

# Operating Procedures

ISO New England Operating Procedure No. 2

*Maintenance of Communications, Computers,  
Metering and Computer Support Equipment*

Effective Date: October 13, 2006  
Revision No. 4

**ISO New England Operating Procedure No. 2**  
**Maintenance of Communications, Computers, Metering and Computer**  
**Support Equipment**

Effective Date: October 13, 2006

Local Control Center Instruction No.

CONVEX:	None
MAINE:	Maine Operating Procedure No. 2
NEW HAMPSHIRE:	OP-0002 Support Equipment Maintenance
REMVEC II:	None
VELCO:	None

**Table Of Contents**

<b>PART I – INTRODUCTION .....</b>	<b>3</b>
<b>PART II – SCOPE .....</b>	<b>3</b>
<b>PART III – PROCEDURE.....</b>	<b>4</b>
I. Criteria for Repair/Maintenance (Priority) .....	4
A. Class A (Immediate).....	4
B. Class B (Regular working hours weekdays - except when they are more than sixteen (16) hours removed).....	4
C. Class C (Regular working hours).....	4
II. Establishment of Criteria .....	4
III. Responsibility for Repair/Maintenance .....	5
A. Assignment of Repair/Maintenance Responsibility.....	5
B. Repair Work .....	5
C. Coordination of Maintenance .....	5
IV. Scheduling of Routine Maintenance.....	5
A. Procedure to Schedule SCADA Control Center Routine Maintenance .....	6
B. Procedure to Schedule Local Control Center Routine Maintenance.....	6
C. Procedure to Schedule ISO New England Control Center Routine Maintenance.....	7
V. Day of Performance of Routine and Emergency/Unscheduled Maintenance .....	7
A. Procedure to Perform SCADA Control Center Routine Maintenance (Day Of Outage).....	7
B. Procedure to Perform Local Control Center Routine Maintenance (Day Of Outage) .....	8
C. Procedure to Perform ISO New England Routine Maintenance (Day Of Outage).....	8
D. Procedure to Perform Emergency/Unplanned Maintenance .....	9
VI. Record Keeping .....	9
OP 2 Revision History .....	9

## **PART I - INTRODUCTION**

This Procedure establishes ISO New England criteria for the repair and maintenance of equipment whose loss has a significant impact on the ability to reliably operate the Bulk Power System in the New England Control Area. The following lists types of equipment which depending on specific roles can be critical to system operation:

- Computers
- Metering, Telemetry and Control equipment
- Communications equipment (Including The Shared Telecommunications Network)
- Computer support equipment
- Inter and Intra-net Systems and Equipment
- Associated equipment

While it is impossible to list all the conceivable contingencies that might result in failure of critical equipment, this instruction attempts to identify the equipment and give guidelines for its repair or maintenance.

This Procedure includes provisions for allowing warranted exceptions to the established maintenance priorities for the covered equipment. Any changes in the established priorities will be documented by the party requesting the change.

## **PART II - SCOPE**

This Procedure covers all equipment located at the Holyoke headquarters of ISO New England. In addition, certain facilities critical to the ISO New England operation but located at the CONVEX, Maine, New Hampshire, REMVEC II and VELCO Local Control Centers as well as the SCADA Control Centers located at Bangor Hydro Electric Company, NSTAR Electric, National Grid Companies, United Illuminating Company and the Inter Control Center Communications Protocol equipment located at Mystic and Florida Power and Light facilities are included in this Procedure. Microwave and communications facilities located remotely from ISO New England and the Local Control Centers, but having an impact on its operation are also included. Appendix A lists the equipment covered by this Procedure.

