

**CENTRAL MAINE POWER COMPANY  
RESPONSE TO ORAL DATA REQUEST NO. 3  
DOCKET No. 2008-255**

December 8, 2008

**ODR-03-51**

- Q.** Is the outage sequencing study being done to comply with N-1-1, and if not, why not?
- A.** The outage sequencing study has not been conducted. In preparation for the study, a preliminary outage sequence plan has been developed to produce a cost estimate and to assist in the project management activities associated with the equipment procurement and construction phases. The actual outage sequence study will comply with the transmission outage scheduling requirements and procedures defined by ISO-NE (Operating Procedure #3 – see Attachment 1) and the Maine Local Control Center. The studies will analyze specific time periods and load and generation assumptions when portions of the system are removed from service to complete construction activities. First and second contingency coverage will be assessed based on impact to the local and bulk power system. Construction outages that may result in widespread impacts on the bulk power system will have specific operating procedures to provide second contingency coverage.

**Response Prepared and Submitted By:**

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**Attachment(s):**

1. OP3 RTO Final.pdf



# Operating Procedures

### **ISO New England Operating Procedure No. 3 Transmission Outage Scheduling**

Effective Date: June 17, 2008

**References:**

NPCC Critical Facilities List (NPCC C-13 Appendix D)

NPCC Maintenance Criteria for Bulk Power System Protection (A-04)

ISO New England Operating Procedure No. 1 – Central Dispatch Operating Responsibility and Authority, ISO New England, the Local Control Centers and Market Participants (OP 1)

Common System Operating Instructions for Hydro-Quebec and New England Power Pool, +- 450 KV DC Lines

ISO New England Market Rules and Manuals

ISO New England Operating Procedure No. 19 – Transmission Operations

Transmission Operating Agreement

Other Transmission Operating Agreements(s)

ISO New England Operating Procedure No. 5 – Generator and Dispatchable Asset Related Demand Maintenance and Outage Scheduling (OP-5)

Participants Agreement

Market Participants Service Agreement

ISO New England Manual for Financial Transmission Rights Manual M-06

**Local Control Center Instructions:**

CONVEX: Operating Instruction No. 6401 – Protective Switching and Tagging Rules

MAINE: Maine Operating Procedure No. 3

NEW HAMPSHIRE: OP-0003 Transmission / Distribution Maintenance

NSTAR OP 3 Outage Scheduling

REMVEC II: REMVEC II Operating Procedure No. 3

VELCO: VELCO Operating Procedure OP-3

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APPENDIX A - Transmission Facility Category Listings Including Category B Transmission Circuits That Do Not Affect Generation or Dispatchable Asset Related Demands

APPENDIX B - ISO New England Standard 115 kV and Above Transmission Line Patrol & Inspection Program

APPENDIX C - ISO New England Right-Of-Way Vegetation Management Standard

APPENDIX D - Category B Transmission Circuits That Affect Generation or Dispatchable Asset Related Demands and Must Be Treated As Category A

APPENDIX E - Long-Term Transmission Outage Plan Spreadsheet

APPENDIX F - Minimum Advance Notice Times - Outage Requests For Specific Equipment

## I. INTRODUCTION

### A. BACKGROUND

Transmission outages for construction, tests, maintenance or repair must be coordinated to ensure that reliability is maintained at levels prescribed by ISO New England (ISO) Operating Procedure No. 19 - Transmission Operations (OP-19). In addition, whenever possible, transmission, Generator and Dispatchable Asset Related Demand (DARD) outages will be coordinated to reduce congestion costs. For importing areas, economic Generators and DARDs within the area should not be scheduled out simultaneous with transmission facilities that significantly support area import capability. For exporting areas, Generator and DARD outages within the area should be coordinated coincident with the outage of transmission facilities that significantly support area export capabilities.

In addition, this Procedure is to be construed throughout as reflecting that ISO possesses the ultimate authority for approval of proposed schedules and rescheduling of proposed or approved transmission outages based on either reliability or market efficiency considerations. The processes described in this Procedure are those that ISO will generally use to consider outage approval, scheduling and rescheduling, but shall not diminish or limit ISO's ultimate authority as described in the preceding sentence.

### B. PURPOSE AND SCOPE OF PROCEDURE

The purpose of this Procedure is to achieve the following:

- Facilitate the preparation, by Transmission Owners (TOs) and Local Control Centers (LCCs), of TO Long-Term Transmission Outage Plans (LTTOP) for their transmission facilities
- Facilitate the preparation, by ISO, of a Composite LTTOP
- Coordinate transmission outages with Generator and DARD outages to plan for reliable operations and minimize congestion
- Promote the certainty of Major Transmission Outages modeled in ISO's monthly FTR auction
- Establish a Short-Term Outage scheduling process that does not jeopardize the reliability of the transmission system and continues to minimize congestion
- Provide guidelines for responding to unplanned outages

This Procedure defines Category A, Category B and Local Area Facilities (LAFs) and establishes criteria and guides for submitting, evaluating, approving, and disapproving or repositioning all work on these facilities. A complete list of Category A and B Facilities can be found on the OASIS website. Whereas LAFs involve sub-transmission facilities (below 69kV) that have been delegated to LCCs within New England, a list of these facilities is not called for by the Transmission Operating Agreement (TOA) between ISO and TOs nor required for purposes of this procedure.

Appendix A provides a general description of the categories and an Internet link to the OASIS website. More specifically, Appendix A of this procedure lists Category B Facilities (radial 115 kV circuits and 69 kV circuits) that do not affect generation or DARDs. Based on their nature, the lead-time for requesting outages of these Appendix A Facilities is relatively short. In Appendix B, ISO New England Standard 115 kV & Above Transmission Line Patrol & Inspection Program describes the ISO standard patrol and inspection program for transmission lines. In Appendix C, ISO New England Right-of-Way Vegetation Management Standard describes the ISO method of vegetation management. Appendix D lists Category B Facilities whose outages affect generation or DARDs, requiring them to be processed using the more stringent rules for Category A Facilities.

