The conduct test compares the price of each energy offer, including start-up and minimum generation costs, to references. When reference prices have been exceeded by an amount specified by the Market Mitigation Measures (defined in Attachment H of the NYISO Services Tariff), the conduct test is said to have "tripped."

The first impact test examines the change in prices that would prevail if conduct-failing offer prices were mitigated. This test "trips" if mitigation of conduct-failing offers would change prices by an amount specified by the Market Mitigation Measures (defined in Attachment H of the NYISO Services Tariff). A variation of the first impact test applies to designated "Constrained Areas" when the transmission system is congested and "trips" if the change in LBMP exceeds an amount specified by the Market Mitigation Measures (defined in Attachment H of the NYISO Services Tariff). This first impact test will be performed following a full recommitment and dispatch.

A second impact test examines the change in guarantee payments to an energy supplier with mitigation of conduct-failing offer prices. The second test "trips" if the change in guarantee payments exceeds an amount specified by the Market Mitigation Measures (defined in Attachment H of the NYISO Services Tariff.

There are many rules, parameters, limits, and thresholds that have been defined associated with the automated mitigation process. These include:

1. Definition of super-zones in the NYCA and load pockets in constrained areas.
2. Definition of a threshold values for each load pocket of a constrained area.
3. Arming the automated mitigation process.
4. Portfolio exclusion that may be applied to super-zones and load pockets.
5. Definition of the specific units subject to the automated mitigation process.

RT-AMP Process

Automated mitigation relies on a second unit commitment evaluation to assess the impact of mitigation. Thus, two unit commitment executions are required at each time step. The first determines the prices and schedules that would occur with the original set (Base-Set) of offers. The second determines the prices and schedules that would occur with a mitigated set (Ref-Set) of offers. The combined execution times of the unit commitments needed to evaluate both Base-Set and Ref-Set is likely longer than the RTC interval (15 minutes). However, each commitment is executed as a separate process so they can be run in parallel as shown in figure 5.1.2-1. The advantage is that a full RTC cycle (15 minutes) can be used to evaluate impact; hence, timing concerns are minimized. The possibility of mitigation is tested for the next RTC cycle (15 minutes) in the future. RTC_{15} and $RT\text{-}AMP_{15}$ perform unit commitment evaluations simultaneously. Results of RTC_{15} and $RT\text{-}AMP_{15}$ are then evaluated for impact and, if mitigation is necessary, mitigated offers are sent to RTC_{30}. Mitigation of offers for RTC_{15} (if any) was determined previously by $RT\text{-}AMP_{00}$.

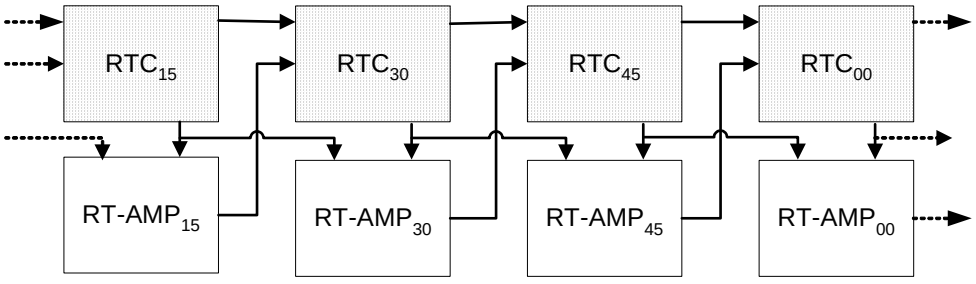

Figure 5.1.2-1: Parallel Impact Test

A third unit commitment is required to assure that prices and schedules are consistent with the final set of offers, some of which may be mitigated. Because the test is conducted in parallel, only one, instead of two, additional unit commitment is required in each RTC cycle. As shown in figure 5.1.2-2, for the time period 15 to 30, Base-Set

and Mit-Set are identical. RTC_{15} provides the base case unit commitment. Simultaneously RT-AMP_{15} calculates the reference unit commitment, conducts the impact test, and determines the actual set of resources whose offers are to be mitigated (Mit-Set). Finally, RTC_{30} ensures that the commitment is consistent with the set of mitigated offers. Subsequently the Mit-Set is used as the Base-Set and RTC_{30} would provide the base case for RT-AMP30.

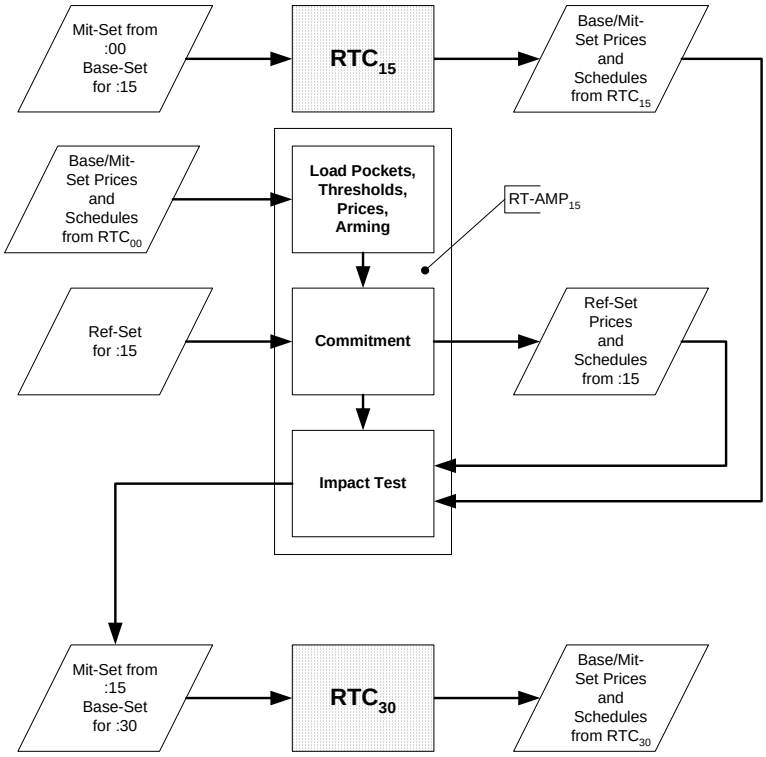

Figure 5.1.2-2: Parallel Impact Test 15 to 30 Minutes

Conduct Test

The conduct tests compare offers of suppliers for start-up, minimum generation, and incremental energy with reference levels for each of those bids. Differences are compared to the thresholds set forth in Attachment H of the NYISO Services Tariff to determine whether conduct suggests the possible economic withholding of resources or a possible attempt to exercise market power. A subsequent impact test determines if conduct-failing bids (or bid components) had the requisite market impact, and should be mitigated.

An energy resource may be associated with several load pockets, each of which has a threshold value. In such a case, conduct is tested using the threshold value(s) for all load pockets in which the resource is located. The arming test later selects the appropriate conduct test results to use to determine if mitigation is appropriate.

Arming

The arming test makes an initial determination of whether mitigation is likely to result in a material price impact. Subsequently the impact test verifies a material price impact, whether on LBMP or on a portion of the congestion component of LBMP.

Price Impact

The impact test compares prices (or local congestion) determined with two sets of offers:

1. An original set called the Base-Set and
2. A set resulting from the mitigation of offers tripping the conduct test (subject to the arming criteria), called the Ref-Set.

The price impact test is evaluated at each time interval. The test will trip for an interval if the difference in energy price (or local congestion) exceeds an amount specified by the Market Mitigation Measures (defined in Attachment H of the NYISO Services Tariff).

Mitigation Duration

For purposes of settlement, Mitigation is applied for whole hours, when impact is determined for any interval of that hour. For dispatch purposes, mitigation is applied for the remainder of the current hour and/or all of the next hour, following a determination of impact. For dispatch purposes both RT-AMP_{15} and RT-AMP_{30} are able to mitigate offers for all or part of 2 hours. RT-AMP_{45} is able to mitigate offers for the "next" hour. RT-AMP_{00} is able to mitigate offers for part of an hour. Mitigated offers are used by both RTC and RTD.

5.1.3 Real-Time Commitment Information Posting

The public information and secure Market Participant data to be posted from the execution of RTC is described in this subsection.

Public Information

The following information will be produced and posted by RTC:

1. External bus Proxy Prices for the binding hour, when constrained, from RTC_{15}. Other prices will be produced by RTD.
2. Updated ATCs and TTCs for each RTC_{15} interval.
3. Advisory prices for Zones and Generators. These prices will be posted together with advisory RTD prices.
4. Limiting constraints and shadow prices for RTC_{15} for each 15-minute increment that corresponds to the Proxy Prices.

5. Advisory Ancillary Services prices. Other prices will be produced by RTD. The following incremental prices are posted:
    - 10-min Spinning Reserve (West and East)
    - 10-min Non-Spinning Reserve (West and East)
    - 30-min Spin/Non-Spin Reserve (West and East)
    - NYISO Regulation

Secure Data to Market Participant

The following information will be produced by RTC and will be made available to authorized MPs:

1. Economically Evaluated External Transaction MW schedules for the binding hour, from RTC_{15}.
2. Advisory MW commitment schedules for generators for each RTC 15-minute increment beyond the time frame covered by RTD.

5.2 Scheduling Operations Requirements

This subsection describes the requirements for the Dispatch Day scheduling of generation, transactions, load, and Ancillary Services. The principal functions are:

- Dispatch Day Scheduling Changes
- Interchange Scheduling
- Scheduling and Curtailment of Bilateral Transactions
- Scheduling and Dispatching LBMP Suppliers and Loads
- Capacity Limited and Energy Limited Resources
- Inter-Control Area ICAP Energy
- Emergency Demand Response Program and Special Case Resources.

5.2.1 Dispatch Day Scheduling Changes

After the Day-Ahead schedule is published, the NYISO evaluates any events, including but not limited to the loss of significant Generators or transmission facilities that may cause the NYCA dispatch to be inadequate to meet the requirements established in the Reliability Rules. When a supplier on forced outage becomes available for service again, it may submit a new bid in the dispatch day for potential commitment by RTC or SRE or day ahead for potential commitment by SCUC.

The NYISO may augment, as necessary, the Day-Ahead commitment schedules to achieve a reliable next-day schedule by performing a Supplemental Resource Evaluation (SRE). The NYISO may use the following resources:

1. Bids submitted to the NYISO that were not previously accepted but were designated by the bidder as continuing to be available for emergency needs
2. New Bids from all Suppliers, including those in neighboring systems
3. Cancellation of/or rescheduling of transmission facility maintenance outages where RTC/RTD is not expected to solve security constraints.

Actions taken by the NYISO in performing Supplemental Resource Evaluation (SRE) will not change any financial commitments that resulted from the Day-Ahead SCUC. The procedures for supplemental resource evaluation for energy and ancillary services are covered in this Manual.

5.2.2 Interchange Scheduling

The Interchange Scheduling (IS+) function allows NYISO personnel to monitor ongoing energy transactions. These transactions are bids accepted in either the Day-Ahead scheduling process or the RTC scheduling/dispatch process. The IS+ program provides facilities for entering transactions and reviewing existing transaction information. The following basic calculations are performed:

1. Desired Net Interchange (DNI): This calculation provides the net interchange schedule between the NYCA and each of the External Control Areas.
2. Instantaneous ANI: This is the metered control area interchange between the NYCA and each of the External Control Areas.

DNIs that reflect scheduled energy interchanges between the NYCA and neighboring Control Areas will need to be coordinated and verified by neighboring Control Areas as specified in interconnection agreements between the NYISO and other Control Areas.

5.2.3 Scheduling and Curtailment of Bilateral Transactions

Bilateral transactions may be requested as Firm or Non-Firm. A Firm transaction is willing to pay congestion, so that an accepted Day-Ahead Firm transaction receives a forward contract for its schedule and Transmission Usage Charge (TUC = Congestion Price + Incremental Losses). A Non-Firm transaction is unwilling to pay congestion, so its schedule is advisory only and subject to curtailment.

Firm transactions from a source (specific bus for which a generation shift factor exists and at which LBMP is calculated) to a sink (load zone) will be scheduled as financial bilateral transactions, provided they result in a physically feasible flow-based solution (i.e., generation matches load energy with no security violations). A load being supplied by a Firm transaction will have a physical delivery schedule (subject to possible curtailment under emergency conditions or for wheel-throughs to relieve a security violation) equal to the transaction amount. However, a generator supplying a Firm bilateral transaction will have an operational physical schedule based upon its decremental price bid. Thus, a load being served by a Firm bilateral transaction will

have a financial transaction schedule; but the generator supplying that transaction will have a separate operational physical schedule.

In general, under NYISO/LBMP operation, if a Firm bilateral transaction is physically cut or curtailed, its financial schedule will remain intact. Thus, generation may be dispatched down, and DNI schedules may be reduced (as is currently done to cut transactions), but the financial obligations will remain.

If a Non-Firm transaction is physically cut or curtailed, the transaction is eliminated. As a default, except in the case of wheel-throughs, a generator previously supplying a cut Non-Firm transaction will bid into the LBMP Energy Market, and a load previously being supplied by a Non-Firm transaction will be served by the LBMP Energy Market.

Self Cancellation (Withdrawal) of Bilateral Transactions

A supplier and load may agree to reduce or eliminate a bilateral transaction previously scheduled in the Day-Ahead Market. In this case, they must submit a revised schedule through RTC. The full Day-Ahead Transmission Usage Charge (TUC) will still accrue. The change in schedule will be settled with Real-Time LBMP Energy and/or the Real-Time TUC.

The following tables will describe the conditions listed below:

- Table 5.2.3-1: Scheduling and Physically Curtailing Firm Bilateral Transactions
- Table 5.2.3-2: Scheduling and Curtailment of Non-Firm Bilateral Transactions
- Table 5.2.3-3: NYISO Curtailment Steps
- Table 5.2.3-4: Re-Instatement of Curtailed Bilateral Transactions
- Table 5.2.3-5: Transaction Conversion and Curtailment Notifications Required by NYISO
- Table 5.2.3-6: Scheduling and Dispatching LBMP Suppliers and Loads

Summary Table
Scheduling and Physically Curtailing Firm Bilateral Transactions

	Internal Source				External Source			
	Internal Load		External Load (Export)		Internal Load (Import)		External Load (Wheel-Through)	
	(1) Financial Transaction Schedule	(2) Operational Physical Schedule	(3) Financial Transaction Schedule	(4) Operational Physical Schedule	(5) Financial Transaction Schedule	(6) Operational Physical Schedule	(7) Financial Transaction Schedule	(8) Operational Physical Schedule
A. Day-Ahead	Full Requested Amount for Fixed MW Loads*; or Based on	Source Scheduled up to Day-Ahead Financial Schedule	Up to Full Requested Amount Based on Day-Ahead Bids for Price	Source Scheduled Up to Day-Ahead Financial Schedule	Full Requested Amount for Fixed MW Loads*; or Based on	Up to Day-Ahead Financial Schedule with Total Imports	Up to Full Requested MW based upon Source's Day-Ahead	Same as Financial Transaction Schedule

	Day-Ahead Bids for Price Capped Loads*	based on Dec. Bids	Capped Loads*	based on Dec. Bids with Total Exports Limited to ATC	Day-Ahead Bids for Price Capped Loads*	Limited to ATC w/ Schedules based on Dec. Bids	Wheel-Throughs' Dec. Bid with Total Imports and Exports Limited to Applicable ATC*.	
B. Hour-Ahead	Same as above for comparable Day-Ahead case **except** using Hour-Ahead bilateral schedule requests **and** no Forward Contract is issued*.							
C. Day-Ahead or Hour-Ahead Scheduled Supplier is Uneconomic in Real-Time	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed	Supplier Dispatched Down in Real-Time	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed	Supplier Dispatched Down in Real-Time. No change in DNI takes place.	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed.	No Re-Dispatch of Supplier and no change in DNI takes place.	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule and TUC are also Fixed.	No Re-Dispatch of Supplier and no change in DNI takes place.
D. Security Violation Occurs in Real-Time	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed	Supplier Dispatched Down and/or decommitted in Real-Time if Needed. No Change takes place in Load Schedule in Real-Time unless Load Curtailment is invoked under Emergency Procedures	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed.	Supplier Dispatched Down and/or decommitted in Real-Time if Needed. No Change takes place in Load Schedule and DNI in Real-Time unless Energy Transaction is curtailed under Emergency Procedures	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed.	Supplier Re-Scheduled Down ("Curtailed") in Real-Time if Needed; DNI also changed. No Change in Load Schedule in Real-Time unless Load Curtailment is invoked under Emergency Procedures	Day-Ahead TUC refunded if curtailed	Supplier Re-Scheduled Down ("Curtailed") and Energy Transaction is curtailed in Real-Time if Needed; DNI changed to reflect both curtailments.
E. Day-Ahead or Hour-Ahead Schedule is Self Canceled (Withdrawn) by Supplier (Source) or LSE (Sink)	Day-Ahead Schedule and TUC are Fixed; Hour-Ahead Schedule is Fixed	Source and Sink update schedule in RTC	Day-Ahead Schedule and Price are Fixed; Hour-Ahead Schedule is Fixed.	Source and Sink update schedule in RTC. DNI is changed.	Day-Ahead Schedule and Price are Fixed; Hour-Ahead Schedule is Fixed.	Source and Sink update schedule in RTC. DNI is changed.	Day-Ahead Schedule and Price are Fixed; Hour-Ahead Schedule is Fixed.	Source and Sink update schedule in RTC. DNI is changed.
* Financial Transaction Schedule must result in a physically feasible flow-based solution in SCUC or RTC; determination of Firm transactions that cannot be scheduled will be based on the Sources' Decremental Bids. ATC = Available Transfer Capability of applicable transmission flow-gate. In general, Day-Ahead supplier scheduled for less than its scheduled transactions buys replacement energy at its bus at Day-Ahead LBMP (transaction pays Day-Ahead TUC). Day-Ahead supplier that is off-schedule in supporting a scheduled transaction settles up with Real-Time Energy LBMP. Day-Ahead Transmission Customer load that is off-schedule in its scheduled transaction settles up with Real-Time TUC.								

Table 5.2.3-1: Scheduling and Physically Curtailing Firm Bilateral Transactions

Both SCUC and RTC perform a screening function by looking ahead and not "scheduling" a Non-Firm Bilateral Transaction if it is anticipated to contribute to positive congestion.

Table 5.2.3-2: Scheduling and Curtailment of Non-Firm Bilateral Transactions

Scheduling and Curtailment of Non-Firm Bilateral Transactions	
Condition	**Results**
Non-Firm is anticipated by SCUC or RTC to contribute to **Negative Congestion**	Non-Firm is "scheduled" on advisory basis subject to future curtailment. Not paid for negative congestion, as Firm Transaction would be.
Non-Firm **is not** anticipated by SCUC or RTC to contribute to Positive Congestion	Non-Firm is partially or fully "scheduled" on advisory basis subject to future curtailment.
Non-Firm is anticipated by SCUC or RTC to contribute to **Positive Congestion**	Non-Firm is Not scheduled-Non-Firm previously "scheduled" Day-Ahead by SCUC is partially or fully "unscheduled" by RTC.
Non-Firm transaction that was previously "scheduled" by SCUC or RTC actually contributes to **Positive Congestion in Real-Time** for one RTD interval	If the Non-Firm transaction is an Internal, Import or Export transaction, no physical curtailment will be invoked. Rather, the NYISO will partially or fully convert the generator and load to Real-Time LBMP Energy Market Participants (with notifications made) for the remainder of their "schedule" (rest of day or hour). If the Non-Firm transaction is a Wheel-Through transaction, the NYISO will partially or fully physically curtail the transaction for both the Source and Sink with appropriate DNI schedule changes (with notifications made) for the remainder of its "schedule" (rest of day or hour).
Generator or load associated with an Import or Export Non-Firm Transaction (that was previously converted to the Real-Time LBMP Energy Market due to positive congestion) contributes to an **Operating Security Violation**	DNI schedule is changed to reduce or eliminate the import and/or export.
NYISO initiates **Backup Operations**	**All** Non-Firm previously "scheduled" by SCUC or RTC is fully physically curtailed for the remainder of their "schedule" (rest of day or hour)

Table 5.2.3-3: NYISO Curtailment Steps

Corresponding TLR Level	Minimum NERC Required Action
TLR 1	Notify Reliability Coordinators of potential SOL or IROL Violations
TLR 2	Hold transfers at present level to prevent SOL or IROL Violations
TLR 3a	Reallocation of Transmission Service by curtailing Interchange Transactions using Non-firm Point-to-Point Transmission Service to allow Interchange Transactions using higher priority Transmission Service
TLR 3b	Curtail Interchange Transactions using Non-firm Transmission Service Arrangements to mitigate a SOL or IROL Violation
TLR 4	Reconfigure Transmission
TLR 5a	Reallocation of Transmission Service by curtailing Interchange Transactions using Firm Point-to-Point Transmission Service on a pro rata basis to allow additional Interchange Transactions using Firm Point-to-Point Transmission Service
TLR 5b	Curtail Interchange Transactions using Firm Point-to-Point Transmission Service to mitigate an SOL or IROL violation
TLR 6	Emergency Procedures
TLR 0	TLR concluded

Table 5.2.3-4: Re-Instatement of Curtailed Bilateral Transactions

Re-Instatement of Physically Curtailed Transactions	
Type of Curtailment	**Re-Instatement**
Non-Firm transaction previously "scheduled" (on advisory basis) by SCUC or RTC that is curtailed in Real-Time	Must Re-Submit Schedule Request thru RTC (may already be in queue)
Firm Inter-Control Area transaction previously scheduled by **SCUC** that is physically curtailed (DNI schedule change) by RTC or in Real-Time to solve a security violation	May Re-Submit Schedule Request thru RTC (may already be in queue)
Firm Inter-Control Area transaction previously scheduled by **RTC** that is physically curtailed (DNI schedule change) in Real-Time to solve a security violation	May Re-Submit Schedule Request thru RTC (may already be in queue)
Transaction previously scheduled by SCUC or RTC is **self canceled** by Supplier or LSE	May Re-Submit Schedule Request thru RTC (may already be in queue)

Table 5.2.3-5: Transaction Conversion Curtailment Notifications Used by NYISO

Transaction Conversion and Curtailment Notifications Used by NYISO	
Action	**Notification**
Conversion of generators and loads associated with Internal, Import and/or Export Non-Firms to LBMP Energy market participants (TLR).	Automatic E-Mail to Source and Sink
Physical curtailment (through DNI schedule change) of Inter-Control Area Non-Firm transactions (TLR 2c)	Automatic E-Mail to Source and Sink; Phone call to the affected Control Areas (which in turn should notify the Source and Sink); Phone call to affected Transmission Provider(s) for exports; otherwise E-Mail to affected Transmission Providers
Physical curtailment (through DNI schedule change) of unscheduled loop-flow Non-Firm transactions (TLR 3)	Phone call to the affected Control Areas (which in turn should notify the Source and Sink)
Physical curtailment (through DNI schedule change) of Firm External Source to Internal Sink Transaction (Import)	Phone call to affected Control Area (which in turn should notify the Source), and E-Mail to affected Transmission Provider(s) and the Sink
Physical curtailment (through DNI schedule change) of Firm Internal Source to External Sink Transaction (Export)	Phone call to affected Control Area (which in turn should notify the Sink), and phone call to affected Transmission Provider (which in turn should notify the Source)
Physical curtailment (through DNI schedule change) of Firm External Source to External Sink Transaction (Wheel-Through)	Phone call to the affected Control Areas (which in turn should notify the Source and Sink), and E-Mail to affected Transmission Provider(s)
Source = Supplier at Point of Injection (POI) Sink = Load at Point of Withdrawal (POW)	

Scheduling and Dispatching LBMP Suppliers and Loads

Table 5.2.3-6: Scheduling and Dispatching LBMP Suppliers and Loads

Scheduling and Dispatching LBMP Suppliers and Loads								
	Internal Suppliers		Internal Loads		External Suppliers (Import with Marcy as Point-of-Withdrawal – POW)		External Loads (Export with Marcy as Point-of-Injection – POI)	
	(1) Financial Schedule	(2) Operational Schedule	(3) Financial Schedule	(4) Operational Schedule	(5) Financial Schedule	(6) Operational Schedule	(7) Financial Schedule	(8) Operational Schedule
A. Day-Ahead	Based on Day-Ahead Incremental Bids	Same as Day-Ahead Financial Schedule	Full Requested Amount for Fixed MW Loads*; or Based on Day-Ahead Bids for Price Capped Loads*	Same as Day-Ahead Financial Schedule	Based on Day-Ahead Incremental Bid with Total Imports Limited to ATC	Same as Day-Ahead Financial Schedule	Full Requested Amount or Based on Day-Ahead Bids for Price Capped Loads*. Total Exports Limited to ATC.	Same as Day-Ahead Financial Schedule
B. Hour-Ahead	Based on Hour-Ahead Incremental Bids	Dispatched in Real-Time	Not Available		Based on Hour-Ahead Incremental Bids with Total Imports Limited to ATC	Same as Hour-Ahead Financial Schedule	Full Requested Amount Based on Hour-Ahead Bids for Price Capped Loads* with Total Exports Limited to ATC	Same as Hour-Ahead Financial Schedule
C. Day-Ahead or Hour-Ahead Supplier is Uneconomic in Real-Time	Day-Ahead Schedule and Price are Fixed	Supplier Dispatched Down in Real-Time; settled in Real-Time	Day-Ahead Schedule and Price are Fixed		Day-Ahead DNI Schedule and Price are Fixed	No Re-Dispatch of Supplier and no change in DNI takes place.	Day-Ahead DNI Schedule and Price are Fixed; Hour-Ahead DNI schedule are Fixed	
D. Security Violation Occurs in Real-Time	Day-Ahead Schedule and Price are Fixed	Supplier Dispatched Down and/or de-committed in Real-Time if Needed	Day-Ahead Schedule and Price are Fixed	No Change takes place in Load Schedule in Real-Time unless Load Curtailment is invoked under Emergency Procedures	Day-Ahead Schedule and Price are Fixed; Hour-Ahead Schedule is Fixed.	Supplier Re-Scheduled Down ("Curtailed") in Real-Time if Needed; Also DNI is changed	Day-Ahead Schedule and Price are Fixed; Hour-Ahead Schedule is Fixed.	No Change in Load Schedule in Real-Time unless Energy Export is Curtailed under Emergency Procedures; then DNI is also changed

Scheduling and Dispatching LBMP Suppliers and Loads								
	Internal Suppliers		Internal Loads		External Suppliers (Import with Marcy as Point-of-Withdrawal – POW)		External Loads (Export with Marcy as Point-of-Injection – POI)	
	(1) Financial Schedule	(2) Operational Schedule	(3) Financial Schedule	(4) Operational Schedule	(5) Financial Schedule	(6) Operational Schedule	(7) Financial Schedule	(8) Operational Schedule
E. Day-Ahead or Hour-Ahead Schedule is Self Canceled by Supplier or LSE	Day-Ahead Schedule and Price are Fixed	Supplier updates schedule in RTC; NYISO updates RTD or Outage Scheduler	Day-Ahead Schedule and Price are Fixed		Day-Ahead Schedule and Price are Fixed	Supplier updates schedule in RTC; NYISO updates DNI and RTD or Outage Scheduler	Day-Ahead Schedule and Price are Fixed	LSE updates schedule in RTC; NYISO updates DNI

* Financial Schedule must result in a physically feasible flow-based solution in SCUC or RTC.