In order to promote efficient and rapid repair or maintenance of affected equipment, the following aspects of repair and maintenance work are covered:

- Criteria for repair/maintenance priority

- Establishment of Criteria
- Responsibility for repair/maintenance
- Scheduling of routine maintenance
- Day of performance of routine and emergency/unplanned maintenance
- Record keeping

## **PART III - PROCEDURE**

### **I. CRITERIA FOR REPAIR/MAINTENANCE (PRIORITY)**

The following criteria identify required response times to begin repair of failed equipment. The times are based upon the importance of the equipment to system operations. This same criterion is used to prioritize requests made for equipment maintenance.

#### **A. CLASS A (IMMEDIATE)**

This highest priority for repair or maintenance applies to equipment that is critical to maintain adequate system security and reasonable economic dispatch.

#### **B. CLASS B (REGULAR WORKING HOURS WEEKDAYS - EXCEPT WHEN THEY ARE MORE THAN SIXTEEN (16) HOURS REMOVED)**

This intermediate priority is intended for equipment whose loss can be tolerated for limited periods of time, but which cannot or should not be tolerated for prolonged periods of time.

#### **C. CLASS C (REGULAR WORKING HOURS)**

Ideally, this is the preferred priority for the performance of all repairs and maintenance. It applies to all equipment not in Class A and B above.

### **II. ESTABLISHMENT OF CRITERIA**

- A. Under normal conditions, the criteria (priority classification) for maintenance of various equipment affecting ISO operation is established in Appendix A.
- B. Under abnormal conditions, the ISO Control Room Staff and/or the Local Control Center or SCADA Control Center System Operator(s) have the authority and

responsibility to change the criteria established in Appendix A. If a criterion is changed, it must be documented by the Operator requesting the change.

### **III. RESPONSIBILITY FOR REPAIR/MAINTENANCE**

#### **A. ASSIGNMENT OF REPAIR/MAINTENANCE RESPONSIBILITY**

The location of the equipment fixes the responsibility for repair or maintenance in most instances. Equipment located at a specific Local Control Center or SCADA Control Center is generally the responsibility of that Control Center. Equipment located at the ISO is an ISO responsibility. Repair or maintenance of microwave or other communications facilities used in support of the ISO operation but not owned by the ISO, shall be the responsibility of the owner.

#### **B. REPAIR WORK**

Equipment failures must be responded to within the time requirements prescribed in Section I of this document. Repair work status must be communicated between all effected operating centers.

#### **C. COORDINATION OF MAINTENANCE**

It is the responsibility of the ISO to coordinate all maintenance on equipment listed in Appendix A. Coordination includes the scheduling, approval or denial of requests for regular maintenance, and the change in criteria classification in the event of emergency. Local Control Center and SCADA System Operators also have the authority and responsibility to effect temporary changes to the criteria established in Appendix A.

### **IV. SCHEDULING OF ROUTINE MAINTENANCE**

Requests for arranging advance schedules for routine maintenance on any equipment affecting the ISO should be submitted to the ISO Outage Coordinator via the appropriate staff listed in Appendix B. The staff listed in Appendix B must obtain operational approval at their facilities prior to submitting outage requests to the next level in the approval process.

When work is being performed at the Local Control Centers, or the SCADA Control Centers, the ISO On-Call Staff person will be available to the ISO Control Room Staff should the need arise for technical assistance during the outage.

In the event that the timelines described in sections IV.A. IV.B. and IV.C. can not be complied with due to unforeseen circumstances, the ISO Outage Coordinator will consider outage requests on a short notice basis. These requests will be handled on a case by case basis following the procedures described below.