## II. DEFINITIONS

Definitions used in this Procedure: **Category “A” Facilities:** All Circuits  $\geq$  115 kV except 115 kV radial circuits All ties between ISO and neighboring Control Areas/Balancing Authority Areas (CAs/BAAAs) (regardless of voltage)

- All transformers that:
  - Have one or more “A” facilities on the low voltage side
  - Require an “A” facility to be taken out of service with the transformer
- Equipment associated with an “A” facility:
  - Breakers, disconnects
  - Relays, reclosing
  - Shunts, SVCs, STATCOMs
  - Series reactors and capacitors
  - PARs
  - SPSs
- **Category “B” Facilities:**
  - All 115 kV radial circuits
  - All 69 kV circuits (except ties between ISO and neighboring (CAs/BAAAs)
  - All transformers that have one or more “B” and no “A” facilities on low side
  - Equipment associated with a “B” facility:
    - Breakers, disconnects
    - Relays, reclosing
    - Shunts, SVCs, STATCOMs
    - Series reactors and capacitors
    - PARs
    - SPSs
- **LAFs:**
  - All circuits  $<$  69 kV

- All transformers with no “A” or “B” facilities on low side **TO LTTOP**: Twelve-month rolling projections, submitted monthly by TOs, of future transmission outages
- **Composite LTTOP**: A rolling twelve-month plan produced by ISO showing all Long-Term Planned Transmission Outages
- **Long-Term Planned Transmission Outage**: Outages included in the Composite LTTOP
- **Major Transmission Outages**: Planned transmission outages for facilities that are expected to be modeled for purposes of ISO’s monthly FTR auction as governed by ISO New England Manual for Financial Transmission Rights Manual M-06
- **Auction Month**: The month in which a Major Transmission Outage is scheduled to occur
- **Scheduled Outages**: Transmission Outages scheduled for the purposes of the FTR auction and outages scheduled as requested by the TO. These outages are submitted within specified lead times to promote the certainty of outages modeled in ISO’s monthly FTR auction or those requested by the TO and to allow outage priority to be assigned
- **Short-Term Transmission Outages**: Outages that are submitted for ISO Approval as described in Section VI of this Procedure
- **Status**: One of the following:
  - **Planned Status**: TO LTTOPs being prepared for Submittal Status
  - **Submitted Status**: Transmission outages prepared for ISO study and acceptance and awaiting **Interim Approved Status** or **Approved Status**
  - **Study Status**: Transmission outages actively being studied and evaluated by ISO to determine **Interim Approved Status** or **Approved Status**
  - **Interim Approved Status**: Scheduled Transmission Outages that have been studied and accepted by ISO **but waiting final Approved status**.
  - **Approved Status**: Transmission Outages studied and accepted by ISO in accordance with the **Short-Term Outage process**
- **Unplanned Outage**: Any outage that fails to satisfy the lead times required for Short-Term Transmission Outage processing

There are four types of Unplanned Outages:

**1. Emergency Outage**

The obvious failure of a piece of transmission equipment that comes out of service on its own or requires immediate operator intervention to remove it from service.

**2. Forced Outage**

The discovery of a problem that needs to be repaired as soon as crews, equipment, and/or corrective dispatch actions can be put in place to allow the work to be performed. By definition, a Forced Outage cannot be scheduled. More specifically:

- A Forced Outage cannot be delayed to avoid paying overtime rates; e.g. on a Friday, delaying a Forced Outage until Monday, rather than performing the work

on Saturday. This implies that a Forced Outage must occur on consecutive days, except in the case described in the next bullet

- A Forced Outage cannot schedule an Alternate Date. If weather impairs safe work conditions, the outage can be moved to the next available fair weather day, and the planned end date/time shall be extended
- An Opportunity Outage that unexpectedly causes additional adverse impact on either system reliability or market efficiency beyond that which was originally anticipated. Typically this would be associated with the unexpected extension of the defined timing parameters.

### 3. Overrun Outage

This is any outage that fails to return to service by its planned end time, and the outage has extended into the next calendar day.

### 4. Opportunity Outage

An outage that is submitted for ISO Approval resulting from an unexpected opportunity to accomplish work that would otherwise require another outage at a less opportune time. It shall be coordinated to minimize the overall impact on system reliability and /or market efficiency.

- **Congestion Costs:** The estimated increased expenses resulting from forecasted real-time commitment or re-dispatch of “out of merit” generation and DARDs or the forecasted real-time re-dispatch or de-commitment of “in merit” generation and DARDs in the Energy & Reserves Markets to respect operating criteria
- **Significantly Reduced Congestion Costs:** Reductions in forecasted real-time congestion and RMR costs resulting from the repositioning of a transmission outage are considered significant when the reduction minus the TO’s incremental direct costs for repositioning the outage exceeds \$200,000 per week or any portion of a week

## III. AUTHORITIES AND RESPONSIBILITIES

### ISO Authorities and Responsibilities

ISO shall:

- Receive from LCCs, LTTOPs and Short Term Transmission Outage applications that were not disapproved by the LCCs, for all Category A Facilities, and for Category B Facilities if Generator or DARD output could be affected by the outage. Outage requests for LAFs that affect Generator or DARD output shall be processed using LCC and ISO OP-5 scheduling practices
- Review proposed outages in the LTTOP, proposed Scheduled Outages and Short Term Outage applications and compare them to Generator and DARD outage plans as follows:
  - Evaluate the impact of proposed transmission outages on the reliability of the New England CA/BAA power system operations. Reposition or disapprove any outage that could be expected to violate reliability criteria for the New England CA/BAA

