



# **Manual 15**

# **Emergency Operations Manual**

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### 6.3. Responses to the Restoration State

When a Restoration State is declared by the NYISO, the NYISO and the Transmission Owners (TOs) shall perform the actions described in this section.

If a disturbance occurs in which a portion of the NYS Power System becomes isolated or shut down, the steps defined in the procedures that are applicable to the disturbance shall be used in the restoration of facilities within the area. Load Shedding procedures have been modified during system restoration events and are detailed in section 7.4.

#### ***NYISO Actions***

The NYISO shall perform the following:

1. Determine that the NYCA is in the Restoration State and notify all TOs.
2. Restore transmission facilities employing the Restoration Procedures and Diagrams found in [Attachment B](#).
3. Coordinate the closing and energizing of inter-company and inter-Control Area transmission ties.
4. Monitor power flow, frequency, and voltage and order appropriate actions by TOs to operate the NYS Power System within NYISO operating criteria.
5. Expedite and coordinate the synchronization of separated areas to adjacent systems within the NYCA and to neighboring Reliability Coordinator areas.
6. Schedule energy transfer, as necessary, with neighboring Reliability Coordinators to facilitate restoration, emphasizing Resource startup and critical loads.
7. Request and permit the restoration of load that has been shed previously when there is sufficient generation and transmission capacity available to maintain the following conditions:
  - nominal frequency of 60 Hz
  - voltages within limits
  - transmission line loading at or below emergency transfer limits
8. Maintain continuous communication with all neighboring Reliability Coordinators impacted by the restoration actions using the most readily available communication device.

9. Communicate periodically with all TOs via the Emergency Hot Line System to provide status reports regarding the restoration actions and the status of the NYCA.
10. Authorize load restoration on the portions of the system electrically connected to the NYISO Black Start facilities and/or neighboring Reliability Coordinators.
11. Authorize generation starts and dispatch on the portions of the system electrically connected to the NYISO Black Start facilities and/or to the neighboring Reliability Coordinator areas.
12. Transmission Owner Actions

The TOs shall perform the following:

1. Execute orders received from the NYISO to restore the NYS Power System.
2. Notify the NYISO as soon as possible, and periodically thereafter, of system status, including generation, transmission, load, and other appropriate information.
3. In accordance with the TOs' restoration procedures, protect system facilities and make them ready to be energized and begin to energize internal facilities necessary to restart generation, supply critical load, and make inter-company ties available for service.
4. Prior to proceeding with switching, isolate from the system all buses that will become energized as a result of these procedures to avoid the inadvertent pick-up of customer load, except where load restoration is required to stabilize voltage levels.
5. Notify the NYISO of internal system conditions, such as voltage problems, transmission overloads, and local mismatch of generation and load, that must be corrected prior to completing the NYISO requests.
6. Re-establish interconnected operation with neighboring systems with the permission of the NYISO.
7. Coordinate with the NYISO any restoration actions that impact other TOs and Reliability Coordinators.
8. Coordinate with the NYISO to provide startup power to generating facilities.
9. Synchronize the system with the restored NYS Power System under the direction of the NYISO as each TO system completes the restoration of its local facilities.
10. Continue to implement the TOs' restoration plans, subject to NYISO coordination.
11. Continue to coordinate with the NYISO as the Balancing Authority any load restoration when connected to another TO or another RC or not driven by the need to control frequency or voltage.

12. Complete the restoration of all customer load, in accordance with the TOs' restoration plans and in coordination with the NYISO.

***The Resource Operators shall perform the following:***

1. Execute requests received from the Transmission Owner.
2. Notify the Transmission Owner as soon as possible, and periodically thereafter, of facility status and other appropriate information.
3. Immediately upon de-energization of a Black Start facility, initiate Black Start procedures.

#### **6.4. Criteria and Conditions for Reestablishing Interconnections**

##### **6.4.1. Assessment of System Conditions Prior to Interconnecting**

Prior to interconnecting, the system operator must be aware of existing system conditions in each of the islands to be interconnected. This includes the following;

1. Magnitude of restored load in the islands;
2. Magnitude of Synchronized Generation;
3. Magnitude of Operating Reserves;
4. Identification of the largest single contingency;
5. Magnitude of armed UFLS;
6. Point of interconnection and supporting System Topology;
7. Prevailing Voltage and Frequency volatility;

##### **6.4.2. Assessment of Tie Line Conditions and Coordination of Tie Line Operating Parameters**

The System Operators will select the strongest tie to synchronize (i.e. those with the lowest impedance and with the largest responsive Resources connected). It is preferred to synchronize near generating plants which have synchro-check relays and with a synchroscope. System Operators will verify both status of automatic reclosing and line charging on the tie line with associated impacts on voltage for line end closing. They will also establish acceptable ranges of deviations in tie line flows that are caused by system restoration activities and the conditions under which the interconnection point may be deliberately opened. Prior to the synchronization of an interconnection the desired voltage difference should be 3% or less. The frequency difference of one synchroscope rotation should occur in no less than 5 seconds.

#### **6.4.3. Assessment and Coordination of Frequency Control for the Operation after Synchronization**

The System Operators will verify and coordinate operable status of AGC after synchronization has occurred. System Operators implement flat frequency control for the larger system, Tie line bias for the smaller system. System Operators shall then discuss a plan to address potential unintended tie flow.