ATC = Available Transfer Capability of applicable transmission flow-gate.

Internal Suppliers are dispatchable in Real-Time.

External Suppliers are pre-schedulable Day-Ahead or Hour-Ahead, but not dispatchable in Real-Time.

Marcy is used as a reference bus where noted.

5.3 Capacity Limited and Energy Limited Resources

Many generating units have limitations on their ability to operate for a period of time over all, or a portion, of their operating range. Classification as a Capacity Limited Resource (CLR) or the sub-classification of Energy Limited Resource (ELR) may qualify such generating units for special balancing energy and Installed Capacity (ICAP) consideration while making energy and/or capacity limited MWs available to the Day-Ahead, In-Day, and Real-Time Markets. Additional information on CLR and ELR usage can be found in Attachment M of the ICAP Manual.

5.4 Normal and Emergency Upper Operating Limits (UOL_N and UOL_E)

All energy Suppliers are required to specify both a Normal Upper Operating Limit (UOL_N) and an Emergency Upper Operating Limit (UOL_E) in their Day-Ahead ("DA") and Real-Time ("RT") offers. The UOL_N defines the unit's operating limit under normal system conditions; the UOL_E defines the unit's operating limit achievable at the request of the NYISO during extraordinary conditions. Both limits should reflect the unit's achievable capacity. The specified value of UOL_E in the DA and RT offers must be greater than or equal to value specified for UOL_N.

5.5 Inter-Control Area ICAP Energy

With few exceptions, all NYISO ICAP providers have an obligation to submit bids into the NYISO Day-Ahead Market on a daily basis. This obligation applies to ICAP providers located both within and external to the NYCA. Rules governing the obligations associated with NYISO ICAP contracts are defined in the *NYISO Installed Capacity Manual*.

PJM, ISO-NE, and the NYISO have agreed to a number of "General Principles" to facilitate access to the energy associated with ICAP contracts with suppliers located in external control areas in the event of a capacity shortage within a control area.

NYISO ICAP suppliers located in PJM or New England

In the event that energy from a NYISO ICAP resource located in PJM or New England is required to resolve a capacity deficiency in the NYCA, the NYISO dispatcher will contact the ICAP resource's designated contact. The NYISO dispatcher will instruct the designated contact to ensure that all necessary measures are taken to facilitate delivery of the ICAP backed energy to the NYCA in response to a Supplemental Resource Evaluation (SRE) request, or through the next Real-Time Commitment (RTC).

Resources from Quebec

In the event that NYISO ICAP backed energy is required from Quebec, the NYISO Dispatcher will contact the designated resource contact and instruct the contact to take the actions necessary to facilitate the delivery of the ICAP backed energy in response to an SRE request, or through the next RTC.

Resources from NYISO

The NYISO is committed to a high level of deliverability for energy from the NYCA that supports an ICAP contract in an external control area. In the event that a neighboring control area has an in-day forecasted or actual reserve shortage (e.g. a PJM Maximum Generation Emergency), the affected control area dispatcher will contact their ICAP resource(s) located within the NYCA to request their ICAP contract energy. They will also notify the NYISO dispatcher of the situation. The ICAP resource is expected to follow the NYISO bidding rules required to get the ICAP backed energy scheduled for export. In the event that the export transaction(s) is not accepted by RTC due to a NYISO reserve shortage, the NYISO dispatcher will input the transaction using IS+.

Interface Limit Reductions

System transmission conditions at times may require a reduction in the external interface limits for a specific control area. In the event that the ICAP entitlement associated with a specific external control area is less than or equal to the reduced interface limit, then the external control area will be entitled to the contracted ICAP amount. In the event that the ICAP entitlement for an external control area is greater than the reduced interface limit, then the NYISO will schedule the deliverable quantity based on the RTC where time permits. In real time, the external control area dispatcher may contact the NYISO dispatcher and identify the specific external ICAP transactions that they wish to curtail. If the external control area

dispatcher does not specify the ICAP transactions to be curtailed, then the NYISO dispatcher will perform curtailments based upon existing operational procedures for locational curtailment. In either event, the export transactions will be scheduled or curtailed to a level consistent with the reduced interface limits.

5.6 Emergency Demand Response Program and Special Case Resources

The Emergency Demand Response Program (EDRP) provides a mechanism for load reduction during emergency conditions, thereby facilitating the reliability of the New York State bulk power system. Forecast reserve shortages may be shortages for the NYCA statewide region, locational shortages within the NYCA region due to transmission constraints, or inter-regional locational shortages between NYCA and neighboring Control Areas due to transmission constraints. The *NYISO Emergency Demand Response Program Manual* provides a complete description.

Retail end users who agree to participate in the EDRP can be accommodated through one of four types of Curtailment Service Providers (CSPs):

1. Load Serving Entities (LSEs), either that currently serving the load or another LSE
2. Through NYISO-approved Curtailment Customer Aggregators
3. As a Direct Customer of the NYISO
4. As a NYISO-approved Curtailment Program End Use Customer.
5. Curtailment Customer Aggregators and Curtailment Program End Use Customers must register with the NYISO as Limited Customers.

Voluntary Participation

Participation in the EDRP is voluntary and no penalties are applied if a CSP fails to respond to a NYISO notice to reduce load.

Retail end users participating in the EDRP cannot participate in the NYISO's Special Case Resources (SCR) Program. SCRs that have registered with the NYISO but not sold their capacity will be added to the list of EDRP participants for that period of time when their capacity is unsold, and will be called with EDRP participants if an EDRP event is activated.

The NYISO will allow participation by aggregations of smaller customers, the curtailed usage of which will be determined by using an alternative to the basic provisions regarding the metering and measurement of performance. Distributed Generation (DG) and self-generation resources are not eligible. Direct serve customers are also prohibited from operating under alternative performance measures.

NYISO Notification

CSPs will be given notice no less than two hours in advance of the time specified to reduce load, pursuant to NYISO emergency operations procedures.

Special Case Resources

Special Case Resources are Loads capable of being interrupted upon demand, and distributed generators that are not visible to the NYISO's Market Information System. The Unforced Capacity of a Special Case Resource corresponds to its pledged amount of Load reduction as adjusted by historical performance factors and as increased by the Transmission District loss factor. Refer to the *NYISO Installed Capacity Manual* for details.

5.7 Scheduling Operations Procedures

The following procedures are intended for the scheduling operations that occur during the Dispatch Day, but prior to operations, which occur during the Dispatch Hour:

- Interaction with Real-Time Commitment
- Interaction with Real-Time Automated Mitigation Process
- Interaction with Fast Start Management
- Anticipated Operating Reserve Shortages
- Out-of-Merit Generation
- Supplemental Commitment Process

5.7.1 Interaction with Real-Time Commitment

Hour-ahead scheduling is performed on a periodic basis and is completed at least 45 minutes prior to the beginning of the dispatch hour.

NYISO Actions

The NYISO performs the following:

1. Updates the power system grid model based on the latest transmission outage schedules, including forced outages.
2. Updates the load forecast based on the latest load information.
3. Accepts any updated reserve requirements.
4. Accepts the day-ahead schedules and firm transaction schedules.
5. Accepts the hour-ahead generation bids and firm transaction bids.
6. Accepts the telemetered phase shifter and tap settings from SCADA with adjustments made for known schedule changes.
7. Executes the Real-Time Commitment (RTC) using SCUC with a 2½ hour horizon.
8. Selects feasible non-firm transactions from the day-ahead and hour-ahead bids, based on the updated ATCs from the RTC.

Posts the following results:

1. Approved hour-ahead non-firm transactions.
2. Revised generator schedules for the next hour.
3. Revised firm transaction schedules for the next hour.
4. Market Participant Actions.
5. Market Participants shall request the NYISO for any changes in generation, load, and transactions schedules.

5.7.2 Interaction with Fast Start Management

The fast start management (FSM) function allows NYISO operations staff to start or stop, or delay the turning on or turning off of specified "fast start" generators (typically, gas turbines). The FSM function will normally operate in a mode where all first time fast start unit basepoints are held back until the system operators give an explicit approval for the basepoints to be sent to the unit.

Additionally, all fast start units' startups and shutdowns must be first approved by system operators. There will be messages to the operators indicating when a fast start unit has met its minimum run time and is not economic to run.

In the Reserve Pickup and Maximum Generation Pickup (RTD-CAM) modes, the default will be for fast start units' schedules to be sent out without system operator approval.

Table 5.7.2-1 summarizes the startup characteristics for real-time commitment.

Table 5.7.2-1: Unit Startup Characteristics

Unit Classification	Startup Characteristics
Fast Start Units*	10-15 minute startup notice starts by RTC on the quarter hour On-Demand starts by RTD-CAM
Slow Start Units	30-minute startup notice starts by RTC on the quarter hour
* Also known as Quick Start Units	

5.7.3 Anticipated Operating Reserve Shortages

The NYISO prepares the NYISO daily status report twice daily, in anticipation of the morning peak and the evening peak. Forecasted loads and operating capacity, including maximum generation capability and all firm transactions for the hours of the expected peak are provided by the Eligible Customers of the NYISO. The NYISO also provides a forecasted peak load based on NYISO data for comparison to that supplied by the TOs.

Resource Categories

There are ten Resource Categories as shown by table 5.7.2-3.

Table 5.7.2-3: Resource Categories

Resource Categories									
(R1) Energy	(R2) AGC Regulation Reserve	(R3) 10 Min Spin Reserve	(R4) 10 Min Non-Synch Reserve	(R5) 30 Min Reserve (Internal or External Reserve Activation)	(R6) FRED*	(R7) Shared Active of Reserves and/or External Emergency Purchases	(R8) Unexpired Un-accepted Day-Ahead Bids	(R9) Unexpired Un-accepted Hour-Ahead Bids	(R10) Involuntary Load Curtailment
Regulating resources or Dispatchable or Non-Dispatchable	Regulating resources	Dispatchable or Non-Dispatchable	Dispatchable or Non-Dispatchable and Off-Line but Available	Dispatchable or Non-Dispatchable and Off-Line but Available	Dispatchable or Non-Dispatchable and Off-Line but Available	Invoked Manually	Non-Dispatchable or Off-Line but Available	Non-Dispatchable or Off-Line but Available	Invoked Manually
FRED = **F**orecast **R**equired **E**nergy for **D**ispatch; the capacity to supply energy to meet NYISO forecasted load that is in excess of the sum total of Day-Ahead load bids.									

Existing Real-Time Non-SRE Resource Adjustments are listed as follows:

1. AGC moves regulating resources from (R2) to (R1) and from (R1) to (R2) to maintain regulation.
2. RTD moves "Dispatchable" (On-Line or Off-Line) resources between (R1), (R2), (R3), (R4), (R5) and (R6) to balance load with generation and maintain reserves.
3. If RTD can't solve rapidly enough for an energy deficiency, Reserve Pickup is invoked to move some "Dispatchable" and "Non-Dispatchable" resources from (R2), (R3), and (R4) at Emergency Response Rates (and from Internal (R5) and (R6) at Normal Response Rates or faster) into (R1) to rapidly eliminate the deficiency. During a Reserve Pickup – RTD-CAM is used to convert 10-Minute Operating Reserve to energy using Emergency Response Rates for some or all suppliers providing operating reserve and normal response rates for some or all other suppliers if needed. Reserve Pickup, which only dispatches suppliers upwards, looks at control error and load trending approximately 10 minutes ahead, and allows approximately 10 minutes for the reserve pickup to occur.

   Reserve pickup may occur if energy becomes deficient due to the loss of a large generator; to return schedules if the ACE exceeds 100 MWs; or if a faster ramp rate is required to solve a transmission security violation.
   During Reserve Pickup, no regulation penalty is invoked for generators that exceed their RTD basepoint (i.e., over-generation is encouraged and rewarded). Reserve Pickup will be terminated by the Operator when a sufficient level of

energy has been replaced. Upon this termination, generator basepoints will be initialized at their ending actual levels.
Locational Reserve Pickup may be invoked to solve a specific locational energy deficiency or transmission violation.

4. For losses of large generators, Shared Activation of Reserves may be invoked to move resources from (R7) into (R1) to rapidly eliminate the energy deficiency.

   Shared Activation of Reserves is utilized for a condition in which a number of neighboring control areas performs a Reserve Pickup to replace energy on a regional basis. The control area that required the replacement of energy will ultimately pay back the energy to neighboring control areas as an inadvertent energy payback.

5. If Steps #2, #3, and/or #4 are insufficient, External Reserve Activation may be invoked to move resources from External (R5) and (R6) into (R1) to rapidly eliminate the energy deficiency.

   Upon an External Reserve Activation, Interchange Scheduler Plus (IS+) is used to perform an evaluation to change DNIs with neighboring control areas to allow interruptible exports to be cut, and to allow externally procured operating reserves to be converted to energy and imported.

6. If Reserve Pickup is (or is expected to be) insufficient, Max Gen Pickup may be invoked manually through phone notifications to TOs to move "Dispatchable" and "Non-Dispatchable" resources (R2), (R3), and (R4) at Emergency Response Rates (and Internal (R5) and (R6) at Normal Response Rates or faster) into (R1) to rapidly eliminate the energy deficiency.

   A Maximum Generation Pickup is an emergency energy pickup as directed by the NYISO outside a normal RTD run. At the NYISO's judgment, generators will be instructed via voice communication to increase output to their upper operating limits as soon as possible until directed otherwise. This is typically invoked to relieve a transmission violation rapidly.

7. If a reliability violation continues to occur, prescribed corrective actions should be taken which may include postponement or cancellation of scheduled transmission outages according to procedures defined in the *NYISO Outage Scheduling Manual*. This may also include curtailment of external transactions.

8. If a reliability violation continues, External Emergency Purchases may be invoked to move resources from (R7) to (R1).

9. If other steps are insufficient in quantity and/or speed, Involuntary Load Curtailment (including possibly Load Shedding) may be invoked according to prescribed procedures to move (R10) into (R1) to rapidly eliminate the energy deficiency.

10. As a follow-up to the above steps, subsequent RTD runs will move Internal "Dispatchable" resources (R5) and (R6) into (R1) to replenish diminished regulation and 10 minute reserves.

    If the data indicates that the NYCA will be short of Operating Reserve, the NYISO shall perform the actions described for supplemental commitment and scheduling.

5.7.4 Out-of-Merit Generation

From time to time, generators must be operated out of economic order or at levels that are inconsistent with the calculated schedules. Any NYISO-authorized deviation from the schedule is considered Out-of-Merit (OOM) Generation and is not subject to regulation penalties. A unit that is out-of-merit is balanced at actual output and may be eligible for a supplemental payment if its bid production cost is not met.

NYISO Requests for Out-of-Merit Generation

Out-of-Merit Generation, either up or down, can be requested by the NYISO for security of the bulk power system, during communication failures, or because the Real-Time Commitment does not successfully run. The energy provided during the out-of-merit condition will be paid at the Real-Time Market Locational Based Marginal Pricing (LBMP) rates, but out-of-merit units may not set LBMP rates. The unit will be provided a supplemental payment, if required to recover its bid cost, consistent with the rules for bid production cost guarantees.

Any supplemental payments will be charged to all NYISO Loads through the Schedule 1 Ancillary Service. The generator will be put back in merit by the NYISO when conditions warrant.

Transmission Owner Requests for Out-of-Merit Generation

Transmission Owners in the NYISO system can request that a generator be run out-of-merit, either up or down, for local reliability. The specific generator and reason for the request must be identified by the TO at the time of the request. The energy provided by the generator will be paid at the Real-Time Market LBMP rates, but OOM units may not set LBMP rates. The unit will be provided a supplemental payment, if required to recover its bid cost, consistent with the rules for bid production cost guarantees. Any supplemental payments will be charged to the Loads within the TO's area. The generator will remain out-of-merit until the TO requests that the NYISO put it back in merit.

Generator Operator Requests for Out-of-Merit Generation

Generator operator requests for OOM Generation must be made through the TO. The specific reason for the request is required at the time the request is relayed by the TO to the NYISO. The generator will remain out-of-merit until the generator operator requests, via the TO, that the NYISO put it back in merit.

A generator operator may request out-of-merit operation to perform a Dependable Maximum Net Capability (DMNC) test. The process for this test is described in Technical Bulletin 29, "Scheduling Generator Dependable Maximum Net Capability Tests." During a DMNC test, energy that is scheduled in the Day-Ahead Market (DAM) is covered by a bid production cost guarantee. Energy that is not scheduled in the DAM will be paid for at the Real-Time Market LBMP rate, and it will not receive an in-day bid production cost guarantee. Out-of-Merit Generation will not set LBMP rates.

Derated generation can also be requested by a generator operator for extenuating circumstances that require reduced operation or shutdown. This includes equipment failure or pollution episodes. The generator remains responsible for balancing energy.

5.7.5 Supplemental Commitment Process

The NYISO may use the SRE process to commit additional resources outside of the SCUC and RTC processes to meet NYISO reliability or local reliability requirements. Transmission Owners (TOs) may request the commitment of additional generators to ensure local reliability in accordance with the local reliability rules. The NYISO will use SREs to fill these requests by TOs. In addition, Generator Owners may request the operation of a specific steam unit if certain combustion turbines have an energy or a non-synchronous reserve schedule that necessitates operation of the steam unit due to 24-hour NO_X Averaging Period requirements.

When the NYISO requests that generators submit bids in response to an SRE, ICAP suppliers must offer their available capacity unless an offer is pending in the Real Time market when the SRE request is made or the unit is unable to run due to an outage, operational issues or temperature derates. Special Case Resources are not required to respond to SRE requests by section 5.12.1 of the Market Services Tariff. However, the NYISO may request SCR and EDRP resources to respond to SRE requests on a voluntary basis.

Since SREs are only performed to address reliability concerns, it is intended that units committed by the SRE process fulfill their obligation by physically operating.

NYISO Requests for SREs

The NYISO may perform SREs in response to the following three conditions:

1. When Day-Ahead reliability criteria violations are forecast after SCUC has begun or completed its Day-Ahead evaluation (i.e.: too late for additional day-ahead commitments).
2. When In-Day reliability criteria violations are anticipated more than 75 minutes ahead (i.e.: too early for RTC commit additional resources)..

Transmission Owner Requests for SREs

TOs may request the NYISO to issue an SRE to commit additional resources for reliability purposes in a local area. TO requests for SREs are subject to the same conditions and the same time frame as the NYISO's use of the SRE process - after SCUC has run. Any requests by TOs to commit generators not otherwise committed by the NYISO in the Day-Ahead Market will be posted to the OASIS.

When requesting an SRE, TOs must give the NYISO the reliability reason for the request, the expected duration of the SRE, and the specific facility or constraint affected. NYISO dispatchers will log all such TO requests for SREs. Within 5 business days the TO requesting the SRE commitment shall provide detailed written justification for the SRE to SREinfo@nyiso.com. The NYISO will review all SRE requests to ensure that practices being followed are consistent with NYISO tariffs and NYS Reliability Rules.

The TOs written justification must detail the system conditions that resulted in the need for the SRE commitment such that the NYISO can independently verify the request. The following system conditions should be identified when applicable: TO local area or regional load levels; identification of thermal transmission facility or substation voltage constraint, identification of whether the constraint represents a predicted actual or post-contingency violation; identification of significant transmission or generating unit outages affecting such constraint; and identification of special local reliability criteria. Other local area system conditions that resulted in the need for the SRE commitment should also be identified.

Generator Owner Requests for SREs

If certain combustion turbines have an energy or a non-synchronous reserve schedule that necessitates the operation of a specific steam unit operated by the turbine owner due to 24-hour NO_X Averaging Period requirements, the NYISO may commit the steam unit if the generator owner takes the the following actions:

- The generator owner shall notify the NYISO and the TO of this operational requirement. The generator owner must notify the NYISO via the TO after the DAM posts, but no later than Hour Beginning (HB) 14 of the day prior to the operating day. In addition, throughout the operating day, the generator owner must communicate to the NYISO via the TO any changes in run-time limitations that may result from the combustion turbine's actual energy schedule or availability.
- The generator owner may request of the NYISO and inform the TO that a specific steam unit be operated, as required, to satisfy the NOx averaging requirements for the selected combustion turbine's energy or non-synchronous reserve DAM schedule given the 24-hour NO_X Averaging Period requirements for the operating day. The generator owner request should identify the steam unit, the required additional hours of operation,

and the specific generation levels necessary to meet the 24-hour NOx Averaging Period requirement.

If the combustion turbines are not required for either NYISO or local TO reliability, and the associated steam units are not committed in the DAM, then the NYISO will mark the combustion turbines as unavailable in the generation outage scheduler, such that they are not committed in real-time operation. The combustion turbines will be identified as Energy Limited Resources (ELR), since the generator owner will be unable to fulfill the DAM energy or non-synchronous reserve schedule as determined by the NYISO. Combustion turbines subject to the 24-hour NOx Averaging Period requirement must be registered as Energy Limited Resources.

5.7.6 Supplemental Resource Evaluation Procedures

SRE commitment refers to the NYISO scheduling a generator to start-up to run at, or above, its minimum generation level. SCUC commits resources for the next day, and RTC can commit resources in the Dispatch Day. RTC begins with SCUC Day-Ahead generator and load schedules, non-expired/non-accepted/non-updated (but not SCUC) bids, updated or new bids, updated transaction requests, updated load forecasts, updated outage schedules, and updated status changes. It then evaluates conditions for the next 2 ½ hours, performs a supplemental commitment (if needed) optimized for the next dispatch hour, and schedules newly requested transactions for the next dispatch hour.

The objective function of SCUC is not intended to evaluate energy costs and/or start-up/min gen costs for Day-Ahead capacity forward contracts for non-synchronized reserves. However, RTC will consider start-up costs. A generator started by RTC will be assumed to run at least one hour, so that its start-up bid price will be spread over one hour and added it to its bid energy price in RTC. For the purposes of setting LBMP, only the generator's energy price bid will be used. As with other start-ups, these generators will be eligible for supplemental payments to insure their start-up and minimum generation (for the remainder of the dispatch day) price bids are recovered.

Resource Monitoring Procedures

1. ***Monitor Regulation/Reserve Levels*** – The NYISO shall monitor the level of regulation and reserve resources available to meet anticipated NYCA requirements.
2. ***Monitor Adequacy of Bids*** – The NYISO shall also track the level of unexpired/unaccepted resource bids (R8 and R9) by location as potential replacements for Resources (R1), (R2), (R3), (R4), (R5), and (R6). If certain bid categories are deemed insufficient, the NYISO shall post an announcement to market participants to solicit additional bids.

5.7.7 General SRE Commitment

SRE shall only be used to address resource deficiencies; it shall not be used solely to reduce costs. The general SRE commitment procedure is as follows:

1. ***Initiate SRE*** – The NYISO shall proceed with an SRE:
   - If a resource deficiency occurs (or is anticipated to occur), and
   - If the Existing Real-Time Non-SRE Resource Adjustments Steps #1 through #7 are (or are anticipated to be) inadequate, and
   - If the problem is outside the windows of evaluation for both SCUC and RTC.
2. ***Resource Deficiency*** – The resource deficiency may be a result of:
   - The subsequent loss of an energy, regulation, or reserve resource;
   - The loss of a transmission facility;
   - A load forecasting anomaly; and/or
   - A resource deficiency forecast but not evaluated by RTC.

More detailed steps are subsequently listed below to specifically describe Day-Ahead and Dispatch Day SRE procedures.

3. ***Define Replacement Required*** – Based on the deficiency, the NYISO will determine:

Type of replacement required (i.e., regulation capability, operating reserve capability, or energy resource). In general, as shown in Table 5.7.7-1, the replacement to be selected should match the resource lost.

- Location that the replacement is needed
- How soon the replacement is required
- Amount in MW needed by hour
- How long the replacement will be required.

Table 5.7.7-1: SRE Replacement Decision

SRE Replacement Decision	
Type of Resource Deficiency	**Type of Replacement Required (To be Selected from Resources R8 or R9)**
(R1) Energy Resource Deficiency	(R1) Energy in Acceptable Location
(R2) Regulation Resource Deficiency	(R2) Regulation in Acceptable Location
(R3)/(R4)/(R5) Operating Reserve Deficiency	(R3)/(R4)/(R5) Same Kind Replacement of Operating Reserves in Acceptable Location
(R6) FRED Deficiency	(R6) FRED - Acceptable Location

4. ***Select Replacement Resources*** – Based on the requirements determined above, the NYISO will select replacement resources from the pre-calculated SRE charts for available unexpired/unaccepted resources (see example chart further below).

   Note Exceptions – If the NYISO's selection for supplemental resources diverges from the merit order indicated on the applicable chart, the NYISO will need to formally justify and log the exception.

5. ***Solve Dispatch Day (First) and Day-Ahead Deficiencies (Second)*** – In the case in which SCUC has begun or already completed its execution, and a combination of Dispatch Day and/or Day-Ahead resource deficiencies are subsequently anticipated, SRE shall be used to solve any Dispatch Day problems independently first. This shall be followed, if necessary, by another re-evaluation and a second SRE to solve any remaining Day-Ahead problems.

6. ***Allow, but Do not Guarantee "Self"-Replacement by Resource Suppliers*** – A resource that is financially obligated to serve a bilateral transaction or the LBMP spot market may wish to procure its own replacement if possible. In this case, it would need to arrange a Contract-For-Differences (CFD) contract with another resource that would agree to bid into the LBMP market. If that replacement resource were selected through SRE, the original resource would reach a side settlement with it. While the NYISO will not interfere with this type of arrangement, it will also be under no obligation to help facilitate this arrangement by delaying the implementation of an SRE. Alternately, the SRE may select another source for the replacement, presumably, because it is a more economical and/or more effective replacement choice.

5.7.8 Two to Seven Day Ahead SRE

A two- to seven-day ahead SRE shall be performed if operating capacity deficiencies are anticipated two to seven days ahead which will require long lead time generators to start-up in advance, i.e., too early for SCUC.

1. ***Post Announcement*** – If a Pre-SCUC SRE is anticipated, and if time permits, the NYISO shall post an announcement to market participants that a Supplemental Resource Evaluation is planned, and that additional resource bids are being solicited.

2. ***Two to Seven Day-Ahead Operating Capacity*** – If any deficiencies in Operating Capacity Resources are expected to exist that require long lead-time start-ups (longer than Day-Ahead):

   - Determine the amount, location and type of Supplemental Resources required. Type should be the same kind of resource that is deficient.
   - Determine how soon the Supplemental Resource will be needed.

- Determine how long, i.e., the Supplemental Commitment Period (SCP) in hours up to the end of the Dispatch Day the Supplemental Resource is likely to be needed.

Select and schedule the move of Supplemental Resources from available Resource Category (R8) to Category (R6) on a least cost basis where least cost equals lowest composite start-up and minimum generation costs (if start-up will be required) spread over the SCP for resources that will be available soon enough to meet the need. In cases in which all other factors are equal, the bid energy price will be used as a tie-breaker.

5.7.9 Post-SCUC Day-Ahead SRE

A SRE to address a Day-Ahead deficiency would be performed after SCUC has begun its Day-Ahead evaluation when it becomes too late for SCUC to run.

