

**RWG Area Restoration Review Worksheet  
(10/28/09)**

EOP-006-02	Directory 8	EOP-005	NYSRG Rule G	Text
<b>Restoration Plan Requirement</b>				
<p><b>R1.</b>Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan.</p>	<p><b>5.1</b> Each Reliability Coordinator and Transmission Operator shall develop and maintain a system restoration plan for its operating area that meets NERC requirements.</p>	<p><b>R1</b> Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator.</p>	<p><b>M1.</b> The NYISO shall develop and maintain a NYCA System Restoration Plan (NYCA SRP) that will assure the prompt restoration of the NYCA system following a major or total blackout..</p> <p><b>G-M2:</b> Each transmission owner shall establish and maintain a restoration plan in accordance with the NYCA SRP, NYISO procedures, and Measurement G-M1....</p>	<p>The requirements for restoration plans are found in the NYISO’s <a href="#">System Restoration Manual</a>, Section 2. The NYISO restoration plan address the both the Reliability Coordinator and Transmission Operator roles of the NYISO.</p> <p><b>“2. RESTORATION PROCEDURES</b> System restoration will take place at two levels: restoration of the NYISO Reliability Coordinator Area’s backbone system in accordance with a NYISO restoration plan and restoration of local areas in accordance with TO restoration plans. Since the exact extent or nature of a disturbance cannot be predicted, the procedures are prepared as general guidelines.</p> <p><b>2.1 NYISO Restoration Plan</b> The NYISO’s procedures for the Restoration State and System Restoration are contained in the Restoration State section of the NYISO’s <a href="#">Emergency Operations Manual</a>.</p> <p><b>2.2 TO Restoration Plans</b> Transmission Owners within the NYISO’s Reliability Coordinator Area must maintain local system restoration plans for their transmission districts consistent with NYSRC, NPCC, and NERC standards. The TOs must maintain current copies of these plans at the NYISO. “</p>
<b>Scope of Restoration Plan</b>				
<p><b>EOP-006-02</b></p>	<p><b>Directory 8</b></p>	<p><b>EOP-005</b></p>	<p><b>NYSRG Rule G</b></p>	<p><b>Text</b></p>
<p><b>R1</b> ...The scope of the Reliability Coordinator’s restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator’s restoration plan ends when all of its Transmission Operators are interconnected and # its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas.</p>		<p>R1 ... The restoration plan shall allow for restoring the Transmission Operator’s System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator’s System.</p>	<p><b>M1....</b> The NYCA SRP shall define that system restoration take place at two integrated levels: restoration of the NYCA backbone system in accordance with a NYISO System Restoration Plan (NYISO SRP) and restoration of local areas in accordance with transmission owner system restoration plans (transmission owner SRPs).</p> <p><b>G-M2:</b> ... This restoration plan shall be coordinated with the restoration plans of other transmission owners and shall be part of the NYCA SRP...</p>	<p>The scope of the NYISO restoration plan is addressed in NYISO’s <a href="#">System Restoration Manual</a> section 1.2.</p> <p>“The New York Control Area (NYCA) restoration plan calls for the energization of the 345-KV transmission backbone from black start resources at the Niagara, Moses, and Gilboa stations. This transmission backbone consists of three paths: Buffalo to Albany into New York City, the St. Lawrence River to Utica, and Buffalo to Binghamton to Albany. From this backbone there are a multitude of options to restore transmission, access available generation, and coordinate with the restoration efforts with the New York transmission owners and neighboring areas.</p> <p>Prompt restoration of the NYISO total customer load is best accomplished by the restoration of the NYS Power System. Although some customer load may be picked up during this procedure in order to maintain stability and voltage levels, priority must be assigned to the restoration of the major transmission ties. Each TO may restore load within its area in accordance with its own restoration plan, but load restoration must not delay the NYISO-coordinated restoration of the NYS Power System.”</p>

**Strategy**

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<p><b>R1.1</b> A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum criteria for meeting the objectives of the Reliability Coordinator’s restoration plan.</p> <p><b>R7.</b> Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.</p> <p><b>R8.</b> The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p>	<p><b>5.1.1</b> identify the operating area’s basic minimum power system(s);</p> <p><b>5.1.3</b> identify interconnection points with adjacent operating areas;</p> <p><b>5.1.6</b> provide for the reenergization of transmission systems to major generating stations , including inter-area tie points;</p>	<p><b>R1.1</b> Strategies for system restoration that are coordinated with the Reliability Coordinator’s high level strategy for restoring the Interconnection.</p>	<p><b>G-M1.12.</b> Identification of guidelines which provide the basis for alternative restoration actions if normal restoration procedures cannot be executed due to system conditions.</p>	<p>The strategy of the NYISO restoration plan is addressed in NYISO <a href="#">System Restoration Manual</a> section 1.2</p> <p>“1.2 Strategy</p> <p>The strategy for prompt restoration of the NYISO’s Reliability Coordinator Area rests on three man principles:</p> <ol style="list-style-type: none"> <li>1. Restoration procedures are based on restoration of a backbone of high voltage lines, but allowing operators flexibility to adjust the restoration path for actual system conditions;</li> <li>2. Periodic training on restoration concepts and procedures; and</li> <li>3. Periodic drills on restoration procedures to exercise details of procedures and reinforce restoration concepts and strategy.</li> </ol> <p>The New York Control Area (NYCA) restoration plan calls for the energization of the 345-KV transmission backbone from black start resources at the Niagara, Moses, and Gilboa stations. This transmission backbone consists of three paths: Buffalo to Albany into New York City, the St. Lawrence River to Utica, and Buffalo to Binghamton to Albany. From this backbone there are a multitude of options to restore transmission, access available generation, and coordinate with the restoration efforts with the New York transmission owners and neighboring areas.</p> <p>Prompt restoration of the NYISO total customer load is best accomplished by the restoration of the NYS Power System. Although some customer load may be picked up during this procedure in order to maintain stability and voltage levels, priority must be assigned to the restoration of the major transmission ties. Each TO may restore load within its area in accordance with its own restoration plan, but load restoration must not delay the NYISO-coordinated restoration of the NYS Power System.</p> <p>Throughout the restoration process, the restored facilities shall be operated in accordance with the operating procedures and criteria in the NYISO’s <a href="#">Emergency Operations Manual</a> and <a href="#">Transmission and Dispatching Operations Manual</a>.</p>

Plan Content				
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<p><b>R1.2.</b> Operating Processes for restoring the Interconnection.</p> <p><b>R1.4</b> Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.</p> <p><b>R1.5.</b> Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area, with Transmission Operators in other Reliability Coordinator Areas, and with other Reliability Coordinators.</p>	<p><b>5.1.5</b> address coordination of system restoration with neighboring operating areas;</p>		<p>G-M1.3. Procedures for coordinating the SRPs of the NYISO and neighboring Reliability Coordinators, including restoration of interconnections.</p>	<p>The procedures for restoring the Eastern Interconnection are contained in the <a href="#">Emergency Operation Manual</a> Section 6.2</p> <p>“6.2 Restoration Procedures</p> <p>NYISO Actions The NYISO Shift Supervisor shall perform the following: ... 2. Coordinate the closing and energizing of inter-company and inter-Control Area transmission ties. 4. Expedite and coordinate synchronizing separated areas to adjacent systems within the NYCA and in neighboring Control Areas. 5. Schedule energy transfer, as necessary, with neighboring Control Areas to facilitate restoration, emphasizing generator start-up and critical loads. 7. Maintain continuous communication with all neighboring Control Areas impacted by the restoration actions using the most readily available communication device.”</p> <p>The criteria and conditions of coordinating point of coordination between the NYISO plan and the restoration plans of transmission owners within New York are identified in the NYISO <a href="#">Emergency Operation Manual</a> Attachment B1, B2, and B3. The criteria address voltage control, load pick-up restrictions. Synchronization parameters are defined in the restoration plans of the Transmission Owners.</p>
<p><b>R1.3.</b> Descriptions of the elements of coordination between individual Transmission Operator restoration plans.</p>	<p><b>5.1.4</b> identify synchronization parameters</p>	<p><b>R1.3.</b> Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.</p>	<p><b>G-M1.1.</b> Procedures for coordinating the NYISO SRP and the transmission owner SRPs.</p>	<p>The procedures for restoring the interconnections between Transmission Owners are contained in the <a href="#">Emergency Operations Manual</a> Section 6.2 and Attachment B-1</p> <p>“6.2 Restoration Procedures The NYISO Shift Supervisor shall perform the following: 1. Determine that the NYCA is in the Restoration State and shall notify all TOs. 2. Coordinate the closing and energizing of inter-company and inter-Control Area transmission ties. 3. Monitor power flow, frequency, and voltage and shall order appropriate actions by TOs to operate the NYS Power System within NYISO operating criteria. 4. Expedite and coordinate synchronizing separated areas to adjacent systems within the NYCA and in neighboring Control Areas. 5. Schedule energy transfer, as necessary, with neighboring Control Areas to facilitate restoration, emphasizing generator start-up and critical loads. 6. 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 7. Maintain continuous communication with all neighboring Control Areas impacted by the restoration actions using the most readily available communication device. 8. 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.</p> <p>Transmission Owner Actions The TOs shall perform the following: 1. Execute requests received from the NYISO Shift Supervisor to restore the NYS Power System. 2. Notify the NYISO Shift Supervisor 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, the TOs shall protect system facilities and make them ready to be energized and shall begin to energize internal facilities necessary to restart generation, supply critical load, and make inter-company ties available for service. 4. Continue to implement the TO's restoration plan, subject to the NYISO Shift Supervisor's coordination. 5. Notify the NYISO Shift Supervisor 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 Shift Supervisor's requests. 6. Coordinate with the NYISO Shift Supervisor any restoration actions that impact other systems.</p> <p>Each TO is responsible for performing the actions listed below in the substations and facilities within its jurisdiction. As these actions are carried out, the TO shall inform the NYISO Shift Supervisor, who is responsible for overall coordination of the restoration procedure.”</p>

