APPENDIX A - INSTRUCTIONS FOR IMPLEMENTATION OF MANUAL LOAD SHEDDING

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Table of Contents

I. WHEN SHEDDING LOAD NEW ENGLAND WIDE:

A. Communication With Local Control Centers (LCCs)

An ISO System Operator[1] (ISO) shall use the "ALL LCCs" telephone function when issuing Operating Instructions[2] to all LCCs.

B. Quantity of Load

ISO shall issue a concise Operating Instruction with the quantity of load to be shed or restored by specifying a percent of area load.

$$\text{Percent} = \frac{\text{Total MW Load to be Shed or Restored} \times 100}{\text{Instantaneous New England Load}}$$

The identified Percent should be rounded up to the next whole number to determine the value used in the load shed Operating Instruction.

The identified Percent should be rounded down to the next whole number to determine the value used in the load restoration Operating Instruction.

C. Implementation Messages

ISO shall issue a concise Operating Instruction and shall await LCC repeat back, which should be received from each LCC in alphabetical order. ISO shall acknowledge each LCC repeat back of the Operating Instruction as correct or reissue the Operating Instruction.

Typical messages are as follows:

Operating Instruction by ISO:

1. ISO to all LCCs: "Implement OP-7, manually shed X percent of area load."

or

2. ISO to all LCCs: "Implement OP-7, manually restore X percent of area load."

Acknowledgments by each LCC:

1. Each LCC to ISO: "OP-7, manually shed X percent of area load."

or

2. Each LCC to ISO: "OP-7, manually restore X percent of area load."

Acknowledgment by ISO:

1. ISO to each LCC: "That is correct."
   (If a misunderstanding occurs, ISO shall reissue the Operating Instruction.)

D. Examples

Typical load shedding implementation Operating Instruction and acknowledgment messages

Assumed Conditions:

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[1] System Operator is defined in the "Glossary of Terms Used in NERC Reliability Standards" and when used in this Procedure the term ISO specifically refers to an ISO System Operator.

[2] Operating Instruction is defined in the NERC Glossary of Terms Used in NERC Reliability Standards.

Instantaneous New England Load = 21,400 MW

NEED: Shed 500 MW uniformly throughout New England.

Calculation result: 50,000 / 21,400 = 2.3%

Percent load shed: 2.3% rounded up to the next whole number = 3%

Messages:

Operating Instruction by ISO:

1. ISO to all LCCs: "Implement OP-7, manually shed 3 percent of area load."

Acknowledgment by LCCs:

1. CONVEX to all: "OP-7, manually shed 3 percent of area load."
2. Maine to all: "OP-7, manually shed 3 percent of area load."
3. New Hampshire to all: "OP-7, manually shed 3 percent of area load."
4. NGRID to all: "OP-7, manually shed 3 percent of area load."
5. NSTAR to all: "OP-7, manually shed 3 percent of area load."
6. RIE to all: "OP-7, manually shed 3 percent of area load."
7. VELCO to all: "OP-7, manually shed 3 percent of area load."

Acknowledgment by ISO:

1. ISO to each LCC: "That is correct."

(If a misunderstanding occurs, ISO shall reissue the Operating Instruction.)

Typical Restoration of Previously Shed Load Implementation Operating Instruction and Acknowledgment Messages

Assumed Conditions:

Instantaneous New England Load = 20,900 MW

NEED: Restore 500 MW of load that had been previously shed uniformly throughout New England.

Calculation result: 50,000 / 20,900 = 2.4%

Percent load restored: 2.4% rounded down to the next whole number = 2%

Messages:

Operating Instruction by ISO:

1. ISO to all LCCs: "Implement OP-7, manually restore 2 percent of area load."

Acknowledgment by each LCC:

2. CONVEX to all: "OP-7, manually restore 2 percent of area load."

(Other LCCs respond in alphabetical order)

Acknowledgment by ISO:

1. ISO to all LCCs: "That is correct."

(If a misunderstanding occurs, ISO shall reissue the Operating Instruction.)

II. WHEN SHEDDING LOAD IN INDIVIDUAL LCC AREA(S)

A. Communication With LCC(s)

NOTE

An affected LCC is an LCC that is within the area in which load shedding will be effective in alleviating a problem.

ISO shall individually contact each affected LCC and issue a concise Operating Instruction. When each affected LCC has been contacted, ISO shall contact each unaffected LCC individually and inform each LCC of the situation.