1. ***Post Announcement*** – If a SRE to address a Day-Ahead deficiency is anticipated, and if time permits, the NYISO shall post an announcement to market participants that a Supplemental Resource Evaluation is planned, and that additional resource bids are being solicited.
2. ***Day-Ahead Regulation or Reserve Deficiency*** – If any deficiencies in Resources (R2), (R3), (R4), (R5), and/or (R6) are expected to exist Day-Ahead after SCUC execution begins and after allowing for Regular Real-Time Non-SRE Resource Adjustment Steps #2 through #7:
   - Determine the amount, location and type of Supplemental Resources required. Type should be the same kind of resource that is deficient.
   - Determine how soon the Supplemental Resource will be needed.
   - Determine how long, i.e., the SCP in hours up to the end of the Dispatch Day, the Supplemental Resource is likely to be needed.

Select and schedule the move of Supplemental Resources from Resource Category (R8) to Categories (R2), (R3), (R4), (R5) and/or (R6) on a least cost basis where least cost equals lowest composite availability, and start-up costs and minimum generation costs (if start-up will be required) spread over the SCP for resources that will be available soon enough to meet the need. In cases in which all other factors are equal, the bid energy price will be used as a tie breaker.

3. ***Day-Ahead Energy Deficiency –*** If an energy deficiency (R1) is expected to exist Day-Ahead (after SCUC executes) which would result in a reserve deficiency after allowing for Existing Real-Time Non-SRE Resource Adjustments:
   - Determine the amount and location of Supplemental Resource(s) required to eliminate the energy deficiency.
   - Determine how soon the Supplemental Resource(s) will be needed.

- Determine how long, i.e., the SCP in hours up to the end of the Dispatch Day, the Supplemental Resource(s) are likely to be needed.

Select and schedule the move of Supplemental Resource(s) from Resource Category (R8) to (R1) on a least cost basis where least cost equals lowest composite energy and start-up costs (if start-up is required) spread over the SCP for resources that will be available soon enough to meet the need.

4. ***RTC Re-Adjustment*** – Following Steps #2 and/or #3 above, subsequent RTC runs may re-adjust resources.

5.7.10 Dispatch Day SRE

A Dispatch Day SRE would be performed as follows:

1. ***Post Announcement*** – If a Dispatch Day SRE is anticipated, and if time permits, the NYISO shall post an announcement to market participants that a SRE is planned, and that additional resource bids are being solicited.
2. ***Dispatch-Day Regulation or Reserve Deficiency*** – If any deficiencies in Resources (R2), (R3), (R4), (R5), and/or (R6) are expected to exist in the Dispatch Day after allowing for Regular Real-Time Non-SRE Resource Adjustments:
   - Determine the amount, location and type of Supplemental Resource(s) required. Type should be the same kind of resource that is deficient.
   - Determine how soon the Supplemental Resource(s) will be needed.
   - Determine how long, i.e., the SCP in hours up to the end of the Dispatch Day, the Supplemental Resource(s) are likely to be needed.

Select and schedule the move of Supplemental Resources from Resource Category (R8) to Categories (R2), (R3), (R4), (R5) and/or (R6) on a least cost basis where least cost equals lowest composite availability, and start-up costs and minimum generation costs (if start-up is required) spread over the SCP for resources that will be available soon enough to meet the need. In cases in which all other factors are equal, the bid energy price will be used as a tie-breaker.

3. ***Dispatch Day Energy Deficiency*** – If an energy deficiency (R1) is expected to exist in the Dispatch Day, which would result in a reserve deficiency after allowing for Regular Real-Time Resource Adjustments:
   - Determine the amount and location of Supplemental Resource(s) required to eliminate the energy deficiency.
   - Determine how soon the Supplemental Resource(s) will be needed.
   - Determine how long, i.e., the SCP in hours up to the end of the Dispatch Day the Supplemental Resource(s) are likely to be needed.

Select and schedule the move of Supplemental Resource(s) from Resource Category (R8) to (R1) on a least cost basis where least cost equals lowest composite energy and start-up costs (if start-up is required) spread over the SCP for resources that will be available soon enough to meet the need.

4. ***RTC Re-Adjustment*** – Following Steps #2 and/or #3 above, subsequent RTC runs may re-adjust resources.

5.7.11 Real-Time SRE

A Real-Time SRE would be performed as follows:

1. ***Optionally Post Announcement*** – If a Real-Time SRE is needed, the NYISO may post, but will not be obligated to post an announcement to market participants that a SRE is being invoked.
2. ***Real-Time Regulation or Reserve Deficiency*** – If any deficiencies in Resources (R2), (R3), (R4), and/or (R6) are expected to exist in Real-Time after Non-SRE Resource adjustments Steps #1 through #7 have been invoked:

Determine the amount, location, and type of Supplemental Resources required. Type should be the same kind of resource that is deficient.

Select and move Supplemental Resources from Category (R9) to Categories (R2), (R3), (R4), (R5), and/or (R6) or a least cost basis where least cost equals lowest composite availability, and start-up and minimum generation costs (if start-up is required) are spread over one hour (in cases in which all other factors are equal, the bid energy price will be used as a tie breaker) as follows:

- 1st – Least cost Supplemental Resources available in 10 minutes
- 2nd – Least cost Supplemental Resources available in 30 minutes if additional Supplemental Resources are still needed.
- 3rd – Least cost Supplemental Resources available in greater than 30 minutes if additional Supplemental Resources are still needed.

3. ***Real-Time Energy Deficiency*** – If an energy deficiency (R1) continues (or is expected to continue) to exist in Real-Time even with RTC Resource Adjustments:

   - Determine the amount and location of Supplemental Resources required.

Select and move Supplemental Resources from category (R9) to (R1) on a least cost basis where start-up costs (if start-up is required) are spread over one hour as follows:

- 1st – Least cost Supplemental Resources available in 10 minutes
- 2nd – Least cost Supplemental Resources available in 30 minutes if additional Supplemental Resources are still needed.
- 3rd – Least cost Supplemental Resources available in greater than 30 minutes if additional Supplemental Resources are still needed.

4. ***RTC Re-Adjustment*** – Following Steps #2 and/or #3 above, subsequent RTC runs may re-adjust resources.

5.7.12 SRE Pricing and Cost Allocations

Energy Payments

Resources committed by SRE will be paid the real time LBMP for Energy and may be guaranteed recovery of start up and minimum generation bid costs ([1]) pursuant to Sections 4.1.7 and 4.10 and Attachment C of the Services Tariff. As previously stated, a resource committed by SRE cannot raise (but may lower) its price bid for the duration of time it was committed.

Cost Allocation

Assignment of replacement costs that result from a SRE will be as given as follows:

Table 5.7.12-1: Assignment of SRE Replacement Costs

Assignment of SRE Replacement Costs		
Cause for SRE	**Impact of Replacing Energy, Operating Reserves and/or Regulation**	**Cost Assignment for Supplemental Payments for Start-Up and Minimum Generation (if any)**
Loss of SCUC Day-Ahead Committed Resource	Charged to Lost Resource	Schedule 1 Uplift
Loss of RTC, RTD-CAM, and/or SRE Committed Resource	Affects Real-Time Energy LBMP and/or Marginal Clearing Prices for Ancillary Services	Schedule 1 Uplift
Loss of Transmission that Results in Locational Resource Deficiency	Affects Real-Time Energy LBMP and/or Marginal Clearing Prices for Ancillary Services	Schedule 1 Uplift
Unexpected Load Increase	Affects Real-Time Energy LBMP and/or Marginal Clearing Prices for Ancillary Services	Schedule 1 Uplift

If combustion turbines have an energy or a non-synchronous reserve schedule in the DAM that necessitates the SRE operation of a specific steam unit operated by the turbine owner due to 24-hour NO_X Averaging Period requirements, then the following cost allocation applies:

If the combustion turbines are required for NYISO reliability purposes, the NYISO shall operate the selected steam unit as required via the Supplemental Resource Evaluation (SRE) process. Any real-time uplift costs associated with the operation of the steam unit will be allocated on a statewide basis.

[1] Bids submitted by generators are subject to conduct and impact testing, and may be mitigated pursuant to the provisions of Attachment H to the Services Tariff. Bids that are mitigated are eligible to receive a guarantee payment that reflects the mitigation.

If the combustion turbines are required only for local TO reliability purposes, then the TO shall notify the NYISO of this requirement and the NYISO shall operate the required company steam unit via the SRE process for local TO reliability. Any real-time uplift costs associated with the required steam unit will be allocated to the LSEs in the LBMP zone that had the reliability requirement.

6. DISPATCHING OPERATIONS

This section describes the real-time dispatching operations and covers the following:

- Real-Time Dispatch
- Real-Time Dispatch – Corrective Action
- Dispatching Operations Requirements
- Dispatching Operations Procedures.

6.1 Real-Time Dispatch

Real-Time Dispatch (RTD) is a multi-period security constrained dispatch model that co-optimizes to solve simultaneously for Load, Operating Reserves, and Regulation Service on a least-as-bid production cost basis. Real-Time Dispatch runs will normally occur every five minutes. Figure 6.1-1 presents the RTD time line for a period of one hour.

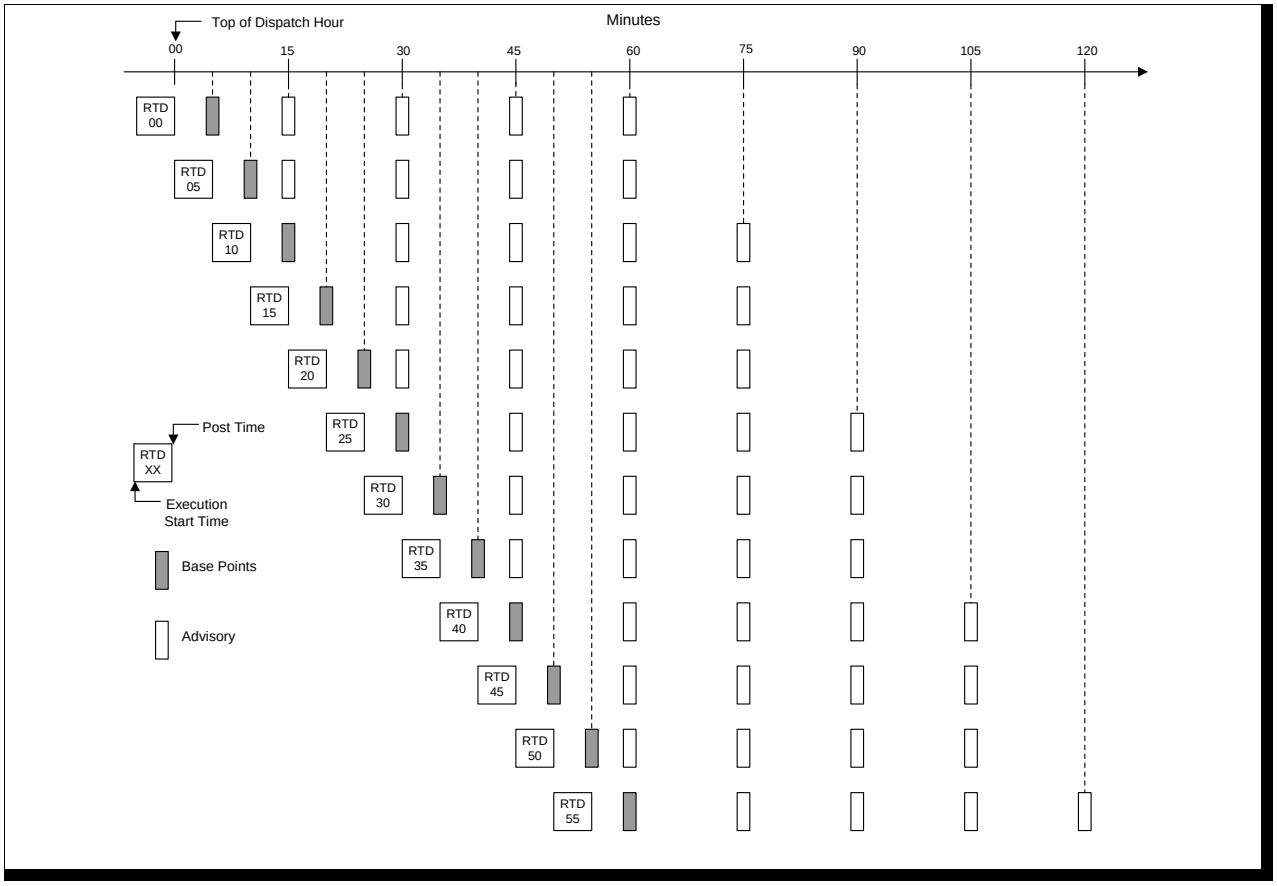

Figure 6.1-1: Real-Time Dispatch Time Line

6.1.1 Real-Time Dispatch Process

The Real-Time Dispatch will make dispatching decisions, send Base Point Signals to Internal Generators and, to the extent that the NYISO's software can support their participation, Demand Side Resources, calculate Real-Time Market clearing prices for Energy, Operating Reserves, and Regulation Service, and establish real-time schedules for those products on a five-minute basis, starting at the beginning of each hour. The Real-Time Dispatch will not make commitment decisions and will not consider start-up costs in any of its dispatching or pricing decisions. Each Real-Time Dispatch run will co-optimize to solve simultaneously for Load, Operating Reserves, and Regulation Service and to minimize the total cost of production over its bid optimization horizon. In addition to producing a binding schedule for the next five minutes, each Real-Time Dispatch run will produce advisory schedules for the remaining four time steps of its bid-optimization horizon. RTD will use the most recent system information and the same set of Bids and constraints that are considered by RTC.

6.1.2 Real-Time Dispatch Information Posting

The public information and secure Market Participant data to be posted from the execution of RTD is described in this subsection.

Public Information

The following information will be produced by RTD and is posted:

1. 5-minute look ahead zonal and generator prices from the first increment of RTD.
2. Advisory zonal and generator LBMPs for each 15-min look-ahead interval of RTD.
3. Ancillary Services prices for the 5-min look-ahead interval of RTD. The following incremental prices are posted:
    - 10-min Spinning Reserve (West and East)
    - 10-min Non-Spinning Reserve (West and East)
    - 30-min Spin/Non-Spin Reserve (West and East)
    - NYISO Regulation.
4. Advisory Ancillary Services prices for each 15-min look-ahead interval of RTD. The following incremental prices are posted:
    - 10-min Spinning Reserve (West and East)
    - 10-min Non-Spinning Reserve (West and East)
    - 30-min Spin/Non-Spin Reserve (West and East)
    - NYISO Regulation.

The following additional information will be posted as required:

- Phase Angle Regulator (PAR) schedules for all PARs
- Limiting Constraints on transmission network MW flows (Constraint Type [Base/Contingency] and Shadow Price).
- Transmission Interface Flows

5. A set of real-time prices produced by the MIS will also be posted periodically at a NYISO specified time. These prices may be corrected and reposted as required
6. Zonal and Generator Time Weighted/Integrated LBMP information will be produced by the MIS, using the 5-minute real-time prices, also from the MIS. The time weighted/integrated LBMPs will be posted on an hourly basis within 10-minutes after top-of-hour.

Secure Data to Market Participant

The following information will be produced by RTD and will need to be made available to authorized MPs:

- MW base points for each look-ahead interval of RTD. The first base point from RTD is a 5-minute look-ahead and is immediately passed on to the Automatic Generation Control (AGC) program. The remaining base points are considered to be advisory, and are given at 15-minute intervals.

Market Participants must examine the RTD 15-minute advisory base points to get advance notice of upcoming Unit Startups and Shut Downs. The beginning and end of a Startup period or Shutdown period always occurs at the 15-minute clock times as established by RTC. Note: this does not apply for RTD-CAM functions such as Reserve Pickup Max Gen Pickup and Base Points ASAP- Commit as Necessary

Startup of quick start units is also communicated via Inter-Control Center Communications Protocol (ICCP) telemetered signals, when scheduled on by RTC, by setting a "startup flag" approximately 15 or 30 minutes ahead, depending on the unit's startup time.

6.2 Real-Time Dispatch – Corrective Action Modes

When the NYISO needs to respond to system conditions that were not anticipated by RTC or the regular Real-Time Dispatch, e.g., the unexpected loss of a major Generator or Transmission line, it will activate the specialized RTD-CAM program. RTD-CAM runs will be nominally either five or ten minutes long, as is described below. Unlike the Real-Time Dispatch, RTD-CAM will have the ability to commit certain Resources. When RTD-CAM is activated, the NYISO will have discretion to implement various measures to restore normal operating conditions. These RTD-CAM measures are described below.

- The NYISO shall have discretion to determine which specific RTD-CAM mode should be activated in particular situations. In addition, RTD-CAM may require all Resources to run above their normal UOLs, up to the level of their emergency UOLs. Self-Scheduled Fixed Resources will not be expected to move in response to RTD-CAM Base Point Signals except when a maximum generation pickup is activated.
- Except as expressly noted in this Section, RTD-CAM will dispatch the system in the same manner as the normal Real-Time Dispatch.

6.2.1 Reserve Pickup Mode

The NYISO may enter this RTD-CAM mode when necessary to re-establish schedules if the ACE is greater than 100 MW. When in this mode, RTD-CAM will send 10-minute Base Point Signals and produce schedules for the next ten minutes. RTD-CAM may also commit, or if necessary de-commit, Resources capable of starting or stopping within 10-minutes. The NYISO will continue to optimize for Energy and Operating Reserves, will recognize locational Operating Reserve requirements, but will suspend Regulation Service requirements. If Resources are committed or de-committed in this RTD-CAM mode, the schedules for them will be passed to RTC and the Real-Time Dispatch for their next execution.

The NYISO will have discretion to classify a reserve pickup as a "large event" or a "small event." In a small event, RTD-CAM may reduce Base Point Signals to reduce transmission line loadings. In a large event, RTD-CAM will not reduce Base Point Signals.

6.2.2 Maximum Generation Pickup

The NYISO will enter this RTD-CAM mode when an Emergency makes it necessary to maximize Energy production in one or more location(s), i.e., Long Island, New York City, East of Total East, and/or NYCA-wide. RTD-CAM will produce schedules directing all Generators located in a targeted location to increase production at their emergency response rate up to their emergency UOL level and to stay at that level until instructed otherwise. Security constraints will be obeyed to the extent possible. The NYISO will continue to optimize for Energy and Operating Reserves, will recognize locational Operating Reserve requirements, but will suspend its Regulation Service requirements

6.2.3 Base Points ASAP – No Commitments

The NYISO will enter this RTD-CAM mode when changed circumstances make it necessary to issue an updated set of Base Point Signals. Examples of changed circumstances that could necessitate taking this step include correcting line, contingency, or transfer overloads and/or voltage problems caused by unexpected system events. When operating in this mode, RTD-CAM will produce schedules and Base Point Signals for the next five minutes but will only redispatch Generators that

are capable of responding within five minutes. RTD-CAM will not commit or de-commit Resources in this mode.

6.2.4 Base Points ASAP – Commit As Needed

This operating mode is identical to Base Points ASAP – No Commitments, except that it also allows the NYISO to commit Generators that are capable of starting within 10 minutes when doing so is necessary to respond to changed system conditions.

6.2.5 Re-Sequencing Mode

When the NYISO is ready to de-activate RTD-CAM, it will often need to transition back to normal Real-Time Dispatch operation. In this mode, RTD-CAM will calculate normal five-minute Base Point Signals and establish five minute schedules. Unlike the normal RTD-Dispatch, however, RTD-CAM will only look ahead 10-minutes. Basepoints issued in the RTD-CAM re-sequencing mode are updated as soon as a normal Real-Time Dispatch run has executed and produced Base Point signals thus completing the transition back to normal RTD execution intervals and optimization horizons.

6.3 RTC/RTD Solution Process

RTC/RTD calculates a short-term generation schedule, referred to as a "base point," for each of the generating units designated as flexible or "on-dispatch." RTC/RTD retrieves the information it needs to perform the calculation from data maintained in the NYCA databases. This information includes incremental bid cost curves of the generating units, telemetry data, and other data needed to model each of the constraints.

RTC/RTD determines the initial conditions to begin the commitment and dispatch process. These initial conditions include:

a) Real-time telemetry values for generation output, which represents the initial generation MW values.
b) Forecasted values of zonal, load, and the last RTD powerflow transmission zonal losses.
c) Real-time telemetry values for phase angle regulator flows, which represent their initial power schedule if optimized; otherwise the real-time telemetry represents their final power schedule.
d) Real-Time telemetry values to model unscheduled transmission system powerflows such as Lake Erie Circulation.
e) Current facility outage schedules, including forced and scheduled outages and any outages that affect system transfer limits

RTC/RTD performs a unit commitment and dispatch and a corresponding powerflow solution to ensure that all actual and contingency transmission constraints are secured to applicable limits. Generation delivery factors are calculated from the RTD

powerflow solution and are used to approximate the effects of changes in generation on system transmission losses.

If there are unsecured transmission constraints, then RTC/RTD performs additional network constrained unit commitment and dispatch solutions and corresponding powerflow solutions until all actual and contingency transmission constraints are secured.

The allowable dispatch range (maximum and minimum limits) of the dispatchable generating units for the five-minute period are determined considering maximum and minimum limits specified by the Market Participants, regulation constraints, and the response rates of the units.

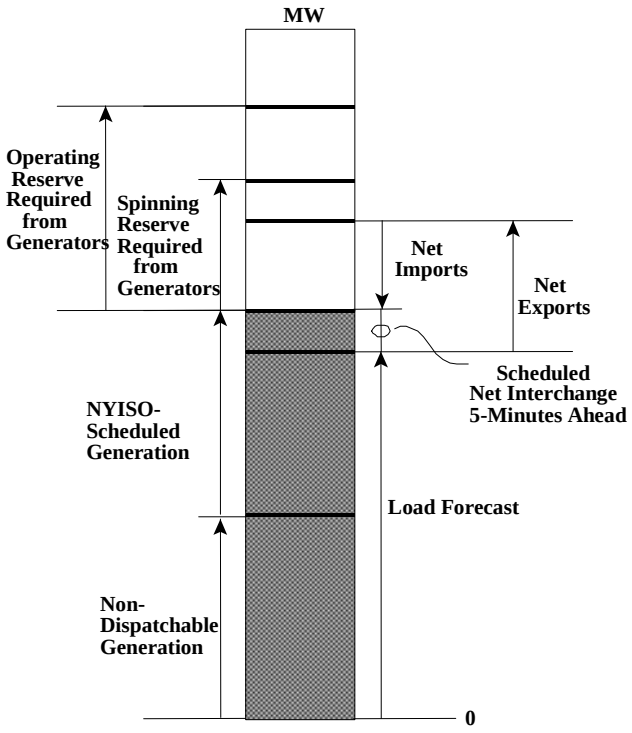

Figure 5.2.9-1: Control Area Constraints

6.3.1 Limit Updates

All generator-operating limits are taken from generator bid information. The only changes that are made to unit operating limits are via the OOM package. This is done by a NYISO operator using information received from the TO or the Generator.

At the top of each hour, the real-time upper operating limit will be compared with the projected upper operating limit, which is based on the accepted bid parameters. The OOM limit will be used by RTD. A text alarm will be sent to the TO and to the NYISO alarm screen. Any discrepancy will be resolved with the appropriate generator.

If the unit requires a modification to real-time limits which results in a derating of the unit due to operational problems, the NYISO can lower the upper operating limit. The corresponding RTD high limit will be adjusted.

6.3.2 Status Updates

At the top of each hour, the real-time unit status will be compared with the projected status, which is based on the accepted bid parameters. The unit status will be set from existing real time or projected status, which will be used by RTD and AGC. Additionally:

1. A unit that has not bid for regulation cannot be placed 'On Control'
2. If a supplier can provide 10-minute non-synchronized reserve but is not scheduled to do so in the DAM and wishes not to be dispatched or started in real-time by RTD-CAM to provide energy then the supplier must update the real time status to 'unavailable'
3. Suppliers that do not update the limits and or status to equal the projected status or limits as bid and accepted are subject to reserve and regulation balancing payments.

6.3.3 NYISO-TO-Power Supplier Communications

Units that bid such that they will be scheduled at fixed ¼ hour points can obtain their schedules from the MIS posting in addition to the base points that will be transmitted to the TO by the NYISO.

Units that are dispatchable and non-synchronous units that can be committed by RTD-CAM must be prepared to receive real-time schedule changes. The unit schedules (base points) that are sent to the TOs as a result of a reserve pick up or locational reserve pick up will be tagged to indicate that the base points were calculated based on the higher of normal or emergency response criteria. This is an indication that the dispatchable and Non-synchronous units may be receiving a RTD-CAM schedule change and that the base points may reflect emergency response rate criteria.

6.3.4 Transmission loss treatment

The day-ahead and real-time scheduling programs each employ the same treatment of physical transmission losses. The day-ahead software is the Security-Constrained Unit Commitment (SCUC) program, and the real-time software is the Real-Time Commitment (RTC) and Real-time Dispatch (RTD) programs. Transmission losses are calculated as part of the power flow solution for each time interval simulated by these programs for each of the eleven load zones in the NYCA.

The short-term real-time load forecast provides a forecast of the eleven zonal loads for each interval. The load forecast does not include an estimate of zonal transmission

losses. The loss estimates for the load zones are determined from the network power flow solutions of the corresponding RTC/RTD intervals. The load forecast for the real-time market operation is determined for demand only and the calculation of losses within RTC and RTD are added to the forecast for total scheduling or dispatching requirements. Generating resources and external import transactions are scheduled in RTC/RTD to meet (i) the forecast of the zonal loads and (ii) the RTC/RTD zonal loss determinations and external export transactions.

6.3.5 Phase Shifter Models

The RTC/RTD programs assume that the pre-contingency active power flows on phase shifter controlled transmission lines are fixed at their telemetered values observed at the start of the dispatch interval except for those PARs listed below, i.e., phase shifter controlled lines are said to be "block loaded". However, for contingency case security constraints, the post-contingency flows on phase shifter controlled lines varies as a function of the pre-contingency values of the facilities described in the contingency and forecast system topology. For contingency analysis, phase shifter controlled lines are said to be allowed to "free-flow."

The desired flows will be established for the ABC, JK, 5018 and 1385 interconnections based on the following

- the ABC interconnection will be the current level of ABC power flows (based on PAR MW telemetry values) plus 13% of the expected schedule changes to the PJM-NYISO interchange
- the JK interconnection will be the current level of JK power flows (based on PAR MW telemetry values) plus 13% of the expected schedule changes to the PJM-NYISO interchange
- the Branchburg-Ramapo interconnection will be the current level of 5018 power flows (based on PAR MW telemetry values) plus 40% of the expected schedule changes to the PJM-NYISO interchange. The Branchburg-Ramapo 500kV Operating agreement allows for the assumption that up to 62% of PJM-NY transaction schedules flow over the 5018 interconnection. However, flows over the 5018 interconnection will be conservatively modeled at 40% to ensure feasible operating schedules at the scheduling limit of 2500MW.
- the 1385 Northport-Norwalk Harbor interconnection will be determined by transaction bid evaluation on the NPX 1385 proxy bus.