				<p>Attachment B-1</p> <p>“Transmission Owner Actions The TO shall perform the following:</p> <ol style="list-style-type: none"> <li>1. Prior to proceeding with switching, the TOs shall isolate from the system all busses that will become energized as a result of these procedures to avoid picking up customer load, except where load restoration is required to stabilize voltage levels.</li> <li>2. Restore appropriate generating facilities at Niagara, St. Lawrence, and Gilboa generating stations.</li> <li>3. Restore transmission facilities following the switching sequence in <a href="#">B-2</a>. <ol style="list-style-type: none"> <li>a. If either the Leeds SVC or the Fraser SVC is available, the following transmission paths may be energized simultaneously: <ul style="list-style-type: none"> <li>Niagara to Marcy (345 kV West)</li> <li>St. Lawrence to Porter (230 kV North)</li> <li>Gilboa to Marcy</li> <li>Gilboa to Shore Road (345 kV East)</li> <li>Gilboa to Watercure (345 kV Central)</li> </ul> </li> <li>b. If both the Leeds SVC and the Fraser SVC are unavailable, the Gilboa to Marcy path must be restored before completing restoration switching steps NM175 -CE190 of the Gilboa to Shore Road path. In addition, specific generating units must be synchronized (see <a href="#">B-2</a>, note [3]) before completing steps NY135 - NY150 of the Gilboa to Watercure path.</li> <li>c. In any case, the synchronization steps (PA125, NM100, and NY150) may not be completed until permission has been granted by the NYISO Shift Supervisor.</li> </ol> </li> <li>4. Where possible, the TOs shall interconnect with neighboring systems to re-establish interconnected operation.</li> <li>5. Provide start-up power from substations capable of delivering the necessary power without endangering the stability of the restored system.</li> <li>6. As each TO system completes the restoration of its NYS Power System facilities, the TO synchronizes the system with the restored NYS Power System grid.</li> <li>7. Complete the restoration of all customer load, in accordance with the TO’s restoration plan. “</li> </ol>
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<p>R1.6 Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.</p> <p>R1.7. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.</p> <p>R1.8. Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.</p>			<p>G-M1.8. Identification of protocols for disseminating information to operating entities identified in the plan during a system disturbance.</p>	<p>The communication procedures associated with restoration are found in the NYISO's <a href="#">System Restoration Manual</a>, Sections 1.4 and §. addresses primary contacts for coordinating restoration information</p> <p>“1.4 Coordination</p> <p>Under normal circumstances, the NYISO will coordinate system restoration among neighboring Reliability Coordinators and Transmission Owners (TOs).”</p> <p>“4. COMMUNICATIONS DURING RESTORATION</p> <p>4.1 Normal and Emergency Communications Procedures</p> <p>Normal and emergency communications procedures and protocols for use during Restoration State recovery actions are found in the Communications section of the NYISO's <a href="#">Emergency Operations Manual</a>.</p> <p>4.2 Loss of Communications with the NYISO</p> <p>If all communication is lost between the Power Control Center and TOs, the TOs shall proceed to restore the NYS Power System using inter-company communication facilities to coordinate all aspects of the restoration according to the procedures in the Restoration State section of the NYISO's <a href="#">Emergency Operations Manual</a>.</p> <p>4.3 Incident Command Structure (ICS) Protocol</p> <p>The NYISO has developed an internal procedure for establishing an Incident Command Structure protocol in order to manage and prioritize off-floor communications during bulk power disturbances. Key elements of this protocol have been shared with appropriate entities for coordination of communication during system recovery.”</p> <p>The reporting requirements within the NYISO Reliability Coordinator area are found in <a href="#">Emergency Operations Manual</a> section 6.3 as follows:</p> <p>“ NYISO Actions The NYISO Shift Supervisor shall perform the following:</p> <ol style="list-style-type: none"> <li>1. Determine that the NYCA is in the Restoration State and shall notify all TOs.</li> <li>....</li> <li>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.</li> </ol> <p>Transmission Owner Actions The TOs shall perform the following:</p> <ol style="list-style-type: none"> <li>....</li> <li>2. Notify the NYISO Shift Supervisor as soon as possible, and periodically thereafter, of system status, including generation, transmission, load, and other appropriate information.</li> <li>...</li> <li>5. Notify the NYISO Shift Supervisor 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 Shift Supervisor's requests.</li> <li>...</li> <li>7. Coordinate with the NYISO Shift Supervisor any restoration actions that impact other systems.</li> <li>.....</li> <li>8. Coordinate with the NYISO to start-up power from substations capable of delivering the necessary power without endangering the stability of the restored system.</li> <li>.....</li> <li>9. As each TO system completes the restoration of its NYS Power System facilities, the TO shall synchronize the system with the restored NYS Power System grid under the direction of the NYISO</li> <li>.....</li> <li>10. Complete the restoration of all customer load, in accordance with the TO's restoration plan and in coordination with the NYISO</li> <li>.....</li> <li>11. Continue to implement the TO's restoration plan, subject to the NYISO Shift Supervisor's coordination.</li> </ol>

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<p><b>R1.9.</b> Criteria for transferring operations and authority back to the Balancing Authority.</p>	<p><b>5.1.7</b> address electrical island stabilization;</p>	<p><b>R1.8.</b> Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.</p> <p><b>R1.9.</b> Operating Processes for transferring authority back to the Balancing Authority in accordance with the Reliability Coordinator’s criteria.</p>		<p>Load Restoration is a Balancing Function text is being added to the be found NYISO’s <a href="#">Emergency Operation Manual</a> section 6.1, as follows:</p> <p>“The NYISO will resume the function of Balancing Authority for all portions of the NYCA system synchronized to facilities connected to the backbone transmission path, as the Black Start facilities become available for system restoration. All TO load and generation restoration on the system under NYISO’s Balancing Authority shall be coordinated through the NYISO. Some customer load may be picked up during the early stages of restoration to maintain stability and voltage levels, but priority must be assigned to the restoration of the transmission backbone and major transmission ties.”</p> <p>Each TO be required to have a restoration procedure to meet local priorities. During restoration, each TO shall coordinate restoration within its own area <b>on portions of the system isolated from the NYISO Black Start Facilities and/or ties to neighboring Reliability Coordinators.</b> TO load restoration must not delay the restoration of inter- and intra-area ties. <b>The NYISO may order load shedding as appropriate to insure that generation capacity is available to achieve the restoration priorities where load additions are impeding the NYS Power System restoration.”</b></p> <p>The individual procedures for the NYISO and Transmission Owners can be found in NYISO Transmission Operator footprint can be found in NYISO’s <a href="#">Emergency Operation Manual</a> section 6.2, as follows:</p> <p>“NYISO Actions The NYISO Shift Supervisor shall perform the following:</p> <p>....</p> <p>6. Schedule energy transfer, as necessary, with neighboring Control Areas to facilitate restoration, emphasizing generator start-up and critical loads.</p> <p>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:</p> <ul style="list-style-type: none"> <li>nominal frequency of 60 Hz</li> <li>voltages within limits</li> <li>transmission line loading at or below emergency transfer limits</li> </ul> <p>....</p> <p>10. Authorize load restoration on the portions of the system electrically connected to the NYISO Black Start Facilities and/or neighboring Reliability Coordinators.</p> <p>Transmission Owner Actions The TOs shall perform the following:</p> <p>10. Complete the restoration of all customer load, in accordance with the TO’s restoration plan and in coordination with the NYISO “</p>
	<p><b>5.1.2</b> address the priority of restoring off-site power to nuclear plants;</p>	<p><b>R1.2.</b> A description of how all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p>		<p>The priority of restoring off-site power to nuclear plants is addressed in the <a href="#">Emergency Operations Manual</a> Section 6.</p> <p>6.1 Overview ..... The following operations shall have the highest restoration priority:</p> <ul style="list-style-type: none"> <li>- Energizing the NYS Power System</li> <li>- Synchronizing the NYS Power System with the interconnection</li> <li>- Restoring off-site power supplies to nuclear power plants</li> </ul>

