Appendix A - Operable Capacity Calculations

Effective Date: January 31, 2024

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References:

ISO New England Capacity, Energy, Loads, and Transmission (CELT) Report

ISO New England Operating Procedure No. 8 - Operating Reserve and Regulation (OP-8)

Capacity Supply Obligation / Nominated Consumption Limit Reports

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DEFINITIONS

Peak Load Exposure (PLE):

Peak Load Exposure (PLE) represents a projection of the New England Reliability Coordinator Area/Balancing Authority Area (RCA/BAA) possible weekly peak load, which has a 50% chance of occurring. The weekly PLEs are derived from ratios relating the projected weekly peak load to the seasonal peak load. The seasonal peak loads are projected in the annual ISO New England Capacity, Energy, Loads, and Transmission (CELT) Report.

The summer PLE period begins with the first full week of June and continues through the end of the second full week of September. The winter PLE period is three (3) weeks, starting with the first full week in January, not inclusive of the week with the New Year's holiday. PLEs for all other weeks are represented as fractional ratios of those projected seasonal peaks.

The fractional ratios used to compute weekly PLEs are based on historical peak load data. The historical weekly peak are first sorted such that week twenty-seven (27) is the week of July 4th in each of the years. The reconstituted weekly maximum load for a five (5) week rolling window, centered on the reported week, was then related to the weather-normalized, seasonal peak load as follows:

- weeks one (1) through eighteen (18) seasonal winter peak,
- weeks nineteen (19) through thirty-nine (39) seasonal summer peak,
- weeks forty (40) through fifty-two (52) succeeding seasonal winter peak.

These weekly to seasonal peaks are represented as fractions. Judgment based on review of historic weather patterns and seasonal peak occurrence was applied to the curves.

Long Term Operable Capacity Margin (LTOCM):

The Long Term Operable Capacity Margin (LTOCM) is a measure of the New England RCA/BAA projected weekly capacity margin. A positive value of LTOCM indicates a potential operable capacity surplus over and above the estimated load plus Operating Reserve requirement. A negative value indicates that a potential operable capacity deficiency could occur. The LTOCM and its components are defined below:

LTOCM = A + B – C – D – E – F – G + H where:

- A is the Capacity Supply Obligation (CSO) of all Resources including any expected Resources reactivations and new commercial Resources.
- B is the sum of the external import capacity purchases
- C is the forecast 50/50 PLE.
- D is the Operating Reserve requirement as defined in ISO New England Operating Procedure No. 8 - Operating Reserve and Regulation (OP-8).
- E is the total of Resource Planned Outages (POs) for the period. This value would also include any known long-term Forced Outages (FO)s.
- F is the allowance for Unplanned Outages as defined within SOP-OUTSCH.0030.0040 - Perform Long Term Resource Outage Coordination.
- G is the allowance for gas-at-risk generation as defined within SOP-OUTSCH.0030.0040 - Perform Long Term Resource Outage Coordination.
- H is an adjustment for Resources offering in excess of their CSO.

The CSO for all Resources shall be used in accordance with the most recently published monthly CSO/Nominated Consumption Limit reports and adjusted using the most recent information for new Resources. The PLE used shall be based upon the most recently published CELT Report.

Locational Operable Capacity Margin (LOCM):

The Locational Operable Capacity Margin (LOCM) is a measure of the projected weekly operable capacity margin on a sub-area basis. A positive LOCM value indicates a projected operable capacity surplus available to respond to a second contingency event within a sub-area. A negative value indicates that a potential operable capacity deficiency could occur. LOCM analyses are performed in addition to the full New England RCA/BAA analysis and are based on data included in the Annual Maintenance Schedules.

LOCM = A – B – C + D – E – F + G where:

A is the CSOs of all Resources that are currently in service. Resources reactivations and new Resources that have achieved commercial operation and are included in the third annual reconfiguration auction shall be included in the LOCM calculations.

B is the total of POs during the period for all Resources in the sub-area. This value includes any known long-term FOs.

C is a reliability adjustment reflecting the historical performance of combustion turbines.

D is the import capability for the sub-area for the week.

E is the forecast load for the sub-area, which is calculated by multiplying the New England RCA/BAA 50/50 PLE by the sub-area percentage of system seasonal peak load.

F is the largest single source, which is defined as the largest available Resources in the sub-area during the period.

G is an adjustment for Resources offering in excess of their CSO.

Short Term Operable Capacity Margin (STOCM):

The Short Term Operable Capacity Margin (STOCM) is a measure of the New England RCA/BAA projected capacity margin looking ahead 14 days or less. STOCM is calculated using the components defined below. A positive value of STOCM indicates a potential operable capacity surplus over and above the estimated capacity requirement. A negative value indicates that a potential operable capacity deficiency could occur.

STOCM = A + B – C – D – E – F + G where:

A is the CSOs of all Resources that are currently in service.

B is the sum of the external Import Capacity Resource purchases.

C is the forecast load. For future days 7-14, the 50/50 PLE is used. For future days 1-6, the ISO short-term load forecast is used. This forecast is based on the forecasted weather.

D is the Operating Reserve requirement as defined in OP-8.

E is the total of Resources actually out-of-service for POs or Maintenance Outages (MOs), or scheduled or known to be out-of-service in the future period of 14 days or less.

F is a reliability factor to adjust the overall STOCM by considering FOs, gas-at-risk generation, changes in load, etc. The reliability factor shall be the greater of gas-at-risk generation or 1,500 MW for day 1 through 6 and 2,000 MW for day 7 through 14 of the short-term look-ahead period.

G is an adjustment for Resources offering in excess of their CSO.

Short Term Locational Operable Capacity Margin (STLOCM):

The Short Term Locational Operable Capacity Margin (STLOCM) is a measure of the projected capacity margin looking ahead 14 days or less on a sub-area basis. The STLOCM is calculated using the components defined below. A positive STLOCM value indicates a projected operable capacity surplus available to respond to a second contingency event within a sub-area. A negative value indicates that a potential operable capacity deficiency could occur.

STLOCM = A – B – C + D – E – F + G where:

A is the CSOs of all Resources in the sub-area that are currently in service.

B is the total of POs during the period for all Resources in the sub-area. This value includes any known long-term FOs.

C is a reliability adjustment reflecting the historical performance of combustion turbines.

D is the import capability for the sub-area.

E is the forecast load for the sub-area. For future days 7-14, the 50/50 PLE is multiplied by the sub-area percentage of the system load. For future days 1-6, the short-term daily peak load (based on forecasted weather) is multiplied by the sub-area percentage of the system load.

F is the largest single source, which is defined as the largest available Resources in the sub-area during the period.

G is an adjustment for Resources offering in excess of their CSO.

OP-5 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
- -	06/01/18	For previous revision history, refer to Rev 10 available through Ask ISO;
Rev 11	06/01/18	Biennial review completed by procedure owner; Headers, revised OP-5 title; References, revised SOP-OUTSCH.0030.0010 title; Globally editorial changes to be consistent with current conditions, expectations and management expectations; Updated for PRD; Truncated the Revision History per SOP-RTMKTS.0210.0010 Section 5.6;
Rev 11.1	03/25/20	Biennial review completed by procedure owner requiring no intent changes; updated a reference document title.
Rev 12	02/04/22	Periodic review performed by procedure SME
Rev.13	01/31/24	Biennial review completed by procedure owner; Updated the procedure to align with the current practice.