6.3.6 Demand curves

The unit commitment and dispatch module used in both the SCUC and RTS systems was given additional functionality of demand curves. The demand curve allows the program to relax the requirements if the shadow cost needed to supply the requirement exceeds a preset value. The demand curve functionality is used for the reserve and regulation requirements and for transmission constraints. The following demand curves are implemented:

Type	NY Region	Demand Curve (MW)	Demand Curve Price ($)
Regulation	NYCA	25.0 remainder	$250.00 $300.00
Spinning Reserve	NYCA	All	$500.00
10 Minute Reserve	NYCA	All	$150.00
30 Minute Reserve	NYCA	200.0 400.0 remainder	$50.00 $100.00 $200.00
Spinning Reserve	Eastern NY	All	$25.00
10 Minute Reserve	Eastern NY	All	$300.00
30 Minute Reserve	Eastern NY	All	$25.00
Spinning Reserve	Long Island	All	$25.00
10 Minute Reserve	Long Island	All	$25.00
30 Minute Reserve	Long Island	All	$300.00
Transmission	All	All	$4000.00

6.3.7 Locational Reserves

Operating reserves will be locationally priced and the locational reserve requirements will be determined by the NYISO. There are locational reserve requirements for the NYCA, the Eastern New York area, and the Long Island area.

Reserves are scheduled as part of each RTD run and are co-optimized, nominally every five minutes, along with energy and regulation schedules. These reserves may be converted to energy in any normal dispatch or during a Reserve Pickup and replacement reserves scheduled on other available resources. During a reserve pickup event, dispatchable suppliers will be dispatched upward at the higher of their normal response rate curve or their Emergency Response Rates. During a Reserve Pickup, the NYISO will notify the TOs, who in turn will notify dispatchable resources that a Reserve Pickup is taking place. A RPU "flag" will be sent with the basepoints via ICCP.

With respect to 30-minute Reserves, Reserve Pickup will dispatch 30-minute Spinning Reserve Upward but not 30-minute non-synchronized Reserve. This would be done at the next RTC execution or through a Supplemental Resource Evaluation (SRE).

6.3.8 Reserve Comparator

The Reserve Comparator (RC) function executes nominally every five minutes and resides on the on-line EMS to track actual system reserves and system reserve requirements. The purpose of the RC program is to monitor the locational reserves and capability in the real time system and for interchange evaluation in the NYCA. RC

monitors NYCA reserves in three categories: 10-minute synchronous reserve, total 10-minute reserve, and total 30-minute reserve. Currently it also calculates the reserves and capability from units and transactions for each Zone and the NYCA.

6.3.9 Reserve Calculations

The following reserve calculations are implemented for the LBMP Market:

1. Reserves are calculated on a locational basis.
2. There are reserve requirements for each of the locational reserve areas with the appropriate alarming.
3. Non-synchronous reserve can only be counted on units that have an accepted bid and have been committed for non-synchronous reserve. This applies for both 10-minute and Operating Reserve.

All dispatchable (on-line) units are counted towards 10-minute synchronous reserve, whether or not they have an accepted reserve availability bid.

6.3.10 Shared Activation of Reserves

The Shared Activation of Reserves (SAR) is a mutual agreement among the following participating areas to provide 10-minute reserve assistance:

- Ontario
- New England/New Brunswick
- NYISO
- PJM

The NYISO acts as the central coordinator for the SAR procedure and will ensure that SAR allocations assigned to the participating areas are within their response capabilities. The SAR allocation for an area is the additional amount of energy it is assigned to provide in response to a SAR request.

Procedure

The following is a summary of the SAR procedure, which is described in greater detail in the NPCC Document C-12 (August 20, 2002):

1. ***Preliminary Reserve Assignment:*** On a continuing basis, Maritimes, ISO-NE, Ontario, and PJM dispatchers shall keep the NYISO informed of the largest, single generation or energy purchase contingency on their respective system and changes thereof.

   Information pertaining to an Area's inability to participate, reserve limitations (such as "bottled" reserve or reserves used to deliver economy energy sales) and transmission limitations shall be reported to Maritimes, ISO-NE, Ontario, and PJM by the NYISO Shift Supervisor as those conditions arise.

2. ***Notification of Contingency:*** Immediately following a sudden loss of generation or energy purchase in the Maritimes, ISO-NE, NYISO, Ontario, or PJM, the Area experiencing the loss (Contingency Area) shall indicate whether SAR is being requested and report the following information to the NYISO via the interregional direct telephone lines:

    - Name of generation or purchase lost.
    - Total number of megawatts lost.
    - Time that contingency occurred (time zero T+0).
    - Any transmission or security problems within the Contingency Area that affect SAR allocations to Assisting Areas.

3. ***Activation of Reserve:*** After receiving notification of the SAR request and the specific contingency, the NYISO Shift Supervisor shall:

    - Determine each Area's SAR allocation in accordance with NPCC Procedure C-12.
    - By the direct inter-Area telephone lines, immediately inform each Area of its SAR allocation, the time that the schedule change is effective, and the time that the contingency occurred.

    The SAR allocation shall become part of the interchange schedule and shall be implemented immediately following notification.

4. ***Provision of Reserve Assistance:*** Assisting Areas shall respond as quickly as possible, assuming the same obligation as if the contingency occurred within its Area. Assisting Areas shall complete a report that documents the Reserve Assistance provided.

    The Contingency Area shall initiate immediate action to provide its share of reserve to recover from the generation or energy purchase loss, prepare for the replacement of the reserve assistance assigned to assisting Areas, and proceed to re-establish 10-minute reserve at least equal to its next largest contingency.

5. ***Termination of Shared Reserve:*** As soon as the Contingency Area has provided its SAR allocation, it will notify the NYISO. The NYISO shall establish a conference call between all participating Areas and confirm the time that the assistance shall be terminated. Revised interchange schedules will be mutually established as required to ensure that the Assisting Areas properly recall assistance. The Contingency Area shall replace the reserve assistance assigned to assisting Areas in a manner consistent with mutually established interchange schedules.

    - In the event that a Contingency Area is not prepared to replace the remaining portion of its reserve obligation within time zero + 30 minutes, the Contingency Area shall arrange for additional assistance in accordance with applicable policies and agreements covering interchange and emergency assistance.

- In the event that the security of an Assisting Area becomes jeopardized, that Area may cancel all or part of its allocation by notifying the NYISO, which will then request the Contingency Area to pick up the required additional amounts of reserve. The Contingency Area shall complete a report that documents the recovery provided for the contingency.

6. ***Subsequent Contingencies:*** In the event that a subsequent loss of generation or energy purchase, regardless of the size of the contingency, occurs during the period when a reserve pick-up is in progress, the second Contingency Area may, at its discretion, withdraw assistance and request the NYISO to reallocate the assistance in accordance with the provisions of this shared activation of reserve procedure.

    - Upon such notification, the NYISO will notify the first Contingency Area of the amount of withdrawal. Both Contingency Areas will immediately enter new interchange schedules that reflect the loss of the assistance, using a zero time ramp.

    - In the event that the second Contingency Area experiences a contingency that qualifies for shared activation of reserve, the NYISO will allocate assistance from the remaining Assisting Areas in accordance with this procedure, upon the request of that Area.

    - If the second contingency occurs in the Area that has incurred the first contingency, that Area may request assistance, in accordance with this procedure, regardless of the size of the contingency.

7. ***Disturbance Control Standard (DCS) Reporting of Shared Activation Reserve Events:*** The evaluation of DCS compliance for an Area shall utilize the NERC Disturbance Recovery Period applicable at the time of the reportable event (15 minutes). The evaluation of compliance for the purpose of determining Area synchronized reserve requirements shall utilize a recovery period established by the NPCC (15 minutes).

NYISO Operator Action

The NYISO Operator interacts with SAR as follows:

1. The NYISO Operator calls up the SAR display and enters the following information:

    - Neighboring SAR area
    - MW amount of SAR
    - Activation (Immediate) or Termination (Immediate or Scheduled Time)

2. When a SAR is activated, the SAR MW value shall immediately take on the Operator entered SAR MW amount, regardless of any existing SAR value or if termination was already in progress,

3. When a SAR is terminated, the current (or scheduled) SAR value shall be ramped to zero over a 10-minute period, even if termination was already in progress.
4. SAR MW values are automatically converted to 1-minute values for input to the RTD/RTD-CAM and AGC programs.
    - RTC will not have a direct SAR MW input.
    - AGC will record the application of the SAR MW inputs.

Attachment A – Transmission Facilities

- A.1 lists NYISO Facilities Requiring Coordination and Notification.
- A.2 lists Bus Voltage Limits for NYISO Secured Transmission System.
- A.3 lists Bus Voltage Limits for HQ-NYISO transfers.

A.1 lists NYISO Facilities Requiring Coordination and Notification

TRANSMISSION FACILITIES UNDER ISO CONTROL AND REQUIRING ISO NOTIFICATION

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					iso secured	iso control	notif time	PA	NM	RG	NY	CH	OR	CE	LI	OH	PJ	NE	QH
7040	CHATEAUGUAY	765	MASSENA	765	Y	Y	30	S	I	I	_	_	_	I	_	I	I	I	O
BK 1	MARCY	765	MARCY	345	Y	Y	30	O	I	_	_	_	_	_	_	_	_	_	_
BK 2	MARCY	765	MARCY	345	Y	Y	30	O	I	_	_	_	_	_	_	_	_	_	_
MSU1	MASSENA	765	MARCY	765	Y	Y	30	S	I	I	_	_	_	I	_	I	I	I	I
BK 1	MASSENA	765	MASSENA A	230	Y	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
BK 2	MASSENA	765	MASSENA B	230	Y	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
5018	BRANCHBURG	500	RAMAPO	500	Y	Y	30	I	I	_	I	I	I	S	_	I	O	I	_
BK 1500	RAMAPO	500	RAMAPO S.	345	Y	Y	30	_	_	_	_	I	I	O	_	I	I	I	_
393	ALPS	345	BERKSHIRE	345	Y	Y	30	I	S	_	_	I	_	I	I	_	_	O	_
91	ATHENS	345	PLEASANT VLY	345	Y	Y	30	I	S	_	I	I	_	O	_	I	I	I	I
PA301	BECK A	345	NIAGARA	345	Y	Y	30	S	I	_	_	_	_	_	_	O	I	_	_
PA302	BECK B	345	NIAGARA	345	Y	Y	30	S	I	_	_	_	_	_	_	O	I	_	_
67-1	BOWLINE 1	345	W.HAVERSTRAW	345	Y	Y	5	_	_	_	_	_	S	O	_	_	_	_	_
W93	BUCHANAN N.	345	EASTVIEW 2N	345	Y	Y	30	I	_	_	_	_	I	S	_	_	I	_	_
W97	BUCHANAN S.	345	MILLWOOD	345	Y	Y	5	I	_	_	_	_	I	S	_	_	I	_	_
W98	BUCHANAN S.	345	MILLWOOD	345	Y	Y	5	I	_	_	_	_	I	S	_	_	I	_	_
13	CLAY	345	DEWITT	345	Y	Y	5	_	S	_	I	_	_	_	_	_	I	_	_
1-16	CLAY	345	EDIC	345	Y	Y	30	O	S	_	_	_	_	_	_	I	I	_	_
2-15	CLAY	345	EDIC	345	Y	Y	30	O	S	_	_	_	_	_	_	I	I	_	_
BK 2	COOPERS CRNS	345	COOPERS CRNS	115	Y	Y	5	_	_	_	O	I	_	_	_	_	_	_	_
BK 3	COOPERS CRNS	345	COOPERS CRNS	115	Y	Y	5	_	_	_	O	I	_	_	_	_	_	_	_
CMT-34	COOPERS CRNS	345	MIDDLETWNTP	345	Y	Y	30	O	I	_	S	O	I	I	_	I	I	I	I
CRT-42	COOPERS CRNS	345	ROCK TAVERN	345	Y	Y	30	O	I	_	S	O	I	I	_	I	I	I	I
22	DEWITT	345	LAFAYETTE	345	Y	Y	5	I	S	_	I	_	_	_	_	_	I	_	_
BK 17	E.13TH ST C	345	E.RIVER	69	Y	Y	5	_	_	_	_	_	_	_	_	_	_	_	_
F38	E.FISHKIL CE	345	WOOD ST	345	Y	Y	30	I	_	_	I	I	_	S	_	_	I	_	_
F39	E.FISHKIL CE	345	WOOD ST	345	Y	Y	30	I	_	_	I	I	_	S	_	_	I	_	_
W64	EASTVIEW 1N	345	SPRAINBROOK	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
W78	EASTVIEW 1S	345	SPRAINBROOK	345	Y	Y	30	_	_	_	_	_	_	S	_	_	_	_	_
W79	EASTVIEW 2N	345	SPRAINBROOK	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
W65	EASTVIEW 2S	345	SPRAINBROOK	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
EF24-40	EDIC	345	FRASER	345	Y	Y	30	O	S	_	O	_	_	I	_	I	I	I	I
14	EDIC	345	NEW SCOTLAND	345	Y	Y	30	I	S	_	I	_	_	I	_	I	I	I	I
FE-1	FITZPATRICK	345	EDIC	345	Y	Y	30	O	O	_	_	_	_	_	_	_	_	_	_
FS-10	FITZPATRICK	345	SCRIBA	345	Y	Y	5	O	S	_	_	_	_	_	_	_	_	_	_
33	FRASER	345	COOPERS CRNS	345	Y	Y	30	I	I	_	S	I	I	I	_	I	I	I	I
BK 2	FRASER	345	FRASER	115	Y	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
GF5-35	FRASER	345	GILBOA	345	Y	Y	30	S	I	_	O	_	_	I	_	I	I	I	I
GL3	GILBOA	345	LEEDS	345	Y	Y	30	S	O	_	I	I	_	I	_	I	I	I	I
GNS-1	GILBOA	345	NEW SCOTLAND	345	Y	Y	30	S	O	_	I	_	_	I	_	I	I	I	I
37	HOMER CITY	345	STOLLE RD	345	Y	Y	30	I	I	_	O	_	_	_	_	I	O	_	_
30	HOMER CITY	345	WATERCURE	345	Y	Y	30	I	I	_	S	_	_	_	_	I	O	_	_
303	HURLEY AVE	345	ROSETON	345	Y	Y	30	I	I	_	_	S	_	I	_	I	I	I	I
26	INDEPENDENCE	345	CLAY	345	Y	Y	30	I	O	_	_	_	_	_	_	_	_	_	_
25	INDEPENDENCE	345	SCRIBA	345	Y	Y	5	I	O	_	_	_	_	_	_	_	_	_	_

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					iso secured	iso control	notif time	PA	NM	RG	NY	CH	OR	CE	LI	OH	PJ	NE	QH
SR1-39	KINTIGH	345	ROCHESTER	345	Y	Y	30	O	I	S	O	_	_	_	_	I	I	I	_
68	LADENTOWN	345	BOWLINE 2	345	Y	Y	5	_	_	_	_	_	S	O	_	_	_	_	_
Y88	LADENTOWN	345	BUCHANAN S.	345	Y	Y	30	I	_	_	_	I	O	S	_	I	I	I	_
67-2	LADENTOWN	345	W.HAVERSTRAW	345	Y	Y	5	_	_	_	_	_	S	O	_	_	_	_	_
4-36	LAFAYETTE	345	OAKDALE	345	Y	Y	30	I	O	_	O	_	_	_	_	I	I	I	I
95	LEEDS	345	ATHENS	345	Y	Y	30	I	S	_	I	I	_	O	_	I	I	I	I
301	LEEDS	345	HURLEY AVE	345	Y	Y	30	I	O	_	_	S	I	I	_	I	I	I	I
92	LEEDS	345	PLEASANT VALL	345	Y	Y	30	I	S	_	I	I	_	O	_	I	I	I	I
398	LONG MT	345	PLEASANT VALL	345	Y	Y	30	_	I	_	_	I	_	S	I	_	_	O	_
UCC2-41	MARCY	345	COOPERS CRNS	345	Y	Y	30	S	I	_	O	_	_	I	_	I	I	I	I
UE1-7	MARCY	345	EDIC	345	Y	Y	30	S	O	_	_	_	_	_	_	I	I	I	I
18	MARCY	345	NEW SCOTLAND	345	Y	Y	30	O	S	_	I	_	_	I	_	I	I	I	_
MTR-34	MIDDLETWNTP	345	ROCK TAVERN	345	Y	Y	5	O	I	_	S	O	I	I	_	I	I	I	I
W99	MILLWOOD	345	EASTVIEW 1N	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
W85	MILLWOOD	345	EASTVIEW 1S	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
W82	MILLWOOD	345	EASTVIEW 2S	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
2	NEW SCOTLAND	345	ALPS	345	Y	Y	30	I	S	_	_	_	_	I	_	_	_	I	_
93	NEW SCOTLAND	345	LEEDS	345	Y	Y	30	I	S	_	I	I	_	I	_	I	I	I	I
94	NEW SCOTLAND	345	LEEDS	345	Y	Y	30	I	S	_	I	I	_	I	_	I	I	I	I
NS1-38	NIAGARA	345	KINTIGH	345	Y	Y	5	S	I	I	O	_	_	_	_	I	I	I	_
BK 3	NIAGARA	345	NIAGARA	230	Y	Y	5	O	I	I	I	_	_	_	_	I	_	_	_
BK 4	NIAGARA	345	NIAGARA	230	Y	Y	30	O	I	I	I	_	_	_	_	I	_	_	_
BK 5	NIAGARA	345	NIAGARA	230	Y	Y	5	O	I	I	I	_	_	_	_	I	_	_	_
NR2	NIAGARA	345	ROCHESTER	345	Y	Y	30	S	I	I	I	_	_	_	_	I	I	I	_
8	NINE MILE PT 1	345	CLAY	345	Y	Y	30	I	S	_	_	_	_	_	_	_	_	_	_
9	NINE MILE PT 1	345	SCRIBA	345	Y	Y	5	I	S	_	_	_	_	_	_	_	_	_	_
32	OAKDALE	345	FRASER	345	Y	Y	30	I	I	_	S	_	_	_	_	_	I	_	I
BK 2	OAKDALE	345	OAKDALE	115	Y	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
BK 3	OAKDALE	345	OAKDALE	115	Y	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
17	OSWEGO	345	LAFAYETTE	345	Y	Y	5	I	S	_	I	_	_	_	_	_	_	_	_
11	OSWEGO	345	VOLNEY	345	Y	Y	5	I	S	_	_	_	_	_	_	_	_	_	_
12	OSWEGO	345	VOLNEY	345	Y	Y	5	I	S	_	_	_	_	_	_	_	_	_	_
1	PANNELL RD	345	CLAY	345	Y	Y	30	O	O	S	I	_	_	_	_	I	I	I	_
2	PANNELL RD	345	CLAY	345	Y	Y	30	O	O	S	I	_	_	_	_	I	I	I	_
F36	PLEASANT VLY	345	E.FISHKIL CE	345	Y	Y	30	I	I	_	_	I	_	S	I	_	I	I	_
F37	PLEASANT VLY	345	E.FISHKIL CE	345	Y	Y	30	I	I	_	_	I	_	S	I	_	I	I	_
F30	PLEASANT VLY	345	WOOD ST	345	Y	Y	30	I	I	_	O	I	_	S	_	_	_	I	_
F31	PLEASANT VLY	345	WOOD ST	345	Y	Y	30	I	I	_	O	I	_	S	_	_	I	I	_
W90	PLEASNTVL E.	345	DUNWOODIE	345	Y	Y	30	_	_	_	_	_	_	S	I	_	I	_	_
W89	PLEASNTVL W.	345	DUNWOODIE	345	Y	Y	30	_	_	_	_	_	_	S	I	_	I	_	_
Q35L	POLETTI	345	E.13TH ST C	345	Y	Y	5	O	_	_	_	_	_	S	_	_	_	_	_
Q35M	POLETTI	345	E.13TH ST D	345	Y	Y	5	O	_	_	_	_	_	S	_	_	_	_	_
Y94	RAMAPO	345	BUCHANAN N.	345	Y	Y	30	I	_	_	_	_	I	S	_	I	I	I	_
W72	RAMAPO	345	LADENTOWN	345	Y	Y	30	I	_	_	_	I	S	_	_	I	I	_	_
PAR3500	RAMAPO S.	345	RAMAPO	345	Y	Y	30	_	_	_	_	_	I	O	_	_	I	_	_

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					iso secured	iso control	notif time	PA	NM	RG	NY	CH	OR	CE	LI	OH	PJ	NE	QH
PAR4500	RAMAPO S.	345	RAMAPO	345	Y	Y	30	_	I	_	_	_	I	O	_	_	I	_	_
RP1	ROCHESTER	345	PANNELL RD	345	Y	Y	30	O	I	S	I	_	_	_	_	I	I	I	_
RP2	ROCHESTER	345	PANNELL RD	345	Y	Y	30	O	I	S	I	_	_	_	_	I	I	I	_
77	ROCK TAVERN	345	RAMAPO	345	Y	Y	30	I	I	_	_	O	I	S	_	I	I	I	_
305	ROSETON	345	E.FISHKIL CE	345	Y	Y	30	O	I	_	_	O	I	S	_	I	I	I	_
311	ROSETON	345	ROCK TAVERN	345	Y	Y	30	I	I	_	_	S	I	I	_	_	I	_	_
69	S.MAHWAH A	345	RAMAPO	345	Y	Y	30	_	_	_	_	_	O	S	_	_	O	_	_
70	S.MAHWAH B	345	RAMAPO	345	Y	Y	30	_	_	_	_	_	O	S	_	_	O	_	_
20	SCRIBA	345	VOLNEY	345	Y	Y	30	I	S	_	_	_	_	_	_	_	I	_	_
21	SCRIBA	345	VOLNEY	345	Y	Y	30	I	S	_	_	_	_	_	_	_	I	_	_
W75	SPRAINBROOK	345	DUNWOODIE	345	Y	Y	30	_	_	_	_	_	_	S	_	_	I	_	_
BK 3	STOLLE RD	345	STOLLE RD	115	Y	Y	5	_	I	_	O	_	_	_	_	_	I	_	_
BK 4	STOLLE RD	345	STOLLE RD	115	Y	Y	5	_	I	_	O	_	_	_	_	_	I	_	_
6	VOLNEY	345	CLAY	345	Y	Y	5	I	S	_	_	_	_	_	_	_	I	_	_
19	VOLNEY	345	MARCY	345	Y	Y	30	O	S	_	_	_	_	_	_	_	I	_	_
J3410	WALDWICK	345	S.MAHWAH A	345	Y	Y	30	_	_	_	_	_	O	S	_	_	O	_	_
K3411	WALDWICK	345	S.MAHWAH B	345	Y	Y	30	_	_	_	_	_	O	S	_	_	O	_	_
31	WATERCURE	345	OAKDALE	345	Y	Y	30	I	I	_	S	_	_	_	_	_	I	_	_
BK 1	WATERCURE	345	WATERCURE	230	Y	Y	5	_	I	_	O	_	_	_	_	_	I	_	_
W80	WOOD ST	345	MILLWOOD	345	Y	Y	5	_	_	_	O	_	_	S	_	_	I	_	_
W81	WOOD ST	345	MILLWOOD	345	Y	Y	5	_	_	_	O	_	_	S	_	_	_	_	_
Y87	WOOD ST	345	PLEASNTVL E.	345	Y	Y	30	_	_	_	O	_	_	S	_	_	_	_	_
Y86	WOOD ST	345	PLEASNTVL W.	345	Y	Y	30	_	_	_	O	_	_	O	_	_	_	_	_
BK 1	WOOD ST	345	WOOD ST	115	Y	Y	5	_	_	_	O	_	_	I	_	_	_	_	_
BK 2	WOOD ST	345	WOOD ST	115	Y	Y	5	_	_	_	O	_	_	I	_	_	_	_	_
11	ADIRONDACK	230	PORTER	230	Y	Y	30	O	S	_	_	_	_	_	_	I	_	_	_
12	ADIRONDACK	230	PORTER	230	Y	Y	30	O	S	_	_	_	_	_	_	I	_	_	_
PA27	BECK	230	NIAGARA	230	Y	Y	30	S	I	_	_	_	_	_	_	O	I	_	_
BP76	BECK	230	PACKARD	230	Y	Y	30	I	S	_	_	_	_	_	_	O	I	_	_
68	DUNKIRK	230	S.RIPLEY	230	Y	Y	30	I	S	_	I	_	_	_	_	I	O	_	_
70	E.TOWANDA	230	HILLSIDE	230	Y	Y	30	_	I	_	S	_	_	_	_	_	O	_	_
73	GARDENVILLE	230	DUNKIRK	230	Y	Y	5	_	S	_	_	_	_	_	_	_	_	_	_
74	GARDENVILLE	230	DUNKIRK	230	Y	Y	5	_	S	_	_	_	_	_	_	_	_	_	_
T8-12	GARDENVILLE	230	GARDENVILLE	230	Y	Y	5	_	I	_	S	_	_	_	_	_	_	_	_
BK 6	GARDENVILLE	230	GARDENVILLE	115	Y	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
BK 7	GARDENVILLE	230	GARDENVILLE	115	Y	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
66	GARDENVILLE	230	STOLLE RD	230	Y	Y	5	_	I	_	S	_	_	_	_	_	_	_	_
BK 3	HILLSIDE	230	HILLSIDE	115	Y	Y	5	_	_	_	O	_	_	_	_	_	I	_	_
BK 4	HILLSIDE	230	HILLSIDE	115	Y	Y	5	_	_	_	O	_	_	_	_	_	I	_	_
69	HILLSIDE	230	WATERCURE	230	Y	Y	5	_	I	_	S	_	_	_	_	_	I	_	_
79	HUNTLEY	230	GARDENVILLE	230	Y	Y	5	I	S	_	_	_	_	_	_	_	I	_	_
80	HUNTLEY	230	GARDENVILLE	230	Y	Y	5	I	S	_	_	_	_	_	_	_	_	_	_
68	MEYER	230	HILLSIDE	230	Y	Y	30	_	I	I	S	_	_	_	_	_	I	_	_
BK 4	MEYER	230	MEYER	115	Y	Y	5	_	I	I	O	_	_	_	_	_	_	_	_
MA1	MOSES	230	ADIRONDACK	230	Y	Y	30	S	I	_	_	_	_	_	_	I	_	_	_