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	<p><b>5.1.8</b> identify adequate on-site fuel resources for any supplementary generators (e.g., a diesel generator) used to sustain the supply of station service in whole or in part necessary for operating key facilities.</p>			<p>Identification of adequate on-site fuel resources for any supplementary generators, is a required component of restoration plans. The responsibilities of the TO can be found <a href="#">Emergency Operations Manual</a> section 6.2.4, as follows:</p> <p>“6.2.4 Responsibilities ... Each TO be required to have a restoration procedure to meet local priorities. ...”</p> <p>The transmission owners are required to maintain their local restoration plans consistent with NERC standards as stated in the NYISO <a href="#">System Restoration Manual</a> section 2.2:</p> <p>2.2 TO Restoration Plans</p> <p>Transmission Owners within the NYISO’s Reliability Coordinator Area must maintain local system restoration plans for their transmission districts consistent with NYSRC, NPCC, and NERC standards. The TOs must maintain current copies of these plans at the NYISO.</p>
		<p><b>R1.4</b> Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.</p>	<p><b>G- M1.4.</b> Identification of blackstart facilities required for implementing the NYISO SRP, including the names, location, megawatt capabilities, megavar capabilities, and unit type.</p> <p><b>G-M1.6.</b> Procedures requiring that each transmission owner identify blackstart resources that are necessary for implementing its SRP These procedures shall also require transmission owners to identify the name, location, megawatt capacity, megavar capacity, and type of blackstart resource(s) . The identity of transmission SRP blackstart facilities shall be made available to the NYISO and to affected transmission owners.</p>	<p>The requirement for identification of the NYISO Black Start facilities and their characteristics are identified in the NYISO <a href="#">System Restoration Manual</a> section 3. The list of facilities is in the Attachment A to that manual, a document categorized as CEII with restricted distribution.</p> <p>“3. RESTORATION-RELATED FACILITIES</p> <p>The NYISO and the TOs within the NYISO’s Reliability Coordinator Area shall secure adequate black start resources to meet the requirements of the NYISO’s System Restoration Procedure.</p> <p>.....</p> <p>3.1.5 Local Black Start Resources</p> <p>Transmission Owners within the NYISO’s Reliability Coordinator Area are responsible for determining the need and adequacy of black start resources to meet the requirements of their local Restoration Plan. TOs shall develop test procedures to ensure resources are able to perform their intended function. Transmission Owners are responsible for procuring any required local black start resources.</p> <p>Testing criteria for black start and restoration services for resources in the Consolidated Edison Transmission District are found in <a href="#">the NYISO’s Services Tariff, Rate Schedule 5.</a>”</p>

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		R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.		<p>The <a href="#">Emergency Operations Manual</a>, Attachment B2 Restoration Switching Procedure and Attachment B-1 Restoration Diagram identify the initial switching requirements energizing out from the Black Start Resources. These documents are categorized as CEII with restricted distribution.</p> <p>The units to be started in the NYISO restoration plan are the three blackstart hydro facilities. The three blackstart facilities constitute approximately 4,400 MW of generation. The switching procedures for the Cranking Paths for these units are wholly contained within the Generator Operator facility and do not extend into the Transmission Operator’s network.</p> <p>The Restoration Plan identifies specific units to be started in the event of that some elements of the plan are unavailable. Those units and the cranking paths to them are identified in the NYISO Emergency Operation Manual Attachment B1, B2, and B3. These documents are categorized as CEII with restricted distribution.</p>
		R1.6. Identification of acceptable operating voltage and frequency limits during restoration.		<p>Designation of acceptable operating voltage and frequency limits during restoration are addressed in the NYISO’s <a href="#">Emergency Operation Manual</a> B-1: Restoration Procedure as noted below.</p> <p>“B-1: Restoration Procedure</p> <p>Throughout the restoration process, it is the objective of these procedures that the restored facilities be operated in accordance with the operating criteria in this Manual and in the NYISO <a href="#">Transmission and Dispatching Operations Manual</a>.”</p> <p>Identification of the specific voltage limits are addressed in the NYISO Emergency Operation Manual Attachment B2. This document is categorized as CEII with restricted distribution.</p>
		R1.7. Operating Processes to reestablish connections within the Transmission Operator’s System for areas that have been restored and are prepared for reconnection.		<p>Operating procedures for restoring connections within the NYISO Transmission Operator footprint can be found in NYISO’s <a href="#">Emergency Operation Manual</a>, Section 6.2 as noted below.</p> <p>Transmission Owner Actions The TOs shall perform the following: ..... 9. As each TO system completes the restoration of its NYS Power System facilities, the TO shall synchronize the system with the restored NYS Power System grid under the direction of the NYISO</p>
	1.3 Objective ... The functional requirements and performance of operational monitoring and control systems, operator voice communications and data telecommunications are beyond the scope of this Directory, except particular requirements for system restoration. ...		G-M1.7. Identification of the necessary operating instructions and procedures to cover loss of telecommunications channels during a system disturbance	<p>The NYISO’s <a href="#">Emergency Operation Manual</a>, section 6.1 addresses loss of telecommunications:</p> <p>“6.1 Overview</p> <p>Following a system disturbance affecting the NYS Power System, the Restoration State occurs if one or both of the following conditions exist:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> An area within the NYISO Control Area becomes islanded</li> <li><input type="checkbox"/> Customer load becomes interrupted, following a disturbance affecting the NYS Power System</li> </ul> <p>During restoration, each TO shall coordinate restoration within its own area. If all communication is lost between the PCC and TOs, the TOs shall proceed to restore the NYS Power System using inter-company communication facilities to coordinate all aspects of the restoration.”</p>