- transmission system and for which repositioning the outage could reasonably be expected to improve reliability
- Work with LCCs to adjust Generator, DARD and transmission outages to minimize congestion costs. When warranted, and time permitting, perform economic analyses of outage alternatives to define and examine potential congestion costs. Reposition the outage if Significantly Reduced Congestion Costs are feasible, or where lesser congestion reduction is available and the TO(s) agree
  - Have the authority to reposition or disapprove any outage that adversely impacts market efficiency
- Appropriately notify LCCs and Market Participants of action regarding outage requests
  - Assign to the LCCs the function of receiving, evaluating, approving or disapproving transmission outage applications submitted by a TO, with respect to its impact on the reliability and congestion of LCC operations
  - Promote the continuous flow of information between ISO, the LCCs, and the TOs to match pending transmission outage work with planned or forced Generator and DARD outages to the extent practicable
  - Monitor the outage positioning activities of the TOs. ISO shall have the right to request that a TO provide information to the ISO Market Monitoring Unit concerning the TO's positioning of transmission facility outages, including the repositioning or cancellation of any Planned, Scheduled or Approved Outage
  - Assign each LTTOP request a date stamp and status. Assign each Scheduled and Short Term Transmission Outage request a number, date stamp and Status. In general, the number, date stamp and Status will be used, if needed, to prioritize outage requests. ISO will attempt to resolve conflicting Short Term Transmission Outage requests through discussions with the affected LCCs. When discussions cannot resolve the conflict, the Short Term Outage that was input earliest into the LTTOP shall have priority
  - Determine which Major Transmission Outages will be modeled in the ISO Monthly FTR Auction and appropriately notify LCCs and TOs
  - Post the following outage types with corresponding Status on the ISO Web Site:
    - Scheduled for the FTR auction with Interim Approval status
    - Scheduled for TO with Interim Approval status
    - Short Term Outages with Submitted, Study and Approved status

**NOTE**

In accordance with the ISO New England Information Policy and to avoid the potential exercising of market power by any entity, outages that obviously restrict a Resource (such as radial circuits to Generators or DARDs) will not be posted.

LCC Authorities and Responsibilities

LCCs shall:

- Receive TO LTTOPs and Short Term Transmission Outage applications from TOs for all Category A Facilities, and for Category B Facilities if Generator or DARD output could

be affected by the outage. Outage applications for LAFs that affect Generator or DARD output shall be processed using LCC and ISO OP-5 scheduling practices

- Prior to relaying proposed outages to ISO for final evaluation and approval, review proposed LTTOPs, proposed Scheduled Outages and Short Term Transmission Outage applications and compare them with Generator and DARD outage plans and applications received from ISO as follows:
  - Evaluate the impacts of proposed transmission outages on the reliability of LCC operations. Reposition or disapprove any outage that could be expected to violate LCC reliability criteria and for which repositioning the outage could reasonably be expected to improve reliability
  - Identify and pursue cases where Generator, DARD and transmission outages could be adjusted to reduce / eliminate Congestion Costs. In each case, LCCs will facilitate / coordinate outages as detailed in Section VI.C.1 of this procedure to achieve Significantly Reduced Congestion Costs, or to achieve lesser congestion reduction if the TO(s) agree.
- Forward proposed transmission outages not disapproved by the LCC to ISO for further evaluation and coordination
- Relay ISO actions regarding outage requests to TOs
- Perform dispatching functions for all Category B and LAFs if Generator or DARD output is not affected by the outage, if assigned that responsibility by its Market Participants
- Promote a continuous flow of information between ISO and the TOs to match pending transmission outage work with Generator and DARD outages to the extent practicable
- Ensure that non-public transmission outage information and outage information associated with other Generators and DARD is not shared with the Owners contacted
- Refrain from engaging in multi-party communications simultaneously with Generator, DARD and TOs unless the transmission outage of concern only affects one Resource owner

#### TOs' Authorities and Responsibilities

TOs or their designees shall:

- Submit their proposed or updated TO LTTOPs to their respective LCC and provide as much information as possible on the flexibility of shifting the requested period forward or backwards
- When requested by ISO, confirm to their respective LCCs whether they intend to continue with an outage that has been identified by ISO as a Major Transmission Outage
- Submit requests for scheduling outages (for purposes of the TO) and Short Term Outage Requests to their respective LCCs and if requested by the LCC provide as much information as possible on the flexibility of shifting the requested period

- Work with the LCCs and ISO to provide alternate outage dates when it is determined that congestion could be eliminated or reduced by doing so
- Propose changes to any requested outage promptly after circumstances develop and submit reasons for the change to the LCC
- Provide information regarding their direct costs for canceling outages to their LCC and ISO when requested
- When requested, submit information concerning the TO's positioning of transmission facility outages to ISO

**NOTE**

TO staff working on transmission outages may be provided with Generator and DARD outage information to assist in the establishment of alternate dates. The TO staff working on transmission outages shall not disclose this information to other parties.

#### **IV. LONG-TERM TRANSMISSION OUTAGE PLANS**

##### **A. PREPARATION/UPDATE OF LONG-TERM TRANSMISSION OUTAGE PLAN**

TOs or their designees shall submit their proposed or updated LTTOPs for all Category A Facilities and Category B Facilities if Generator or DARD output could be affected by the outage. Local Area Transmission Facilities affecting generation or DARD are processed using LCC and ISO OP-5 scheduling practices. LTTOPs project out 12 months and are submitted to the respective LCC in a manner that allows the LCC to submit the plans to ISO by the 15th of each month. The LCC will perform all outage coordination subject to ISO oversight. LTTOPs shall include all the information requested in Appendix E - LTTOP Spreadsheet.

ISO will create and maintain a Composite LTTOP. An updated Composite LTTOP will be issued on the 1st of each month. Publication of the composite plan will be in accordance with the ISO New England Information Policy. This update will incorporate the following information:

- Newly submitted or revised TO plans for transmission outages
- Adjustments to previously submitted plans made to ensure system reliability
- Adjustments to previously submitted plans to reduce congestion

ISO and LCCs, working with transmission, generation and DARD owners, will reposition outages; 1) that could be expected to violate reliability criteria or, 2) to reduce or eliminate Congestion Costs.

##### **B. SCOPE OF LONG-TERM TRANSMISSION OUTAGE PLAN**

The plan will include Planned Outages of Category A Facilities and Category B Facilities if Generator or DARD output could be affected by the outage. The outage of any associated equipment including breakers, disconnects, shunts, SVCs, STATCOMs, series reactors or capacitors, PARs and SPSs must also be reported. Work on relays and

reclosing should be included only if the associated transmission facility will be taken out of service or if transfer limits may be reduced with the relay out of service.

TO submission of LTTOPs does not eliminate the requirement for TOs to submit applications for Scheduled or Short-Term Outages, as described in Section V and VI of this Procedure.

## **V. SCHEDULED TRANSMISSION OUTAGES**

### **A. DETERMINING SCHEDULED STATUS FOR MAJOR TRANSMISSION OUTAGES FOR THE MONTHLY FTR AUCTION**

At least 2 months plus 10 business days prior to the Auction Month, ISO reviews the LTTOP and individually notifies each TO or their designee and their respective LCC, as to which of their Long-Term Planned Transmission Outages would be classified as Major Transmission Outages for use in the monthly FTR Auction.

At least 2 months prior to the Auction Month TOs shall decide to either confirm their intentions to perform the Planned Outage in the auction month or move the Planned Outage to a later time frame. TOs will notify their respective LCC of their decision. If the TO decides to stay with the outage as planned, the LCC will immediately submit a request to designate the outage as a Scheduled Outage for purposes of the FTR auction. If the TO decides that the Planned Outage will not occur in the month indicated, the TO shall modify the timing of the Planned Outage in the LTTOP and submit their new plans for the outage.

Once the TO submits the Major Transmission Outage for Scheduled status through the LCC, ISO will work with the LCC to review the Outage. The LCC and ISO have ten (10) business days from the TO's submittal deadline to either accept the Major Transmission Outage as a Scheduled Outage or provide the TO with proposed modifications to the outage.

### **B. DETERMINING SCHEDULED STATUS FOR TRANSMISSION OUTAGES PER REQUEST OF THE TRANSMISSION OWNER**

Within 2 months but no later than 21 calendar days prior to the start of a Long Term Planned Outage, the TOs may apply for an outage to be Scheduled.

Once the TO submits the outage for Scheduled status through the LCC, ISO will work with the LCC to evaluate the Outage. Within 5 business days of submittal, ISO, after coordination with LCCs, will designate the Outage as Scheduled or propose changes in which case the TO, ISO and the LCCs shall coordinate to achieve a new date for scheduling the outage.

### **C. PROCESSING OUTAGES WITH SCHEDULED OUTAGE STATUS**

After designating a Planned Outage as Scheduled, ISO and LCCs during their review can reposition the outage if it could be expected to violate reliability criteria or to achieve Significantly Reduced Congestion Costs. Furthermore, an outage may be repositioned to avoid net costs less than the \$200K threshold if agreed to by the involved TO(s).

In the event transmission outages need to be rescheduled, then Scheduled Outages shall have priority over transmission outages that are in the Planned, Submitted or Study mode. Outage priority is as follows:

1. Scheduled for the FTR auction with Interim Approval status.
2. Scheduled for TO with Interim Approval status.
3. Short Term Outage with Approved status.
4. Short Term outage in the Study mode.
5. Short Term outage in the Submitted mode.
6. Long Term Planned Outage.

ISO and the LCC, working with the TO, will generally reschedule, within 90 days of the original schedule, any outage requiring repositioning for reliability violations or congestion. In the event that the 90-day period falls between June 1<sup>st</sup> and September 1<sup>st</sup>, ISO and the LCCs will generally reschedule such outages during a period that begins no later than October 31<sup>st</sup>. Assessments for rescheduling the outage will be performed within 10 business days of the cancellation notice for Major Transmission Outages for the monthly FTR auction and 5 business days of the cancellation notice for those requested by the TO.

The TO can propose changes to Scheduled Outages. The TO must notify the applicable LCC promptly after circumstances develop that necessitates such a change. The notification will include a description of the circumstances that led to the change request. The LCC will promptly forward the information to ISO. Changes to Scheduled Outages shall be subject to ISO Market Monitoring and Mitigation review.

ISO shall post all Scheduled Outages, which have received Interim Approval status on the ISO Web Site. Any revisions will be updated on the Web Site in a timely manner.

Scheduling of transmission outages does not eliminate the requirement for TOs to submit detailed applications for Short-Term Transmission Outages, as described in Section VI of this Procedure.

## **VI. SHORT-TERM TRANSMISSION OUTAGE APPROVALS**

### **A. ROUTING OF APPLICATIONS FOR SHORT-TERM TRANSMISSION OUTAGES**

The Market Participant or Company wishing to do work on facilities covered by this Procedure shall submit a completed application form to the appropriate LCC. This section describes the subsequent routing of the application for different types of transmission outages.

1. Facilities solely under the jurisdiction of the LCC:

Category B Facilities not affecting Generator or DARD output and all Local Area Transmission Facilities are under the jurisdiction of the LCC. The handling of outages for these facilities is a LCC function. Applications are acted upon by the LCCs and need not be forwarded to ISO, however Local Area Transmission Facility outages affecting generation or DARD will be processed using LCC and ISO OP-5 scheduling practices and Category B Facility outages not affecting generation or DARD will be sent to ISO in a daily summary sheet.

2. Facilities requiring assessment by the LCC and ISO:

Unless the LCC disapproves the application, the LCC shall review and forward to ISO for assessment, all applications for work on Category A Facilities and Category B Facilities if Generator or DARD output could be affected by the outage.