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					iso secured	iso control	notif time	PA	NM	RG	NY	CH	OR	CE	LI	OH	PJ	NE	QH
MA2	MOSES	230	ADIRONDACK	230	Y	Y	30	S	I	_	_	_	_	_	_	I	_	_	_
MMS1	MOSES	230	MASSENA A	230	Y	Y	5	S	I	_	_	_	_	_	_	_	_	_	_
MMS2	MOSES	230	MASSENA B	230	Y	Y	5	S	I	_	_	_	_	_	_	_	_	_	_
BK 1	MOSES	230	MOSES	115	N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
BK 2	MOSES	230	MOSES	115	N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
BK 3	MOSES	230	MOSES	115	N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
BK 4	MOSES	230	MOSES	115	N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
MW1	MOSES	230	WILLIS	230	Y	Y	5	S	I	_	I	_	_	_	_	_	_	I	_
MW2	MOSES	230	WILLIS	230	Y	Y	5	S	I	_	I	_	_	_	_	_	_	I	_
N BUS TIE	NIAGARA	230	NIAGARA	230	N	Y	5	O	_	_	_	_	_	_	_	_	_	_	_
S BUS TIE	NIAGARA	230	NIAGARA	230	N	Y	5	O	_	_	_	_	_	_	_	_	_	_	_
BK T1	NIAGARA	230	NIAGARA	115	N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
BK T2	NIAGARA	230	NIAGARA	115	N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
61	NIAGARA	230	PACKARD	230	Y	Y	5	S	O	_	_	_	_	_	_	I	I	_	_
62	NIAGARA	230	PACKARD	230	Y	Y	5	S	O	_	_	_	_	_	_	I	I	_	_
64	NIAGARA	230	ROBINSON RD	230	Y	Y	5	S	I	_	O	_	_	_	_	I	I	_	_
BK 1	OAKDALE	230	OAKDALE	115	Y	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
77	PACKARD	230	HUNTLEY	230	Y	Y	5	I	S	_	_	_	_	_	_	_	I	_	_
78	PACKARD	230	HUNTLEY	230	Y	Y	5	I	S	_	_	_	_	_	_	_	I	_	_
BK 4	PLATTSBURGH A	230	PLATTSBURGH	115	N	Y	5	O	I	_	I	_	_	_	_	_	_	I	_
BK 1	PLATTSBURGH B	230	PLATTSBURGH	115	N	Y	5	O	I	_	I	_	_	_	_	_	_	I	_
30	PORTER	230	ROTTERDAM	230	Y	Y	30	I	S	_	_	_	_	_	_	_	_	I	_
31	PORTER	230	ROTTERDAM	230	Y	Y	30	I	S	_	_	_	_	_	_	_	_	I	_
BK 1	ROBINSON RD	230	ROBINSON RD	115	Y	Y	5	I	I	_	O	_	_	_	_	_	_	_	_
65	ROBINSON RD	230	STOLLE RD	230	Y	Y	5	I	I	_	S	_	_	_	_	_	I	_	_
E205W	ROTTERDAM	230	BEAR SWAMP	230	Y	Y	30	_	O	_	_	_	_	_	_	_	_	O	_
69	S.RIPLEY	230	ERIE E.	230	Y	Y	30	I	S	_	I	_	_	_	_	I	O	_	_
L33P	ST.LAW L33P	230	MOSES	230	Y	Y	30	O	I	_	_	_	_	_	_	O	_	_	_
L34P	ST.LAW L34P	230	MOSES	230	Y	Y	30	O	I	_	_	_	_	_	_	O	_	_	_
67	STOLLE RD	230	MEYER	230	Y	Y	30	I	I	I	S	_	_	_	_	I	I	_	_
71	WATERCURE	230	OAKDALE	230	Y	Y	5	_	I	_	S	_	_	_	_	_	I	_	_
WP2	WILLIS	230	PLATTSBURGH A	230	Y	Y	5	S	I	_	I	_	_	_	_	_	_	I	_
WP1	WILLIS	230	PLATTSBURGH B	230	Y	Y	5	S	I	_	I	_	_	_	_	_	_	I	_
BK 1	WILLIS	230	WILLIS	115	N	Y	5	O	I	_	I	_	_	_	_	_	_	_	_
BK 2	WILLIS	230	WILLIS	115	N	Y	5	O	I	_	I	_	_	_	_	_	_	_	_
998	CODDINGTN RD	115	ETNA	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
907	HARRISON RAD	115	ROBINSON RD	115	N	Y	5	I	I	_	O	_	_	_	_	_	_	_	_
964	HICKLING	115	RIDGE RD	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
963	HILLSIDE	115	RIDGE RD	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
943	JENNISON	115	KATTELVILLE	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
966	MEYER	115	BENNETT	115	N	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
968	MEYER	115	GREENIDGE	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
974	MILLIKEN	115	ETNA	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
975	MILLIKEN	115	ETNA	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
982	MONTOUR FLS	115	CODDINGTN RD	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_

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701	NORTH END	115	PLATTSBURGH	115	N	Y	5	O	_	_	O	_	_	_	_	_	_	_	_
939	OAKDALE	115	GOUDEY	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
943	OAKDALE	115	KATTELVILLE	115	N	Y	5	_	_	_	O	_	_	_	_	_	_	_	_
PAR3	PLATTSBURGH	115	PLATTSBURGH	115	Y	Y	5	O	I	_	I	_	_	_	_	_	_	I	_
PV20	PLATTSBURGH	115	S.HERO, VT	115	Y	Y	5	I	I	_	I	_	_	_	_	_	_	O	_
934	S.PERRY	115	MEYER	115	N	Y	5	_	_	I	O	_	_	_	_	_	_	_	_
906- 7X	STA 162	115	S.PERRY	115	N	Y	5	_	_	O	O	_	_	_	_	_	_	_	_
976	STATE ST	115	WRIGHT AVE	115	N	Y	5	_	I	I	O	_	_	_	_	_	_	_	_
BK 1	W.WOODBOURNE	115	W.WOODBOURN	69	N	Y	5	_	_	_	O	I	_	_	_	_	_	_	_
973	WRIGHT AVE	115	MILLIKEN	115	N	Y	5	_	I	_	O	_	_	_	_	_	_	_	_
REA #1	MARCY	765			N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
REA #1	MASSENA	765			N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
REA #2	MASSENA	765			N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
CAP A	COOPERS CRNS	345			N	Y	5	I	I	_	O	_	_	_	_	_	_	_	_
CAP B	COOPERS CRNS	345			N	Y	5	I	I	_	O	_	_	_	_	_	_	_	_
CAP #1	E.FISHKIL CE	345			N	Y	5	I	_	_	_	I	_	O	_	_	_	_	_
CAP #2	E.FISHKIL CE	345			N	Y	5	I	_	_	_	I	_	O	_	_	_	_	_
CAP #1	FRASER	345			N	Y	5	I	I	_	O	_	_	_	_	_	_	_	_
CAP #2	FRASER	345			N	Y	5	I	I	_	O	_	_	_	_	_	_	_	_
SVC	FRASER	345			N	Y	30	I	I	_	O	I	_	I	_	I	I	I	I
CAP #1	GILBOA	345			N	Y	5	O	_	_	_	_	_	_	_	_	_	_	_
CAP #1	MARCY	345			N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
CAP #2	MARCY	345			N	Y	5	O	I	_	_	_	_	_	_	_	_	_	_
STATCM SVC	MARCY	345			Y	Y	30	O	I	_	I	I	_	I	_	I	I	I	I
CAP #1	OAKDALE	345			Y	Y	5	I	_	_	O	_	_	_	_	_	_	_	_
CAP #1	ROCHESTER	345			N	Y	5	I	I	O	I	_	_	_	_	_	_	_	_
CAP #1	ROCK TAVERN	345			N	Y	5	I	I	_	I	O	_	I	_	_	_	_	_
CAP #2	ROCK TAVERN	345			N	Y	5	I	I	_	I	O	_	I	_	_	_	_	_
BK TA5	BUCHANAN N.	345	BUCHANAN TA5	138	Y	N	2	I	_	_	_	_	_	O	_	_	_	_	_
BK 1	CLAY	345	CLAY	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 2	CLAY	345	CLAY	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 2	DEWITT	345	DEWITT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK N1	DUNWOODIE	345	DUNWOODIE N1	138	Y	N	2	_	_	_	_	_	_	S	_	_	_	_	_
BK S1	DUNWOODIE	345	DUNWOODIE S1	138	Y	N	2	_	_	_	_	_	_	S	_	_	_	_	_
71	DUNWOODIE	345	RAINEY	345	Y	N	30	_	_	_	_	_	_	S	_	_	I	_	_
72	DUNWOODIE	345	RAINEY	345	Y	N	30	_	_	_	_	_	_	S	_	_	I	_	_
Y50	DUNWOODIE	345	SHORE RD	345	Y	N	30	I	_	_	_	_	_	S	O	_	I	I	_
BK 14	E.13TH ST A	345	E.13TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 15	E.13TH ST A	345	E.13TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
45	E.13TH ST A	345	FARRAGUT	345	Y	N	30	_	_	_	_	_	_	S	_	_	I	_	_
BK 12	E.13TH ST B	345	E.13TH ST	138	Y	N	2	I	_	_	_	_	_	O	_	_	_	_	_
BK 13	E.13TH ST B	345	E.13TH ST	138	Y	N	2	I	_	_	_	_	_	O	_	_	_	_	_
46	E.13TH ST B	345	FARRAGUT	345	Y	N	30	_	_	_	_	_	_	S	_	_	I	_	_
BK 16	E.13TH ST C	345	E.13TH ST	138	Y	N	2	I	_	_	_	_	_	O	_	_	_	_	_
B47	E.13TH ST C	345	FARRAGUT	345	Y	N	2	I	_	_	_	_	_	S	_	_	_	_	_

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BK 10	E.13TH ST D	345	E.13TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 11	E.13TH ST D	345	E.13TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
48	E.13TH ST D	345	FARRAGUT	345	Y	N	2	I	_	_	_	_	_	S	_	_	I	_	_
BK 1	E.FISHKIL CE	345	E.FISHKIL CH	115	N	N	2	_	_	_	_	O	_	I	_	_	_	_	_
BK 1	E.G.C. BNK1	345	E.GARDEN CTY	138	Y	N	30	I	_	_	_	_	_	I	O	_	_	_	_
BK 2	E.G.C. BNK2	345	E.GARDEN CTY	138	Y	N	30	I	_	_	_	_	_	I	O	_	_	_	_
PAR1	E.GARDEN CTY	345	E.G.C. BNK1	345	Y	N	2	I	_	_	_	_	_	I	O	_	_	_	_
PAR2	E.GARDEN CTY	345	E.G.C. BNK2	345	Y	N	2	I	_	_	_	_	_	I	O	_	_	_	_
BK 1N	EASTVIEW 1N	345	EASTVIEW	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 1S	EASTVIEW 1S	345	EASTVIEW	138	Y	N	2	I	_	_	_	_	_	O	_	_	_	_	_
BK 2N	EASTVIEW 2N	345	EASTVIEW	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 2S	EASTVIEW 2S	345	EASTVIEW	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 2	EDIC	345	EDIC	230	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 3	EDIC	345	EDIC	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 4	EDIC	345	EDIC	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 1	ELBRIDGE	345	ELBRIDGE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
41	FARRAGUT	345	GOWANUS N41	345	Y	N	2	I	_	_	_	_	_	S	_	_	I	_	_
42	FARRAGUT	345	GOWANUS S42	345	Y	N	2	I	_	_	_	_	_	S	_	_	I	_	_
TR11	FARRAGUT 2	345	FARRAGUT	345	Y	N	2	I	_	_	_	_	_	O	_	_	I	_	_
TA 1	FRESHKILLS	345	FRESHKILLS R	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
TB 1	FRESHKILLS	345	FRESHKILLS R	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
22	GOETHALS N.1	345	FRESHKILLS	345	Y	N	2	_	_	_	_	_	_	S	_	_	I	_	_
BK 1N	GOETHALS N.1	345	GOETHALS N.2	345	Y	N	2	_	_	_	_	_	I	O	_	_	I	_	_
BK 1	GOETHALS N.2	345	GOETHALS	230	Y	N	2	_	_	_	_	_	_	O	_	_	I	_	_
21	GOETHALS S.	345	FRESHKILLS	345	Y	N	2	_	_	_	_	_	_	S	_	_	I	_	_
G23L&M	GOETHALS S.	345	LINDEN CE	345	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
25	GOWANUS N.	345	GOETHALS N.1	345	Y	N	2	_	_	_	_	_	_	O	_	_	I	_	_
BK T2	GOWANUS N.	345	GOWANUS B	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
26	GOWANUS S.	345	GOETHALS S.	345	Y	N	2	_	_	_	_	_	_	S	_	_	I	_	_
BK T14	GOWANUS S.	345	GOWANUS D	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
B3402	HUDSON A	345	FARRAGUT 1	345	Y	N	30	I	_	_	_	_	I	S	_	_	O	_	_
C3403	HUDSON B	345	FARRAGUT 2	345	Y	N	30	I	_	_	_	_	I	S	_	_	O	_	_
BK 1	HURLEY AVE	345	HURLEY AVE	115	N	N	2	_	I	_	_	O	_	_	_	_	_	_	_
BK 114	MIDDLETWNTP	345	MIDDLETOWN	138	Y	N	2	I	_	_	I	I	O	_	_	_	_	_	_
TA 1	MILLWOOD	345	MILLWOOD	138	N	N	2	I	_	_	_	_	_	O	_	_	_	_	_
TA 2	MILLWOOD	345	MILLWOOD	138	N	N	2	I	_	_	_	_	_	O	_	_	_	_	_
R81/R82	NEW SCOTLAND	345	NEW SCOTLAND	345	N	N	2	I	O	_	_	I	_	I	_	_	_	I	_
BK 1	NEW SCOTLAND	345	NEW SCOTLAND	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 2	NEW SCOTLAND	345	NEW SCOTLAND	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 7	OSWEGO	345	OSWEGO	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 3	PANNELL RD	345	PANNELL B RD	115	Y	N	2	_	_	_	_	_	_	_	_	_	_	_	_
BK 1	PANNELL RD	345	PANNELL RD	115	N	N	2	I	I	O	I	_	_	_	_	_	_	_	_
BK 2	PANNELL RD	345	PANNELL RD	115	N	N	2	I	I	O	I	_	_	_	_	_	_	_	_
BK S1	PLEASANT VLY	345	PLEASANT VLY	115	N	N	2	_	I	_	_	O	_	I	_	_	_	_	_
BK 2	PLEASNTVL E.	345	PLEASNTVL	13	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_

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BK 1	PLEASNTVL W.	345	PLEASNTVL	13	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
61	RAINEY	345	FARRAGUT	345	Y	N	2	_	_	_	_	_	_	S	_	_	I	_	_
62	RAINEY	345	FARRAGUT	345	Y	N	2	_	_	_	_	_	_	S	_	_	I	_	_
63	RAINEY	345	FARRAGUT	345	Y	N	2	_	_	_	_	_	_	S	_	_	I	_	_
BK 8W	RAINEY	345	RAINEY 1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 8E	RAINEY	345	RAINEY 2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 1300	RAMAPO	345	RAMAPO	138	N	N	2	_	_	_	_	_	O	I	_	_	_	_	_
BK 2300	RAMAPO	345	RAMAPO	138	N	N	2	_	_	_	_	_	O	I	_	_	_	_	_
1	REYNOLDS RD	345	ALPS	345	N	N	2	I	S	_	_	_	_	_	_	_	_	I	_
BK 2	REYNOLDS RD	345	REYNOLDS RD	115	N	N	2	I	O	_	_	_	_	_	_	_	_	I	_
BK 1	ROCHESTER	345	STA 80	115	N	N	2	I	I	O	I	_	_	_	_	_	_	_	_
BK 2	ROCHESTER	345	STA 80	115	N	N	2	I	I	O	I	_	_	_	_	_	_	_	_
BK 3	ROCHESTER	345	STA 80	115	N	N	2	I	I	O	I	_	_	_	_	_	_	_	_
BK TR1	ROCK TAVERN	345	ROCK TAVERN	115	N	N	2	_	I	_	_	O	I	I	_	_	_	_	_
BK TR3	ROCK TAVERN	345	ROCK TAVERN	115	Y	N	2	_	_	_	_	_	_	_	_	_	_	_	_
BK 258	S.MAHWAH A	345	S.MAHWAH	138	N	N	2	_	_	_	_	_	O	I	_	_	_	_	_
BK 1	SHORE RD	345	SHORE RD	138	Y	N	30	_	_	_	_	_	_	I	O	_	_	_	_
BK 2	SHORE RD	345	SHORE RD	138	Y	N	30	_	_	_	_	_	_	I	O	_	_	_	_
BK S6	SPRAINBROOK	345	DUNWOODIE N2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK N7	SPRAINBROOK	345	DUNWOODIE S3	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
Y49	SPRAINBROOK	345	E.GARDEN CTY	345	Y	N	30	O	_	_	_	_	_	O	S	_	_	I	_
X28	SPRAINBROOK	345	TREMONT	345	Y	N	30	_	_	_	_	_	_	S	_	_	I	_	_
M51	SPRAINBROOK	345	W.49TH ST	345	Y	N	30	I	_	_	_	_	_	S	_	_	I	_	_
M52	SPRAINBROOK	345	W.49TH ST	345	Y	N	30	I	_	_	_	_	_	S	_	_	I	_	_
M54	W.49TH ST	345	E.13TH ST A	345	Y	N	30	I	_	_	_	_	_	S	_	_	I	_	_
M55	W.49TH ST	345	E.13TH ST B	345	Y	N	30	I	_	_	_	_	_	S	_	_	I	_	_
BK 194	W.HAVERSTRAW	345	W.HAVERSTRAW	138	N	N	2	_	_	_	_	_	O	I	_	_	_	_	_
BK 31	DUNKIRK	230	DUNKIRK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK 41	DUNKIRK	230	DUNKIRK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK 2	GARDENVILLE	230	GARDENVILLE	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
BK 3	GARDENVILLE	230	GARDENVILLE	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
BK 4	GARDENVILLE	230	GARDENVILLE	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
BK 130	HUNTLEY	230	HUNTLEY	23	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK 140	HUNTLEY	230	HUNTLEY	23	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
A2253	LINDEN	230	GOETHALS	230	Y	N	30	_	_	_	_	_	_	S	_	_	I	_	_
BK 2	PACKARD	230	PACKARD	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 3	PACKARD	230	PACKARD	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 4	PACKARD	230	PACKARD	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 1	PORTER	230	PORTER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK 2	PORTER	230	PORTER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK 6	ROTTERDAM	230	ROTTERDAM	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 7	ROTTERDAM	230	ROTTERDAM	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
BK 8	ROTTERDAM	230	ROTTERDAM	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
34124L	ASTORIA E	138	ASTORIA 4	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34125L	ASTORIA E	138	ASTORIA 5	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_

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34181	ASTORIA E	138	CORONA	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34182	ASTORIA E	138	CORONA	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34183	ASTORIA E	138	CORONA	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34184	ASTORIA E	138	CORONA	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34185	ASTORIA E	138	CORONA	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34186	ASTORIA E	138	CORONA	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24121	ASTORIA W	138	ASTORIA 3	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24122	ASTORIA W	138	ASTORIA 3	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24124M	ASTORIA W	138	ASTORIA 4	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24125M	ASTORIA W	138	ASTORIA 5	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
28241	ASTORIA W	138	QUEENS BRDG	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
28242	ASTORIA W	138	QUEENS BRDG	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
28243	ASTORIA W	138	QUEENS BRDG	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
28244	ASTORIA W	138	QUEENS BRDG	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
PAR	BARRETT 1	138	BARRETT 2	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
459	BARRETT 1	138	FREEPORT	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
864	BROOKHAVEN	138	RIVERHEAD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
95891	BUCHANAN GT	138	BUCHANAN TA5	138	N	N	2	I	_	_	_	_	_	O	_	_	_	_	_
96951	BUCHANAN GT	138	MILLWOOD	138	N	N	2	I	_	_	_	_	_	O	_	_	_	_	_
96952	BUCHANAN GT	138	MILLWOOD	138	N	N	2	I	_	_	_	_	_	O	_	_	_	_	_
702	BURNS	138	HARING CRNS	138	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
883	CENT. ISLIP	138	RONKONKOMA	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
18001	CORONA PAR1	138	JAMAICA	138	Y	N	2	_	_	_	_	_	_	O	I	_	_	_	_
18002	CORONA PAR2	138	JAMAICA	138	Y	N	2	_	_	_	_	_	_	O	I	_	_	_	_
BK N1	DUNWOODIE N1	138	DUNWOODIE N3	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK N2	DUNWOODIE N1	138	DUNWOODIE N4	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
99997 TIE	DUNWOODIE N1	138	DUNWOODIE S1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
99941	DUNWOODIE N2	138	DUNWOODIE N1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
99031	DUNWOODIE N3	138	SHERMAN CRK	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
99032	DUNWOODIE N4	138	SHERMAN CRK	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK S1	DUNWOODIE S1	138	DUNWOODIE S2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK S2	DUNWOODIE S1	138	DUNWOODIE S2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
99153	DUNWOODIE S2	138	E.179TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
99942	DUNWOODIE S3	138	DUNWOODIE S1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
15054	E.179TH ST	138	HELLGATE 1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
15053	E.179TH ST	138	HELLGATE 4	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
15055	E.179TH ST	138	HELLGATE 6	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X01	E.179TH ST	138	PARKCHESTR1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X02	E.179TH ST	138	PARKCHESTR2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X04	E.179TH ST	138	PARKCHESTR3	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X03	E.179TH ST	138	PARKCHESTR4	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
361	E.GARDEN CTY	138	CARLE PLACE	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
462	E.GARDEN CTY	138	NEWBRIDGE RD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
463	E.GARDEN CTY	138	NEWBRIDGE RD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
465	E.GARDEN CTY	138	NEWBRIDGE RD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_

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362	E.GARDEN CTY	138	ROSLYN	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
32078	FARRAGUT HUD	138	HUDSON AVE D	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
29211-1	FOXHILLS 1	138	WILLOWBROOK	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
29212-1	FOXHILLS 2	138	WILLOWBROOK	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
461	FREEPORT	138	NEWBRIDGE RD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
PSR 1	FRESHKILS AK	138	FRESHKILLS R	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
PSR 2	FRESHKILS AK	138	FRESHKILLS R	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
366-1	GLENWOOD GT	138	GLENWOOD N	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
364	GLENWOOD GT	138	ROSLYN	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
363	GLENWOOD S	138	CARLE PLACE	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
42231	GOWANUS A	138	GREENWOOD	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
42232	GOWANUS C	138	GREENWOOD	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
674	GREENLAWN	138	ELWOOD E	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
29231	GREENWOOD	138	FOXHILLS 1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
29232	GREENWOOD	138	FOXHILLS 2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
889	HAUPPAUGE	138	CENT. ISLIP	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
34052	HELLGATE 1	138	ASTORIA E	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24054	HELLGATE 2	138	ASTORIA W	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24053	HELLGATE 3	138	ASTORIA W	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
34051	HELLGATE 4	138	ASTORIA E	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24051	HELLGATE 5	138	ASTORIA W	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
24052	HELLGATE 6	138	ASTORIA W	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
887	HOLBROOK	138	BROOKHAVEN	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
888	HOLBROOK	138	HOLTSVILLE	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
874	HOLTSVILLE	138	BROOKHAVEN	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
818	HOLTSVILLE	138	UNION AVE	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
32711	HUDSON AVE A	138	HUDSON AVE D	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
32077	HUDSON AVE B	138	HUDSON AVE D	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
701	HUDSON AVE D	138	JAMAICA	138	Y	N	2	_	_	_	_	_	_	O	I	_	_	_	_
702	HUDSON AVE D	138	JAMAICA	138	Y	N	2	_	_	_	_	_	_	O	I	_	_	_	_
903	JAMAICA	138	LK SUCCESS W	138	Y	N	30	_	_	_	_	_	_	O	O	_	_	_	_
901 L&M	JAMAICA	138	VALLEY STR 1	138	Y	N	30	_	_	_	_	_	_	O	O	_	_	_	_
PAR	LK SUCCESS E	138	LK SUCCESS W	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
563	NEWBRIDGE RD	138	PILGRIM 1	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
561	NEWBRIDGE RD	138	RULAND	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
562	NEWBRIDGE RD	138	RULAND	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
672	NORTHPORT E	138	PILGRIM 1	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
677	NORTHPORT E	138	PILGRIM 1	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
679	NORTHPORT E	138	PILGRIM 2	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
PAR 1	NORTHPORT NE	138	NORTHPORT E	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	I	_
681	NORTHPORT W	138	ELWOOD E	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
678	NORTHPORT W	138	ELWOOD W	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
PS2	NORTHPORT W	138	NORTHPORT E	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
1385	NORWALK HARB	138	NORTHPORT NE	138	Y	N	30	_	_	_	_	_	_	I	S	_	_	O	_
673	OAKWOOD	138	ELWOOD W	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_

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675	OAKWOOD	138	SYOSSET	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
871	PILGRIM 2	138	HAUPPAUGE	138	Y	N	2	_	_	_	_	_	_	_	_	_	_	_	_
881	PILGRIM 2	138	HOLTSVILLE	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
PAR	PILGRIM 2	138	PILGRIM 1	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
862	PORT JEFF	138	HOLBROOK	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
886	PORT JEFF	138	HOLBROOK	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
31281	QUEENS BRDG	138	VERNON	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
31282	QUEENS BRDG	138	VERNON	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
36312	RAINEY 1	138	VERNON	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
36311	RAINEY 2	138	VERNON	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
26 / BK 7108	RAMAPO	138	SUGARLOAF	69	N	N	2	_	_	_	_	_	O	_	_	_	_	_	_
875	RONKONKOMA	138	HOLBROOK	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
882	RULAND	138	HOLBROOK	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
661	RULAND	138	PILGRIM 1	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
662	RULAND	138	PILGRIM 2	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
15031	SHERMAN CRK	138	E.179TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
15032	SHERMAN CRK	138	E.179TH ST	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
366-2	SHORE RD	138	GLENWOOD N	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
365	SHORE RD	138	GLENWOOD S	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
367	SHORE RD	138	LK SUCCESS E	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
368	SHORE RD	138	LK SUCCESS E	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
861	SHOREHAM	138	BROOKHAVEN	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
885	SHOREHAM	138	HOLBROOK	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
863	SHOREHAM	138	WILDWOOD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
676	SYOSSET	138	GREENLAWN	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
558	SYOSSET	138	LOCUST GROVE	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
559	SYOSSET	138	LOCUST GROVE	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
38X01	TREMONT 11E	138	PARKCHESTR1	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X02	TREMONT 11E	138	PARKCHESTR2	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 11	TREMONT 11E	138	TREMONT 11W	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X04	TREMONT 12E	138	PARKCHESTR3	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
38X03	TREMONT 12E	138	PARKCHESTR4	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
BK 12	TREMONT 12E	138	TREMONT 12W	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
291	VALLEY STR 1	138	BARRETT 1	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
PAR	VALLEY STR 1	138	VALLEY STR 2	138	Y	N	2	_	_	_	_	_	_	I	O	_	_	_	_
292	VALLEY STR 2	138	BARRETT 2	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
262	VALLEY STR 2	138	E.GARDEN CTY	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
31231	VERNON	138	GREENWOOD	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
31232	VERNON	138	GREENWOOD	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
31232-1	VERNON	138	KENT AVE	138	Y	N	2	_	O	_	O	I	_	_	_	_	_	_	_
31231-1	VERNON	138	KENT AVE B	138	Y	N	2	_	_	_	_	_	_	_	_	_	_	_	_
884	WADING RIV	138	HOLBROOK	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
891	WADING RIV	138	SHOREHAM	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
890	WILDWOOD	138	RIVERHEAD	138	Y	N	2	_	_	_	_	_	_	_	O	_	_	_	_
29211-2	WILLOWBROOK	138	FRESHKILS AK	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_