**A. PROCEDURE TO SCHEDULE SCADA CONTROL CENTER ROUTINE MAINTENANCE**

1. The SCADA Control Center Staff listed in Appendix B determines the equipment involved in the outage and its effect on system operations and completes the Equipment Outage Request Form located in Appendix C.
2. The SCADA Control Center Staff listed in Appendix B obtains concurrence from his/her Operations Staff to perform the Maintenance required.
3. The SCADA Control Center Staff listed in Appendix B forwards the outage request to the appropriate Local Control Center Staff listed in Appendix B by 1600 on Thursday for work beginning the following Monday at 0700 through the next seven day period.
4. The Local Control Center Staff from Appendix B reviews the outage and obtains concurrence from his/her Operations Staff to perform the maintenance required. The Local Control Center Staff from Appendix B will make any preliminary notifications to affected SCADA Control Center Staff from Appendix B as required.
5. The Local Control Center Staff from Appendix B forwards the maintenance request to the ISO Outage Coordinator by 1200 on Friday for work beginning the following Monday at 0700 through the next seven-day period.
6. The ISO Outage Coordinator will review all applications received and provide verbal and fax approval/disapproval to the Local Control Center Staff from Appendix B by 1500 on Friday. The Local Control Center Staff from Appendix B will then provide verbal and fax notification to his/her counterparts at the SCADA Control Center.
7. A final approved schedule (See Appendix D) for the following week's maintenance will be distributed by FAX to all locations in Appendix B by 1500 on Friday.

**B. PROCEDURE TO SCHEDULE LOCAL CONTROL CENTER ROUTINE MAINTENANCE**

1. The Local Control Center Staff listed in Appendix B determines the equipment involved in the outage and its effect on system operations and completes the Equipment Outage Request Form located in Appendix C.
2. The Local Control Center Staff listed in Appendix B obtains concurrence from his/her Operations Staff to perform the Maintenance. The Local Control Center Staff listed in Appendix B will make any preliminary notifications to his/her counterparts at affected SCADA Control Centers.
3. The Local Control Center Staff listed in Appendix B forwards the Maintenance request to the ISO Outage Coordinator by 1200 on Friday for work beginning the following Monday at 0700 through the next seven day period.

4. The ISO Outage Coordinator will review all applications submitted and provide verbal and fax approval/disapproval to the Local Control Center Staff from Appendix B by 1500 on Friday. The Local Control Center Staff from Appendix B will then provide verbal and fax notification to his/her counterparts at the SCADA Control Center.
5. A final approved schedule (See Appendix D) for the following week's maintenance will be distributed by FAX to all locations in Appendix B by 1500 on Friday.

#### **C. PROCEDURE TO SCHEDULE ISO NEW ENGLAND CONTROL CENTER ROUTINE MAINTENANCE**

1. The ISO Control Center Staff listed in Appendix B determines the equipment involved in the outage and its effect on system operations and completes the Equipment Outage Request Form located in Appendix C. The ISO Control Center Staff listed in Appendix B will make any preliminary notifications to his/her counterparts at affected Local Control Centers.
2. The ISO Control Center Staff listed in Appendix B forwards the Maintenance request to the ISO Outage Coordinator by 1200 on Friday for work beginning the following Monday at 0700 through the next seven-day period.
3. The ISO Outage Coordinator will review all applications submitted and provide verbal approval/disapproval to the applicant by 1500 on Friday.
4. A final approved schedule (See Appendix D) for the following week's maintenance will be distributed by FAX to all locations in Appendix B by 1500 on Friday.

#### **V. DAY OF PERFORMANCE OF ROUTINE AND EMERGENCY/UNSCHEDULED MAINTENANCE**

##### **A. PROCEDURE TO PERFORM SCADA CONTROL CENTER ROUTINE MAINTENANCE (DAY OF OUTAGE)**

1. The SCADA Control Center Staff listed in Appendix B requests concurrence of his/her SCADA Control Center System Operator to perform the approved maintenance as described in the Equipment Outage Request Form (Appendix C).
2. The SCADA Control Center System Operator requests concurrence from his/her Local Control Center System Operator.
3. The Local Control Center System Operator requests approval of the outage from the ISO Control Room Staff.

4. If approved by the ISO, the Local Control Center System Operator notifies the SCADA Control Center System Operator to have the work proceed and advise when complete. The Local Control Center System Operator will also advise any other affected SCADA Control Center under his/her jurisdiction of the outage. The ISO Control Room Staff will notify any other affected Local Control Center of the upcoming outage. If disapproved, the ISO Control Room Staff will provide a reason and offer alternative scheduling if appropriate.
5. The return to service should follow the same notification process described above.

