SOP-OUTSCH.0040.0020
Create Seven-Day Capacity Margin Forecast
Contents

1. Objective

The objective of this procedure is to define the process for the daily development of the Seven-Day-Ahead Forecast of ISO Capacity Margin.

2. Background

The Seven-Day-Ahead Forecast of ISO Capacity Margin was developed to provide ISO and the Market Participants with the anticipated capacity state of the New England bulk power system. It is used by ISO to identify capacity deficiencies several days in advance and triggers the commitment of long lead-time Generators (Start times > 24 hours). It also provides similar information to Market Participants.

3. Responsibilities

1. The Forecaster is responsible for executing all aspects of this procedure to include the preparation, review and publication of the Seven-Day-Ahead Forecast of the ISO Capacity Margin by 1100 each day or when a Cold Weather Event has been declared by 0800 the day prior to the Cold Weather Event day.

2. The Manager, Control Room Operations is responsible for additional oversight during extreme weather conditions and when capacity problems are determined in the next seven-day period. The Manager, Control Room Operations (or designee) shall ensure:

   - Necessary departments are notified of upcoming capacity problems
   - Necessary transmission and Generator/Dispatchable Asset Related Demand (DARD) outages are rescheduled
   - Communications with other ISO departments occur in a timely manner

4. Controls

- The Forecaster uses the Seven-Day-Ahead forecast spreadsheet as described in this procedure

5. Instructions

5.1 Verify Seven-Day-Ahead Forecast Initial Conditions

1. On a daily basis, the Forecaster shall perform this procedure to publish the Seven-Day-Ahead Forecast during the morning hours by 1100.

2. When a Cold Weather Event has been declared, in accordance with SOP-RTMKTS.0050.0007 - Perform Cold Weather Condition Operations, the Forecaster shall perform the required actions of this procedure and publish the Seven-Day-Ahead Forecast prior to 0800 the day prior to the Cold Weather Event day.

3. The Forecaster shall verify the following:

   A. Initial load forecast has been developed per SOP-OUTSCH.0040.0010 - Create Load Forecast.

   B. Generator and DARD outage schedules have been developed per SOP-OUTSCH.0030.0010 - Evaluate Generation and Dispatchable Asset Related Demand Outage Requests.

   C. Interchange Schedules have been developed per SOP-OUTSCH.0030.0020 - Perform Short-Term Outage Coordination.

NOTE

An Excel Spreadsheet is provided for the Forecaster to use to complete the directed actions for the tasks contained in this procedure.

5.2 Complete Seven-Day-Ahead Forecast Initial Data

1. On a daily basis, the Forecaster shall use the Excel spreadsheet and perform the following:

   A. Click the "Import SCC, CSO, RTDR, RTEG, Delist Capacity, Forecast and Outage Data" button and observe all of that information and the weather data for today and the following six days has been imported.

   B. Click the "Do a 1 day rollover" button and observe the selected data in the spreadsheet has moved one day to the left.

   C. Verify the following information:

      (1) Correct weather data has been imported.

      (2) Correct Load Forecast data has been imported.

      (3) Correct RTDR and RTEG values have been imported

   D. As necessary, manually override any imported data that is **not** correct.

2. The Forecaster shall obtain outage data from the "EMS Capacity Monitor" display by perform the following:

   A. Sum the Outages, Online Reductions, and Offline Reductions.

   B. As applicable, subtract the following from the above sum:

      (1) Each unit that is in UCM 3 ramping

      (2) Each unit that is OOS but will be back in service by the peak

      (3) Each unit that there is justification to **not** include

3. The Forecaster shall compare the outage number calculated from the "EMS Capacity Monitor" to the "Other Generation Outages" value in the "7 Day Forecast Spreadsheet".

4. The Forecaster shall add "Unplanned Outage Allowances" to the calculation on the first day and verify the "Other Generation Outages" in the "7 Day Forecast Spreadsheet" match the outages calculated in Step 3.