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29212-2	WILLOWBROOK	138	FRESHKILS AK	138	Y	N	2	_	_	_	_	_	_	O	_	_	_	_	_
1	ALBANY	115	GREENBUSH	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	ALBANY	115	GREENBUSH	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
12	ALCOA	115	DENNISON	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
13	ALCOA	115	N.OGDENSBURG	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
R8105	ALCOA N.	115	ALCOA	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
20	ALTAMONT	115	NEW SCOTLAND	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
157(932)	ANDOVER	115	PALMITER RD	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
700	ASHLEY RD	115	PLATTSBURGH	115	N	N	2	O	_	_	O	_	_	_	_	_	_	_	_
5(972)	AUBURN (STATE S	115	ELBRIDGE	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
117	BATAVIA	115	SE.BATAVIA	115	N	N	2	I	O	_	I	_	_	_	_	_	_	_	_
953	BATH	115	BENNETT	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
965	BATH	115	MONTOUR FLS	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
BL104	BECK	115	LOCKPORT	115	N	N	2	I	O	_	_	_	_	_	_	O	_	_	_
932	BENNETT	115	PALMITER	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
18	BETHLEHEM	115	ALBANY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
6	BLACK RIVER	115	LIGHTHOUSE HIL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
1	BLACK RIVER	115	TAYLORVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	BLACK RIVER	115	TAYLORVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
8	BLUE CIRCLE CE	115	PLEASANT VALL	115	N	N	2	_	O	_	_	O	_	_	_	_	_	_	_
1	BOONVILLE	115	PORTER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	BOONVILLE	115	PORTER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
969	BORDER CITY	115	GREENIDGE	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
1	BRAINARDSVILLE	115	KENTS FLS	115	N	N	2	O	I	_	O	_	_	_	_	_	_	_	_
3	BROWNS FALLS	115	TAYLORVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
4	BROWNS FALLS	115	TAYLORVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
15	CARR ST	115	DEWITT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
6	CEDAR	115	WHITEHALL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
6	CEDAR	115	WHITEHALL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
1/11	CEDARS	115	DENNISON	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
2/22	CEDARS	115	DENNISON	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
DW-1	CHADWICK	115	DANSKAMMER	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
DW-2	CHADWICK	115	E.WALDEN	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
DW-3	CHADWICK	115	W.BALMVILLE	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
3	CLAY	115	DEWITT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
5	CLAY	115	DEWITT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
14	CLAY	115	GE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
10	CLAY	115	TEALL AVE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
11	CLAY	115	TEALL AVE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
17	CLAY	115	WOODARD	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
15	CLINTON	115	ING-MECOTAP	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
981-1	CODDINGTN RD	115	E.ITHACA	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
3	COFFEEN	115	BLACK RIVER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
5	COFFEEN	115	LIGHTHOUSE HIL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
929	COLLIERS	115	RICHFIELD SPRI	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_

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7	COLTON	115	BATTLE HILL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
1	COLTON	115	BROWNS FALLS	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	COLTON	115	BROWNS FALLS	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
3	COLTON	115	MALONE	115	N	N	2	I	O	_	I	_	_	_	_	_	_	_	_
950	COOPERS CRNS	115	FERNDALE	115	N	N	2	_	_	_	O	I	_	_	_	_	_	_	_
957	COOPERS CRNS	115	W.WOODBOURN	115	N	N	2	_	_	_	O	I	_	_	_	_	_	_	_
1(947)	CORTLAND	115	ETNA	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
991/995	CROTON FLS	115	AMAWALK	115	N	N	2	_	_	_	O	I	_	_	_	_	_	_	_
994/990	CROTON FLS	115	SYLVAN LK	115	N	N	2	_	_	_	O	O	_	_	_	_	_	_	_
991/992	CROTON FLS	115	WOOD ST	115	N	N	2	_	_	_	O	I	_	_	_	_	_	_	_
13	CURTIS ST.	115	TEALL AVE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
AC	DANSKAMMER	115	N.CHELSEA	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
DC	DANSKAMMER	115	N.CHELSEA	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
DR	DANSKAMMER	115	REYNOLDS HL	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
DB	DANSKAMMER	115	W.BALMVILLE	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
903	DAVIS RD	115	GARDENVILLE	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
927	DAVIS RD	115	STOLLE RD	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
951-1	DELHI	115	DELHI TAP	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
949	DELHI	115	JENNISON	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
919	DELHI	115	OAKDALE	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
951-2	DELHI TAP	115	COLLIERS	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
4	DENNISON	115	COLTON	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
5	DENNISON	115	COLTON	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
19	DEWITT	115	TILDEN	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
160	DUNKIRK	115	FALCONER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
161	DUNKIRK	115	FALCONER	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
162	DUNKIRK	115	FALCONER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
J	E. WALDEN	115	ROCK TAVERN	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
981-2	E.ITHACA	115	ETNA	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
LR-2	E.KINGSTON	115	RHINEBECK	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
946	E.NORWICH	115	JENNISON	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
956	E.SAYRE	115	N.WAVERLY	115	N	N	2	_	_	_	O	_	_	_	_	_	O	_	_
PX-1	E.WALDEN	115	MODENA	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
D	E.WALDEN	115	ROCK TAVERN	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
18	ELBRIDGE	115	GERES LOCK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
19	ELBRIDGE	115	GERES LOCK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
3	ELBRIDGE	115	GERES LOCK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
4	ELBRIDGE	115	WOODWARD	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
926	ERIE ST	115	STOLLE RD	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
945-2	ETNA	115	WILLET	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
153	FALCONER	115	HOMER HILL	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
154	FALCONER	115	HOMER HILL	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
171	FALCONER	115	WARREN	115	N	N	2	_	O	_	I	_	_	_	_	_	O	_	_
959	FERNDALE	115	W.WOODBOURN	115	N	N	2	_	_	_	O	I	_	_	_	_	_	_	_
2	FEURA BUSH	115	N.CATSKILL	115	N	N	2	_	O	_	_	O	_	_	_	_	_	_	_

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HF	FISHKILL PLN	115	E.FISHKIL CH	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
A/990	FISHKILL PLN	115	SYLVAN LK	115	N	N	2	_	_	_	O	O	_	_	_	_	_	_	_
3	FITZPATRICK	115	LIGHTHOUSE HIL	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
951-T	FRASER	115	DELHI TAP	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
4	FULTON	115	CLAY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
141	GARDENVILLE	115	DUNKIRK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
142	GARDENVILLE	115	DUNKIRK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
54(921)	GARDENVILLE	115	ERIE ST	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
151	GARDENVILLE	115	HOMER HILL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
152	GARDENVILLE	115	HOMER HILL	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
925	GARDENVILLE	115	STOLLE RD	115	N	N	2	_	I	_	O	_	_	_	_	_	_	_	_
8	GE	115	GERES LOCK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
15(979)	GENEVA(BORDER	115	ELBRIDGE	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
16	GERES LOCK	115	TILDEN	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
908	GINNA	115	PANNELL RD	115	N	N	2	_	I	O	_	_	_	_	_	_	_	_	_
912	GINNA	115	PANNELL RD	115	N	N	2	_	I	O	_	_	_	_	_	_	_	_	_
911-1	GINNA	115	STA 204A	115	N	N	2	_	_	O	_	_	_	_	_	_	_	_	_
913	GINNA	115	STATION 42	115	N	N	2	_	_	O	_	_	_	_	_	_	_	_	_
15	GREENBUSH	115	HUDSON	115	N	N	2	_	O	_	_	I	_	_	_	_	_	_	_
13	GREENBUSH	115	SCHODACK	115	N	N	2	_	O	_	O	I	_	_	_	_	_	_	_
967	GREENIDGE	115	MONTOUR FLS	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
970	GREENIDGE	115	MONTOUR FLS	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
908	HARRISON RAD	115	HINMAN	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
960/958	HICKLING	115	HILLSIDE	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
962-1	HILLSIDE	115	N.WAVERLY	115	N	N	2	_	_	_	O	_	_	_	_	_	I	_	_
157	HOMER HILL	115	ANDOVER	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
6	HOOSICK	115	BENNINGTON	115	N	N	2	_	O	_	_	_	_	_	_	_	_	O	_
12	HUDSON	115	PLEASANT VALL	115	N	N	2	_	O	_	_	O	_	_	_	_	_	_	_
38	HUNTLEY	115	GARDENVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
39	HUNTLEY	115	GARDENVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
36	HUNTLEY	115	LOCKPORT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
37	HUNTLEY	115	LOCKPORT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
HP	HURLEY AVE	115	LINCOLN PARK	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
OR-1	HURLEY AVE	115	OHIOVILLE	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
2	INDECK	115	LIGHTHOUSE HIL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
15	INGHAMS	115	MECO	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
7(942)	INGHAMS	115	RICHFIELD SPRI	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
9	INGHAMS	115	STONER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
PAR 2	INGHAMS CD	115	INGHAMS ED	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
R81	INGHAMS CD	115	INGHAMS ED	115	Y	N	2	_	O	_	_	_	_	_	_	_	_	_	_
954	JENNISON	115	HANCOCK	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
1-KS	KENTS FLS	115	SARANAC	115	N	N	2	I	_	_	O	_	_	_	_	_	_	_	_
MC	KNAPPS CRN	115	MANCHESTER A	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
952	LAUREL LK	115	GOUDEY	115	N	N	2	_	_	_	O	_	_	_	_	_	O	_	_
7	LIGHTHOUSE HILL	115	CLAY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_

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LR-1	LINCOLN PARK	115	E.KINGSTON	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
107	LOCKPORT	115	BATAVIA	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
108	LOCKPORT	115	BATAVIA	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
112	LOCKPORT	115	BATAVIA	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
100	LOCKPORT	115	HINMAN	115	N	N	2	I	O	_	O	_	_	_	_	_	_	_	_
111	LOCKPORT	115	MORTIMER	115	N	N	2	I	O	I	_	_	_	_	_	_	_	_	_
113	LOCKPORT	115	MORTIMER	115	N	N	2	I	O	I	_	_	_	_	_	_	_	_	_
114	LOCKPORT	115	MORTIMER	115	N	N	2	I	O	I	_	_	_	_	_	_	_	_	_
6	MCINTYRE	115	BATTLE HILL	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
10	MECO	115	ROTTERDAM	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
10	MILAN	115	PLEASANT VALL	115	N	N	2	_	O	_	_	O	_	_	_	_	_	_	_
MR	MILAN	115	RHINEBECK	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
PX-2	MODENA	115	OHIOVILLE	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
963-2	MONTOUR FLS	115	RIDGE RD	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
978-2	MONTOUR FLS	115	RIDGE RD	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
1	MORTIMER	115	ELBRIDGE	115	N	N	2	I	O	I	I	_	_	_	_	_	_	_	_
2	MORTIMER	115	ELBRIDGE	115	N	N	2	I	O	_	I	_	_	_	_	_	_	_	_
110	MORTIMER	115	GOLAH	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
24	MORTIMER	115	PANNELL RD	115	N	N	2	_	O	O	I	_	_	_	_	_	_	_	_
25	MORTIMER	115	PANNELL RD	115	N	N	2	_	O	O	I	_	_	_	_	_	_	_	_
904	MORTIMER	115	ROCHESTER(ST	115	N	N	2	I	O	O	_	_	_	_	_	_	_	_	_
901	MORTIMER	115	STA 33	115	N	N	2	_	O	O	_	_	_	_	_	_	_	_	_
7X8272	MORTIMER	115	STA 82	115	N	N	2	_	O	O	_	_	_	_	_	_	_	_	_
MAL4	MOSES	115	ALCOA N.	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
MAL6	MOSES	115	ALCOA N.	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
MAL5	MOSES	115	ALCOA S.	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
103	MOUNTAIN	115	LOCKPORT	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
120	MOUNTAIN	115	NIAGARA	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
5	N. TROY	115	HOOSICK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	I	_
T7	N.CATSKILL	115	MILAN	115	N	N	2	_	O	_	_	O	_	_	_	_	_	_	_
NF	N.CHELSEA	115	FISHKILL PLN	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
9	N.OGDENSBURG	115	MCINTYRE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
16	N.TROY	115	REYNOLDS RD	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
14	N.TROY	115	WYNANTSKILL	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
8	NEW SCOTLAND	115	ALBANY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
4	NEW SCOTLAND	115	BETHLEHEM	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
3	NEW SCOTLAND	115	FEURA BUSH	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
9	NEW SCOTLAND	115	FEURA BUSH	115	N	N	2	_	O	_	_	I	_	_	_	_	_	_	_
7	NEW SCOTLAND	115	LONG LANE	115	N	N	2	_	O	_	_	I	_	_	_	_	_	_	_
180	NIAGARA	115	GARDENVILLE	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
101	NIAGARA	115	LOCKPORT	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
102	NIAGARA	115	LOCKPORT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
191	NIAGARA	115	PACKARD	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
192	NIAGARA	115	PACKARD	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
193	NIAGARA	115	PACKARD	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_

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194	NIAGARA	115	PACKARD	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
195	NIAGARA	115	PACKARD	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
4	NINE MILE PT 1	115	FITZPATRICK	115	N	N	2	O	O	_	_	_	_	_	_	_	_	_	_
702	NORTHEND	115	ASHLEY RD	115	N	N	2	I	_	_	O	_	_	_	_	_	_	_	_
OR-2	OHIOVILLE	115	REYNOLDS HL	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
3	ONEIDA	115	CORTLAND	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
7	ONEIDA	115	PORTER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
6	ONEIDA	115	YAHNUNDASIS	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
3	OSWEGO	115	S.OSWEGO	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
5	OSWEGO	115	S.OSWEGO	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
8	OSWEGO	115	S.OSWEGO	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
181(922)	PACKARD	115	ERIE ST.	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
182	PACKARD	115	GARDENVILLE	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
130	PACKARD	115	HUNTLEY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
129	PACKARD	115	WALCK RD	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
4(977)	PANNELL RD	115	GENEVA (BORDE	115	N	N	2	_	O	O	O	_	_	_	_	_	_	_	_
PS1	PLATTSBURGH	115	SARANAC	115	N	N	2	O	I	_	I	_	_	_	_	_	_	_	_
C/A	PLEASANT VLY	115	FISHKILL PLN	115	N	N	2	_	_	_	I	O	_	_	_	_	_	_	_
X-1	PLEASANT VLY	115	INWOOD	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
M	PLEASANT VLY	115	MANCHESTER A	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
4	PORTER	115	VALLEY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
5	PORTER	115	WATKINS RD	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
930	QUAKER RD	115	MACEDON	115	N	N	2	_	_	O	O	_	_	_	_	_	_	_	_
914	QUAKER RD	115	PANNELL RD	115	N	N	2	_	I	O	_	_	_	_	_	_	_	_	_
13(980)	QUAKER RD	115	SLEIGHT RD	115	N	N	2	_	O	O	O	_	_	_	_	_	_	_	_
X-2	REYNOLDS HL	115	INWOOD	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
9	REYNOLDS RD	115	GREENBUSH	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
978-1	RIDGE RD	115	HILLSIDE	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
SL	ROCK TAVERN	115	SUGARLOAF	115	N	N	2	_	_	_	_	O	I	_	_	_	_	_	_
17	ROTTERDAM	115	ALTAMONT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
13	ROTTERDAM	115	NEW SCOTLAND	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
19	ROTTERDAM	115	NEW SCOTLAND	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
1	ROTTERDAM	115	SPIER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	ROTTERDAM	115	SPIER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
7	S. OSWEGO	115	FULTON	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
10	S.OSWEGO	115	CURTIS ST.	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
9	S.OSWEGO	115	GERES LOCK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
6	S.OSWEGO	115	INDECK	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
1	S.OSWEGO	115	NINE MILE PT 1	115	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
961	S.OWEGO	115	GOUDEY	115	N	N	2	_	_	_	O	_	_	_	_	_	I	_	_
962-2	S.OWEGO	115	N.WAVERLY	115	N	N	2	_	_	_	O	_	_	_	_	_	I	_	_
933	S.PERRY	115	MEYER	115	N	N	2	_	_	I	O	_	_	_	_	_	_	_	_
14	SCHODACK	115	CHURCHTOWN	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
119	SE.BATAVIA	115	GOLAH	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
EF	SHENANDOAH	115	E.FISHKIL CH	115	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_

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906	STA 162	115	STA 82	115	N	N	2	_	I	O	I	_	_	_	_	_	_	_	_
911-2	STA 204A	115	STA 42	115	N	N	2	_	_	O	_	_	_	_	_	_	_	_	_
922	STA 67	115	STA 80	115	N	N	2	I	I	O	_	_	_	_	_	_	_	_	_
903	STA 67	115	STA 82	115	N	N	2	_	I	O	_	_	_	_	_	_	_	_	_
23	STA 82	115	QUAKER RD	115	N	N	2	_	O	O	I	_	_	_	_	_	_	_	_
902	STA 82	115	STA 33	34	N	N	2	_	I	O	_	_	_	_	_	_	_	_	_
905	STA 82	115	STA 80	115	N	N	2	_	I	O	_	_	_	_	_	_	_	_	_
12	STONER	115	ROTTERDAM	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
BK 6108	SUGARLOAF	115	SUGARLOAF	69	N	N	2	_	_	_	_	I	O	_	_	_	_	_	_
5	TAYLORVILLE	115	BOONVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
6	TAYLORVILLE	115	BOONVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
4	TEALL AVE	115	DEWITT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	TEALL AVE	115	ONEIDA	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
5	TEALL AVE	115	ONEIDA	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
10	TEMPLE	115	DEWITT	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
18	TILDEN	115	CORTLAND	115	N	N	2	_	O	_	I	_	_	_	_	_	_	_	_
3	VALLEY	115	INGHAMS	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
133	WALCK RD	115	HUNTLEY	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
2	WATKINS RD	115	INGHAMS	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
7	WHITEHALL	115	BLISSVILLE	115	N	N	2	_	O	_	_	_	_	_	_	_	_	O	_
13	WHITEHALL	115	MOHICAN	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
945-1	WILLET	115	E.NORWICH	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
1	WILLIS	115	BRAINARDSVILL	115	N	N	2	O	I	_	O	_	_	_	_	_	_	_	_
1(910)	WILLIS	115	MALONE	115	N	N	2	O	O	_	O	_	_	_	_	_	_	_	_
996	WOOD ST	115	AMAWALK	115	N	N	2	_	_	_	O	_	_	_	_	_	_	_	_
13	WYNANTSKILL	115	REYNOLDS RD	115	N	N	2	_	O	_	O	_	_	_	_	_	_	_	_
3	YAHNUNDASIS	115	PORTER	115	N	N	2	_	O	_	_	_	_	_	_	_	_	_	_
WH1-1	HONK FLS	69	NEVERSINK B	69	N	N	2	_	_	_	I	O	_	_	_	_	_	_	_
WH2	HONK FLS	69	W.WOODBOURN	69	N	N	2	_	_	_	O	O	_	_	_	_	_	_	_
WH1-2	NEVERSINK A	69	NEVERSINK B	69	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
WH1-3	NEVERSINK B	69	W.WOODBOURN	69	N	N	2	_	_	_	_	O	_	_	_	_	_	_	_
690	SMITHFIELD	69	FALLS VILLGE	69	Y	N	2	_	_	_	_	O	_	_	_	_	_	O	_
R1	DUNWOODIE	345			N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
SR #1 REAC	E.GARDEN CTY	345			N	N	2	O	_	_	_	_	_	I	O	_	_	_	_
SR #2 REAC	E.GARDEN CTY	345			N	N	2	O	_	_	_	_	_	I	O	_	_	_	_
REA #25	GOETHALS N.1	345			N	N	2												O
REA #1	GOETHALS S.	345			N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
REA #26	GOETHALS S.	345			N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
R18	GOWANUS	345			N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
R41 S.REACT	GOWANUS	345			N	N	2	_	_	_	_	_	_	O_	_	_	_	_	_
R42 S.REACT	GOWANUS	345			N	N	2	_	_	_	_	_	_	O_	_	_	_	_	_
R6	GOWANUS	345			N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
CAP #1	LEEDS	345			N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
CAP #2	LEEDS	345			N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
SVC	LEEDS	345			N	N	30	I	O	_	I	I	_	I	_	I	I	I	I

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			iso secured	iso control	notif time	PA	NM	RG	NY	CH	OR	CE	LI	OH	PJ	NE	QH
CAP #1	NEW SCOTLAND	345	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
CAP #2	NEW SCOTLAND	345	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
CAP #3	NEW SCOTLAND	345	N	N	2	I	O	_	_	_	_	_	_	_	_	_	_
RSR61	POLETTI	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
RSR62	POLETTI	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
R1	SHORE RD	345	N	N	2	_	_	_	_	_	_	_	O	_	_	_	_
2N1 REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
2N2 REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
4S1 REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
4S2 REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
5S1 REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
5S2 REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_
S6A REACT	SPRAINBROOK	345	N	N	2	_	_	_	_	_	_	O	_	_	_	_	_

A.2 - Bus Voltage Limits for NYISO Secured Transmission System

	Bus Name	Pre Low	Pre High	Post Low	Post High	Set By
	Bowline 345	345	362	328	362	OR
	Buchanan 345	346	362	328	380	CE
	Clay 345	345	362	328	362	NM
	Coopers Corners 345	338	362	328	380	NY
	Dunwoodie 345	346	362	328	380	CE
(1)	Edic 345	347	362	328	362	NM
	Farragut 345	338	362	328	380	CE
	Fraser 345	338	362	328	380	NY
	Gardenville 230	217	242	207	242	NY
	Gilboa 345	348	362	328	362	PA
	Goethals 345	338	362	328	380	CE
	Gowanus 345	338	362	328	380	CE
	Ladentown 345	346	362	328	380	CE
	Leeds 345	345	362	328	372	NM
(1)	Marcy 345	348	362	328	380	PA
	Millwood 345	338	362	328	380	CE
	New Scotland 345	348	362	328	362	NM
	Niagara 230	225	242	219	242	PA
	Niagara 345	338	362	328	362	PA
	Northport 138	135	145	131	145	LI
	Oakdale 345	336	362	320	380	NY
	Pannell Road 345	see A.3	359	328	362	RG
	Pleasant Valley 345	343	362	328	380	CE
	Rainey 345	338	362	328	380	CE
	Ramapo 345	346	362	328	380	CE
	Ramapo 500	500	550	500	575	CE
	Rock Tavern 345	348	362	328	362	CH
	Roseton 345	345	362	328	362	CH
	Somerset 345	338	362	328	380	NY
	Sprainbrook 345	346	362	328	380	CE
	Station 80 345	see A.3	359	328	362	RG
	St Lawrence 230	225	242	219	242	PA
	Watercure 230	215	242	207	242	NY

Notes:
(1) Marcy 345 kV bus voltage is reduced to 345 kV prior to energizing the Massena-Marcy 765 kV MSU-1 line. By exception, Marcy and Edic voltages are allowed below their pre-contingency low limits for this condition.

A.3 - Bus Voltage Limits for HQ-NYISO Transfers

NYS Power System Status	Pre-contingency Low Bus Voltage Limits		
	Pannell Rd 345 kV	**Station 80 345 kV**	**Oakdale 345 kV**
HQ-NYCA transfer on 7040 is:			
-1000 to +1000 MW	341 kV	343 kV	--
+1000 to +1350 MW	341 kV	343 kV	--
+1351 to +1850 MW	344 kV	344 kV	--
+1851 to +2000 MW	345 kV	345 kV	--
+2001 to +2350 MW	346 kV	346 kV	--
Ginna station out of service and:			
3, 4, or 5 Oswego units in service	--	344 kV	--
2 Oswego units in service	--	345 kV	--
1 Oswego unit in service	--	346 kV	--
0 Oswego units in service	--	347 kV	--
Fraser SVC out of service or 'not normal'	--	--	339 kV

Attachment – B. Operating Criteria

- B.1 Lists exceptions to operating criteria for pre-contingency and post-contingency transmission facility flows and voltages.
- B.2 Lists multiple circuit tower lines in the NYCA [MP 29-1, A].
- B.3 Lists the NYISO thunderstorm multiple contingencies [MP 29-1, B].
- B.4 Lists the local reliability rules of the New York Transmission Owners.
- B.5 Displays the applications of reliability rules and cost allocation responsibility.

B.1 – Exceptions to the NYSRC Reliability Rules

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
1	NYPA	Run Back of Generators	Post Contingency Flow on Marcy-New Scotland The post-contingency flow on the Marcy-New Scotland 18 line is allowed to exceed its LTE rating for the loss of the Edic-New Scotland 14 line by the amount of relief that can be obtained by tripping the Gilboa pumping load as a single corrective action. Also, the post-contingency flow on the Edic-New Scotland 14 line is allowed to exceed its LTE rating for either the loss of the Marcy-New Scotland 18 line alone, or the double-circuit loss of the Marcy-New Scotland 18 and Adirondack-Porter 12 lines, by the amount of relief that can be obtained by tripping the Gilboa pumping load as a single corrective action. *Approved NYPP Operating Committee January 27, 1988.*	E-R1
2	NG	Applicable Rating	Post Contingency Flow on Volney-Clay and Nine Mile-Clay The post-contingency flow on the Volney-Clay #6 line and the 9 Mile-Clay #8 line is allowed to reach its STE rating for "normal" transfers. *Approved NYPP Operating Committee October 25, 1979*	E-R1
3	NG	Applicable Rating Run Back of Generators	Post Contingency Flow on New Scotland-Leeds The post-contingency flow on the NS-Leeds line is allowed to reach its STE rating for transfers to NE & SENY, with sufficient generation at Gilboa. *Approved NYPP Operating Committee October 25, 1979*.	E-R1
4	NG	Monitoring	Monitoring of Transmission Transformer National Grid is fully responsible for monitoring all National Grid 345/115 kV, 345/230 kV, and 230/115 kV transformer overloads and contingency overloads. The NYISO notifies National Grid of any overloads and contingency overloads it detects, but does not invoke these limits unless requested to do so by National Grid. *Approved NYPP Operating Committee October 25, 1979.*	E-R1*
5	NYPA	Applicable Rating Run Back of Generators	Post Contingency Loading on Gilboa-Leeds The post-contingency flow on the Gilboa-Leeds (GL-3) line is allowed to reach its STE rating with four generators on at Gilboa. *Approved NYPP Operating Committee December 7, 1983.*	E-R1

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
6	NYPA	Special Protection System	Post Contingency Loading on L33P and L34P The post-contingency flows on the L33P line and the L34P line are allowed to reach their STE ratings, provided there is sufficient generation rejection selected at the Saunders generating station in Ontario, or sufficient control remaining on the phase angle regulators to return the flows to LTE within 15 minutes. *Approved NYPP Operating Committee December 14, 1994.*	E-R1*
7	CE	Run Back of Generators	Operational Control of Feeder 21192 for Loss of Feeders 21, 22, and A21191 The loss of the common tower carrying feeders 21 and 22 results in Arthur Kill generator 3 feeding into the remaining 345/138 kV Fresh Kills transformer. To avoid overloading this transformer (Feeder 21192), the output of Arthur Kill 3 must be reduced so that the transformer is below its STE rating within 5 minutes and below its LTE rating within 10 minutes, post contingency. *Approved NYPP Operating Committee December 6, 1984.*	E-R1
8	CE	Special Protection System	Post Contingency Flow on Buchanan-Millwood W97 or W98 The post-contingency flow on line W97 for the loss of W98 may exceed its LTE rating up to its STE rating if the contingency loss of lines W98 and Y88 does not cause resultant flows on any other feeder to exceed Normal Transfer Criteria. The post-contingency flow on line W98 for the loss of W97 may exceed its LTE rating up to its STE rating if the contingency loss of lines W97 and Y88 does not cause resultant flows on any other feeder to exceed Normal Transfer Criteria. This exception does not apply if either W97, W98, Y88, Indian Point 3, or the overload relay system is out of service. *Approved NYPP Operating Committee May 30, 1985.*	E-R1*
9	NG	Monitoring	Post Contingency Flow on Oswego-Volney The post-contingency flow on the Oswego-Volney #12 line is allowed to exceed its STE rating for the simultaneous loss of the Oswego-Elbridge-Lafayette #17 line and the Oswego-Volney #11 line. *Approved NYPP Operating Committee May 26, 1988.*	E-R1
10	NYPA	Special Protection System	Post Contingency Flow on Marcy AT-1 Transformer The post-contingency flow on the Marcy AT-1 bank is allowed to exceed its STE rating for the loss	E-R1*

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
			of the Marcy AT-2 bank, provided that the overload relay protection on the AT-1 bank is in-service. *Approved NYPP Operating Committee November 20, 1986.*	
11	NYPA	Special Protection System	Post Contingency Flow on Plattsburgh-Vermont PV20 Line The post-contingency flow on the Plattsburgh-Vermont PV20 tie-line is allowed to reach its STE rating so long as NYPA can ensure that the Overload Mitigation system is available on a manual or automatic basis to reduce the flow to below the LTE rating immediately following the actual occurrence of the contingency. *Approved NYPP Operating Committee February 15, 1995.*	E-R1*
12	NYPA	Monitoring	Post Contingency Flow on Marcy Transformer T2 The post-contingency flow on the Marcy Transformer T2 is allowed to exceed its LTE rating up to its STE rating following the loss of Marcy Transformer T1. *Approved NYPP Operating Committee July 23, 1987.*	E-R1
13	NYPA	Run Back of Generators	Post Contingency Flows on Niagara Project Facilities For the following Niagara Project facilities, the post-contingency flows are allowed to reach their STE ratings, if NYPA can ensure that sufficient generation can be reduced at Niagara to return the flows to less than their STE ratings within 5 minutes and to less than their LTE ratings within 10 minutes from the initial overload: • Niagara Project transformers • Lines connected directly to the Niagara Project • The Niagara-Robinson Road 230 kV Line #64 when Niagara 230 kV bus-ties (breakers 2332 and 2342) are open *Approved NYPP Operating Committee August 19, 1993.*	E-R1
14	CE	Run Back of Generators	Operation of the Linden Cogen Plant for Transmission Outages on the Con Edison System The post-contingency flow on feeder 42232, Gowanus-Greenwood 138kV, is allowed to exceed its STE rating following the simultaneous loss of feeders 21 and 22, Gowanus-Freshkills 345kV, which run on common towers. In the event that this contingency occurs, the Con Edison System Operator will immediately reduce the generation of the Linden Cogeneration Facility to alleviate the overload to less than its STE rating within 5 minutes and to less than its LTE rating within 10 minutes from the initial overload. *Approved NYPP Operating Committee January 29, 1997.*	E-R1

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
15	NYSEG	Voltage Control	Post Contingency Voltage at Oakdale and Watercure The post-contingency voltages at the Oakdale 345 kV bus, the Oakdale 230 kV bus, and Watercure 230 kV bus are allowed to fall below their respective post-contingency low voltage limits for either the simultaneous loss of the Oakdale-Lafayette 4-36 line and the Oakdale-Fraser 32 line, or the loss of one of these lines when the other line is already out of service. *Approved NYPP Operating Committee May 16, 1991.*	B-R2 & E-R2
16	CE	Monitoring	East 13th Street and East River Load Pocket Con Edison is responsible for operating for contingencies resulting from the loss of any East 13th Street 345/138 kV transformer, or the 345/69 kV transformer. These facilities provide radial support to the East 13th Street and East River load pocket and are not part of the bulk power system. *Approved NYPP Operating Committee August 27, 1997.*	E-R1
17	CE	Special Protection System	Ramapo to Buchanan 345 kV Feeder Outages During times when 345kV feeder Y94 - Ramapo to Buchanan is out of service, allow post-contingency loading for the loss of 345kV feeder W93 to exceed STE ratings on Transformer TA-5 and 138kV feeder 95891; and during times when 345kV feeder W93 – Buchanan to Eastview is out of service, allow post-contingency loading when 345kV feeder Y94 is open ended at Ramapo to exceed STE ratings on Transformer TA-5 and 138kV feeder 95891. If the stated event occurs during the specified outages, there is automatic overload protection installed to trip Buchanan 138kV breaker F7. *Approved NYRSC Executive Committee May 9, 2003.*	E-R1*
18	CE	Applicable Rating Run Back of Generators	Eastview to Sprainbrook 345 kV Feeder W79 Outages During an outage to either feeder Y94/95891 or feeder W79, post-contingency loadings shall be allowed to exceed the STE rating of Eastview transformer 2N for the loss of W79 or Y94/95891, respectively, provided Indian Point #2 generation can and will back down post-contingency to reduce flows through transformer 2N within applicable limits, i.e., less than STE within 5 minutes and less than LTE within 10 minutes from the initial overload. *Approved NYRSC Executive Committee May 10, 2002.*	E-R1

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
19	NYPA	Applicable Rating Run Back of Generators	Post Contingency Loading on Poletti Feeders Q35L and Q35M Allow post-contingency loading on Q35L and Q35M to exceed STE loading for loss of one of these circuits on each other. If the contingency occurs, NYPA is responsible for immediately reducing Poletti generation in order to clear the overload. *Approved NYPP Operating Committee November 20, 1997.*	E-R1
20	CE	Applicable Rating	PS&G Tie Feeders A2253, B3402, and C3403 Con Edison operates to post-contingency STE ratings on underground circuits based on the ability to reduce the loading to LTE ratings within 15 minutes and not exceed LTE ratings on any other facilities. The following PSE&G tie feeders are operated to post-contingency LTE ratings: • A2253 Linden-Goethals 230 kV • B3402 Hudson-Farragut 345 kV • C3403 Hudson-Farragut 345 kV *Approved NYRSC Executive Committee September 10, 1999*	E-R1

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
21	CE	Applicable Rating	<u>F30, F31, F36, F37, W64, 69, 70, W72, W75, W79, W80, W81, W82, W85, Y86, Y87, Y 88, Y89, W90, W93, Y94, and W99 Above Normal Rating Operation</u> The following feeders on the Consolidated Edison System have STE ratings which are limited by disconnect or wavetrap restrictions and not by conductor sagging limitations. These feeders will be operated above Normal ratings and up to LTE ratings (for 4 hours) without changing their STE ratings: F30 Pleasant Valley-Wood St. F31 Pleasant Valley-Wood St. F36 Pleasant Valley-East Fishkill F37 Pleasant Valley-East Fishkill W64 Eastview-SprainBrook W65 Eastview-SprainBrook 69 Ramapo-South Mahwah 70 Ramapo-South Mahwah W72 Ramapo-Ladentown W79 Eastview-SprainBrook W93 Buchanan North-Eastview W80 Wood St.-Millwood West W81 Wood St.-Millwood West W82 Millwood West-Eastview W85 Millwood West-SprainBrook Y86 Wood St.-Pleasantville Y87 Wood St.-Pleasantville Y88 Ladentown-Buchanan South W89 Pleasantville-Dunwoodie W90 Pleasantville-Dunwoodie W99 Millwood West-Eastview Y94 Ramapo-Buchanan North W75 SprainBrook-Dunwoodie (Winter Rating Period Only) *Approved NYRSC Executive Committee September 10, 1999*	E-R1
22	CE	Applicable Rating	<u>W97 and W98 Above Normal Rating Operation</u> The following feeders on the Consolidated Edison System have overload relay protection. These feeders will be operated above Normal rating and up to LTE rating (for 4 hours) without changing their STE ratings: • W97 Buchanan South-Millwood West • W98 Buchanan South-Millwood West *Approved NYRSC Executive Committee September 10, 1999*	E-R1
23	NG	Special Protection System	<u>Generation Rejection at Athens</u> When the Athens Generation Special Protection System is active, the post-contingency flows on the Leeds-Pleasant Valley 345kV line #92 or the Athens-Pleasant Valley 345kV line # 91 are	E-R1*

Exception Reference No.	TO	Exception Category	Exception	NYSRC Reliability Rule
			allowed to reach their STE ratings following the loss of the parallel #91 or #92 circuit respectively, provided that there is sufficient generation dispatched and selected for rejection/runback at the Athens generating station and that SPS rejection/runback actions take no more than three minutes in order to ensure that flows are returned to or below LTE ratings within 15 minutes. *Approved NYRSC Executive Committee March 9, 2007*	

B.2 – Multiple Circuit Tower Lines in NY Control Area

Circuit Designations	Terminals	Included in On-line MCE	Exemption and Reason
345 kV			
11 17	Oswego-Volney Oswego-Lafayette	Yes	--
32 36	Oakdale-Fraser Oakdale-Lafayette	Yes	Note 3
91 92	Leeds-Pleasant Valley (2 Parallel Circuits)	No	Note 1
GNS1 GL3	Gilboa-New Scotland Gilboa-Leeds	No	Note 1
F30/W80 F31/W78	Pleasant Valley-Wood St-Millwood W. (2 Parallel Circuits)	Yes	--
W82/W65 W85/W78	Millwood W.-Eastview-SprainBrook (2 Parallel Circuits)	Yes	--
F36 F37	Pleasant Valley-E. Fishkill (2 Parallel Circuits)	Yes	--
F38/Y86 F39/Y87	E. Fishkill-Wood St-Pleasantville (2 Parallel Circuits)	Yes	--
W89 W90	Pleasantville-Dunwoodie (2 Parallel Circuits)	Yes	--
W93/W79- W99/W64	Buchanan-Eastview-SprainBrook & Millwood W.-Eastview-SprainBrook	Yes	--
W97 W98	Buchanan S.-Millwood W. (2 Parallel Circuits)	No	Note 2
W72 Y94	Ramapo-Ladentown & Ramapo-Buchanan N.	Yes	--
Y88 Y94	Ladentown-Buchanan S. & Ramapo-Buchanan N.	Yes	--
67 68	Bowline Pt.-W. Haverstraw- Ladentown & Bowline Pt.-Ladentown	Yes	--
21 22	Goethals-Fresh Kills (2 Parallel Circuits)	Yes	--
69/J3410- 70/K3411	Ramapo-Waldwick (2 Parallel Circuits)	Yes	--
EF24-40 UCC2-41	Edic-Fraser Marcy-Coopers Corners	Yes	--
33 UCC2-41	Fraser-Coopers Corners Marcy-Coopers Corners	Yes	--
CCRT-34 CCRT-42	Coopers Corners-Rock Tavern Coopers Corners-Rock Tavern	Yes	--
4-36 22	Lafayette-Oakdale Dewitt-Lafayette	No	Note 1
11 12	Oswego-Volney (2 Parallel Circuits)	No	Note 1
230 kV & 345 kV			

Circuit Designations	Terminals	Included in On-line MCE	Exemption and Reason
11 UCC2-41	Adirondack-Porter (230kV) Marcy-Coopers Corners (345kV)	Yes	--
12 18	Adirondack-Porter (230 kV) Marcy-New Scotland (345 kV)	Yes	--
67 37	Stolle Road-Meyer (230 kV) Stolle Road-Homer City (345 kV)	Yes	--
31 UCC2-41	Porter-Rotterdam (230 kV) Marcy-Coopers Corners (345 kV)	Yes	--
30 EF24-40	Porter-Rotterdam (230 kV) Edic-Fraser (345 kV)	Yes	--
230 kV			
61 64	Niagara-Packard Niagara-Robinson Road	Yes	--
62 PA27	Niagara-Packard Niagara-Beck	Yes	--
62 BP76	Niagara-Packard Packard-Beck	Yes	--
68 69	Hillside-Meyer Hillside-Watercure Road	Yes	--
73 74	Gardenville-Dunkirk (2 Parallel Circuits)	Yes	--
77 78	Packard-Huntley (2 Parallel Circuits)	Yes	--
77 80	Packard-Huntley Huntley-Gardenville	Yes	--
78 79	Packard-Huntley Huntley-Gardenville	Yes	--
79 80	Huntley-Gardenville (2 Parallel Circuits)	Yes	--
PA27 BP76	Niagara-Beck Packard-Beck	Yes	--
L33P L34P	St. Lawrence T.S.-Moses (2 Parallel Circuits)	Yes	--
MA-1/11 MA-2/12	Moses-Adirondack-Porter (2 Parallel Circuits)	Yes	--
MW1/WP1 MW2/WP2	Moses-Willis-Plattsburgh (2 Parallel Circuits)	Yes	--
MMS1 MMS2	Moses-Massena (2 Parallel Circuits)	Yes	--
61 62	Niagara-Packard (2 Parallel Circuits)	No	Note 1

Note 1: Exempt because of 5 tower criteria.
Note 2: Exempt because they are not adjacent.
Note 3: Exempt by NYISO for development of Voltage limits only.

B.3 – Thunderstorm Multiple Contingencies Cases

1. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, 311
2. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, 77
3. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, Y94, TA5, Bank (95891)
4. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, Y88
5. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, F31, W81
6. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, W82, Eastview Bank 2S, W65
7. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, W93, Eastview Bank 2N, W79
8. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, A2253
9. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, W75
10. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, 301
11. F38, Y86, F39, Y87, Wood St. Bank 2, Pleasantville Bank 1, 303
12. W89, W73, W90, W74, Y50, Pleasantville Bank 2, 311
13. W89, W73, W90, W74, Y50, Pleasantville Bank 2, 77
14. W89, W73, W90, W74, Y50, Pleasantville Bank 2, Y94, TA5 Bank (95891)
15. W89, W73, W90, W74, Y50, Pleasantville Bank 2, Y88
16. W89, W73, W90, W74, Y50, Pleasantville Bank 2, F31, W81
17. W89, W73, W90, W74, Y50, Pleasantville Bank 2, W82 Eastview Bank 2S, W65
18. W89, W73, W90, W74, Y50, Pleasantville Bank 2, W93, Eastview Bank 2N, W79
19. W89, W73, W90, W74, Y50, Pleasantville Bank 2, A2253
20. W89, W73, W90, W74, Y50, Pleasantville Bank 2, W75, 72, 71
21. W89, W73, W90, W74, Y50, Pleasantville Bank 2, 301
22. W89, W73, W90, W74, Y50, Pleasantville Bank 2, 303
23. F36, F37, 301
24. F36, F37, 303
25. F36, F37, 311
26. F36, F37, 77
27. F36, F37, Y94, TA5 Bank (95891)
28. F36, F37, Y88
29. F36, F37, F31, W81
30. F36, F37, W82, Eastview Bank 2S, W65
31. F36, F37, W75
32. F36, F37, W93, Eastview Bank 2N, W79
33. F36, F37, A2253
34. F36, F37, F38, RFK305
35. F31, W81, F30, W80, Wood St. Bank 1, 311
36. F31, W81, F30, W80, Wood St. Bank 1, 77
37. F31, W81, F30, W80, Wood St. Bank 1, Y94, TA5 Bank (95891)
38. F31, W81, F30, W80, Wood St. Bank 1, Y88
39. F31, W81, F30, W80, Wood St. Bank 1, W75

40. F31, W81, F30, W80, Wood St. Bank 1, F38, Y86, Pleasantville Bank 1
41. F31, W81, F30, W80, Wood St. Bank 1, W93, Eastview Bank 2N, W79
42. F31, W81, F30, W80, Wood St. Bank 1, A2253
43. F31, W81, F30, W80, Wood St. Bank 1, 301
44. F31, W81, F30, W80, Wood St. Bank 1, 303
45. F31, W81, F30, W80, Wood St. Bank 1, 305
46. W85, W82, W65, Eastview Bank 2S, Eastview Bank 1S, W99, Eastview Bank 1N, W64, W78
47. W85, W82, W65, Eastview Bank 2S, Eastview Bank 1S, W93, Eastview Bank 2N, W79, W78
48. W99, W64, Eastview Bank 1N, W93, W79, Eastview Bank 2N, Y94, TA5 Bank (95891), IP2
49. W99, W64, Eastview Bank 1N, W93, W79, Eastview Bank 2N, Y88
50. W99, W64, Eastview Bank 1N, W93, W79, Eastview Bank 2N, F38, Y86, Pleasantville Bank 1
51. W99, W64, Eastview Bank 1N, W93, W79, Eastview Bank 2N, Eastview Bank 1S, W85, W78
52. W99, W64, Eastview Bank 1N, W93, W79, Eastview Bank 2N, W82 Eastview Bank 2S, W65
53. Y88, Y94, TA5 Bank (95891), 91
54. Y88, Y94, TA5 Bank (95891), 92
55. Y88, Y94, TA5 Bank (95891), F38, Y86, Pleasantville Bank 1
56. Y88, Y94, TA5 Bank (95891), F39, Y87, Pleasantville Bank 2, Wood St. Bank 2
57. Y88, Y94, TA5 Bank (95891), F31, W81
58. Y88, Y94, TA5 Bank (95891), F30, Wood St. Bank 1, W80
59. Y88, Y94, TA5 Bank (95891), W93, Eastview Bank 2N, W79, IP2
60. Y88, Y94, TA5 Bank (95891), A2253
61. Y88, Y94, TA5 Bank (95891), 301
62. Y88, Y94, TA5 Bank (95891), 303
63. Y88, Y94, TA5 Bank (95891), RFK305
64. W97, W98, Y88, IP3
65. W97, W98, Y88, IP3, 91
66. W97, W98, Y88, IP3, 92
67. W97, W98, Y88, IP3, F38, Y86, Pleasantville Bank 1
68. W97, W98, Y88, IP3, F39, Y87, Wood St. Bank 2
69. W97, W98, Y88, IP3, F31, W81
70. W97, W98, Y88, IP3, F30, Wood St. Bank 1, W80
71. W97, W98, Y88, IP3, W93, Eastview Bank 2N, W79
72. W97, W98, Y88, IP3, 301
73. W97, W98, Y88, IP3, 303
74. W97, W98, Y88, IP3, RFK305
75. 91, 92
76. 91, 311
77. 91, 77
78. 92, 311
79. 92, 77

80. 91, 301
81. 91, 303
82. 91, RFK305
83. 301, RFK305
84. 69, South Mahwah Bank, J3410, Waldwick Bank 2, 70, K3411, Waldwick Bank 3, Y88
85. Y88, Y94, TA5 (95891), 69, South Mahwah Bank, J3410, Waldwick Bank 2
86. Y88, Y94, TA5 (95891), 70, K3411, Waldwick Bank 3

B.4 –Local Reliability Rules of the New York Transmission Owners

Local Rule No.	Company	Specific Local Reliability Rule	Justification
1	CON EDISON	OPERATING RESERVES/UNIT COMMITMENT Certain areas of the Con Edison system are designed and operated for the occurrence of a second contingency. Unit Commitment is based on second contingency operation as well as consideration of the Storm Watch Procedure, Loss of Six Lines South of Millwood and the locational requirements for its operating reserves.	PSC Directive July 17, 1961
2	CON EDISON	LOCATIONAL RESERVES Con Edison must maintain its 10 Minute Operating Reserve on in-City steam units and on Fast Start Gas Turbines.	PSC Order No.27302
3	CON EDISON	GAS BURNING PROCEDURE A sudden loss of gas pressure in the gas transmission facilities that supply Con Edison's in-City generators could result in the units tripping off line. This rule requires certain in-City units to burn oil at a minimum level, based on the forecasted system load as follows: 1. Above 8000 MW - two of the three Astoria generators must be switched to minimum oil burn. 2. Above 9000 MW - all of the generators at Astoria, Ravenswood and East River should be switched to minimum oil burn.	Exceeds Minimum Criteria
4	CON EDISON	Con Edison will operate its system as if the first contingency has already occurred on its northern transmission system when thunderstorms are within one hour of the system or are actually being experienced.	PSC Order No.27302
5	LIPA	LOSS OF GENERATOR SUPPLY Considering the loss of gas supply as a single contingency that will impact the electric power system, the number of gas fired generators must be limited above critical system load levels. Above 3200 MW, 2 North Port units can be gas fired. At peak loads, Port Jefferson 3-4 gas operation must be restricted.	Exceeds Minimum Criteria

