



ISO New England's 2018/2019

Winter Outlook



WINTER READINESS

- ❄️ **Electricity supplies should be sufficient to meet New England's consumer demand for electricity this winter.**
- ❄️ **During extremely cold weather, natural gas pipeline constraints limit the availability of fuel for natural-gas-fired power plants. Inclement weather can also affect oil and liquefied natural gas deliveries to the region, as well as generation from renewable resources.**
- ❄️ **New near-term market and operational changes have been implemented to help address energy security concerns.**

The ISO has procedures in place to maintain a reliable supply of electricity on the coldest winter days. Should unexpected generator or transmission line outages create tight system conditions, operators can import emergency power from neighboring regions and ask businesses and residents to voluntarily conserve electricity.

Non-Gas-Fired Resources Are Critical During Winter

Oil generation was 27% of regional fuel mix during last winter's extreme cold spell, compared to 0.3% for most of the month of December.



WINTER STATS

WEATHER FORECAST:
Warmer Winter Temperatures & Average Precipitation

<p>WINTER PEAK DEMAND FORECAST:</p> <p style="font-size: 2em;">20,357 MW</p> <p>(with temperatures of about 7°F)</p>	<p>EXTREME WINTER PEAK DEMAND FORECAST:</p> <p style="font-size: 2em;">21,057 MW</p> <p>(with temperatures of about 2°F)</p>
<p>LAST WINTER'S PEAK DEMAND:</p> <p style="font-size: 2em;">20,631 MW</p> <p>(with winter temperatures of about 8°F)</p>	<p>ALL-TIME HIGHEST WINTER PEAK DEMAND:</p> <p style="font-size: 2em;">22,818 MW</p> <p>(set on January 15, 2004)</p>

NATURAL-GAS-FIRED GENERATION AT RISK OF NOT BEING ABLE TO GET FUEL WHEN PIPELINES ARE CONSTRAINED:

More than 4,500 MW

(number will increase in future years as more coal, oil, and nuclear plants retire and are replaced with gas-fired units)

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

*If ISO New England issues a public appeal for voluntary conservation, the External Affairs and Corporate Communications teams will activate bridgelines to update OP 4 contacts on power system conditions. We will send dial-in info by email for each event.

**These alerts do not trigger any additional communications with OP 4 contacts.