	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025


Master/Local Control Center Procedure No. 1

(M/LCC 1)

Nuclear Plant Transmission Operations

1. Objective	2
2. Background	3
3. Responsibilities.....	4
3.1 ISO, Applicable LCC and Applicable Other TE Responsibilities:	4
4. Periodic Review, Update and Approval of M/LCC 1 and Attachments	8
5. Other Requirements or Provisions Pertaining to NPIRs.....	13
6. Glossary of Nuclear Terms and Acronyms.....	17
7. Revision History	19
8. Attachments	21
9. References.....	22


*This document is controlled when viewed on the ISO New England Internet web site. When downloaded and printed, this document becomes **UNCONTROLLED**, and users should check the Internet web site to ensure that they have the latest version.*

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

1. Objective

The objective of this procedure is to recognize the special needs of the two nuclear power stations in New England and document the responsibilities of certain Transmission Entities (TEs), [including ISO New England (ISO), certain Local Control Centers (LCCs) and other entities] and each Nuclear Plant Generator Operator (NPGOP) with respect to maintaining proper grid support for the stations as well as documenting communication paths in the event of grid degradation. The entities that have certain responsibilities with respect to M/LCC 1 documents (“M/LCC 1 Parties”) are listed in Section 4, Table A of this document.

This procedure contains provisions pertaining to maintaining voltage requirements following a plant trip or system disturbance. This procedure contains provisions for the NPGOP to be informed during abnormal system conditions so it can transfer station loads to its auxiliary power sources in a timely fashion to facilitate safe shutdown of the nuclear plant.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025


2. Background

NOTE

Per the North American Electric Reliability Corporation (NERC) Glossary of Terms Used in NERC Reliability Standards, Nuclear Plant Interface Requirements (NPIRs) are: “The requirements based on NPLRs (Nuclear Plant Licensing Requirements) and Bulk Electric System (BES) requirements that have been mutually agreed to by the Nuclear Plant Generator Operator (NPGOP) and the applicable Transmission Entities (TEs).” The NPGOP and TEs identified in Master/Local Control Center Procedure No. 1 - Nuclear Plant Transmission Operations (M/LCC 1) Attachments C and D (in Section 10, Table 1 of each of these documents), are certain M/LCC 1 Parties that are each responsible for meeting one or more of the agreed-upon NPIRs. The NPIRs in these Tables apply to various functions performed by these TEs and/or the NPGOP, including Transmission Operator (TOP), Transmission Planner (TP), Generator Operator (GOP) and Transmission Owner (TO). An “applicable LCC” or “applicable Other TE” referenced in this document is an LCC or TE that has agreed to one or more NPIRs pertinent to one or more nuclear power stations in New England.

NERC Reliability Standard NUC-001 requires coordination between NPGOPs and TEs, for ensuring nuclear plant safe operation and shutdown. The TEs are each responsible for providing services related to certain NPIRs. Each NPGOP is required to meet applicable NPIRs and to comply with Federal Regulations enforced by the United States Nuclear Regulatory Commission (NRC) regarding safe operation of the nuclear power station. To comply, each nuclear power station requires a reliable grid in which both nuclear plant access to designated sources of off-site power and the minimum voltage levels needed to operate station equipment are maintained, to allow safe shutdown of the plant.

Effective communication among applicable NPGOPs, applicable LCCs and ISO is imperative to keep each nuclear power station operating within its design limits.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

3. Responsibilities

3.1 ISO, Applicable LCC and Applicable Other TE Responsibilities:

- A. ISO and each applicable LCC shall operate the electric system to meet the NPIRs in accordance with applicable agreements and operating procedures that have been agreed upon with an NPGOP.
- B. ISO and each applicable LCC are responsible for maintaining nuclear power station voltage level requirements identified by the NPGOP in the NPIRs.
- C. ISO and each applicable LCC are responsible for maintaining the required number of off-site power sources specified in the NPIRs in accordance with the provisions of the applicable M/LCC 1 Attachment.

NOTE

ISO and LCC communications should be consistent with Master/Local Control Center Procedure No. 13 - ISO and LCC Communications Practices (M/LCC 13).

This procedure, M/LCC 1 and the following applicable M/LCC 1 Attachment(s) provide specific guidance for communications among ISO, LCCs and NPGOPs that are required to keep the nuclear power stations operating within their design limits:

- Attachment C - Millstone Nuclear Power Station
- Attachment D - Seabrook Nuclear Power Station


NOTE

Per the ISO New England Information Policy, the information that ISO is allowed to communicate to an NPGOP is limited to information that pertains to that NPGOP's nuclear power station transmission facilities and remote terminal (including line, disconnect, breaker(s) and auxiliary equipment). The ISO New England Information Policy is posted to the ISO external website.

