

ISO New England Operating Procedure No. 21 - Energy Inventory Accounting and Actions During An Energy Emergency

Effective Date: draft

References:

Federal Energy Regulatory Commission (FERC), Order No. 587 - Standards for Business Practices of Interstate Natural Gas Pipelines; Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities

FERC, Order No. 698 - Standards for Business Practices for Interstate Natural Gas Pipelines; Standards for Business Practices for Public Utilities

NAESB Standard WEQ-0011 Gas/Electric Coordination Standards

NAESB WGQ Business Practice Standards, Additional Standards; Gas/Electric Operational Communication

ISO New England Inc. Transmission, Markets, and Services Tariff, Section III Market Rule 1 – Standard Market Design

ISO New England Inc. Transmission, Markets, and Services Tariff, Attachment D - ISO New England Information Policy

ISO New England Operating Procedure No. 4 - Action During a Capacity Deficiency (OP-4)

ISO New England Operating Procedure No. 7 - Action in an Emergency (OP-7)

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

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Appendix B - Electric/Gas Operations Committee's (EGOC) Operations
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I. INTRODUCTION

This Operating Procedure (OP) documents the processes and establishes the associated requirements for ISO New England Inc. (ISO) to:

1. Collect fuel availability and environmental limitation information for each coal, oil, natural-gas fired, and other resources as ISO deems necessary (referred to as “applicable resource(s)” for the purposes of this OP) from each respective Lead Market Participant (Lead MP);
2. Forecast and report expected energy availability over a 21-day look ahead period;
3. Trigger Energy Alerts and Energy Emergencies based on forecasted or Real-Time system conditions;
4. Take appropriate action in anticipation of, or during, an Energy Alert or Energy Emergency;
5. Communicate with interstate natural gas pipelines, Liquefied Natural Gas (LNG) import facilities, local gas distribution companies (LDCs), Designated Entities (DEs), and Lead MPs regarding all matters related to resource fuel availability and environmental limitations.

This OP also documents the responsibilities of Lead MPs of applicable resources for completion of OP-21, Appendix A – Generator Survey (OP-21A), as well as any related communications and reporting requirements.

Energy Emergencies (defined in Section III.C of this OP) may occur at any time as a result of sustained national or regional shortages in fuel availability or deliverability to New England’s resources. Such shortages of fuel may occur in many forms, including, but **not** limited to: severe drought, interruption to availability or transportation of natural gas, oil, or coal.

Any of the conditions listed below, or a combination of these conditions, may contribute to an Energy Emergency (this is not meant to be an all-inclusive list of possible conditions):

- One or more pipeline operational flow orders (OFOs) have been declared
- Significant reductions of resource capability due to natural gas related issues
- Weather forecast for an extended period of cold or hot weather
- Fuel delivery to a significant number of fossil fuel-fired generating resources is, or may be impaired
- Prolonged drought
- Adverse weather conditions within the Gulf of Mexico, Western Canada, or regional shale gas basins.
- Abnormal conditions at regional LNG import, satellite storage, or LNG trucking

facilities

- Extremely cold regional, national, or international weather conditions
- Extreme storm conditions off shore in the Maritimes
- Any viable threat to one or more of the interstate natural gas pipelines or LDCs supplying New England
- Any other serious threat to the integrity of the Bulk Electric System (BES) for which ISO determines that this OP may mitigate the impact

A sustained environmental limitation on some, or several, of New England's resources may also contribute to an Energy Emergency.

Energy Emergencies are envisioned to last much longer than capacity deficiencies, which are managed through ISO New England Operating Procedure No. 4 - Actions During a Capacity Deficiency (OP-4) and, under extreme circumstances, through ISO New England Operating Procedure No. 7 - Actions in an Emergency (OP-7). Operable capacity deficiencies are typically experienced at seasonal peak load conditions or upon the occurrence of other emergent system conditions and tend to last for a few hours per event. Because fuel shortages and/or environmental limitations may impact New England's ability to fully meet system load and ten-minute operating reserve requirements for weeks or months at a time, ISO may need to take action in advance of a projected Energy Emergency to manage and preserve fuel supplies within the region. Unless ISO takes actions to address projected Energy Emergencies, a fuel shortage and/or environmental limitations may lead to a significant loss of resource capacity and more extreme use of OP-4 and OP-7 actions.

The objectives of this OP are:

1. To facilitate strong lines of communication among ISO, interstate natural gas pipelines, LNG import facilities, LDCs, DEs, and Lead MPs regarding all matters relating to resource fuel availability and environmental limitations;
2. To alert regional stakeholders of actual or anticipated near-term energy deficiency conditions such that resources in short supply of fuel, or with potential environmental limitations, can take action to restock fuel supplies and/or take action to mitigate environmental limitations;
3. To alert regional stakeholders of potential energy deficiencies such that they may take action to shorten or reschedule maintenance or repair to transmission facilities or resources throughout the region;
4. To raise the awareness of New England consumers, Lead MPs, officials of the New England states, regional and national regulators, and regional and national reliability organizations of potential energy deficiencies that may be faced by the region;
5. To allow for timely implementation of load and capacity relief available within actions of OP-4 or through implementation of load shedding through OP-7, in order to address future capacity shortages expected as a result of an Energy

Emergency.

II. PROCESS OVERVIEW

A. DATA COLLECTION PROCESS DESCRIPTION

At the periodicity specified in Sections III.A, III.B, and III.C below, ISO distributes a blank survey form (OP-21A) to the Lead MP of each applicable resource. The purpose of OP-21A is to collect data that allows ISO to monitor fuel inventory levels, fuel replenishment plans, and actual or anticipated environmental limitations on resources within New England. Additionally, ISO utilizes data submitted on OP-21A to perform periodic Energy Emergency forecasting and reporting, as described in Section II.B of this OP. ISO may publish all collected data in aggregation.

B. ENERGY EMERGENCY FORECASTING AND REPORTING PROCESS AND FORECAST ALERT THRESHOLDS

ISO performs Energy Emergency forecasting and reporting based on available data that includes the information received from Lead MPs through OP-21A submissions. Energy Emergency forecasting and reporting is performed at the periodicity specified in Sections III.A, III.B, and III.C. ISO performs Energy Emergency forecasting and reporting by using an hourly 21-day energy assessment, and comparing the results of that assessment with the Energy Emergency forecast alert thresholds (described below) in order to identify and communicate potential reliability issues to regional stakeholders.

Energy Emergency Forecast Alert Thresholds

- Forecast MLCC-2 (FMLCC2) – indicates that available resources during any hour of the Operating Day are forecasted to be less than 200 MW above those required to meet Operating Reserve requirements.
- Forecast Energy Emergency Alert Level 1 (FEEA1) – indicates that available resources during any hour of the Operating Day are forecasted to be less than those required to meet Operating Reserve requirements, and that implementation of OP-4 Actions 1 through 5 is being forecasted.
- Forecast Energy Emergency Alert Level 2 (FEEA2) – indicates that available resources during any hour of the Operating Day are forecasted to be less than those required to meet Operating Reserve requirements and that implementation of OP-4 Actions 6 through 11 is being forecasted.
- Forecast Energy Emergency Alert Level 3 (FEEA3) – indicates that available resources during any hour of the Operating Day are forecasted to be insufficient to serve firm load requirements, and implementation of firm load shedding under OP-7 is being forecasted.

ISO will identify and report each hour of all Operating Days within the 21-day look ahead of the Energy Emergency forecast as either normal, FMLCC2, FEEA1, FEEA2, or FEEA3.

ISO will publish the results of each Energy Emergency forecast on the ISO's website. For each instance where an Energy Emergency forecast alert threshold was met, the results will include the reason(s) why the threshold was met.

Energy Alert and Energy Emergency Declaration Criteria

ISO declares an **Energy Alert**, and takes actions as described in Section III.B of this OP, when either of the following conditions exist:

- FEEA2 is forecasted to occur in at least 1 hour on 1 or more consecutive days of the 21-day energy assessment, or
- FEEA3 is forecasted to occur in at least 1 hour on 1 or more consecutive days in days 6 through 21 of the 21-day energy assessment.

ISO declares an **Energy Emergency**, and takes actions as described in Section III.C of this OP, when either of the following conditions exist:

- FEEA3 is forecasted to occur in at least 1 hour on 1 or more consecutive days in days 1 through 5 of the 21-day energy assessment, or
- Shedding of firm load under OP-7 is occurring or is anticipated to occur due to an actual energy deficiency.

For the purposes of this OP, ISO declares Normal Conditions any time when neither an Energy Alert nor an Energy Emergency has been declared.

C. COMMUNICATIONS

During Normal Conditions (as described in Section III.A of this OP), ISO staff communicates with interstate natural gas pipelines/LDCs as often as necessary, dependent on existing or forecasted system conditions. More frequent communications may occur when warranted by electronic bulletin board (EBB) notices or actual pipeline conditions.

In addition to the communications that occur during Normal Conditions, during an Energy Alert or Energy Emergency (as described in Sections III.C and III.C of this OP, respectively) additional or enhanced electric/gas communications may be warranted. These communications serve to ascertain the status of the interstate natural gas pipelines affecting New England, and increase awareness of activities (e.g., maintenance) that may impact natural gas delivery to New England.

Interstate natural gas pipelines/LDCs communicate with ISO in accordance with the protocols outlined in OP-21, Appendix B - Electric/Gas Operations Committee's (EGOC) Operations Communications Protocol (OP-21B).