3. Inter-LCC and Inter-Area Facilities:

Because of the special communication requirements that apply when applications involve Inter-LCC (i.e., facilities crossing LCC boundaries but not leaving the Area) and Inter-Area facilities, the LCC and ISO will coordinate these applications as follows:

- **Inter-LCC facilities:** The LCC will forward applications to the adjacent LCC and to ISO for approval or disapproval
- **Inter-Area facilities - NYISO and NBSO:** The LCC will forward applications to the appropriate adjacent system's dispatch agency and to ISO. ISO shall forward applications to the appropriate NPCC Control Area/Balancing Authority (CA/BA) for approval or disapproval
- **Inter-Area facilities - TransEnergie:** The LCC will forward applications to ISO. ISO will perform all coordination with TransEnergie. Applications will be forwarded to TransEnergie for approval or disapproval

4. Applications initiated outside the New England CA/BAA

Applications initiated by systems outside the New England CA/BAA for work on inter-Area facilities will first be communicated from the outside company to the involved LCC. If the LCC and outside company agree to times and dates for an outage, the outside company will forward the application to its NPCC CA/BA who will assess the application and if approved, forward it to ISO for approval under this Section VI. ISO will notify the appropriate LCC.

5. Facilities on the NPCC Critical Facilities List

In addition to inter-Area facilities, there are other facilities in each NPCC Area that, if taken out-of-service, can affect adjacent Areas. These facilities are listed in the document entitled, NPCC C-13, Operational Planning Coordination, Appendix D, NPCC Critical Facilities List. ISO will forward transmission outage applications received from the LCCs, involving the New England CA/BAA facilities listed on

Appendix D of NPCC C-13, to the appropriate NPCC Areas for approval or disapproval. Applications received by ISO from adjacent NPCC Areas, involving NPCC Area facilities which can affect the New England CA/BAA transmission system, will be reviewed by ISO for approval under this Section VI and reported to the appropriate LCCs.

**B. MINIMUM ADVANCE NOTICE TIME - RESPONSE TIME FOR SHORT-TERM TRANSMISSION OUTAGES**

Outages of transmission facilities may require extensive study and coordination, first by the LCC to assess local area reliability and perform rudimentary congestion analysis and then by ISO to assess bulk power system reliability and perform warranted detailed congestion analysis. Operating policies at the LCCs define minimum advance notice times for the submittal of outage requests from the TOs to the LCCs. These notice times are critical and designed to provide the LCCs with enough time to assess TO outage requests before denying them or forwarding them to ISO for further analysis and ultimate approval.

Similarly, ISO needs enough time to assess the outage requests and deny or approve them. Furthermore, approved outages must be known in time for use in the settlement of the Day Ahead Markets (DAMs), and TOs must know in time to coordinate final steps to arrange equipment and manpower needed to do the work. To provide adequate time for this analysis and coordination, application advance notice times, and ISO response times, have been established.

Transmission Facilities

1. In general, all Category A Facility outages and Category B Facility outages that affect generation and DARD shall require the submittal of a Short-Term Transmission Outage application. LCCs and neighboring CAs/BAs shall submit Short-Term Transmission Outage applications for these facilities to ISO at least seventy-two (72) hours prior to 00:01 of the day when work is to begin (Example: An outage positioned to begin at 08:00 Thursday must be submitted to ISO before 00:01 on Monday.) ISO shall approve/disapprove applications at least 24 hours prior to 00:01 of the day the work is to begin. ISO shall also have the authority to waive either of these timeframes.
2. To facilitate the submittal of outage requests for specific transmission facilities, a detailed guide was developed and is attached as Appendix F. The format of the guide goes by voltage level and the type of transmission facility, which is a natural logic structure for considering transmission facilities. Minimum advance notice times are given for each type of facility. These times reflect the practical application of facility categories defined in this document.
3. LCCs do not have to submit applications to ISO for outages involving LAFs. However, outage requests for LAFs that affect Generator or DARD output shall be processed using LCC and ISO New England OP 5 scheduling practices.

In general, complex outages, particularly those involving more than one LCC and / or dispatch entities outside the New England CA/BAA, will require significantly longer

coordination efforts. Consequently, discussions of these outages by involved parties must begin several months early to coordinate the system for the expected work. General information on these outages will first be submitted by the TOs via the LTTOP. Details on these outages shall be submitted to LCCs and in turn to ISO as soon as TOs have finalized arrangements.

### C. SHORT-TERM TRANSMISSION OUTAGE REVIEW AND APPROVAL PROCESS

#### LCC Review and Action:

Upon receipt of applications for work on Category A Facilities or Category B Facilities that affect Generator and DARD output, the LCC shall perform the following:

- (a) Prior to submittal for ISO Short Term Outage Request approval, the LCC shall review proposed TO LTTOPs, Scheduled Outages and Short-Term Transmission Outage applications and compare them with Generator and DARD outage applications received from ISO. Evaluate applications to assure reliable operation. Disapprove any application that violates LCC operating procedures or is deemed to be in violation of ISO Operating Procedures and/or Transmission Operating Guides (TOG).
- (b) Prior to submittal to ISO for Short Term Outage Request approval, the LCC shall, working with ISO, identify cases where Generator, DARD and transmission outage positions could potentially be adjusted to achieve Significantly Reduced Congestion Costs, or (with TO consent) where lesser congestion reduction can be achieved. In each case, facilitate/coordinate repositioning as follows: Discuss and assess the preliminary plan for outage repositioning with ISO.
  - (2) Contact the TO for additional flexibility in their timing of the outage. (Generator and DARD outage information can be discussed with the TO as required).
  - (3) After consulting with the TO, if needed, proceed as follows depending on whether the case involves; i) an importing area, ii) Generator, DARD or exporting area involving a single owner or, iii) an exporting area involving multiple Resources owned by multiple Owners.

#### i. Importing Area

For an importing area, the simultaneous outage of transmission supplying the area along with generation and DARD within the area can increase congestion and, in severe cases, jeopardize system reliability. To relieve this, the following actions will be taken to try to position the transmission, generation and DARD outages so that they occur at different times:

- Contact the applicable Owners to determine if there is additional flexibility in their outage position
- Contact the TO for additional flexibility in their position. (Resource outage information can be discussed with the TO as required.)