NOTE

Notifications referenced in M/LCC 1 should occur as soon as possible, and always within 60 (sixty) minutes, unless a shorter time frame is stated in this document (or in an M/LCC 1 Attachment).


- D. ISO and each applicable LCC are responsible for communicating with an NPGOP, in accordance with the applicable M/LCC 1 Attachment, when any of the following conditions exist:
 - Voltage requirements **cannot** be met either as indicated by Real-Time Contingency Analysis (RTCA) or a Real-Time limit exceedance.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- Ability to provide an off-site power source is jeopardized.
 - Both ISO and the applicable LCC have lost the ability to assess the operation of the electric system affecting NPIRs, including the ability to determine post-contingency voltages.
- E. ISO, each applicable LCC, and each applicable Other TE are responsible for coordinating the rescheduling of any activity considered to be a Trip Risk Activity, if transmission system conditions warrant.
- F. A Trip Risk Activity could directly result in a plant trip and therefore would be stopped and/or postponed during an Abnormal Conditions Alert, in accordance with Master/Local Control Center Procedure No. 2 - Abnormal Conditions Alert (M/LCC 2).
- G. Examples of some Trip Risk Activities would include the testing of: turbine valves, governors or reactor protection systems.
- H. A Trip Risk Activity may have to be rescheduled if two or more nuclear power stations request to undertake a Trip Risk Activity at the same time.
- I. ISO, each applicable LCC and each applicable Other TE are responsible for coordinating with the NPGOPs with respect to outages and maintenance activities which affect the NPIRs in accordance with ISO New England Operating Procedure No. 3 - Transmission Outage Scheduling (OP-3), ISO New England Operating Procedure No. 5 - Resource Maintenance and Outage Scheduling (OP-5), all ISO procedures applicable to relays, and all M/LCC 1 procedure Attachments (especially M/LCC 1 Attachment E - Nuclear Plant Interface Meetings).
- J. ISO, each applicable LCC, and each applicable Other TE are responsible for reviewing transmission outage information and notifying the NPGOP of study results that may impact the nuclear power station or its off-site power sources.
- K. ISO shall inform the applicable NPGOP of the lowest limit it could be dispatched to for either stability or thermal constraints if there is a nuclear power station limit for any transmission outage, or a post contingent restriction due to a transmission outage.

NOTE


The planning analyses of the electric system referenced in NUC-001, Requirement R3 are long-term system planning analyses (for which, in New England, ISO is solely responsible for conducting). The operating analyses of the electric system referenced in NUC-001, Requirement R4.1 are short-term operational analyses (for which ISO and the LCCs are both responsible for conducting).

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- L. ISO, the applicable LCC and each applicable Other TE shall participate in applicable Nuclear Plant Interface Meetings (NPIMs), in accordance with Attachment E.
- M. ISO and each applicable LCC shall inform the applicable NPGOPs of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs in accordance with this procedure (including M/LCC 1 Attachments C and D), Section I.3.9 of the ISO New England Inc. Transmission, Markets, and Services Tariff (ISO Tariff), ISO Planning Procedures, (including PP3 - Reliability Standards for the New England Area Pool Transmission Facilities, PP5-3 - Guidelines for Conducting and Evaluating Proposed Plan Application Analyses and PP5-1, Procedure for Review of Market Participant's or Transmission Owner's Proposed Plans (Section I.3.9 Applications: Requirements, Procedures, and Forms)) and through Nuclear Plant Interface Meetings (NPIMs) conducted in accordance with M/LCC 1 Attachment E.
- N. ISO, each applicable LCC, and each applicable Other TE shall incorporate the NPIRs into their operating analyses of the electric system.
- O. ISO shall incorporate the NPIRs into their long-term system planning analyses of the electric system conducted in accordance with NERC Transmission Planning (TPL) Standards and communicate the results of these analyses to the applicable NPGOP in accordance with Section I.3.9 of the ISO Tariff and ISO Planning Procedures, including PP5-3 and PP5-1, and through NPIMs.
- P. ISO, each LCC, and each applicable Other TE are responsible for acknowledging receipt of applicable proposed NPIRs sent to them by the NPGOP in accordance with Section 4.B.1) of this document.

NOTE

Approval of an M/LCC 1 Attachment C or D by an applicable M/LCC 1 Party [ISO, each applicable LCC, each applicable Other TE and each applicable NPGOP, as listed in Section 4, Table A] constitutes agreement to the applicable NPIRs in Section 10, Table 1 of such Attachment. When an applicable M/LCC 1 Party approves an M/LCC 1 Attachment C or D, it is agreeing to all NPIRs applicable to all functions within the respective corporate organizational structure of which they are a part.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- Q. ISO, each applicable LCC and each Other TE are responsible for reviewing and approving, as appropriate, any proposed change to M/LCC 1 and any applicable M/LCC 1 Attachment, including any proposed change to an applicable NPIR in accordance with Section 4 of this document.
- R. Each M/LCC 1 Party listed in M/LCC 1, Attachment F – MLCC 1 Parties Contact Information (M/LCC 1 Attachment F) is responsible for:
- 1) Providing a single point of contact (M/LCC 1 Parties Contact) and email address to the Supervisor of Long Term Outage Coordination or designee at email address NPIR-submittal@iso-ne.com.

