

To: NEPOOL Markets Committee, NEPOOL Reliability Committee

From: Jonathan Gravelin – Manager, Control Room Operations

Date: December 29, 2022

Subject: Implementation of ISO-NE Operating Procedure #4 on Saturday December 24, 2022

As described further in this memo, on the afternoon of Saturday, December 24, 2022, ISO New England declared Master Local Control Center Procedure #2 – Abnormal Conditions Alert (MLCC 2) and implemented ISO New England Operating Procedure #4 – Action During a Capacity Deficiency (OP-4) in order to manage a deficiency in Operating Reserve.

Forecasted temperatures in Boston, MA and Hartford, CT for the peak hour (hour ending 18) of the operating day were 20°F and 17°F, respectively. The forecasted peak load for hour ending 18 was 17,510 MW. The actual peak hour integrated load (hour ending 18) was 17,524 MW based on actual temperatures in Boston, MA and Hartford, CT of 17°F and 13°F respectively. Due to the impacts of a storm system that passed through New England on December 23, approximately 200,000 customers remained without power on December 24. Based on high natural gas prices over the long holiday weekend, many oil-fired units were committed in the Day Ahead Energy Market to operate on December 24. Furthermore, many dual fuel resources swapped to operate on fuel oil instead of on natural gas.

ISO incorporated import reductions due to storm related transmission outages into the Morning Report (published around 8:30 a.m.) which estimated a surplus capacity margin of 946 MW for the peak hour of the day. As the operating day progressed, the region experienced numerous unexpected generator outages and reductions totaling approximately 2,150 MW and neighboring areas under-delivered energy by 100MW as compared to the 08:30 Morning Report, which was about 1,100 MW less than what had cleared in the Day Ahead Market. Following the publication of the Morning Report an additional unit self-scheduled (~275 MW) and ISO ordered on all remaining offline generators that were capable of being online during the peak hour (~380 MW). At 16:00, as system demand continued to increase, and following a significant reduction of a large generating station, ISO declared M/LCC 2, Abnormal Conditions Alert. At 16:30, ISO implemented OP-4 Actions 1 & 2. Subsequent to implementation of OP-4 actions, Capacity Scarcity Condition (CSC) pricing was triggered (16:40) by the violation of the System 30 Minute Operating Reserve constraint in the real-time dispatch. The CSC pricing remained in effect until 18:05. OP-4 Action 3 was implemented at 16:45. Following the unexpected outage of approximately 350 MW of generation which resulted in a deficiency of System 10 Minute Reserves, ISO implemented Action 5 at 17:30. During the time that Action 5 was implemented, only a small amount of Day Ahead Cleared export transactions were curtailed and no emergency purchases were scheduled.

Following the peak load hour, system demand began to decrease and imports to the region began to increase. The resulting capacity surplus allowed ISO to cancel OP-4 Action 5 at 18:30. All remaining OP-4 Actions were cancelled at 19:00 and M/LCC 2 was cancelled at 21:00.

Action(s)	Implemented	Cancelled
M/LCC 2	16:00	21:00
OP-4 Action 1	16:30	19:00
OP-4 Action 2	16:30	19:00
OP-4 Action 3	16:45	19:00
OP-4 Action 5	17:30	18:30

The below capacity analysis reflects system conditions during hour ending 18:00 on December 24, 2022.

Capacity Supply Obligation (CSO)	+	28,206
Capacity Additions > CSO	+	2,733
Outages and Reductions	-	5,120
Generation Unavailable due to Start Time	-	8,630
NYISO Purchases	+	962
NBSO Purchases	+	242
HQ Purchases	+	689
Available DRR	+	27
Total Available Capacity	=	19,109
New England Load		17,524
Operating Reserve Requirement		2,123
Net Capability Required		19,647
Capacity Margin	Total Available Capacity - Net Capability Required	-538

*Available DRR" reflects the remaining DRR available for dispatch. This equates to the Total Available DRR – Non-QFS DRR – Currently Dispatched DRR

CC: ISO Managers and Supervisors
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