NOTE

The Short Term Operable Capacity Margin (STOCM) calculation is explained in Attachment A

5. Using the above information, the Forecaster shall verify the "Afternoon Spreadsheet" correctly calculates the STOCM.

5.3 Project Seven-Day-Ahead Forecast Conditions

1. On a daily basis, , the Forecaster shall use the ISO Outage Scheduling Software to:

   A. Review transmission outages in the next seven days that have indicated an impact on generation resources.

   B. Enter the Transmission Constrained Data (TCD) value for each day for any generation resource that will be restricted by ≥ 50 MW

2. The Forecaster shall trend the "Unplanned Outage Allowances" from the TCD value calculated for the current day up to 2000 MW on the seventh day.

3. Based on the Control Room Interchange Scheduling software information and current interchange scheduling trends, the Forecaster shall enter the peak hour external interchange for each day in the Excel Spreadsheet.

4. Based on the requirements of ISO New England Operating Procedure No. 8 - Operating Reserve and Regulation (OP-8) enter the anticipated Required Reserve for each day in the Excel Spreadsheet.

5. As necessary, based on the forecast ambient temperatures the Forecaster shall adjust the Anticipated De-Listed Capacity Offered.

6. If any Locked in Generation due to being in an export constrained area is **not** accounted for, the Forecaster shall enter the amount of the reduction into the "Locked in Generation" row of the 7 Day Forecast Spreadsheet for the applicable day.

7. From December 1 to March 1, on a daily basis, the Forecaster shall perform the following:

   A. Open the "Cold Weather Worksheets" workbook in the "Gas Capacity Tools".

   B. On the "Effect Temp & Deg Days Worksheet" either manually enter or import the "8 City Weighted Average Dry Bulb Temps and Wind Speed" for each of the seven days.

      (1) If the effective temperature on any peak hour (HE08-HE23) is ≤0 °F and on the "Effective Heating Degree Days" is ≥ 65, "Cold Weather Conditions" exist for that day.

(2) Verify these conditions are correctly indicated in the "7 Day Forecast Excel Spreadsheet".

C. Transfer the peak hour temperature for each day onto the "TempvsCap" Worksheet".

(1) If any peak hour temperature is <30° F, an amount of gas reduction to account for will show in the cell directly below the temperature.

(2) Transfer each gas reduction into the "Anticipated Cold Weather Outages" section of the "7 Day Forecast Excel Spreadsheet".

NOTE

A Cold Weather Event is declared based on the conditions provided in SOP-RTMKTS.0050.0007 Perform Cold Weather Operations.

Cold Weather Watches and Cold Weather warnings will be populated based on forecasted cold weather conditions and the corresponding capacity surplus.

8. When declaring a Cold Weather Event and with approval from the Manager, Control Room Operations, (or designee), the Forecaster shall enter a "Yes" into the Cold Weather Event column two days prior to the day the event is declared.

9. If on any day, a forecast is used to initiate OP-4 Action 4 per SOP-RKMKTS.0120.0020 - Implement Capacity Remedial Action, The Forecaster shall enter a "Yes" into the "Power Watch" column for that day.

10. If on any day, a forecast is used to initiate OP-4 Action 10 per SOP-RKMKTS.0120.0020 - Implement Capacity Remedial Action, the Forecaster shall enter a "Yes" into the "Power Warning" column for that day.

11. If a forecast is used to implement an Energy Emergency per SOP-RTMKTS.0120.0025 - Implement Energy Emergency Actions, the Forecaster shall enter a "Yes" into the Emergency Energy column for that day.

12. Whenever an on-peak temperature in New England is forecast to be 30 degrees Fahrenheit or less, the following actions shall be completed:

    A. The Forecaster shall notify the Manager, Control Room Operations (or designee) of this condition.

    B. The Manager, Control Room Operations (or designee) shall communicate the condition with each applicable natural gas pipeline operator on this condition as directed in SOP-RTMKTS.0050.0007 - Perform Cold Weather Condition Operations.

5.4 Verify Seven-Day-Ahead Forecast Calculations

1. On a daily basis, the Forecaster shall verify all data from the "Enter Data Here" tab transferred properly to the "Afternoon" Sheet.

2. When either a capacity deficiency or a surplus of less than 300 MW is forecast for the next day, the Forecaster shall notify the Manager, Control Room Operations, (or designee).