NOTE


Any responsibility of, or action to be performed by the Supervisor of Long Term Outage Coordination in accordance with this document, may be assigned by the Supervisor of Long Term Outage Coordination to another person (the “designee”).

- 1) Communicating and sharing information pertaining to applicable NPIRs and other applicable provisions of M/LCC 1 documents with appropriate entities within their corporate organizational structure.
 - a. Such entities would include any that should be involved in the review of and agreement to NPIRs contained in Section 10, Table 1 of any applicable M/LCC 1 Attachment.
- S. Each NPGOP is responsible for reviewing proposed changes to M/LCC 1 or the applicable M/LCC 1 Attachment document, including applicable NPIR changes, with ISO and the applicable LCC(s), per M/LCC 1 Attachment E.

NOTE

If a proposed new or modified NPIR represents a material change to the nuclear power station, the NPGOP would first need to comply with the provisions set forth in Section I.3.9 of the ISO Tariff, which may require a System Impact Study or I.3.9 application.

- T. Each NPGOP is responsible for providing proposed NPIRs to ISO, each applicable LCC, and each applicable other M/LCC 1 Party of this document.
- U. Each NPGOP is responsible for reviewing and approving, as appropriate, any proposed change to M/LCC 1 and any applicable M/LCC 1 Attachment document, including reviewing and agreeing to a proposed change to an applicable NPIR, in accordance with Section 4 of this document.


	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

4. Periodic Review, Update and Approval of M/LCC 1 and Attachments

NOTE	
<p>M/LCC 1 and each of the M/LCC 1 Attachments are reviewed and approved by all applicable parties to each document. The “M/LCC 1 Parties” to a given M/LCC 1 document include ISO (as a TOP and TP) as well as other parties, including certain LCCs (as TOPs), TOs and NPGOPs. A summary of the M/LCC 1 Parties for each M/LCC 1 document is provided in Table A - Form for Documenting Approvals of M/LCC 1 Documents by the Parties to the M/LCC 1 Documents (a Party to a document is indicated with an “P” in Table A, below). M/LCC 1 documents are also reviewed and approved by the M/LCC Heads (including ISO and all LCCs that are M/LCC 1 Parties) as part of their normal review of all M/LCC documents.</p>	

Table A –Form for Documenting Approvals of M/LCC 1 Documents by the Parties to the M/LCC 1 Documents

Parties to M/LCC 1 Documents (“M/LCC 1 Parties”) [Note: Parties to M/LCC 1 documents are indicated with a “P” in this Table.]	Applicable Registered Entity Function(s)	Name of Person Submitting Email Indicating Approval of M/LCC 1 Document To Which They Are a Party	Date of Email Indicating Approval of M/LCC 1 Document To Which They Are a Party	M/LCC 1	M/LCC 1 Att. C	M/LCC 1 Att. D	M/LCC 1 Att. E	M/LCC 1 Att. F
ISO New England	TOP, TP			P	P	P	P	P
Eversource Energy Service Company [Includes the following LCCs/TOPs: CONVEX and New Hampshire, as well as the following EversourceTOs: Connecticut Light & Power Company (CL&P) and Public Service Company of New Hampshire.]	TOP, TO			P	P	P	P	P
NGRID	TOP			P		P	P	P
Dominion Energy Nuclear Connecticut, Inc. (NPGOP for Millstone)	NPGOP			P	P		P	P
NextEra Energy Resources, LLC (NPGOP for Seabrook)	NPGOP			P		P	P	P
New Hampshire Transmission, LLC (NH Transmission)	TO			P		P	P	P

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- A. For any modification to M/LCC 1 or an M/LCC 1 Attachment to become effective, it shall be reviewed and approved by the applicable M/LCC 1 Parties (as listed in Table A, above), in accordance with Section 4 of this document.


NOTE

A list of email addresses for M/LCC 1 Parties is contained in M/LCC 1, Attachment F.


- B. The Supervisor of Long Term Outage Coordination or designee is responsible for updating M/LCC 1 Attachment F to incorporate changes to contact information provided by M/LCC 1 Parties and to use that information for the purpose of communicating with M/LCC 1 Parties regarding M/LCC 1 documents.