- If required, continue to alternately contact the TO and the Owner until a determination is made by ISO on whether or not activities can be positioned to reduce/eliminate congestion

**NOTE**

If actions above are not sufficient to relieve congestion, ISO will dispatch Resources in accordance with the congestion management process or change the timing of the transmission outage.

ii. Generator, DARD or Exporting Area Involving a Single Owner

This scenario involves a transmission outage that will restrict the commitment or dispatch of Resources owned by a single company (i.e. a line leaving a generating station). The following actions will be taken as soon as possible to try to change or create outage positions so that Resources and transmission outages occur simultaneously, thereby relieving the potential locked-in Resources.

- Contact the applicable Resource Owner to determine if there is additional flexibility in their outage application. If the transmission outage involves a radial circuit to a generating station or DARD, details about the transmission outage can be shared with the Generator Owner. Additionally, non-radial transmission outage information can be shared with the Generator Owner if the transmission outage solely affects that Generator Owner
- Contact the TO for additional flexibility in their timing of the outage. (Resource outage information can be discussed with the TO as required.)
- If required, continue to alternately contact the TO and Resource Owner until a determination is made by ISO on whether or not activities can be positioned to reduce/eliminate congestion
- The TO may contact the Resource Owner directly to facilitate positioning of outages

iii. Exporting Area Involving multiple Resources owned by multiple companies

This case involves a transmission outage that will restrict the commitment or dispatch of Resources within an exporting area that contains several units owned by different Resource Owners. The following actions will be taken to try to change or create outage positions so that Resources and transmission outages occur simultaneously, thereby relieving the potential locked-in Resources.

- Contact the applicable Resource Owners to determine if there is additional flexibility in their outage position in the order that their outage request was received

- Contact the TO for additional flexibility in their position. (Resource outage information can be discussed with the TO as required.)
- If required, continue to alternately contact the TO and Resource Owner until a determination is made by ISO on whether or not activities can be positioned to reduce/eliminate congestion
- If units with outage requests are exhausted or no outage requests exist, contact affected Resource Owners randomly, in a manner to be determined by the LCC, without preference to any one Resource Owner. Inform each Resource Owner that a transmission outage (no details) may result in their unit being restricted and determine if they desire to coordinate an outage of their unit with the transmission outage
- If required, continue to alternately contact the TO and Resource Owner until a determination is made on whether or not activities can be positioned to reduce/eliminate congestion costs

**NOTE**

If actions above do not alleviate constraints, ISO will dispatch Resources in the constrained export area based on its congestion management process or change the position of the transmission outage.

- (c) Once the transmission outage has initial approval, either with or without a corresponding Generator or DARD outage: 1) notify adjacent LCCs and/or systems outside of the New England CA/BAA that may be affected by the requested work, and 2) forward the application to ISO with the following information:
- (1) Facility (name and nomenclature).
  - (2) Reason for application (work to be done).
  - (3) Emergency restoration time in hours.
  - (4) Time and date switching is to begin.
  - (5) Time and date the facility is to be restored to normal operation.
  - (6) LCCs and/or systems outside of the New England CA/BAA to whom notifications have been given.
  - (7) Other information pertinent to the application that may affect ISO decision, such as a request to revise a Generator or DARD outage schedule to address congestion issues with the transmission outage.
  - (8) LCC analysis results and approval including contingencies and limiting elements, local voltage constraints, must run Resources and restricted Resources.

**NOTE**

Applications submitted by adjacent NPCC CAs/BAs must also be accompanied by information listed in items (1) through (8) above.

2. ISO Review and Reliability Study for Short-Term Transmission Outages:

Upon receipt of applications from a LCC for Short-Term Transmission Outages, ISO shall:

- (a) Assign the application an identification number.
- (b) Forward applications involving inter-Area or NPCC C-13, Operational Planning Coordination Appendix D, NPCC Critical Facilities List to the appropriate NPCC CA/BA for approval or disapproval.
- (c) Inform, as required, other LCCs or NPCC CAs/BAs.
- (d) Conduct reliability studies in sufficient detail to:
  - (1) Identify the more severe probable first contingencies (there may be several).
  - (2) Identify voltage constraints and thermally limiting contingencies and elements, expected flows on limiting elements and ratings [Normal, Long Term Emergency (LTE), Short Term Emergency (STE), Drastic Action Limit (DAL),] of limiting elements. Determine if any pre-defined stability constraints must be followed.
  - (3) Document system generation, DARD patterns and transmission configurations expected during the time work is to occur, i.e., units and transmission facilities out of service, units required to be in service, etc.
  - (4) Interchange schedules, flows across pre-determined interfaces and/or flows on major inter-Area tie lines.
  - (5) Determine action required prior to beginning work and after work has begun to ensure compliance with OP 19.
  - (6) Determine bulk power supply area protection generation and DARD requirements (units and energy availability).
  - (7) Determine "locked in" Resources. Include Resources that must be left off-line, and on-line Resources that must be dispatched at reduced loads.
- (e) Applications with the Status of Planned, Submitted and Study should be repositioned before a Scheduled or Approved outage is repositioned. Outage priority is as follows:
  - (1) Scheduled for the FTR auction with Interim Approval status.
  - (2) Scheduled for TO with Interim Approval status.
  - (3) Short Term Outage with Approved status.
  - (4) Short Term Outage in the Study mode.

(5) Short Term Outage in the Submitted mode.

(6) Long Term Planned Outage.

(f) With respect to routine transmission or generation maintenance, in the event that a generator outage conflicts with a requested transmission outage, the Generator outage will normally have priority except in the 7 days immediately preceding the start of the transmission outage in which case the outages will be prioritized according to the time at which the outage request is received. ISO may adjust this priority due to reliability concerns.

(g) Obtain approval or disapproval from adjacent NPCC CA/BA, if applicable.

(h) Approve or disapprove the application

#### D. NOTIFICATIONS

When the review and assessment has been completed, ISO will communicate its conclusions to the appropriate LCCs and/or adjacent NPCC CAs/BAs. ISO will notify those LCCs and adjacent NPCC CAs/BAs that received preliminary notification of the requested work, even if that notification was from an agency other than ISO. If a Generator or DARD outage position or reduction was revised or initiated during processing of the transmission outage request (i.e. to eliminate congestion), ISO will contact the Resource Owner to confirm the revision to their position.