ISO Responsibilities:

- Routine monitoring of interstate natural gas pipeline EBBs notices for indications of potential pipeline curtailments and/or restrictions. If there are indications of possible curtailments or restrictions, the ISO staff is responsible for contacting the Lead MP through its DE for each applicable

gas-fueled generator and confirming that they have sufficient gas scheduled to its meter(s) to support its scheduled commitment for the next Operating Day.

- Contacting any interstate natural gas pipeline/LDC as necessary regarding Real-Time or forecast conditions on the regional natural gas system.
- Emailing expected electric sector gas consumption hourly load profiles to the interstate natural gas pipelines.
- Reviewing natural gas nominations, via each interstate natural gas pipeline EBB, and contacting the applicable Lead MP through its DE for its respective gas-fueled generator that may indicate a deficient natural gas supply for the current or next Operating Day.
- Contacting each dual-fuel generator after the Day-Ahead Energy Market (DAM) is complete and verifying the type of fuel it anticipates using on the next Operating Day.
- Publishing the results of the Energy Emergency Forecast externally on the ISO's website.

Responsibilities of each Lead MP through its DE:

- Communicating to ISO, when such change in conditions is known, the available information regarding anticipated or actual reductions in generator availability, including but **not** limited to the ability to procure fuel and physical limitations that could reduce generator output or availability for the Operating Day.
- Communicating to ISO any knowledge of changes to real-time fuel deliverability, as soon as possible, to facilitate the proper commitment and dispatch of the affected generator(s).

D. REPORTING REQUIREMENTS

- ISO shall submit all necessary reports in accordance with ISO New England Operating Procedure No. 10 - Emergency Incident and Disturbance Notifications (OP-10).
- Each Lead MP shall submit all necessary reports to the extent required by the United States (U.S.) Department of Energy (DOE) in accordance with OP-10.
- Each Lead MP, through its DE, shall notify ISO when fuel supply emergencies occur that could impact BES adequacy or reliability.
- If the ISO determines that resource availability will affect the adequacy or reliability of the BES or a sub-area of the BES, ISO shall notify the U.S. DOE in accordance with Form OE-417 Electric Emergency Incident and Disturbance Report (Form OE-417) requirements.

- ISO shall report to the U.S. DOE, using Form OE-417, when an Energy Emergency has been declared.
- On a case by case basis, ISO shall consider reporting to the U.S. DOE, using Form OE-417, whenever supplies of fuel types, other than fuel oil or coal, are diminished below normal levels.

E. DATA RETENTION REQUIREMENTS

ISO shall retain all data submitted on OP-21A for not less than 36 months.

In recognition of the sensitive nature of the information provided on OP-21A, and the unique nature of ISO's request, ISO shall:

- Use the information provided on OP-21A submittals solely for the purposes of identifying and addressing prospective energy deficiencies or related concerns that may exist.
- Treat submitted data in accordance with the ISO New England Inc. Transmission, Markets, and Services Tariff, Attachment D -ISO New England Information Policy.

III. CONDITIONS

A. NORMAL CONDITIONS

For the purpose of this OP, Normal Conditions are conditions that exist any time that neither an Energy Alert nor an Energy Emergency has been declared..

Data Collection

During Normal Conditions, on the following frequency basis, ISO shall distribute a blank OP-21A to the Lead MPs of applicable resources:

- Weekly, in the months of December through March (i.e. winter months), and
- Bi-weekly, in the months of April through November (i.e. non-winter months),

ISO may increase the frequency and/or modify the data collection requirements due to emergent indications of potential restrictions due to environmental limitations, fuel inventory, fuel procurement, fuel transportation, or other conditions that may limit resource availability.

Each Lead MP shall complete the OP-21A form provided by ISO for each applicable resource and submit it to ISO as soon as possible, but **no** later than the date specified by ISO.

- The Lead MP shall report accurate information on its completed OP-21A form.
- ISO may contact the Lead MP to ask clarifying questions on any submitted

information.

Energy Emergency Forecasting and Reporting

During Normal Conditions, based on available data (which includes information submitted by Lead MPs on OP-21A forms), ISO shall perform Energy Emergency forecasting and reporting as follows:

- Weekly, in the months of December through March, and
- Bi-weekly, in the months of April through November

ISO shall publish results of each Energy Emergency forecast on the ISO's website.

- For each instance where an Energy Emergency forecast alert threshold was met, the results shall include the reason(s) why the threshold was met.

B. ENERGY ALERT CONDITIONS

An **Energy Alert** is an alert that the ISO declares when:

- FEEA2 is forecasted to occur in at least 1 hour on 1 or more consecutive days of the 21-day energy assessment, or
- FEEA3 is forecasted to occur in at least 1 hour on 1 or more consecutive days in days 6 through 21 of the 21-day energy assessment.