1) Development or Revision of M/LCC 1 Documents and Preliminary Approval of M/LCC 1 Document Revisions by M/LCC 1 Parties:

- a. At any time, any of the M/LCC 1 Parties to an M/LCC 1 document may propose a modification to that document to the Supervisor of Long Term Outage Coordination (who is the designated ISO “Procedure Owner” of all M/LCC 1 documents). Such proposals shall be sent to the email address: NPIR-submittal@iso-ne.com
 - If the proposed change is a new or modified NPIR(s) proposed by an NPGOP, then the NPGOP shall also send the proposal to all applicable TEs (using the email addresses specified by the parties in M/LCC 1 Attachment F). The proposed NPIRs shall be in the form of a redlined version of Section 10, Table 1 of the applicable currently effective versions of M/LCC 1 Attachment C or Attachment D, as applicable and include a request that the TE(s) verify receipts of the proposed NPIR(s).
 - Upon receipt of any proposed new or modified NPIR, the TE recipient of the applicable proposed new or modified NPIR shall acknowledge receipt of such NPIR through an email reply to the NPIR submittal email, directed to the attention of the NPGOP that submitted the proposed new or modified NPIR.
- b. The Supervisor of Long Term Outage Coordination or designee shall consider any proposed modification to an M/LCC 1 document and attempt to reach a consensus with the party proposing the modification about whether the modification should be made and when it should be made.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- c. For each M/LCC 1 document, to facilitate required biennial reviews, approximately 18 months after the effective date of the document (or more often as necessary to address proposed changes to the document), the Supervisor of Long Term Outage Coordination or designee shall update the M/LCC 1 document (reflecting proposed changes, if any) and send it to the M/LCC 1 Parties by email for their preliminary review and feedback (specifying the date by which feedback must be provided).
- d. Upon receipt of an M/LCC 1 document, each Party to the M/LCC 1 document shall review the document to verify that the existing provisions and modified provisions (if any) are acceptable and provide the requested preliminary feedback to the Supervisor of Long Term Outage Coordination or designee by email by the specified deadline, indicating whether or **not** they can preliminarily support the updated document.
- e. After the specified deadline for M/LCC 1 Parties to provide feedback on the M/LCC 1 document revision has passed, the Supervisor of Long Term Outage Coordination or designee will review the feedback provided, modify the document based on the comment(s), as necessary, and then take one of the following two actions below, as appropriate:
 - If all feedback received indicates preliminary support for the proposed document revision and there are **no** suggestions for further changes to the document of a material nature, then the Supervisor of Long Term Outage Coordination or designee shall inform the M/LCC 1 Parties that preliminary consensus has been reached on the proposed revision (attaching the latest copy of the draft document revision) and indicate that ISO will be proceeding with the document review process in accordance with ISO SOP-RTMKTS.0210.0010 - Develop, Revise & Control SOP, OP, M/LCC Documents (which includes ISO internal review and review/approval by M/LCC Heads) and then continue to follow the steps in this procedure (in Step B.2), below.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025


- If feedback received indicates that one or more M/LCC 1 Parties do **not** indicate preliminary support for the proposed document revision or there are suggestions for further changes to the document of a material nature, then the Supervisor of Long Term Outage Coordination or designee shall inform the M/LCC 1 Parties that consensus has **not** been reached on the proposed revision and indicate that the M/LCC 1 Parties will conduct further review of the document [by returning to Step 4.B.1).c, above, and continuing to seek preliminary approval of the further revised document by M/LCC 1 Parties].

2) Formal Review and Final Approval of any M/LCC 1 Documents:


NOTE

Approval of M/LCC 1, Attachment C - Millstone Nuclear Power Station (Attachment C) or Attachment D - Seabrook Nuclear Power Station (Attachment D) constitutes agreement by the applicable M/LCC 1 Parties to the applicable NPIRs in Section 10, Table 1 of the applicable Attachment.

- After preliminary support for a modification to an M/LCC 1 document has been achieved by all applicable M/LCC 1 Parties (in accordance with Section 4.B.1) of this document, the Supervisor of Long Term Outage Coordination or designee shall pursue formal approval of the M/LCC 1 document, as described below:
- The Supervisor of Long Term Outage Coordination or designee shall oversee an internal review of the M/LCC 1 document revision by ISO, as well as the review and approval of the revision by the M/LCC Heads, in accordance with ISO SOP-RTMKTS.0210.0010 - Develop, Revise & Control SOP, OP, M/LCC Documents.
- After ISO internal review and M/LCC Heads approval of the M/LCC 1 document revision is completed, the Supervisor of Long Term Outage Coordination or designee shall pursue final review and approval of the M/LCC 1 document revision by M/LCC 1 Parties, as follows:
 - The Supervisor of Long Term Outage Coordination or designee shall send the revised M/LCC 1 document that was approved by the M/LCC Heads to the other applicable M/LCC 1 Parties, noting changes to the document since the document received preliminary approval from the M/LCC 1 Parties (if any).