B. Quantity of Load to be Shed or Restored

ISO shall issue a concise Operating Instruction with the quantity of load to be shed or restored by specifying a (MW) amount. If required, the affected LCC System Operator shall convert the MW amount into a percent value.

C. Affected LCC Implementation Messages

ISO shall issue a concise Operating Instruction to each affected LCC and receive an accurate acknowledgment or reissue the Operating Instruction. Typical messages are as follows:

Operating Instruction by ISO:

1. ISO to the affected LCC: "Implement OP-7, manually shed (___) MW of load."

or

2. ISO to the affected LCC: "Implement OP-7, manually restore (___) MW of load."

Acknowledgment by Affected LCC:

1. Affected LCC to ISO: "OP-7, manually shed (___) MW of load."

or

2. Affected LCC to ISO: "OP-7, manually restore (___) MW of load."

Acknowledgment by ISO:

1. ISO to the affected LCC: "That is correct."

   (If a misunderstanding occurs, ISO shall reissue the Operating Instruction.)

D. Examples

Typical implementation Operating Instruction and acknowledgment messages

Assumed Conditions:

NEED: Shed 200 MW of load in CONVEX.

Messages:

Operating Instruction by ISO:

1. ISO to CONVEX: "Implement OP-7, manually shed 200 MW of load."

Acknowledgment by CONVEX:

1. CONVEX to ISO: "OP-7, manually shed 200 MW of load."

Acknowledgment by ISO:

1. ISO to CONVEX: "That is correct."

   (If a misunderstanding occurs, ISO shall reissue the Operating Instruction.)

E. Unaffected LCC Notification Messages

Each unaffected LCC shall be notified by ISO after an affected LCC has been issued an Operating Instruction to implement OP-7. A typical notification and message for ISO and each unaffected LCC System Operator is:

Notification of Implementation by ISO:

1. ISO to each unaffected LCC: "This is a notification that OP-7 is being implemented in CONVEX. CONVEX has been issued an Operating Instruction to manually shed/restore (___) MW load."

Acknowledgment by each unaffected LCC

1. Each unaffected LCC to ISO: "CONVEX has manually shed/restored (___) MW of load."

Acknowledgment by ISO:

1. ISO to each unaffected LCC: "That is correct."

   (If a misunderstanding occurs, ISO shall reissue the notification.)

OP-7 APPENDIX A 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
- -	11/22/16	For previous revision history, refer to Rev 10 available through Ask ISO;
Rev 11	01/10/14	Annual review by procedure owner, no content change required.
Rev 11.1	08/05/14	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision;
Rev 11.2	04/17/15	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision;
Rev 11.3	01/27/16	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision;
Rev 12	11/22/16	Annual review by procedure owner; Added required corporate document identity to all Footers; Globally, replaced “directive”, “directed” with “operation instruction” Truncated the Revision History per SOP-RTMKTS.0210.0010 Section 5.6;
Rev 13	09/25/17	Annual review by procedure owner; Table of Contents, replaced “directed action” with “operating instruction”; Section II.C, replaced “directive” with “operating instruction”;
Rev 14	03/06/18	Globally, as applicable, replaced “step(s)” or “step number(s)”” with “percent” or “% of area load”) and added “Instantaneous” to “New England Load”; Globally made minor editorial changes to be consistent with current practices and management expectations;
Rev 15	01/04/19	Annual review by procedure owner; Globally made minor editorial changes consistent with current conditions, practices and management expectations Replaced REMVEC with NGRID and placed it alphabetically;
Rev 15.1	12/11/19	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision;
Rev 15.2	11/05/20	Annual review performed requiring no changes; Made administrative changes required to publish a Minor Revision;
Rev 16	10/13/21	Annual review performed; Added “Operating Instruction” to II.D. and footnote; Modified I.B. calculation to include rounding and adjusted examples accordingly.
Rev 16.1	10/11/22	Annual review performed requiring no changes; Made administrative changes required to publish a Minor Revision.
Rev 16.2	10/04/23	Annual review performed by procedure owner requiring no intent changes; Minor formatting edits; Made administrative changes required to publish a Minor Revision.
Rev 16.3	05/22/24	Annual review performed by procedure owner requiring no intent changes; Added RIE to Section I.D.
Rev 16.4	05/21/25	Annual review performed by procedure owner requiring no changes; Made administrative changes required to publish a Minor Revision.
Rev 16.5	05/19/26	Annual review performed by procedure owner requiring no changes; Made administrative changes required to publish a Minor Revision