B.5 - Applications of Reliability Rules and Cost Allocation Responsibility

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 1	OPERATION DURING IMPENDING SEVERE WEATHER Rule E-R6.	ADVERSE WEATHER Icing Conditions	NYPA	The 765 kV high voltage limit may be reduced during ice formation or other conditions. This may impact the permissible transformer tap ranges and settings of other voltage regulating equipment. This may impact Bulk Power System interface transfer capability.
ARR 2	AS ABOVE	ADVERSE WEATHER Storm Watch	NYPA	NYPA may limit the imports on the 765kV tie line with Hydro Quebec to a maximum of 1300MW when thunderstorms are reported to be in the vicinity of the 765kV transmission corridor. This may impact Bulk Power System interface transfer capability.
ARR 3	VOLTAGE ASSESSMENT Rule E-R2: Reactive power reserves should be available to maintain voltages within applicable pre-disturbance and post-disturbance limits	REACTIVE POWER SUPPORT Function of Power Flow	NYPA	765 kV OPERATING VOLTAGE LIMITS In operation of the 765 kV transmission system, permissible voltage and MVAR ranges are coordinated with levels of power flow. Coordinated switching of shunt reactors, capacitor banks, and transformer taps is done to maintain voltage within permissible ranges. This may impact Bulk Power System interface transfer capability.
ARR 4	SPS GENERAL REQUIREMENTS Rule Section E Introduction STABILITY ASSESSMENT Rule E-R3.	BULK POWER SYSTEM Generation Rejection	NYPA	L33P AND L34P OUT OF SERVICE When the L33P and L34P circuits are out of service, NYPA monitors a special Moses South stability indicator (MSC7040 SOUTH MINUS 250 MW) to be within certain limits to maintain the security of the North Country power system. Curtailment of Hydro Quebec import and/or local generation may be required to respect the limits. Moreover, NYPA may enable the Moses 230 kV generation rejection scheme. This may impact Bulk Power System interface transfer capability.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 5	SPS GENERAL REQUIREMENTS Rule Section E Introduction THERMAL ASSESSMENT Rule E-R1 STABILITY ASSESSMENT Rule E-R3 SYSTEM PROTECTION Rules H-R1 & H-R2	BULK POWER SYSTEM Generation Rejection	NYPA	MMS-1 AND MMS-2 OUT OF SERVICE When the MMS-1 and MMS-2 circuits are out of service restrictions are placed on the permissible equipment configurations and number of Beauharnois units in the Chateauguay complex, as well as the MSV-7040 flow limits. NYPA monitors a special stability indicator (MS-MSU-OH) to be within certain limits to maintain the security of the North Country power system. Curtailment of Hydro Quebec import and/or local generation may be required to respect the limits. Moreover, NYPA may enable the Moses 230 kV generation rejection scheme. This may impact Bulk Power System interface transfer capability.
ARR 6	GENERAL REQUIREMENTS OF SPSs Rule Section E Introduction THERMAL ASSESSMENT Rule E-R1 STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Generation Rejection	NYPA	MSU-1 OUT OF SERVICE When the MSU-1 765 kV circuit is out of service, NYPA monitors the Moses South minus Ontario Hydro South flows to be within certain limits to maintain the security of the North Country power system. Curtailment of Hydro Quebec import and/or local generation may be required to respect the limits. Moreover, NYPA may enable the Moses 230 kV generation rejection scheme. This may impact Bulk Power System interface transfer capability.
ARR 7	AS ABOVE	BULK POWER SYSTEM Generation Rejection	NYPA	MSU-1 AND L33P OR L34P OUT OF SERVICE When the MSU-1 circuit and L33P or L34P are out of service, NYPA monitors the Moses South minus Ontario South flows to be within certain limits to maintain the security of the North Country power system. Curtailment of Hydro Quebec import and/or local generation may be required to respect the limits. Moreover, NYPA may enable the Moses 230 kV generation rejection scheme. Also, operation of Chateauguay HVDC is not permitted. This may impact Bulk Power System interface transfer capability.
ARR 8	AS ABOVE	BULK POWER SYSTEM Generation Rejection	NYPA	ST. LAWRENCE BUSES 1A OR 2A OUT OF SERVICE When St. Lawrence bus 1A or 2A are out of service, NYPA monitors a special stability indicator (MS-MSC7040-OH+PV20) to be within certain limits to maintain the security of the North Country power system. Curtailment of Hydro Quebec import and/or local generation may be required to respect the limits. Moreover, NYPA may enable the Moses 230 kV generation rejection scheme. Several other restrictions are placed on operation of the Chateauguay complex. This may impact Bulk Power System interface transfer capability.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 9	SPS GENERAL REQUIREMENTS Rule Section E Introduction STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Generation Rejection	NYPA	OUTAGES OF PA301 AND PA302 To increase Western NY export limit for a simultaneous outage of PA301 and PA302 345 kV circuits, NYPA may enable the OCB 2114 Breaker Failure Timer Bypass and arm the Generation Drop Scheme at the Robert Moses Niagara Power Project. This may impact Bulk Power System interface transfer capability.
ARR 10	SPS GENERAL REQUIREMENTS Rule Section E Introduction THERMAL ASSESSMENT Rule E-R1	BULK POWER SYSTEM Generation Rejection	NYPA	NIAGARA 230 kV SWITCHYARD For certain line/breaker outage conditions in the Niagara 230 kV East yard, post-contingency loading up to STE rating is permitted on certain equipment and NYPA may place Niagara generators on the generation rejection scheme. This may impact Bulk Power System interface transfer capability.
ARR 11	AS ABOVE	BULK POWER SYSTEM Generation Rejection	NYPA	NIAGARA 230 kV GENERATOR DROP SCHEME NYPA may enable the Niagara 230 kV generation rejection scheme to relieve thermal overloads in the area. This may impact Bulk Power System interface transfer capability.
ARR 12	SPS GENERAL REQUIREMENTS Rule Section E Introduction THERMAL ASSESSMENT Rule E-R1 STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Generation Rejection	NYPA	ST. LAWRENCE /FDR 230 kV GENERATION DROP SCHEME To increase the export capability from the Northern NY area and the Central East limit for various line and equipment maintenance conditions, NYPA may enable the Moses 230 kV generation rejection scheme. This may impact Bulk Power System interface transfer capability
ARR 13	SPS GENERAL REQUIREMENTS Rule Section E Introduction THERMAL ASSESSMENT Rule E-R1 STABILITY ASSESSMENT Rule E-R3 SYSTEM PROTECTION Rules H-R1 & H-R2	BULK POWER SYSTEM	NYPA	NYPA-HYDRO-QUEBEC MSC-7040 765 kV INTERCONNECTION This rule contains the extensive operating instructions for the Hydro Quebec Chateauguay complex that is interconnected with NYPA via the MSC-7040 765 kV line. The instructions provide for the reliable operation of the bulk power system by delineating permissible equipment configurations, permissible number of Beauharnois machines and MSC-7040 import/export flow limits among other things. This may impact Bulk Power System interface transfer capability.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 14	OUTAGE COORDINATION Rule E-R5 provides that appropriate adjustments shall be made to the NY Control Area operations to accommodate the impact of protection group outages.	BULK POWER SYSTEM Relay Protection	NYPA	765 kV SYSTEM PROTECTION OUTAGES For certain relay equipment outages on the 765 kV system, NYPA may impose restrictions on the Moses South and MSC-7040 transfer limits. Under more severe relay equipment outage conditions, NYPA may remove the MSU-1 and or the MSC-7040 from service. This may impact Bulk Power System interface transfer capability.
ARR 15	AS ABOVE	BULK POWER SYSTEM Relay Protection	NYPA	IN-SERVICE RELAY WORK AT MASSENA SUBSTATION. To prevent unnecessary trips of the 765 kV tie line to Hydro Quebec at high import levels, NYPA may remove the 765 kV system from service or limit the import level to a maximum of 1300 MW for certain relay maintenance procedures at Massena substation. This may impact Bulk Power System interface transfer capability.
ARR 16	STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Local Actions	NYPA	OUTAGE OF MARCY-EDIC 345KV LINE NYPA has procedures that include modifications of the Fitzpatrick terminal voltage requirements for stability and possible operating restrictions on the Chateauguay Complex. This may impact Bulk Power System interface transfer capability.
ARR 17	THERMAL ASSESSMENT Rule E-R1	BULK POWER SYSTEM Local Actions	NYPA	AUTOBANK OUTAGE AT NIAGARA During an outage of autobank #3 at Niagara, NYPA may open bus tie breakers 2332 and 2342 to prevent greater than STE post-contingency overloading of bank #5 for the loss of bank #4. This will allow normal MW output of the Niagara plant.
ARR 18	STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Local Actions	NYPA	FITZPATRICK PLANT TERMINAL VOLTAGE REQUIREMENTS To maintain the stability of the James A Fitzpatrick (JAF). NPP generator for certain severe contingencies on the 345 kV grid, NYPA requires the JAF NPP to keep its terminal voltage and in some cases its reactive power output above certain minimum levels.
ARR 19	AS ABOVE	BULK POWER SYSTEM Local Actions	NYPA	ISOLATION OF MSU-1 LINE ON A SINGLE MARCY 345 kV LINE NYPA may impose operating restrictions on the Chateauguay Complex and limit the maximum MSC-7040 flow for maintenance outage conditions where a contingency may isolate the MSU-1 line onto a single Marcy 345 kV exit. This may impact Bulk Power System interface transfer capability.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 20	SPS GENERAL REQUIREMENTS Rule Section E Introduction THERMAL ASSESSMENT Rule E-R1 VOLTAGE ASSESSMENT Rule E-R2 STABILITY ASSESSMENT Rule E-R3	LOCAL AND BULK POWER SYSTEM Generator Dispatch Restrictions	NYPA/ NYSEG	Certain line outages will require a pre-contingency re-dispatch of the Saranac generation. Saranac Energy must be notified of planned or emergency outages involving these facilities. A. 700 Line outage will require Saranac to reduce its output to 180 MW or less depending on loading conditions. B. 701 Line outage will require Saranac to reduce to 180 MW or less depending on loading conditions. C. 702 Line outage: A subsequent forced outage of the 701 Line will cause the Saranac units to trip. D. MW P#1 Line outage: With the PV-20 "cross-trip" enabled, Saranac must reduce its output to as low as 175MW. E. Whenever the PV-20 cross trip is enabled: Saranac may be reduced to as low as 180 MW. F. MWP #2 Line Outage: With the PV –20 cross trip enabled Saranac must reduce its output to as low as 175 MW. G MSU #1 Line Outage: Outages of this line will reduce the capacity on the Moses-South Interface. Saranac will need to reduce its output to somewhere between 0 and 240 MW, depending on system conditions during the outage. H MMS #1 or MMS #2 Line Outages: Maintenance outages involving either of these two Moses to Massena 230 kV lines will result in restricted capacity on the Moses South Interface. It will be necessary for Saranac to reduce its output to somewhere between 0 and 240 MW, depending on system conditions during the outage. I PV-20 Line Outage: Outages of this line will require Saranac to be reduced to 175 MW to avoid stability problems for loss of both Moses-Willis-Plattsburgh (MWP) circuits. J NYPA Plattsburgh Bus #1: To maintain stability for the loss of Moses-Willis-Plattsburgh (MWP) and stuck breaker 202, Saranac must be limited to 110 MW. K NYPA Plattsburgh Bus #2: To maintain stability during this outage for the loss of both MWP 1 and MWP 2, Saranac must be limited to 140 MW. L. WM #1 line and Moses to Willis to Plattsburgh: During this multiple circuit outage, Saranac must be limited to 200 MW to maintain stability for the loss of the remaining MWP line. M Willis to Saranac WS #1 line and one MWP line: During this multiple circuit outage, Saranac must be limited to 210 MW to maintain stability for the loss of the remaining MWP line.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 21	OPERATION DURING IMPENDING SEVERE WEATHER Rule E-R6: Corrective actions to protect for one contingency greater than normal criteria shall be carried out, and generation may be ordered to full capability	ADVERSE WEATHER Storm Watch	CENTRAL HUDSON	Requires two units at Danskammer to be committed for service under storm watch conditions when Central Hudson's system loads are greater than 450 MW.
ARR 22	VOLTAGE ASSESSMENT Rules B-R2 & E-R2: Reactive power reserves should be available to maintain voltages within applicable pre-disturbance and post-disturbance limits	REACTIVE POWER SUPPORT Unit Commitment	LIPA	LIPA operates in accordance with local reliability rules to insure the safe and reliable operation of the transmission system. The following table is a summary of local generation or unit commitment requirements to meet voltage control and thermal loading criteria. Voltage support in LIPA system: A. During peak load conditions commitment of any two (of four) Northport units are required to prevent voltage collapse of the 138 kV system. B. During light load conditions commitment of any two (of four) Northport units are required to prevent overvoltage on the 138 kV system. C. During peak load conditions commitment of up to two Port Jefferson units are required to prevent voltage collapse of the 138 kV system east of Holbrook.
ARR 23	AS ABOVE	REACTIVE POWER SUPPORT Function of System Load	NIAGARA MOHAWK	VOLTAGE SUPPORT IN SOUTHWEST REGION Indeck Olean Unit to support 115 kV area during peak loads.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 24	VOLTAGE ASSESSMENT Rules B-R2 & E-R2: Reactive power reserves should be available to maintain voltages within applicable pre-disturbance and post-disturbance limits	REACTIVE POWER SUPPORT For Outages	NIAGARA MOHAWK	VOLTAGE SUPPORT IN CENTRAL REGION (ROME) A. During outages of lines 3. 4, or 5, the Oneida Sterling unit must be available to maintain 115 kV bus voltages in the Rome area. B. During maintenance outages of the Oneida Cap bank, the Oneida Sterling unit must be available to support 115 kV voltages in the Oneida - Rome area. C. During maintenance outages of the Porter-Yahnundasia 3 line, the Oneida Sterling unit must be available to support 115 kV buses in the Westmoreland / Clinton/ Chadwicks areas. D. During outages of the Rome Cap bank, the Oneida -Sterling unit must be available to support 115 kV voltages in the Rome area. E. During maintenance outages of the Tilden-Cortland 18 line, the Oneida Sterling unit must be available to support 115 kV voltages in the Nedrow/Cortland area.
ARR 25	AS ABOVE	REACTIVE POWER SUPPORT For Outages	NIAGARA MOHAWK	VOLTAGE SUPPORT IN CENTRAL REGION A. During maintenance outages of the Cortland-Etna 1 (947) line, the OCRRA unit must be available to support 115 kV voltages in the Nedrow/Cortland area. B. During maintenance outages of the Oneida – Fenner 8 or Fenner - Cortland 3 lines out of service, the OCRRA unit must be available to maintain 115 kV voltages in the Nedrow /Cortland area. C. During maintenance outages of the Cortland 115 kV Cap bank, the OCRRA unit must be available to maintain voltages in the Nedrow/Cortland area.
ARR 26	AS ABOVE	REACTIVE POWER SUPPORT Voltage Specification	CON EDISON	TRANSMISSION LEVEL VOLTAGES This procedure uses existing operating guidelines to maintain adequate voltage levels and reactive reserve for its portion of the NYS Power System. For normal and peak load conditions, the 345 kV and 138 kV voltages shall be maintained within these limits: 345 kV Voltage 350 kV +9 kV to 350 - 4 kV 138 kV Voltage 138 kV +5 kV to 138 - 2 kV
ARR 27	AS ABOVE	REACTIVE POWER SUPPORT	LIPA	LIPA must maintain sufficient reactive reserves on Long Island to sustain the loss of the two largest reactive sources.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 28	VOLTAGE ASSESSMENT Rules B-R2 & E-R2: Reactive power reserves should be available to maintain voltages within applicable pre-disturbance and post-disturbance limits	REACTIVE POWER SUPPORT Unit Commitment	LIPA	LIPA operates in accordance with local reliability rules to insure the safe and reliable operation of the transmission system. The following table is a summary of local generation or unit commitment requirements to meet voltage control and thermal loading criteria. Voltage support in LIPA system: A. During peak load conditions commitment of any two (of four) Northport units are required to prevent voltage collapse of the 138 kV system. B. During light load conditions commitment of any two (of four) Northport units are required to prevent overvoltage on the 138 kV system. C. During peak load conditions commitment of up to two Port Jefferson units are required to prevent voltage collapse of the 138 kV system east of Holbrook. D. During light load conditions commitment of one Barrett unit is required to prevent overvoltage on the 138 kV system. E. At or above average system load conditions commitment of the Far Rockaway unit is required to prevent voltage collapse of the 69 kV Rockaway Peninsula. F. At peak load conditions commitment of the Montauk Diesel unit is required to prevent voltage collapse of the 69 kV system on the South Fork of Long Island. G. At or above average system load conditions commitment of the East Hampton Gas Turbine unit is required to prevent voltage collapse of the 69 kV system on the South Fork of Long Island. H. At or above average system load conditions commitment of the South Hampton Gas Turbine is required to prevent voltage collapse of the 69 kV system on the South Fork of Long Island. I. At or above average system load conditions commitment of the East Hampton Diesel unit is required to prevent voltage collapse of the 69 kV system on the South Fork of Long Island. J. At peak load conditions commitment of the Southold Gas Turbine unit is required to prevent voltage collapse of the 69 kV system on the South Fork of Long Island. Major LIPA facilities out of service may required increased generation in load pockets to reduce line flows or maintain voltage. Further, prudent utility practice warrants a review of the impact of loss of the Northport ~~Substation and that possible overtrips of Y49 and Y50 be considered~~ for unit commitment.

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ARR 29	VOLTAGE ASSESSMENT Rules B-R2 & E-R2: Reactive power reserves should be available to maintain voltages within applicable pre-disturbance and post-disturbance limits	REACTIVE POWER SUPPORT Function of System Load	NYSEG	During summer and winter heavy load periods, at least one unit at Milliken/AES Cayuga must be in service post-contingency to provide adequate voltage to the customers in NYSEG's Ithaca Division. On a pre-scheduled basis, during summer and winter heavy load periods, both Milliken/AES-Cayuga units must be on-line.
ARR 30	AS ABOVE	REACTIVE POWER SUPPORT Function of System Load	NIAGARA MOHAWK	VOLTAGE SUPPORT IN SOUTHWEST REGION During peak loads requires sufficient commitment of Dunkirk generating units to support 115 and 230 kV voltages.
ARR 31	AS ABOVE	REACTIVE POWER SUPPORT Function of System Load	NIAGARA MOHAWK	During off-peak and light load periods, the availability of various system generation resources over a wide area must be committed for voltage control to protect equipment from damage and avoid equipment malfunction due to high voltages.
ARR 32	AS ABOVE	REACTIVE POWER SUPPORT Voltage Specification	CENTRAL HUDSON	Voltages on the 115 and 69kV transmission system will be maintained within =/- 2.5% of nominal under normal conditions.
ARR 33	AS ABOVE	REACTIVE POWER SUPPORT Function of System Load	CENTRAL HUDSON	During heavy load periods one or more units at Danskammer may be required to provide adequate voltage support.
ARR 34	AS ABOVE	REACTIVE POWER SUPPORT For Outages	NIAGARA MOHAWK	VOLTAGE SUPPORT IN SOUTHWEST REGION Indeck Olean unit must support 115 kV voltages when more than one Dunkirk unit is out of service.

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ARR 35	VOLTAGE ASSESSMENT Rules B-R2 & E-R2: Reactive power reserves should be available to maintain voltages within applicable pre-disturbance and post-disturbance limits	REACTIVE POWER SUPPORT For Outages	NIAGARA MOHAWK	VOLTAGE SUPPORT IN SOUTHWEST REGION Reactive support needed from Dunkirk units 1&2 when one Dunkirk 230/115 kV transformer is out of service.
ARR 36	AS ABOVE	REACTIVE POWER SUPPORT For Outages	NIAGARA MOHAWK	VOLTAGE SUPPORT IN CENTRAL REGION (OSWEGO) During outages of Oswego 345/115 kV or Oswego 115 kV Cap bank, Indeck Hammermill generator is required to support voltage on 115 kV buses at Nine Mile and Fitzpatrick.
ARR 37	PRE-CONTINGENCY AND POST-CONTINGENCY THERMAL CRITERIA Rule E-R1: No facility shall be loaded pre-contingency beyond its normal rating, and no facility shall be loaded post-contingency beyond its LTE rating (STE rating for underground cables). AS ABOVE	BULK POWER SYSTEM Rapid Response to Manage Cable System Loading	CON EDISON	MAXIMUM GEN AND FAST LOAD PICK UP ALARMS SYSTEM The use of phase angle regulators and rapid increases in in-City generation permits Con Edison to use Short Term Emergency (STE) ratings rather than Long Term Emergency (LTE) ratings for operating the cable system. If contingency analysis shows that the post contingency loading on the cable system will exceed STE ratings, then immediate action is taken, including Fast Load Pick-up/Maximum Generation, to mitigate the post contingency overloads.
ARR 38	AS ABOVE	LOCAL POWER SYSTEM Transfer Limits	NIAGARA MOHAWK	During outages of the Alcoa Bus Tie, R8105, the Northern Region area north of Dennison station must have limited import capability from Cedars (HQ). The import form Cedars under this condition is 150 MW as metered at Cornwall Electric and 95 MW as metered at Dennison.
ARR 39	AS ABOVE	LOCAL POWER SYSTEM Transfer Limits	NIAGARA MOHAWK	During outages of either the Cedars-Dennison 1 or 2 lines, the Northern Region area north of Dennison must have limited import capability form Cedars (HQ). The import from Cedars under this condition is 150 MW as metered at Cornwall Electric.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 40	AS ABOVE	LOCAL POWER SYSTEM Transfer Limits	NIAGARA MOHAWK	During outages of the Dennison Bus Tie, R8105, the Northern Region area north of Dennison must have limited import capability from Cedars (HQ). The import from Cedars under this condition is 115 MW as metered at Cornwall Electric.
ARR 41	PRE-CONTINGENCY AND POST-CONTINGENCY THERMAL CRITERIA. Rule E-R1: No facility shall be loaded pre-contingency beyond its normal rating, and no facility shall be loaded post-contingency beyond its LTE rating (STE rating for underground cables).	LOCAL POWER SYSTEM Transfer Limits	NIAGARA MOHAWK	During outages of either Dennison-Colton 4 or 5 lines or Alcoa-Dennison 12 line, the Northern Region area north of Dennison must have limited import capability from Cedars (HQ). The import from Cedars under this condition is 200 MW as metered at Cornwall Electric.
ARR 42	AS ABOVE	LOCAL POWER SYSTEM Generator Dispatch Restrictions	CENTRAL HUDSON	GENERATION CONSTRAINTS / DANSKAMMER Under certain circumstances including, but not limited to, planned and/or forced outages of critical transmission facilities, the level of generation at Danskammer must be constrained in order to ensure system security.
ARR 43	AS ABOVE	LOCAL POWER SYSTEM Generator Dispatch Restrictions	CENTRAL HUDSON	GENERATION CONSTRAINTS / WEST SIDE 69 kV SYSTEM Under certain circumstances, including but not limited to, planned and/or forced outages of critical transmission facilities, the level of generation within the West Side 69 kV System must be constrained in order to insure system security.
ARR 44	AS ABOVE	LOCAL POWER SYSTEM Generator Dispatch Restrictions	NYSEG	ITHACA 115 kV TRANSMISSION SYSTEM During maintenance outages of any one of the three 115 kV lines that exit Miliken, the Miliken unit output will need to be reduced so that the loss of either remaining line will not cause the single remaining line to exceed its STE rating and that the emergency response rates of both units can reduce the line loading to normal within 15 minutes. The three lines involved are: Miliken to Etna 975L, Miliken to Etna 974L, and Miliken to Wright 973L.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 45	AS ABOVE	LOCAL POWER SYSTEM Generator Dispatch Restrictions	RG&E	GINNA GENERATION TRANSMISSION LIMITATIONS Subsequent to a permanent outage of selected 115 kV circuits, reductions in Ginna output are required. Maintenance outages on circuits 908 and 912 are restricted to periods when Ginna generation is on line.
ARR 46	PRE-CONTINGENCY AND POST-CONTINGENCY THERMAL CRITERIA Rule E-R1: No facility shall be loaded pre-contingency beyond its normal rating, and no facility shall be loaded post-contingency beyond its LTE rating (STE rating for underground cables).	LOCAL POWER SYSTEM Generator Dispatch Restrictions	RG&E	ALLEGANY GENERATION TRANSMISSION LIMITATIONS The loss of RG&E's 906 circuit between Station 162 and Station 158 will require an immediate reduction in the output of the KAMINE generator, which is connected to Station 162 (South Perry).
ARR 47	AS ABOVE	LOCAL POWER SYSTEM Generator Dispatch Restrictions	O&R	GENERATION CONSTRAINTS IN EASTERN LOAD POCKET During planned or forced outages of one of the two Lovett to West Haverstraw 138 kV lines, the maximum generation of the Lovett plant must be constrained to protect the underlying transmission system from overloads due to the loss of the second Lovett-West Haverstraw line.
ARR 48	AS ABOVE	LOCAL POWER SYSTEM Generator Dispatch Restrictions	NYSEG	NYSEG has various IPPs located on the sub transmission and distribution system that require curtailment for sub transmission and distribution line switching and maintenance conditions. This is required to avoid ferro-resonance on the NYSEG sub transmission during maintenance conditions, or because the maintenance involves opening the IPP connection to the rest of the system, or because the switching procedure may cause the unit to unexpectedly trip off line.
ARR 49	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	CENTRAL HUDSON	GENERATION SUPPORT/SYSTEM IMPORT CAPABILITY Under certain circumstances including, but not limited to, planned and / or forced outages of critical transmission facilities, minimum levels of generation must be committed and dispatched at Danskammer in order to ensure system security.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 50	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	CENTRAL HUDSON	GENERATION SUPPORT / WEST SIDE 69 kV SYSTEM Under certain circumstances including, but not limited to, planned and or forced outages of critical transmission facilities, minimum levels of generation must be committed and dispatched within the West Side 69 kV System in order to ensure system security.
ARR 51	PRE-CONTINGENCY AND POST-CONTINGENCY THERMAL CRITERIA Rule E-R1: No facility shall be loaded pre-contingency beyond its normal rating, and no facility shall be loaded post-contingency beyond its LTE rating (STE rating for underground cables).	LOCAL POWER SYSTEM Generator Requirement	NIAGARA MOHAWK	SYSTEM SECURITY IN SOUTHWEST REGION Requires dispatching of Indeck Olean unit during outages of either of the Dunkirk-Falconer 160, 161, or 162 lines.
ARR 52	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	NIAGARA MOHAWK	SYSTEM SECURITY IN NORTHEAST REGION DURING LOW HYDROELECTRIC GENERATION During peak load conditions with low Northeast Region hydro generation, the non-hydro units in the Northeast Region must be committed to operate to avoid exceeding STE ratings on certain 115 kV lines following a contingency.
ARR 53	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	NIAGARA MOHAWK	SYSTEM SECURITY IN CAPITAL REGION DURING EHV BANK OUTAGE During maintenance outages of the Capital Region's 345/115 kV or 230/115 kV transformers, sufficient Albany generation must be available to ensure adequate post-contingency loading on the remaining Capital Region autotransformers.
ARR 54	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	NIAGARA MOHAWK	GENERATION SUPPORT/SYSTEM IMPORT CAPABILITY During peak load conditions with low Northern Region (Watertown area) hydro generation, the non-hydro units in the Watertown area must be committed to operate to avoid exceeding STE ratings on certain 115 kV lines Following a contingency.

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ARR 55	AS ABOVE	LOCAL POWER SYSTEM Generation Requirement	O&R	GENERATION SUPPORT REQUIRED IN EASTERN LOAD POCKET During peak load periods, sufficient Lovett generation is required to maintain system reliability so that voltage reduction or load shedding is not required for the loss of a transmission circuit or transformer.
ARR 56	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	O&R	GENERATION SUPPORT REQUIRED IN WESTERN LOAD POCKET During times of thunderstorm alert, peak loads or planned or forced transmission outages in the vicinity of the Western load pocket, sufficient Hydro and Gas Turbine reserve capacity must be available so that voltage reduction or load shedding is not required following a contingency.
ARR 57	AS ABOVE	LOCAL POWER SYSTEM Generation Requirement	RG&E	OVERLOAD MITIGATION DURING LIGHT LOAD PERIODS For system conditions when the load is less than 650MW and Ginna generation is above 450MW, additional generation within RG&E is required at Russell to relieve 34.5kV overloads.
ARR 58	AS ABOVE	LOCAL POWER SYSTEM Generator Requirement	RG&E	During peak load condition all RG&E fossil generation becomes " must run" to maintain system reliability. This avoids the need for voltage reduction or load shedding in the event of loss of Ginna or a transmission facility.
ARR 59	SYSTEM RESTORATION AND BLACKSTART Restoration, Rules G-R1 & G-R2, and NYPP Operating Procedure OP 13-4, "Restoration Policy", September 1, 1986: Guide for The Restoration of the Bulk Power System Following a Major Disturbance, Islanding, or System Interruption, requires Member Systems to have a restoration procedure.	LOCAL POWER SYSTEM System Restoration Plans and Blackstart Capability	ALL NYPP MEMBER SYSTEMS	IMPLEMENTATION OF MEMBER SYSTEMS RESTORATION PLANS The NYPP maintains a system restoration plan for the bulk power system under its control. In addition, the Member Systems of NYPP each have their own company Restoration Plans and Blackstart Procedures that are more specific to their systems and must be coordinated with the NYPP (NYISO). The NY ISO authorizes each Transmission Provider and its operators to take appropriate steps under normal and extreme emergency conditions to restore equipment as quickly as possible in accordance with each TP's operating practices.
ARR 60	"Reliability Rules for Planning and Operating the New York Bulk Power System" May 2, 1997 Filing. NYPP principal document on planning and operating criteria	PLANNING CRITERIA	CENTRAL HUDSON	Used in determining system import and Danskammer export capabilities.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 61	SPS GENERAL REQUIREMENTS Rule Section E Introduction VOLTAGE ASSESSMENT Rule E-R2	BULK POWER SYSTEM Reliability (SPS)	NYPA	PV-20 CROSS-TRIP SCHEME For certain system conditions, NYPA or VELCO may require the PV-20 cross-trip scheme to be enabled to maintain reliability.
ARR 62	STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Transfer Limits	NIAGARA MOHAWK	OSWEGO COMPLEX STABILITY LIMITS During “all lines in service” operation of the Oswego complex, the transient stability limit of the complex must be observed to insure the security of the Bulk Power System. The export out of the Oswego Complex must be within the appropriate transient stability limit assuming this limit is lower than the thermal limit of the complex.
ARR 63	AS ABOVE	BULK POWER SYSTEM Transfer Limits	NIAGARA MOHAWK	OSWEGO COMPLEX –345KV LINE OUTAGES During outages of the 345kV transmission lines in the Oswego Complex, the transient stability limit of the complex must be observed to insure the security of the bulk power system. The export limit Out of the Oswego Complex must be within the appropriate transient stability limit, assuming this limit is lower than the thermal limit of the complex.
ARR 64	PRE-CONTINGENCY AND POST-CONTINGENCY THERMAL CRITERIA Rule E-R1: No facility shall be loaded pre-contingency beyond its normal rating, and no facility shall be loaded post-contingency beyond its LTE rating (STE rating for underground cables).	BULK POWER SYSTEM Local Actions	NIAGARA MOHAWK	OSWEGO GENERATION COMPLEX – THERMAL LIMITS During operation of the Oswego Complex, the thermal limits of the complex must be observed and solved for to insure the security of the bulk power system. The export out of the Oswego Complex must be within the appropriate thermal limit by redispatching Oswego Complex Generation, should no units be “ On Dispatch “ in NYPP SCD.
ARR 65	STABILITY ASSESSMENT Rule E-R3	BULK POWER SYSTEM Local Actions	NYPA	OPERATION WITH HVDC ISOLATED. NYPA may remove the MSC- 040 line from service if the Chateauguay HVDC is isolated onto a single 765/120 kV transformer at Chateauguay and the condition is not corrected within 15 minutes.

TO Application Of NYSRC Reliability Rule No.	NYSRC Reliability Rule	Category	Trans-mission Owner	Definition of The Application
ARR 66	Local Reliability Rule I-R1	Operating Reserves	Con Edison	Con Edison procedure SO3-18 states: The Gowanus and Narrows gas turbines will be placed in the quick start mode when contingency analysis indicates a post contingency violation to meet n-2 criteria exceeds the LTE rating of a facility in the Greenwood/Staten island load pocket, and the running of the Gowanus/Narrows gas turbines is the only alternative available to solve this violation of criteria.

Attachment C – Solar Magnetic Disturbance Form

This form is used to record Solar Magnetic Disturbance (SMD) Forecasts and Alerts from the Space Environment Services Center (SESC) in Boulder, Colorado and from Energy, Mines, and Resources (EMR) in Ottawa, Ontario.

SESC	Intensity	Date/Time: _____ Alert Received By: _____ Duration of Forecast or Alert From: _____ To: _____
Forecasts	_____ ("A" Index of 30 or Above)	Valid Period (Date, Time, Duration) From: _____ To: _____
Alerts	_____ ("K" Index of 5 Above)	Valid Period (Date, Time, Duration) From: _____ To: _____
Other Comments	_____ _____	

EMR	Intensity	Date/Time: _____ Alert Received By: _____ Duration of Forecast or Alert From: _____ To: _____
Forecasts	_____ (Active or Major Storm Conditions)	Valid Period (Date, Time, Duration) From: _____ To: _____
Alerts	_____ (Active or Major Storm Conditions)	Valid Period (Date, Time, Duration) From: _____ To: _____
Other Comments	_____ _____	

Attachment D – Generating Unit AVR / PSS Status Log

This form is used by the NYISO to record the status of Automatic Voltage Regulators and Power System Stabilizers in the New York Control Area.

Unit Name & Identification	Out-of-Service Date Time	Return-to-Service Date Time