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- ii. The M/LCC 1 Parties shall review the revised M/LCC 1 document and provide an email reply to the Supervisor of Long Term Outage Coordination or designee by the date requested, indicating their final approval of the document revision.
 - The ISO Chair of the M/LCC Heads shall send the reply on behalf of the M/LCC Heads, reflecting the respective approvals of each of the M/LCC 1 Parties that are members of the M/LCC Heads group. The M/LCC Heads meeting minutes may also be utilized to reflect the M/LCC Heads approval for all M/LCC 1 documentation changes.
- iii. After all M/LCC 1 Parties have indicated their respective final approval of the M/LCC 1 document the Supervisor of Long Term Outage Coordination or designee will proceed with document finalization and posting process in accordance with ISO SOP-RTMKTS.0210.0010 - Develop, Revise & Control SOP, OP, M/LCC Documents.
- d. After the revised and approved M/LCC 1 document is posted, the Supervisor of Long Term Outage Coordination or designee shall:
 - i. Develop and retain documentation of the approval of the M/LCC 1 document by completing Table A of this document (above) and storing it, along with the associated document final approval emails from the M/LCC 1 Parties.
 - ii. Notify M/LCC 1 Parties by email that the revised M/LCC 1 document has been approved by the M/LCC 1 Parties and has been posted, including the following with the email:
 - The completed Table A of this document
 - If the M/LCC 1 document is confidential, include a copy of the document (otherwise, provide a link to where the posted document can be accessed on the ISO external website)
 - iii. Notify ISO System Planning that the M/LCC 1 document has been revised and posted, using the following email distribution lists:
 - PLNG Transmission Planning
 - PLNG Planning Services

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025


5. Other Requirements or Provisions Pertaining to NPIRs

A. Technical Requirements and Analysis


- 1) Parameters, limits, configurations, and operating scenarios pertaining to the NPIRs for a nuclear power station shall be included as part of the NPIRs in Section 10, Table 1 of the M/LCC 1 Attachment C or D applicable to that nuclear power station.
- 2) As necessary, the NPGOP, ISO, each applicable LCC and each applicable Other TE shall provide any specific data pertaining to NPIRs that is **not** provided within M/LCC 1 or an M/LCC 1 Attachment that is determined to be necessary to meet a NPIR to the entity that requests such data.
- 3) M/LCC 1 Attachment C and Attachment D shall identify facilities, components, and configuration restrictions that are essential for meeting the NPIRs pertaining to the applicable nuclear power station.
- 4) The types of planning and operational analyses studies performed to support the NPIRs, the frequency with which such studies are conducted and the types of contingencies and scenarios considered in such studies shall be in accordance with the normal long-term planning conducted by ISO in accordance with the ISO Tariff and applicable ISO Planning Procedures, including PP3, PP5-3 and PP5-1 and in accordance with the operational analyses that ISO, applicable LCCs and other applicable TEs conduct, as applicable, to plan and operate the New England BES.

B. Operations and Maintenance Coordination

- 1) Designation of ownership of electrical facilities at the interface between the electric system and a nuclear power station and responsibilities for operational control of these facilities shall be in accordance with the applicable Large Generator Interconnection Agreements or other agreements between the NPGOP for that nuclear power station and the applicable TE(s) and shall be reflected in the station one-line schematic diagrams submitted by the NPGOP to ISO and the LCCs in accordance with ISO New England Operating Procedure No. 16 - Transmission System Data (OP-16).
- 2) The owners of the electrical facilities at the interface between the electric system and a nuclear power station (including applicable TOs and the NPGOPs) shall coordinate with each other and with ISO pertaining to the operational control of those facilities in accordance with M/LCC 1, applicable M/LCC 1 Attachments and other applicable mutually-agreed-upon procedures.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- 3) Each owner of an electrical facility at one or the other side of the interface between the electric system and a nuclear power station is responsible for the maintenance of that facility.
- 4) There are **no** specific maintenance requirements for equipment **not** owned or controlled by the NPGOP that are necessary to meet the NPIRs.
- 5) The NPGOPs, ISO, the LCCs and other TEs shall each, as applicable, coordinate the testing, calibration and maintenance of on-site and off-site power supply systems and related components in accordance with ISO Operating Procedures, including OP-3 and OP-5, and in accordance with M/LCC 1 Attachment E.
- 6) M/LCC 1 Attachment C and Attachment D shall contain provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when ISO and the LCC lose the ability to assess the capability of the electric system to meet the NPIRs, including provisions for notifying the NPGOP within a specified time frame.
- 7) ISO and the LCCs shall reflect the following provisions pertaining to the requirements and urgency of a nuclear power station that has lost all off-site and on-site AC power [i.e., is in a Station Blackout (SBO) condition] in the New England Reliability Coordinator System Restoration Plan, as described in Master/Local Control Center Procedure No. 18 – New England System Restoration Plan (M/LCC 18):
 - a. ISO and each applicable LCC shall consider the restoration of off-site AC power to New England nuclear power stations to be a high priority during system restoration.
 - b. ISO and each applicable LCC shall be mindful of the amount of time that the nuclear plant can maintain adequate core cooling during an SBO event, as such times are specified in the applicable M/LCC 1 Attachment C and Attachment D.
 - c. During an SBO event at a nuclear power station, ISO and each applicable LCC shall reassess system restoration priorities to take into consideration the requirements and urgency of the nuclear power station experiencing such an event.
- 8) The NPGOPs, ISO, the applicable LCCs and other applicable TEs shall each be responsible for physical and cyber security protection of all of its assets, including assets at the nuclear plant interface, if any.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- 9) The NPGOPs, ISO, the applicable LCCs and applicable Other TEs shall each coordinate the applicable NPIRs with transmission system Remedial Action Schemes and/or Special Protection Systems ,as well as underfrequency and undervoltage load shedding programs:


- a. in accordance with:

- i. the normal long-term planning conducted by ISO
- ii. the ISO Tariff
- iii. the operational analyses that ISO and the LCCs conduct, as applicable, to plan and operate the New England BES


- b. and also through coordination conducted through the NPIMs

C. Communications and Training

- 1) ISO, the LCCs and the NPGOPs shall make good faith efforts to meet NPIRs at all times and if system conditions or other factors impact the ability to meet the NPIRs, ISO, the LCCs and the NPGOPs shall have communications and corrective actions procedures to address the inability to meet the NPIRs.
- 2) Communications between the NPGOP and ISO, the LCCs or Other TEs, including communications protocols, notification time requirements, and definitions of terms shall be as specified in this document and in Attachments C and D of this document.
- 3) The NPGOPs, ISO, LCCs and Other TEs, as applicable, shall coordinate during an off-normal or emergency event on the transmission system affecting the NPIRs by providing timely information pertaining to the event, including an explanation of the event (subject to the requirements of the ISO New England Information Policy). In addition, ISO and/or the applicable LCCs shall, in accordance with this document and Attachments C and D of this document, as applicable.
 - a. provide an estimate of when the transmission system will be returned to a normal state
 - b. inform the NPGOP of the actual time that the transmission system is returned to normal
- 4) The NPGOP, ISO, the applicable LCC(s) and Other TE(s) shall, as applicable coordinate investigations of causes of unplanned events affecting the NPIRs and develop solutions to minimize future risk of such events:

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

- a. through direct communications between involved parties
 - b. through discussions at NPIMs or other means, as necessary
 - c. in accordance with the NERC Event Analysis procedures
- 5) The NPGOPs, ISO, the applicable LCC(s) and other applicable TE(s) shall provide information to report to government agencies, as necessary, which may include information related to NPIRs, in accordance with ISO New England Operating Procedure No. 10 - Emergency Incident and Disturbance Notifications (OP-10) and as further implemented by applicable respective procedures of the ISO, LCCs and the NPGOPs.
 - 6) The NPGOPs, ISO, the applicable LCCs and other applicable TEs shall each provide their respective personnel training, as related to NPIRs.
 - 7) The Supervisor of Long Term Outage Coordination or designee is responsible for supporting training on nuclear power station procedures with ISO Operator training staff.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

6. Glossary of Nuclear Terms and Acronyms

Delayed Access Power Source (DAPS): Off-site power source that is available to supply station loads within a predetermined period of time following a plant trip or planned shutdown.

Design Basis: Nuclear plants have been designed to withstand phenomena such as earthquakes, tornadoes, hurricanes and floods as well as postulated station events without loss of systems and structures necessary to ensure public health and safety.

General Design Criteria (GDC): Requirements for the design and operation of nuclear power plants that are part of federal law.

Immediate Access Power Source (IAPS): Off-site power source that is available to supply station loads within a few seconds following a plant trip, concurrent with worst-case bus loading conditions.

Limiting Condition of Operation (LCO): Lowest functional capability or performance level of equipment required for safe operation of the plant.

Loss of Coolant Accident (LOCA): Accidents that result in a loss of reactor coolant or the systems that control reactor coolant.

NERC Compliance Registry (NCR): A listing of all organizations registered with NERC and therefore subject to compliance with approved NERC Reliability Standards. Each such organization has an assigned NCR number (for example, ISO-NE is NCR07124). This listing is posted to the NERC website (in the Compliance & Enforcement section).


Nuclear Plant Generator Operator (NPGOP): Any Generator Operator or Generator Owner that is a Nuclear Plant Licensee responsible for operation of a nuclear facility licensed to produce commercial power.

Nuclear Plant Interface Requirements (NPIRs): As defined by NERC, requirements based on NPLRs and Bulk Electric System requirements that have been mutually agreed to by the Nuclear Plant Generator Operator and the applicable Transmission Entities.