Data Collection

During Energy Alert conditions, on a daily basis, ISO shall distribute blank OP-21A forms to the Lead MPs of applicable resources.

The ISO may increase the frequency and/or modify the survey data requirements if it finds emergent indications of potential energy deficiencies due to environmental limitations, low fuel inventory, fuel procurement or transportation issues, or any other conditions that could limit resource availability.

Each Lead MP shall complete the OP-21A form provided by ISO for each applicable resource and submit it to ISO as soon as possible, but **no** later than the date specified by ISO.

- The Lead MP shall report accurate information on each submitted OP-21A form.
- ISO may contact the Lead MP to ask clarifying questions on any submitted information.

Energy Emergency Forecasting and Reporting

During Energy Alert Conditions, on a daily basis, ISO shall perform Energy Emergency forecasting and reporting based on available data (which includes information submitted by Lead MPs on OP-21A forms).

The ISO shall publish results of each daily Energy Emergency forecast on the ISO's website.

- For each instance where an Energy Emergency forecast alert threshold was met, the results shall include the reason(s) why the threshold was met.

C. ENERGY EMERGENCY CONDITIONS

An **Energy Emergency** is an emergency that ISO declares when either of the following conditions exist:

- FEEA3 is forecasted to occur in at least 1 hour on 1 or more consecutive days in days 1 through 5 of the 21-day energy assessment, or
- Shedding of firm load under OP-7 is occurring or is anticipated to occur due to an actual energy deficiency.

Data Collection

During Energy Emergency Conditions, on a daily basis, the ISO shall distribute a blank OP-21A form to the Lead MPs of applicable resources.

The ISO may increase the frequency and/or modify the survey data requirements if it finds emergent indications of potential energy deficiencies due to environmental limitations, low fuel inventory, fuel procurement or transportation issues, or other conditions that could limit resource availability.

Each Lead MP shall complete the OP-21A form provided by ISO for each applicable resource and submit it to ISO as soon as possible, but **no** later than the date specified by ISO.

- The Lead MP shall report accurate information on the submitted OP-21A form.
- ISO may contact the Lead MP to ask clarifying questions on any submitted information.

Energy Emergency Forecasting and Reporting

During Energy Emergency Conditions, on a daily basis, ISO shall perform Energy Emergency forecasting and reporting based on available data (which includes information submitted by the Lead MPs on OP-21A forms).

ISO shall publish results of each Energy Emergency forecast on the ISO's website.

- For each instance where an Energy Emergency forecast alert threshold was met, the results shall include the reason(s) why the threshold was met.

Energy Emergency Actions

When an Energy Emergency has been declared, ISO shall:

1. Alert each LCC and surrounding Reliability Coordinator/Balancing Authority (RC/BA).
2. Alert each Lead MP via a posting to ISO's website.
3. Request that each dual-fuel generator scheduled to operate voluntarily switch to operation on the fuel source that is not in short supply.
4. Implement specific capacity and load relief measures available through actions of OP-4, excluding requesting New England State Governors reinforce appeals for voluntary load curtailment.

If actions 1 - 4 above do not result in the necessary relief from the forecasted Energy Emergency, or if there is insufficient time for those measures to provide relief, the following actions may be taken:

5. Implement a New England State Governors appeal in accordance with OP-4: Request New England State Governors to reinforce appeals for voluntary electrical load curtailment and the Power Warning implementation.
6. Under extreme conditions, ISO shall seek reliability relief through load shedding actions available through implementation of OP-7.

D. CANCELLATION

When conditions have sufficiently improved and the criteria for declaration of an Energy Alert or an Energy Emergency are no longer being met, ISO shall cancel the Energy Alert or Energy Emergency, as applicable

OP-21 REVISION HISTORY

Rev. No.	Date	Reason
Rev 0	11/04/05	Original Version for Winter 2005/2006
Rev 1	10/13/06	Revised OP for permanent use
Rev 2	06/01/10	Updated for the changes to OP #4 actions for FCM
Rev 3	08/28/14	Biennial review by procedure owner completed; Added referenced to support new format Globally used BES in place of BPS; Added sections on actions for Energy Inventory Accounting, Normal Conditions
Rev 3.1	06/15/16	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision;
Rev 4	06/01/18	Biennial review by procedure owner completed; Added required corporate document identity to all page footers; Globally, minor editorial changes and updates to make content consistent with current conditions, business process practices, and management expectations; Section I Introduction 2 nd paragraph, replaced "...Capacity Scarcity Condition..." with "...Capacity Shortage..." Section II.IV.B (Energy Emergency Conditions) 1 st paragraph, replaced "...Capacity Scarcity Condition..." with "...Capacity Shortage...";

Rev 5	draft	Major re-write to include modified survey requirements and incorporation of Energy Emergency Forecasting and Reporting process.