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Plan Distribution				
<p>R2. The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of creation or revision.</p> <p>R6. Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms so that it is available to all of its System Operators prior to the implementation date</p>		<p>R2. Each Transmission Operator shall provide the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan</p> <p>R5. Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms so that it is available to all of its System Operators prior to its implementation date.</p> <p>R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same 90 calendar day period.</p>		<p>The NYISO's <a href="#">Emergency Operation Manual</a>, section 6.3 addresses the distribution of the plan of and notifications of changes .</p> <p>“6.3 Updating Restoration Documentation</p> <p>Members of the NYISO Operating Committee shall submit to the NYISO Operating Committee for approval any proposed modifications to the Restoration Diagram and the Emergency Restoration Switching Procedure (see <a href="#">Attachment B</a>), which affect the restoration path. Modifications that are required to accommodate system changes must be submitted at least two months prior to completion of the system changes. The Chairman of the NYISO Operating Committee shall notify the NYISO staff of approved changes.</p> <p>The NYISO staff shall make the necessary changes to update the Restoration Diagram and the Emergency Restoration Switching Procedure and shall distribute them to the holders of this Manual.”</p> <p>The NYISO's <a href="#">System Restoration Manual</a>, section 2.2 addresses the distribution of the TO restoration plans.</p> <p><b>2.2 TO Restoration Plans</b></p> <p>Transmission Owners within the NYISO's Reliability Coordinator Area must maintain local system restoration plans for their transmission districts consistent with NYSRC, NPCC, and NERC standards. The TOs must maintain current copies of these plans at the NYISO. “</p>

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<b>Plan Review (Intra)</b>				
<p>R3. Each Reliability Coordinator shall review its restoration plan within 13 calendar months of the last review.</p> <p>R5. Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area</p> <p>R5.1. The Reliability Coordinator shall determine whether the Transmission Operator’s restoration plan is coordinated and compatible with the Reliability Coordinator’s restoration plan and other Transmission Operators’ restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator’s submitted restoration plan within 30 calendar days following the receipt of the restoration plan from the Transmission Operator.</p>		<p>R3. Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule.</p> <p>R3.1. If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.</p> <p>R4 Each Transmission Operator shall update its restoration plan within 90 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned BES modification, that would change the implementation of its restoration plan.</p>	<p>G-M1.10. Procedures requiring transmission owners to notify the NYISO of any proposed changes to transmission owner SRP facilities or procedures that could effect the coordination of the NYISO and TO restoration plans at least two months prior to their implementation.</p> <p>G-M1.11. Procedures requiring that the NYISO and transmission owner SRPs be reviewed and updated annually and whenever changes are made in the NYS Power System. This review shall evaluate the impact of planned system expansion or reconfiguration on these SRPs, prior to implementation.</p> <p>G-M2 ... Transmission owners shall conduct an annual review of their SRP.... Each transmission owner shall report to the NYISO the completion of the ... review</p>	<p>Restoration plan review within NY is addressed through the NYISO <a href="#">System Restoration Manual</a> section 5 as follows:</p> <p>“5. REVIEW AND UPDATING THE SYSTEM RESTORATION PLAN NYISO’s SRP review is conducted annually by the NYISO and TOs. SRP reviews shall verify that: (i) the location and capabilities of black start resources, (ii) the location and magnitude of loads required to maintain voltage and frequency, (iii) the capability of generation resources identified in the plan, and (iv) the specific procedures identified in the plan are adequate to implement the restoration strategy. This review will normally be accomplished via simulation, training, and an annual restoration drill. Review and testing of telecommunication facilities and protocols necessary to implement this plan shall be included in the annual review.</p> <p>Additional reviews of the NYISO's plan should be performed if the NYISO or TOs deem it necessary due to significant changes to the power system network or modeling. Following the review, the NYISO and TOs will update the SRP if required</p> <p>... The TOs shall review their local restoration plans annually and prior to implementing any planned system modification that could affect the coordination of the NYISO and TO restoration plans. These reviews shall evaluate the impact of procedure changes, system expansion, or system reconfiguration. In the event of any proposed changes to TO facilities or procedures that could affect the coordination of the NYISO and TO restoration plans, the TOs shall provide notification at least two months prior to implementation.</p> <p>The NYISO will review restoration plans received from TOs and neighboring reliability coordinators. Review of neighboring reliability coordinator plans is incorporated into the annual review of the NYISO SRP.”</p>
		<p>R6. Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify.</p> <p>R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and the dynamic capability to supply initial Loads.</p> <p>R6.2 The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.</p> <p>R6.3 The capability of generating resources required to control voltages and frequency within acceptable operating limits.</p>	<p>G-M1.9. Procedures for ensuring that the coordination of NYISO and transmission owner SRPs be demonstrated by drill or by simulation.</p>	<p>Restoration plan review within NY is addressed through the NYISO <a href="#">System Restoration Manual</a> section 5 as follows:</p> <p>“5. REVIEW AND UPDATING THE SYSTEM RESTORATION PLAN NYISO’s SRP review is conducted annually by the NYISO and TOs. SRP reviews shall verify that: (i) the location and capabilities of black start resources, (ii) the location and magnitude of loads required to maintain voltage and frequency, (iii) the capability of generation resources identified in the plan, and (iv) the specific procedures identified in the plan are adequate to implement the restoration strategy. This review will normally be accomplished via simulation, training, and an annual restoration drill. Review and testing of telecommunication facilities and protocols necessary to implement this plan shall be included in the annual review.”</p> <p>Section 4 of the <a href="#">Operator Training Procedure OTP-02</a> address the NYISO training program. Section specifically the System Operator training Seminars (SOTS)</p> <p>“As part of the local reliability requirements SOTS includes annual training and exercises on NYISO Backup Operations and NYISO System Restoration. “</p>