##### 1. Notification in case of Approval

When approving an outage, ISO will provide the conclusions of its reliability study in sufficient detail that all affected systems recognize the impact of the approved work. The conclusions should cover at least those items listed in Section VI.C.2.d.

##### 2. Notification in case of Disapproval

When giving a disapproval notification, ISO must state the reasons for disapproval. Those reasons must be specific and relate to items listed in Section VI.C.2.d or to achieve Significantly Reduced Congestion Costs.

Once an application for outage approval is disapproved, that application is considered completed. To accomplish the work, a new application must be submitted as described in Section VI.E.

##### 3. Notification in case of Cancellation

An LCC or an adjacent NPCC CA/BA may subsequently cancel an application for work on a New England CA/BAA transmission facility that has been forwarded to ISO.

The party initiating such action must determine and communicate to other affected parties the specific reasons for the cancellation

Once cancellation has been made, the application is considered completed. ISO will notify the appropriate LCCs and adjacent NPCC CAs/BAs of the application's status

change. To accomplish the work, a new application must be submitted as described in Section VI.E.

#### 4. Posting of Short-Term Transmission Outages

ISO will post all approved Short-Term Transmission Outages on the ISO Web Site in accordance with the ISO Information Policy. Any revisions will be updated on the Web Site in a timely manner.

#### D. RE-SUBMITTAL

To request approval of work that has been disapproved or cancelled, a new application with a new application number and a new review and reliability study must be processed as though no previous application had been submitted.

The one exception to this is when an "Alternate Date" has been supplied on the original application form. The "Alternate Date" is the working day following the last date for the outage. In the event the "Alternate Date" is used for repositioning the work, the existing application will be used and all necessary review and study will again be processed for this work to be performed on the "Alternate Date".

### VII. UNPLANNED OUTAGES

#### A. SUBMISSION OF REQUESTS

The following describes processes for submitting requests (which will be processed per Section VI of this procedure) for the three different types of Unplanned Outages.

##### 1. Emergency Outage

Market Participants will submit requests for Emergency Outages of transmission facilities immediately to the LCC. If the request is for Category A Facilities or Category B Facilities, the LCC will immediately forward the request to ISO.

##### 2. Forced Outage

Market Participants will notify their LCC as soon as the need for a Forced Outage is identified. The LCC will immediately notify ISO about the Forced Outage. The Forced Outage should not be officially submitted until the LCC has reasonable assurance from the Market Participant that system conditions, crews and equipment are available for the job.

##### 3. Overrun Outage

Market Participants will notify their LCC as soon as the need for an Overrun Outage is identified and the LCC will immediately relay this information to ISO.

##### 4. Opportunity Outage

Market Participants will notify their LCC as soon as an Opportunity Outage is identified. Prior to submittal for ISO Short Term Outage Request approval, the LCC should study the proposed Opportunity Outage as described in Section VI.C. The Opportunity Outage application should not be officially submitted until the LCC has reasonable assurance

from the Market Participant that system conditions, crews and equipment are available for the job.

Opportunity Outage applications should be submitted to ISO no more than seventy-two (72) hours prior to 00:01 of the day when work is to begin and no less than twenty-four (24) hours prior to 00:01 of the day when work is to begin. This will ensure proper studies are completed and if approved, Opportunity Outages are included in the DAM transmission topology assumptions. Opportunity Outages will not be permitted that impose additional restrictions on MW Resources (Generators, DARDs and/or inter-ties) that would not otherwise exist in the absence of the Opportunity Outage.

Opportunity Outage applications submitted to ISO must adhere to the following additional conditions:

- Restoration (recall) time, not to exceed 4 hours
- Limited duration, not to exceed one 24 hour period
- In the event the outage once underway unexpectedly exceeds this additional timing criterion, the entire outage will be converted to Forced
- Receives the lowest priority when competing with all other outage types Planned or Unplanned

#### **B. RESPONSE TO UNPLANNED OUTAGES (DOES NOT APPLY TO OPPORTUNITY OUTAGES)**

If time exists while crews, equipment, and/or corrective dispatch action arrangements are being made, the LCC will provide ISO with all pertinent information to allow for study of the outage and prioritization with other dispatch requirements.

In either event, the flow of information regarding the Unplanned Outage will follow the outlines shown on Attachments 1 through 9. The timing requirements and various approval steps do not apply to most Unplanned Outages. Unplanned Outages shall be subject to ISO Market Monitoring and Mitigation review.

### **VIII. OUTAGE WORK REPORTS**

#### **A. LOCAL CONTROL CENTER TRANSMISSION WORK REPORT**

Daily by 1000 hours, each LCC will forward to ISO and, if appropriate, to the adjacent LCCs a report that includes all equipment listed as Category B Facilities, which does not affect Generator or DARD output that is to be worked on during the following day. (Friday's report will include equipment positioned to be worked on during Saturday, Sunday and Monday. Work on holidays will be reported on the last regular weekday before the holiday). The report will include outage times when work is to begin and end.

Following the Local Control Center Transmission Work Report, other reports from the LCC to ISO and, if appropriate, to the adjacent LCCs will include any additional work

outage for the following day and/or outage work during the following day that is cancelled or postponed.

#### **B. REVIEW OF TRANSMISSION WORK**

Once work has been approved and Control Center reports have been completed, both ISO and the LCCs will operate according to the published outage application times. The party initiating the change must communicate any changes, for any reason. All affected parties must be notified of the change in work times.

On the night shift prior to the day the work is scheduled, ISO and the LCCs will discuss the day's upcoming work to ensure that all parties are up to date on work times for switching and equipment work.

Each LCC will confirm final approval of the transmission outage application by ISO Security Operator before switching begins. ISO must be informed immediately when equipment is taken out of service and/or restored to service.

#### **IX. SWITCHING ACTIVITIES THAT ARE TYPICALLY COMPLETED WITHIN 15 MINUTES**

This section describes contingency protection philosophy for scheduled switching activities that are typically completed within 15 minutes. These activities include; switching to isolate transmission facilities for Planned Outages, breaker trip testing and unit synchronizations at certain generating stations.

Consistent with NERC and NPCC criteria, ISO New England Operating Procedure 19 (OP 19) prescribes detailed criteria for transmission operations. The contingency protection philosophy presented here is based on OP 19.

- **Pre-contingent system conditions during switching:**
  - During the time period when switches are open, a transmission facility may be loaded above its normal rating but not exceeding its Long Term Emergency (LTE) rating
  
- **First contingency protection during switching:**
  - During brief planned switching activities, System Operations will provide first contingency coverage as defined in OP 19
  - Recognizing the brief period of LTE rating utilization, should a contingency occur during switching, loadings on the facility exceeding the LTE rating and not exceeding STE could be tolerated provided a predetermined solution to the constraint, excluding restoring the outage, is in place to alleviate the LTE loading within the time prescribed in OP 19
  
- **Second contingency protection for day ahead planning:**

- Consistent with NERC, NPCC and OP 19 criteria, after the occurrence of a contingency, System Operators have 30 minutes to restore coverage for a second contingency. Loading on facilities exceeding the LTE rating and not STE rating could be tolerated provided a predetermined solution to the constraint, excluding restoring the outage, is in place to alleviate the LTE loading within the time prescribed in OP 19
- Combining these practical criteria with a requirement that switching activities must be completed within 30 minutes precludes the need to analyze second contingency coverage during switching
- **Second contingency protection for real-time operations:**
  - Typically, switching to isolate transmission facilities for Planned Outages, breaker trip testing and unit synchronizations are completed within 15 minutes. If during switching, it becomes apparent that switching activities are delayed and could extend beyond the 30-minute mark, System Operators will take actions, including reclosing switches and breakers to ensure second contingency coverage is restored within 30 minutes of the start of switching activities. If reclosing is not successful, first contingency coverage will exist based on the philosophy prescribed in this document, and operators and, if needed, crews will take immediate steps to restore the circuit

**Example:**

An LCC requests an outage on a bulk power transformer with no high side circuit breaker requiring a brief outage (less than 15 minutes) of a 345 kV transmission line.

Studies indicate that during the switching, a parallel 115 kV transmission line will be loaded above its Normal rating but will not exceed its LTE rating. If a contingency occurred during the switching, flow on the 115 kV line would exceed its LTE rating but not its STE rating.

ISO and the LCC determine that opening a 115 kV breaker at another substation would relieve the flow on the 115kV line by splitting the bus and leaving the 115 kV line isolated on a single transformer. The 115kV breaker can be opened well within the 15-minute limit of the LTE rating and flow on the 115kV circuit will immediately drop below the LTE rating with no other overload being introduced and no other Transmission Organization affected.

Immediately prior to the scheduled outage of the bulk power transformer, both ISO and the LCC review their studies to confirm that during switching when the 345 kV line is opened; 1) flow on the parallel 115 kV line will not exceed its LTE rating and, 2) if a contingency occurs, flow on the 115 kV line will not exceed its STE rating and a 115 kV breaker can be opened within 15 minutes to reduce flow below the 115 kV line's LTE rating.

The 345 kV line is switched out and back as expected. Flow on the 115 kV circuit did not exceed its LTE rating, no contingency occurred and switching action on the 115 kV breaker was not required.

As another example, a LCC would like to perform breaker trip testing on one of three transmission circuits supplying power to a large metropolitan area. Opening the circuit significantly reduces the transfer capability into the area. Furthermore, the consequences of area contingencies involve unacceptable inter-area impact warranting consideration of first and second contingency coverage.

The breaker trip test will open the 345 kV line for less than 15 minutes (typically 5 minutes). First contingency coverage must/will be provided, but based on the short duration and processes to reclose the circuit within 30 minutes, second contingency coverage with the circuit being open is not required or warranted. Reclosing the circuit will restore second contingency coverage for sustained operations. In the unlikely event that the circuit does not reclose, first contingency coverage will still exist and operators and, if needed, crews will take immediate steps to restore the circuit.

#### X. ANNUAL REPORT ON OUTAGE PROCESSING

ISO in coordination with the LCCs and TOs shall prepare and issue an annual report on transmission outages and coordination. The report shall assess accuracy of inputs and calculation of congestion cost savings. The long-term impacts of ISO, LCC and TO changes to outages shall be assessed and identify potential opportunities to further minimize congestion costs identified.

#### OP 3 REVISION HISTORY

**Document History** (This Document History documents action taken on the equivalent NEPOOL Procedure prior to the RTO Operations Date as well revisions made to the ISO New England Procedure subsequent to the RTO Operations Date.)

Rev. No.	Date	Reason
Rev 1	4/5/2002	
Rev 2	02/01/05	Updated to conform to RTO
Rev 3	05/06/05	Update for initiation of VELCO Local Control Center
Rev 4	02/03/06	Updated to conform to FERC changes of MR 1 Attachment G, and added information to clarify the transmission outage process
Rev 5	10/01/06	Updated for ASM Phase 2
Rev 6	02/08/07	Revised Opportunity Outage criteria

ISO New England Operating Procedures

OP 3 – Transmission Outage Scheduling

<p>Rev 6.1*</p>	<p>06/17/08</p>	<p>Annual Review by Procedure Owner.                      Clarification and consistency of terminology                      Use of approved M-35 acronyms, e.g., LCC for Local Control Center, DARD for Dispatchable Asset Related Demand, etc.                      Defined acronyms for frequently used terms: e.g., CA/BA for Control Area/Balancing Authority, etc}                      Minor reformatting changes                      Corrected References for NSTAR becoming an LCC                      Corrected NBSO instead of NB Power                        *Revision 6.1 is an exception to the normal revision history numbering protocol. Changes previously approved as Revision 7 by the Participants Committee will be released as the effective version at a later date.</p>
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