Nuclear Plant Licensing Requirements (NPLRs): As defined by NERC, requirements included in the design basis of the nuclear plant and statutorily mandated for the operation of the plant, including nuclear plant licensing requirements for: (1) Off-site power supply to enable safe shutdown of the plant during an electric system or plant event; and (2) Avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

Operating Modes: Reactors are classified into several modes of operation depending upon the combination of core reactivity condition, power level and

Hard Copy Is Uncontrolled

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

average reactor coolant temperature. Modes differ depending upon whether the reactor is a Pressurized Water Reactor (PWR) or a Boiling Water Reactor (BWR).


Risk-Sensitive Maintenance: A nuclear plant maintenance activity on certain equipment (e.g., emergency diesels, emergency core cooling systems, startup or shutdown transformers, etc.) which requires a heightened awareness of the status and availability of off-site power sources and that could limit transmission maintenance activities.

Station Blackout (SBO): The loss of all off-site and on-site AC power at the nuclear plant.

Station Blackout Coping Time: The minimum time the nuclear plant can maintain adequate core cooling with the loss of all off-site and on-site AC power (Station Black Out).


Transmission Entity (TE): An entity that is responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). For the purposes of M/LCC 1, TEs include ISO, certain LCCs and certain TOs listed in Section 10, Table 1 of Attachments C and D.

Trip Risk Activity: Any activity that could directly result in a plant trip and would be stopped and/or postponed during an Abnormal Conditions Alert, in accordance with Master/Local Control Center Procedure No. 2 - Abnormal Conditions Alert (M/LCC 2).


	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

7. Revision History

Rev. No.	Date	Reason
--	02/06/17	For previous revision history, refer to Rev 10 available through Ask ISO;
Rev 11	03/08/12	Annual review by procedure owner; Updated Header copyright date; In Header, replaced "Lead Outage Coordinator (Nuclear Plant Liaison), System Operations" with Principal Nuclear and System Reliability Coordinator; Deleted 2 nd paragraph of disclaimer in 1st page Footer; Section 3.1.G Added provision requiring ISO/LCCs to review/approve proposed NPIR changes or other changes to M/LCC 1 Attachments; Section 3.2.C added new step requiring nuclear power stations to discuss all proposed changes to NPIRs and M/LCC 1 Attachments at quarterly interface meetings; Section 3.2.D. added new step to provide proposed NPIR changes to ISO/LCCs inform of proposed modified M/LCC 1 Attachment; Section 3.2.E. added new step to review/approve M/LCC 1 Attachments; Section 3.2. F. modified old 3.2.C to incorporate NPIRs into NX-12, Section 8 Form and submit to ISO; Corrected the SOP-RTMKTS.0030.0020 (added "short Term"; Added NOTE prior to Section new step 4.C to indicate that M/LCC 1 Attachments must be approved by ISO, the applicable LCC and the applicable nuclear power station for it to become effective, added new step 4.C 2 new bullets; Section 5 clarified and provided fuller definition of High Risk Activity, added new definition for Risk Sensitive Maintenance; Section 6 added "Power" to the plant names in 6.A & 6.B;
Rev 12	03/04/13	Annual review by procedure owner; Deleted Confidential designation in title and each page footer; Major revision to reflect new process for review and approval of NPIRs
Rev 13	02/26/14	As a result of the annual review completed by procedure owner, NPGOPs and TEs the following changes have been made [clarified provisions; added references to other procedures, deleted references to retired procedure (OP-6): Made minor administrative changes required to publish a new Revision;
Rev 14	02/17/15	Annual review completed by procedure owner. Section 3.1.F, corrected OP-5 title; Section 3.1.J, modified wording; Section 10 References, corrected OP-5 title and deleted NERC Reliability Standard COM-002, OP-4, OP-12, OP-19, M/LCC 7, M/LCC 15, SOP-OUTSCH.0030.0020 and SOP-RTMKTS.0125.0060
Rev 15	02/08/16	Annual review completed by the procedure owner; Globally, minor editorial changes; Section 1, changed four nuclear stations to three with Vermont Yankees retirement and no NPIRs between VY and VELCO; Section 3, NOTE 2, removed link;