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<b>Plan Review (Inter)</b>				
<p>R4. Each Reliability Coordinator shall review their neighboring Reliability Coordinator’s restoration plans.</p> <p>R4.1 If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in 30 calendar days.</p>	<p>1.3 Objective .... On an annual basis, the NPCC Inc. Task Force on Coordination of Operation shall review and accept each applicable entity’s restoration plan for viability and coordination with other operating entities.</p>		<p>G-M1.13. Procedures for coordinating annual updates to the NYISO SRP and restoration plans of neighboring Reliability Coordinators.</p>	<p>Coordination of the NYISO restoration plan with the plans of neighboring Reliability Coordinators is mandated by NPCC <a href="#">Directory 8</a> Section 1.3, and implemented through the annual review activities of the NPCC Restoration Working Group (CO-11)</p> <p>“On an annual basis, the NPCC Inc. Task Force on Coordination of Operation shall review and accept each applicable entity’s restoration plan for viability and coordination with other operating entities. The composite of the individual restoration plans, once reviewed and accepted by NPCC, comprises NPCC’s regional restoration plan.”</p>
<b>Operations Staff Training Programs and Records</b>				
<p>R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following:</p> <p>R9.1 The coordination role of the Reliability Coordinator.</p> <p>R9.2 Reestablishing the Interconnection</p>		<p>R10. Each Transmission Operator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following:</p> <p>R10.1 System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>R10.2 Restoration priorities.</p> <p>R10.3 Building of cranking paths.</p> <p>R10.4 Synchronizing (re-energized sections of the System).</p> <p>R11. Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two calendar years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator’s restoration plan that are outside of their normal tasks.</p> <p>R17. Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two calendar years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following:</p> <p>R17.1 System restoration plan including coordination with the Transmission Operator.</p>	<p><u>G-M4:</u> The NYISO shall establish and maintain procedures for training NYISO and Market Participant operating personnel for the effective implementation of the NYCA SRP, in accordance with the following requirements:</p> <ol style="list-style-type: none"> <li>1. NYISO procedures requiring coordinated training to be conducted at least annually by the NYISO and each transmission owner.</li> <li>2. NYISO training procedures including restoration simulation exercises that include modeling of each transmission owner’s SRP.</li> <li>3. Conduct of annual simulations of full or partial system shutdowns and restoration, including the issuance of critique reports of their respective tests.</li> <li>4. NYISO training procedures requiring Blackstart Providers and other generator owners to participate in training sessions and exercises as appropriate.</li> <li>5. Maintaining program records showing that operating personnel have been trained in the implementation of the NYCA SRP and participated in restoration exercises. These records shall be provided to the NYSRC upon request.</li> <li>6. NYISO procedures for certifying that transmission owner operating personnel</li> </ol>	<p>Restoration plan review and training within NY are addressed through the NYISO <a href="#">System Restoration Manual</a> section 5 as follows:</p> <p>“5. REVIEW AND UPDATING THE SYSTEM RESTORATION PLAN NYISO’s SRP review is conducted annually by the NYISO and TOs. SRP reviews shall verify that: (i) the location and capabilities of black start resources, (ii) the location and magnitude of loads required to maintain voltage and frequency, (iii) the capability of generation resources identified in the plan, and (iv) the specific procedures identified in the plan are adequate to implement the restoration strategy. This review will normally be accomplished via simulation, training, and an annual restoration drill. Review and testing of telecommunication facilities and protocols necessary to implement this plan shall be included in the annual review.”</p> <p>The <a href="#">Operator Training Procedure OTP-02 “Training Program Development”</a> Sections 4, 6.2, and 6.3 identifies the three areas of operator training.</p> <p>4.0 ) <a href="#">System Operator Training Seminars (SOTS):</a></p> <p>The SOTS program is conducted twice a year in six-week sessions. The target audience for this program is both the NYISO System Operators as well as the Transmission Owner Company System Operators. These seminars are a practical follow-up to CESOC, and its content is geared to current and near future operation. ..... As part of the local reliability requirements SOTS includes annual training and exercises on NYISO Backup Operations and NYISO System Restoration.”</p> <p>.....</p> <p>6.1) NYISO-TO Joint Restoration Simulations</p> <p>Coordinated TO – NYISO restoration training is conducted for Restoration training between ISOs and TOs. This training also provides the NYISO Training group the opportunity to better model the TO’s system and gain a better understanding and working knowledge of the TO’s Restoration procedures. This improved knowledge is shared with the NYISO operators via In-house training programs and when working with the TOs during the initial training.</p> <p>.....</p> <p>6.2 ) Regional Emergency Operations Exercises</p> <p>NYISO conducts and/or participates in periodic Regional Operational Restoration Exercises. These exercises usually occur in the Fall of the year and involve the better part of a work day. The objective of the exercise is to train a crew of NYCA operating personnel in the implementation of their Restoration Plans. In addition, it allows for coordination with the neighboring Transmission Operators and Balancing Authorities as they implement their restoration plans.</p> <p>The NYISO’s <a href="#">Emergency Operation Manual</a>, sections 5 and 6.3 addresses the distribution of the plan of and notifications of changes .</p> <p>“6.3 Updating Restoration Documentation</p> <p>Members of the NYISO Operating Committee shall submit to the NYISO Operating Committee for approval any proposed modifications to the Restoration Diagram and the Emergency Restoration Switching Procedure (see <a href="#">Attachment B</a>), which affect the restoration path. Modifications that are required to accommodate system changes must be submitted at least two months prior to completion of the system changes. The Chairman of the NYISO Operating Committee shall notify</p>

		<p>R17.2 The procedures documented in Requirement R14.</p>	<p>have been trained on the transmission owner SRPs consistent with the requirements of NYISO SRP training procedures. The procedures shall require transmission owners to provide the NYISO restoration training program records upon request.</p> <p>G-M1.6 6. In addition, NYISO procedures shall include a requirement that each Blackstart Provider annually provide a letter to the NYISO confirming that it identifies and maintains a list of critical components in its facilities (i.e., batteries, diesel back-up generators, inverters etc.) to verify the condition of these critical components in accordance with good industry practice.</p>	<p>the NYISO staff of approved changes.</p> <p>The NYISO staff shall make the necessary changes to update the Restoration Diagram and the Emergency Restoration Switching Procedure and shall distribute them to the holders of this Manual.”</p>
			<p>G-M2 ....Transmission owners shall conduct annual training of their operating personnel on their SRP procedures, including the procedures for coordinating with the NYISO SRP. Each transmission owner shall report to the NYISO the completion of the annual training...</p>	<p>The NYISO’s <i>System Restoration Manual</i>, Section 2.2 requires that the TO restoration plans be developed and maintained consistent with NYSRC, NPCC and NERC criteria as listed below. These requirements include the requirement for training.</p> <p>“2.2 TO Restoration Plans</p> <p>Transmission Owners within the NYISO’s Reliability Coordinator Area must maintain local system restoration plans for their transmission districts consistent with NYSRC, NPCC, and NERC standards. The TOs must maintain current copies of these plans at the NYISO”</p>