5.5 Communicate Seven-Day-Ahead Forecast

1. On a daily basis, the Forecaster shall perform the following actions:

   A. Click on the "Upload" button

   B. Post the Seven-Day-Ahead Forecast to the ISO Web site prior to 1100 hours at:

   http://www.iso-ne.com/sys_ops/op_frcstng/7day_frcst/index.html

2. When a Cold Weather Event has been declared in accordance with SOP-RTMKTS.0050.0007 - Perform Cold Weather Condition Operations, the Forecaster shall post the Seven-Day-Ahead Forecast prior to 0800 the day prior to the Cold Weather Event day.

6. Performance Measures

None.

7. References

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

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

SOP-OUTSCH.0030.0020 - Perform Short-Term Outage Coordination

SOP-OUTSCH.0030.0010 - Evaluate Generation and Dispatchable Asset Related Demand Outage Requests

SOP-OUTSCH.0040.0010 - Create Load Forecast

SOP-RTMKTS.0050.0007 - Perform Cold Weather Condition Operations

SOP-RTMKTS.0120.0020 - Implement Capacity Remedial Action

SOP-RTMKTS.0120.0025 - Implement Emergency Actions

8. Revision History

Rev. No.	Date	Reason	Contact
0	03/01/03	Original	Joe Mercer
1	07/07/03	Revised to reflect changes since implementation of SMD	Joe Mercer
2	01/07/04	Changes to the Controls and Performance Measures sections	Joe Mercer
3	02/01/05	Updated SOP for RTO terminology	Seamus McGovern
4	09/30/05	Revised to address Forecast Audit. Added steps for using natural gas data.	Seamus McGovern
5	11/28/05	Revised to incorporate Changes to MR 1 App H (Cold Weather) and new OP-21	Seamus McGovern
6	05/05/06	Updated for Control Room Forecaster Split, removed Cold Weather Condition actions (MR1 App H retired)	Steve Weaver
7	10/01/06	Revised for ASM Phase II	Steve Weaver
8	11/30/06	Revised to incorporate Changes to MR 1 App H (Cold Weather)	Steve Weaver
9	05/04/07	Minor clerical changes resulting from annual review	Steve Weaver

Rev. No.	Date	Reason	Contact
10	06/18/07	Incorporate the new separated tie 1385 from the NY Northern AC ties	Steve Weaver
11	08/14/08	Annual Review by Procedure Owner – no changes requied	Steve Weaver
12	03/17/09	Revised for periodic review	Steve Weaver
13	06/01/10	Biennial review by procedure owner; Updated header copyright date; Section 3 replaced Resources with Generator/DARD; Modified Steps 5.1.2, 5.1.3, & and NOTE following 5.1.3; Re-wrote Steps 5.2.1, 5.2.2, 5.2.3 & all sub-steps; Modified steps 5.2.4 & 5.2.5; Modified steps 5.3.1 through Step 5.3.8 (including all sub-steps) and added new step 5 for section 5.3; Modified Steps 5.5.1, 5.5.2 and all sub-steps	Steve Weaver
14	01/06/11	Updated Header copyright date; Replaced page numbering in all footers with Page X of Y; Global: replaced all references to “SAM Db” with “ISO Outage Scheduling software” In 5.2.2.A replaced Print Event Detail Summary Report with review transmission outages tat impact generator resource(s); In 5.2.3, 5.2.3.A, 5.3.4 replaced EMS Capacity Analysis with EMS Capacity Monitor	Steve Weaver
15	04/02/12	Biennial review by procedure owner; Header, updated copyright date and Procedure Owner ; 1st page Footer, deleted disclaimer 2nd paragraph; Section 5.2, Major rewrite; Section 5.3, Major rewrite; Section 7 added OP-4, RTMKTS.0120.0020 & RTMKTS.0120.0025 to References listing; Attachment A, Replaced text data with a table of data	Steve Gould

9. Attachments

Attachment A - Seven-Day-Ahead Forecast Calculation

Attachment A - Seven-Day-Ahead Forecast Calculation

Capacity Supply Obligation	
(-)	Anticipated Cold Weather Outages
(-)	Generation Outages
(+)	Anticipated De-List MW Offered
(+)	Import at Time of Peak
(-)	Projected Peak Load
(-)	Operating Reserve Requirement
=	Projected Surplus/(Deficiency)