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

Rev. No.	Date	Reason
Rev 16	02/06/17	Annual review completed by the procedure owner; During Kevin Clark's 1/19/17 presentation of M/LCC1 and Attachments A, C, D, E, and F documents to the M/LCC Heads, a request was made to change the review periodicity from the current annual to biennial; the M/LCC Heads approved the request; Added required corporate document identity to all page footers; Sections 1,2, and 3, made editorial changes to clarify information; Section 3.1 modified title, 2 nd NOTE, Step 3.1.D and Sub-steps, Step 3.1.E and Sub-steps, Step 3.1.F, Step 3.1.G, Step 3.1.H, Step 3.1.I, Step 3.1.K and following NOTE, Step 3.1.L, Step 3.1.L, Step 3.1.M and Sub-steps, Step 3.1.N, Step 3.1.O, and Step 3.1.P; Section 3.2, modified Steps 3.2.F, Step 3.2.G, Step 3.2.H, Step 3.2.J.a, Step 3.2.L; Section 4, deleted entire Step A and re-numbered remaining steps, modified Step 4.C, modified Step 4.D, added new Step 4.F and Step 4.G, modified Step 4.I.3), modified Step 4.J.2)c, modified Step 4.J.3).a; Section 5, deleted entire step A and sub[steps and re-numbered remaining steps, modified Steps 5.A.2) and 3), modified Steps 4.B 2), 8) and 9); Section 7 truncated the Revision History per SOP-RTMKTS.0210.0010 Section 5.6; Section 9 corrected title for M/LCC 13;
Rev 17	01/08/19	Annual review completed by the procedure owner; In Section 1, adopted and use the term "M/LCC 1 Parties" with a reference to the listing of the Parties in Section 4, Table A; In Section 3.1, added responsibility for TEs to participate in NPIMS; In Section 3.2, added responsibility for NPGOPs to participate in NPIMS; In Section 4, significant revision to reflect new process for approving M/LCC 1 documents via email rather than through NPIMs (and made associated conforming changes to reflect this process elsewhere in the document, as needed). Note: the old NPIM approval process used to be described in M/LCC 1 Att. E;
Rev 18	06/03/19	Biennial review completed by the procedure owner; Globally, minor editorial changes; Section 1, changed three nuclear stations to two with Pilgrim retirement and no NPIRs between Entergy and Eversource; Section 8, retired Attachment A;
Rev 18.1	11/23/20	Typo correction: corrected Distribution email name from PLNG Resource Adequacy to PLNG Planning Services in Section IV.B.2.d.iii second bullet
Rev 19	06/03/21	Biennial Review; deleted obsolete note applicable to Distribution Provider NPIRs in Section 2, Added bullet to 3.1.G. to clarify potential backdown instructions.
Rev 20	05/23/23	Biennial Review; Updated procedure owner; Minor editorial changes; Globally replaced "ISO Principal Nuclear and System Reliability Coordinator" with "Supervisor of Long Term Outage Coordination"; Included the use of the M/LCC Heads meeting minutes as indication of document approval for the M/LCC Heads group.

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

8. Attachments

Attachment A - Retired (06/03/2019)


Attachment B - Retired (01/08/2019)

Attachment C - Millstone Nuclear Power Station (Confidential)

Attachment D - Seabrook Nuclear Power Station (Confidential)

Attachment E - Nuclear Plant Interface Meetings

Attachment F - MLCC 1 Parties Contact Information (Confidential)

	© ISO New England, Inc. 2023	Master/LCC Procedure No. 1 - Nuclear Plant Transmission Operations
		Revision Number: Rev 20 Revision Date: May 23, 2023
Owner: Andrew Kopacka, Supervisor, Long-Term Outage Coordination		Approved by: M/LCC Heads and applicable M/LCC 1 Parties
		Review Due Date: May 23, 2025

9. References

NERC Reliability Standard NUC-001 - Nuclear Plant Interface Coordination

ISO New England Operating Procedure No. 1 - Central Dispatch Operating Responsibilities and Authority (OP-1)

ISO New England Operating Procedure No. 3 - Transmission Outage Scheduling (OP-3)

ISO New England Operating Procedure No. 5 - Resource Maintenance and Outage Scheduling (OP-5)

ISO New England Operating Procedure No. 10 - Emergency Incident and Disturbance Notifications (OP-10)

ISO New England Operating Procedure No. 16 - Transmission System Data (OP-16)

Master Local Control Center Procedure No. 2 - Abnormal Conditions Alert (M/LCC 2).

Master/Local Control Center Procedure No. 13 - ISO and LCC Communications Practices (M/LCC 13)

Master/Local Control Center Procedure No. 18 – New England System Restoration Plan (M/LCC 18)

ISO New England Planning Procedure No. 3 - Reliability Standards for the New England Area Pool Transmission Facilities (PP3)

ISO New England Planning Procedure No. 5-1 - Procedure for Review of Market Participant's or Transmission Owner's Proposed Plans (PP5-1)

ISO New England Planning Procedure No. 5-3 - Guidelines for Conducting and Evaluating Proposed Plan Application Analyses (PP5-3)

SOP-RTMKTS.0210.0010 - Develop, Revise & Control SOP, OP, M/LCC Documents

ISO New England Inc. Transmission, Markets, and Services Tariff (ISO Tariff)

ISO New England Information Policy (ISO Tariff Attachment D)