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<b>Drills and Exercises to Validate the Plan and Procedures</b>				
<p>R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted.</p> <p>R10.1 Each Reliability Coordinator shall request each Transmission Operator identified in its restoration plan and each Generator Operator identified in the Transmission Operators’ restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.</p>		<p>R12. Each Transmission Operator shall participate in its Reliability Coordinator’s restoration drills, exercises, or simulations as requested by its Reliability Coordinator.</p> <p>R18. Each Generator Operator shall participate in the Reliability Coordinator’s restoration drills, exercises, or simulations as requested by the Reliability Coordinator.</p>	<p>G-M3 ...Blackstart Providers shall attend NYISO and transmission owner restoration training as required</p>	<p>The <b>Operator Training Procedure OTP-02 “Training Program Development”</b> Sections 4, 6.2, and 6.3 identifies the three areas of operator training.</p> <p>“4) <u>System Operator Training Seminars (SOTS):</u></p> <p>The SOTS program is conducted twice a year in six-week sessions. The target audience for this program is both the NYISO System Operators as well as the Transmission Owner Company System Operators. These seminars are a practical follow-up to CESOC, and its content is geared to current and near future operation.</p> <p>.....</p> <p>As part of the local reliability requirements SOTS includes annual training and exercises on NYISO Backup Operations and NYISO System Restoration.”</p> <p>.....</p> <p>6.2) <u>Regional Emergency Operations Exercises</u></p> <p>....., NYISO conducts and/or participates in periodic Regional Operational Restoration Exercises. These exercises usually occur in the Fall of the year and involve the better part of a work day. The objective of the exercise is to train a crew of NYCA operating personnel in the implementation of their Restoration Plans. In addition, it allows for coordination with the neighboring Transmission Operators and Balancing Authorities as they implement their restoration plans.</p> <p>.....</p> <p>6.3) <u>NYISO-TO Joint Restoration Simulations</u></p> <p>Coordinated TO – NYISO restoration training is conducted , ....between ISOs and TOs. This training also provides the NYISO Training group the opportunity to better model the TO’s system and gain a better understanding and working knowledge of the TO’s Restoration procedures. “</p>
<b>Post Event Analysis</b>				
	<p>5.4 Power System Restoration Event Analysis</p> <p>5.4.1 Reliability Coordinator Restoration Evaluation</p> <p>Following an event where the system restoration plan was invoked, the Reliability Coordinator shall report on the performance of its</p>	<p>R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected the Transmission Operator shall utilize its restoration strategies to facilitate restoration.</p> <p>R8. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator.</p>		<p>Post event review is addressed in the NYISO’s <u>Emergency Operation Manual</u> section 5.</p> <p>“5. REVIEW AND UPDATING THE SYSTEM RESTORATION PLAN</p> <p>.....</p> <p>Following an event where the system restoration plan was invoked, both the NYISO and the TOs shall analyze and report on the performance of their restoration plans. “</p>

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<b>Black Start Testing Requirements</b>				
		<p>R9. Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include:</p> <p>R9.1. The frequency of testing such that each Blackstart Resource is tested at least once every three calendar years.</p> <p>R9.2. A list of required tests including:</p> <p>R9.2.1 The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.</p> <p>R9.2,2 The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from the synchronizing circuits.</p> <p>R9.3. The minimum duration of each of the required tests.</p> <p>R13. Each Transmission Operator and each Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements.</p> <p>R14. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus.</p>	<p>G-M1. 5. Identification of blackstart facility test requirements to verify that each blackstart facility in the NYISO SRP is capable of meeting the requirements of the NYISO SRP. These tests, at minimum, shall be conducted once per capability year and include those tests described in Table BS-1 of NPCC Directory #8, System Restoration</p> <p>G-M2 ...The transmission owner SRP shall include procedures to identify blackstart resources that are necessary for implementing its SRP including testing requirements, in accordance with the NYCA SRP and NYISO procedures.</p> <p>G-M3 Each Blackstart Provider shall develop appropriate test procedures in accordance with G-M2 requirements to ensure those blackstart facilities that are included in the transmission owner's SRP are able to perform their intended functions.</p>	<p>The NYISO's <a href="#">System Restoration Manual</a>, Section 3 specifies the testing procedures for NYISO black start facilities.</p> <p>“3.1.2 Testing Procedures</p> <p>Black start capability tests are to be carried out pursuant to the NYISO Services Tariff Rate Schedule 5 under conditions that demonstrate the unit's ability to perform its intended function as required in the SRP. Black start resources must prepare specific testing procedures that are adequate to test the unit's ability to, following a system-wide blackout, startup and fulfill its requirements in the SRP without the availability of an outside electric supply. The most current plan must be provided to the NYISO, and in the case of local black start resources, to the appropriate TO upon request.</p> <p>3.1.3 Testing Frequency</p> <p>At least once each capability year each black start resource in the NYISO's Reliability Coordinator Area must test or demonstrate the ability of their black start unit(s) to perform their intended function as required by the NYISO's or local TO's SRP. Tests must be coordinated with the NYISO and the TO in whose service territory the unit is located.</p> <p>3.1.4 Documentation of Testing</p> <p>Generator Operators of black start units shall document the date, start-time, and duration of all tests, and indicate if the test met the criteria in the unit's Black Start test plan. This documentation must be provided to the NYISO within 30 calendar days following a request from the NYISO. Testing will be documented using <a href="#">Attachment B</a>. The NYISO shall maintain a database of all units identified as black start resources for use in the SRP. This database shall include the name, location, megawatt capacity, megavar capacity, type of unit, latest date of test, and starting method for each unit. ”</p> <p>The NYISO's <a href="#">System Restoration Manual</a>, Section 2.2 requires that the TO restoration plans consistent with NYSRC, NPCC and NERC criteria as listed below. These requirements include the requirement for testing.</p> <p>“2.2 TO Restoration Plans</p> <p>Transmission Owners within the NYISO's Reliability Coordinator Area must maintain local system restoration plans for their transmission districts consistent with NYSRC, NPCC, and NERC standards. The TOs must maintain current copies of these plans at the NYISO”</p>

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<b>Black Start Testing Records</b>				
		<p>R16 Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan.</p> <p>R16.1 Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.</p> <p>R16.2 Each Generator Operator shall provide the blackstart test results within 30 calendar days following a request from its Reliability Coordinator or Transmission Operator.</p>	<p>G-M3</p> <p>,,,,,Each Blackstart Provider shall complete a successful test of the startup and operation of each of its Blackstart Facilities included in the NYCA SRP in each capability year to demonstrate that its Blackstart Facilities can perform their intended functions in accordance with the procedures required in Measurement G-M1. Each Blackstart Provider shall provide documentation of these test results to the appropriate entity in accordance with NYISO and transmission owner procedures. .</p> <p>....In addition, each Blackstart Provider shall annually provide a letter to the NYISO confirming that it identifies and maintains a list of critical components in its facilities (i.e., batteries, diesel back-up generators, inverters etc.) and performs tests to verify the condition of these critical components in accordance with good industry practice. Test results will be provided to the NYISO upon request.</p>	<p>Proposed changes to the NYISO's <a href="#">Ancillary Services Manual</a></p> <p><b>7.4 Black Start Service Procedures</b> The following procedures apply to black start capability service: ..... .</p> <p><b>Black Start Generator Actions</b> The Black Start suppliers shall perform the following: 1. On an annual basis, provide the NYISO with embedded cost information. 2. Submit to performance testing when requested by the NYISO.”</p> <p><b>3. On an annual basis, provide a letter to the NYISO confirming that they identify and maintain a list of critical components in their black start facilities (e.g., batteries, diesel back-up generators, inverters, etc.) and perform tests to verify the condition of these critical components in accordance with good industry practice.”</b></p>

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<b>Notification of Capability Changes</b>				
	<p>5.7.1.1 As soon as possible and no later than 15 minutes after its control room has confirmed the loss of functionality at a key facility due to the failure of critical components. Loss of functionality at a key facility is defined as the loss of operability which can negatively impact the restoration plan. Examples of such conditions are:</p> <ul style="list-style-type: none"> <li>- Loss of equipment control;</li> <li>- Complete loss of AC or DC service supply;</li> <li>- Loss of Blackstart facilities</li> </ul> <p>5.7.1.2 As soon as possible and no later than 24 hours after their control room staff becomes aware of the failure of critical components associated with key facilities which results in a loss of redundancy at a key facility. Examples of such conditions are:</p> <ul style="list-style-type: none"> <li>-Loss of a redundant AC or DC service supply;</li> <li>- Loss of redundant Blackstart facilities</li> </ul> <p>The report shall identify remedial actions to be undertaken, including the date by which the work is to be completed.</p>	<p>R15. Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours following such change.</p>		<p>The NYISO’s <a href="#">Emergency Operations Manual</a>, Section 1.5.2 .addresses transmission capability:..</p> <p>“...TOs shall notify the NYISO System Operator immediately of transmission line status changes...”</p> <p>The NYISO’s Outage <a href="#">Scheduling Manual</a>, Section 2.addresses generator capability.</p> <p><b>2.2.3. Forced Full or Partial Generator Outages</b> A forced or partial generation outage is of the most serious events that can impact system stability and reliability. Depending on the magnitude of the unit or units affected, the system can change from normal operational status to an emergency condition. Even if a single unit outage does not cause this effect by itself, it is extremely important the NYISO knows the correct status of all generators located in the NYCA and/or serving load in the NYCA. In cases where units suffer a forced or partial generation outage the following procedure will apply:</p> <p><b>NYISO Actions:</b></p> <ol style="list-style-type: none"> <li>1. Obtain the following information about the generator forced outage: <ol style="list-style-type: none"> <li>a) Unit or units involved in the outage.</li> <li>b) Reason for the forced or partial generation outage unit outage.</li> <li>c) Any special conditions related to the full or partial outage.</li> <li>d) Start time and estimated duration of the unit outage.</li> </ol> </li> <li>2. Change generator status or limits appropriately in the Energy Management System.</li> <li>3. Assess the post-contingency conditions for thermal, voltage or stability violations, after being notified by the generator that a unit is out of service or derated. If NYISO determines the reliability criteria will be violated as a result of the outage, the NYISO shall take appropriate actions to correct the problem.</li> <li>4. Inform the appropriate TOs.</li> <li>5. After the unit is returned to service, take the necessary actions to remove restrictions placed on the NYISO monitored facilities.</li> <li>6. When the unit is restored to normal service, inform the appropriate TOs.</li> </ol> <p><b>Generator Actions:</b></p> <ol style="list-style-type: none"> <li>1. Inform NYISO as soon as possible after a unit is forced out of service or derated.</li> <li>2. Determine and report to NYISO the following information: <ol style="list-style-type: none"> <li>a) Unit or units involved in the full or partial outage.</li> <li>b) Reason for the full or partial outage.</li> <li>c) Any special conditions related to the full or partial outage.</li> <li>d) Start time and estimated duration of the full or partial outage</li> </ol> </li> <li>3. When a generator on full or partial forced outage becomes available for service again, it may submit a new bid in-day for potential commitment in the BME or Special Resource Evaluation (SRE), or Day-Ahead for potential commitment by Security Constrained Unit Commitment.</li> <li>4. Inform NYISO immediately when any unit is available and of any derated capacity or operational deficiency with the unit.</li> </ol>