**B. PROCEDURE TO PERFORM LOCAL CONTROL CENTER ROUTINE MAINTENANCE (DAY OF OUTAGE)**

1. The Local Control Center Staff listed in Appendix B requests concurrence of his/her Local Control Center System Operator to perform the approved maintenance as described in the Equipment Outage Request Form (Appendix C).
2. The Local Control Center System Operator requests approval of the outage from the ISO Control Room Staff.
3. If approved by the ISO, the Local Control Center System Operator has the work proceed and advises when complete. The Local Control Center System Operator will also advise any other affected SCADA Control Center under his/her jurisdiction of the outage. The ISO Control Room Staff will notify any other affected Local Control Center of the upcoming outage. If disapproved, the ISO Control Room Staff will provide a reason and offer alternative scheduling if appropriate.
4. The return to service should follow the same notification process described above.

**C. PROCEDURE TO PERFORM ISO NEW ENGLAND ROUTINE MAINTENANCE (DAY OF OUTAGE)**

1. For work performed at the ISO, the ISO On-Call Staff person will coordinate with all parties who are to perform work, and will request permission of the ISO Control Room Staff to start the work.
2. If the work impacts data flow to a Local Control Center or SCADA Control Center, or involves parallel work at a Local Control Center or SCADA Control Center, the ISO Control Room Staff will check with the applicable Local Control Center System Operator for concurrence. If required, the Local Control Center System Operator will check with the SCADA Control Center Operator for concurrence.
3. Once concurrence is received, the ISO Control Room Staff will advise the ISO On-Call Staff person to begin work. As required, the ISO On-Call Staff will notify all counterparts that approval has been received and work can begin.

4. The return to service should follow the same notification process described above.

#### **D. PROCEDURE TO PERFORM EMERGENCY/UNPLANNED MAINTENANCE**

It should be recognized by Operating and Technical Staffs that emergency/unplanned maintenance must be performed from time to time. This maintenance is done to enhance the operation of the effected equipment and is in the best interest of all parties involved. While unplanned maintenance may not meet the criteria for an emergency, Operating and Technical Staffs should perform this work if system conditions permit. This is especially true for backup or redundant systems.

1. If, based on the priorities detailed in Appendix A, Emergency/Unplanned Maintenance is required at the ISO facilities, the ISO Control Room Staff shall immediately notify the ISO On-Call Staff. The ISO On-Call Staff will proceed with Steps 1 through 4 listed in section V.C. above.
2. If, based on the priorities detailed in Appendix A, Emergency/Unplanned Maintenance is required at a Local Control Center, the Local Control Center System Operator shall notify the ISO Control Room Staff providing details and possible impacts of the maintenance. The ISO Control Room Staff will coordinate any Emergency/Unplanned Maintenance, and shall notify the ISO On-Call Staff if required. As conditions allow, Section V.B. will be followed for Local Control Center Emergency/Unplanned Maintenance and Section V.A. For SCADA Control Center Emergency/Unplanned Maintenance. The Local Control Center and or SCADA Control Center, in coordination with the ISO Control Room Staff, is responsible for determining if On-Call staff is required at the Local Control Center or SCADA Control Center facility to support the emergency/unplanned work.

#### **VI. RECORD KEEPING**

It is the responsibility of the ISO, the Local Control Centers and the SCADA Control Centers to perform record keeping necessary under this Procedure as required by each location.

#### **OP 2 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.)

<b>Rev. No.</b>	<b>Date</b>	<b>Reason</b>
Rev 1	6/15/1998	
Rev 2	02/01/05	Updated to conform to RTO terminology
Rev 3	05/06/05	Update for initiation of VELCO Local Control Center
Rev 4	10/13/06	Revised contact information