



ISO New England's 2021/2022

Winter Outlook



OVERVIEW

ISO New England expects electricity supplies to meet consumer demand this winter if the weather is mild. But certain conditions, including extreme weather, could put New England's bulk power system at heightened risk. Variables that could impact the system this season include:



Weather

Weather is the region's primary driver of energy use. Forecasters expect a warmer than average winter—but prolonged cold snaps are still a possibility.



Global Fuel Supplies

New England generators rely on the delivery of global fuel supplies to produce electricity. The pandemic's impact on supply chains is driving up prices for oil and liquid natural gas around the world—potentially making it harder for resources in New England to replenish their tanks if they run low.



Natural Gas Pipeline Constraints

For two decades, the ISO has raised concerns about the impact of fuel supply issues on electricity supply during periods of extreme cold. Pipeline system constraints limit the availability of fuel for natural gas-fired power plants, as heating customers are served first through firm service contracts.

Since 2013, **roughly 7,000 MW** of non-gas-fired resources have retired or announced plans for retirement in the coming years.

This winter, **more than 3,700 MW** of natural-gas-fired generating capacity is at risk of being unable to get fuel when needed.

BY THE NUMBERS

19,710 MW

Estimated peak demand during average winter weather (10°F).

20,349 MW

Estimated peak demand during colder than average weather (5°F).

18,756 MW

Last winter's peak demand, on December 17, 2020.

22,818 MW

Record winter peak demand, during a January 2004 cold snap.

AN ISO NEW ENGLAND ANALYSIS

To enhance situational awareness entering this winter, the ISO compared expected consumer demand levels and other system conditions with three historical weather scenarios.

In winter weather similar to:

The ISO anticipates:



2020-2021 • Mild weather, no extreme temperatures

Reliable system operations, no emergency procedures



2017-2018 • Temperatures below normal for at least 13 straight days in all major New England cities

A possibility of limited emergency procedures



2013-2014 • Several cold snaps lasting 4+ days, with one 10-day stretch at or below freezing

The implementation of all available emergency procedures is possible

The ISO would not expect emergency actions to be necessary if generators are able to replenish their fuel supplies and if there are no unexpected generator or transmission outages.

For more information, please visit ISO New England's website at www.iso-ne.com.

ISO-NE Public Communications During Operating Procedure No. 4: Action During a Capacity Deficiency (OP 4)

Operating Reserves Are Essential to a Reliable Power System

ISO New England must carry a reserve of electricity supply that can be called on to produce electricity should a contingency occur on the power system, such as:

- ▶ Unexpected high demand due to extreme weather
- ▶ A generator goes out of service for mechanical problems
- ▶ A transmission line or circuit breaker trips due to lightning strike or other issue or becomes overloaded
- ▶ A neighboring grid requests assistance
- ▶ A serious threat is made to the power system

The ISO maintains two categories of reserves: resources that can provide energy within **10 minutes** and resources that can provide energy within **30 minutes**. Typically, the ISO maintains an operating reserve of between 1,560 MW and 2,250 MW in 10-minute reserve, plus an additional 625 MW or so in 30-minute reserve.

The ISO implements OP 4 when available resources are insufficient to meet anticipated electricity demand plus required operating reserves – called a “capacity deficiency” – so that we can ensure a continuous, reliable flow of electricity.

The Scope and Sequence of OP 4’s 11 Actions

- ▶ The ISO can implement OP 4 actions New England-wide, by local control center area, by state, or targeted to a specific area
- ▶ Actions can be implemented in any order; some actions can be implemented in advance of an anticipated capacity deficiency
- ▶ The ISO can skip OP 4 actions and move immediately to emergency actions such as controlled power outages (under OP 7) if necessary

Four Types of Public Notifications During OP 4



OP 4 Actions 1-3 and 5-9:
No public appeal for conservation



OP 4 Action 4:
Public appeal for voluntary conservation, issued only if conditions warrant



OP 4 Action 10:
Urgent public appeal for voluntary conservation



OP 4 Action 11:
Governors' appeal

The ISO Uses OP 4 Actions to Increase Supply or Reduce Demand to Maintain Operating Reserves

1.  Implement **Power Caution** and begin to allow depletion of 30-minute reserves
2. Declare Energy Emergency Alert (EEA) Level 1*
3. Request voluntary load curtailment of market participants' facilities
4.  Implement **Power Watch**, a notification that additional OP 4 Actions may be taken; if conditions warrant, issue a public appeal for voluntary conservation
5. Schedule Emergency Energy Transactions and arrange to purchase energy and capacity from other control areas
6. Implement voltage reductions of 5% of normal operating voltage requiring more than 10 minutes
Declare Energy Emergency Alert (EEA) Level 2*
7. Request resources without a capacity supply obligation to provide energy for reliability purposes
8. Implement a voltage reduction of 5% of normal operating voltage requiring 10 minutes or less
9. Request activation of transmission customer generation not contractually available to market participants during a capacity deficiency, and request voluntary load curtailment by large industrial and commercial customers
10.  Implement **Power Warning** and issue urgent public appeal for voluntary conservation
11.  Request state governors' support for ISO appeals for conservation

Ways to Monitor Power System Conditions

- ▶ Data portal: www.iso-ne.com/isoexpress
- ▶ Mobile app: iso-ne.com/isotogo
- ▶ Twitter: [@isonewengland](https://twitter.com/isonewengland)

*EEA Levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations.