



ISO New England's 2019/2020

Winter Outlook



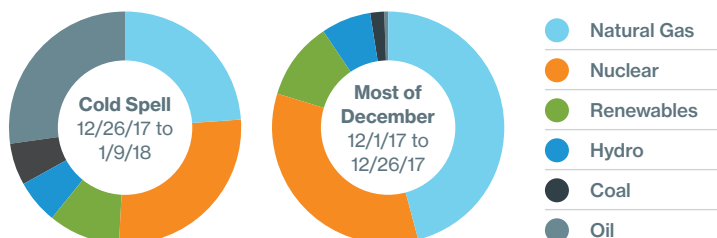
WINTER READINESS

- ❄️ **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.**
- ❄️ **This year marks the first winter season since the retirement of the Pilgrim Nuclear Power Station on May 31, 2019.**

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.

New England's Resource Mix Changes Substantially During Cold Weather

New England relies more heavily on non-gas-fired resources during periods of extreme cold, as evidenced during an extreme cold spell in the 2017/2018 winter.



WINTER STATS

WEATHER FORECAST:
Warmer Winter Temperatures & Average Precipitation

<p>WINTER PEAK DEMAND FORECAST:</p> <h1 style="font-size: 2em; color: #f09400;">20,476 MW</h1> <p>(with temperatures of about 7°F)</p>	<p>EXTREME WINTER PEAK DEMAND FORECAST:</p> <h1 style="font-size: 2em; color: #f09400;">21,173 MW</h1> <p>(with temperatures of about 2°F)</p>
<p>LAST WINTER'S PEAK DEMAND:</p> <h1 style="font-size: 2em; color: #0070c0;">20,773 MW</h1> <p>(with temperatures of about 4°F)</p>	<p>ALL-TIME HIGHEST WINTER PEAK DEMAND:</p> <h1 style="font-size: 2em; color: #0070c0;">22,818 MW</h1> <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

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

*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.

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)

Stay Connected with Us

Let us know if your responsibilities or contact information change so we can reach the right person in an emergency.

- **Government Officials:** contact Gae Warman-Gold by phone: 413.535.4138 or email: gwarman-gold@iso-ne.com
- **NEPOOL Corp. Communications:** contact Rebecca Johnson by phone: 413.535.4309 or email: rjohnson@iso-ne.com