

ISO New England's 2021/2022 Winter Outlook



This document contains the remarks and full slides presented by Gordon van Welie, president and CEO of ISO New England, during a media briefing on the ISO's 2021/2022 winter outlook.

A recording of the presentation, including the question-and-answer session, is available at: <https://www.iso-ne.com/about/news-media/press-releases/recording-of-media-briefing-on-iso-winter-outlook>

Winter 2021/2022 Outlook Media Briefing, December 6, 2021

Gordon van Welie, president and CEO, ISO New England

Opening Remarks

Good afternoon everyone,

Thank you for joining us. I am Gordon van Welie, President and CEO of ISO New England. With me are Peter Brandien, Vice President of System Operations and Market Administration, and Anne George, Vice President of External Affairs and Corporate Communications.

ISO New England stands committed in our support of the New England states on their most recent energy policy goals, which are now focused on combatting climate change. The region should be encouraged by - and proud of - the amount of renewable energy already added to our power system, with more expected in the coming years. In fact, renewable resources and energy storage systems dominate the queue of proposed new projects looking to connect to the grid.

As this transition continues, though, the ISO must maintain power system reliability every minute of every day.

That's why we are here today, so we can provide you with an overview for the upcoming 2021-2022 winter season.

We prepare seasonal assessments of the region's power system ahead of the summer and the winter seasons. These assessments detail potential challenges that could threaten reliability and a reliable supply of electricity to meet the needs of New England's 14 million electric consumers.

First, the numbers. ISO New England anticipates demand for electricity will peak at a little more than 19,700 megawatts during average winter conditions of 10°F, and just over 20,300 megawatts, if temperatures reach below average conditions of 5°F. These peak projections are both about 2 percent lower than last year's forecasts. Just for context, one megawatt serves roughly 1,000 homes.

The National Oceanic and Atmospheric Administration – or NOAA – is predicting a milder than average winter in New England. If this forecast holds true, and we hope it does, the ISO expects to have the resources needed to meet consumer demand throughout the winter season.

However, three variables could put the region in a more precarious position than past winters and force the ISO take emergency actions, up to and including controlled power outages. These

controlled power outages would be a last resort action to prevent a region-wide blackout, which would take many days or weeks to restore.

The purpose of today's press conference is to discuss these variables and how ISO New England will run the grid if the mild weather forecast does not come to fruition.

The first variable we face is how much natural gas will be available for electric generators during cold weather. Well-documented natural gas pipeline constraints occur when there is simultaneous demand for natural gas for heating homes and operating gas-fired power plants. Heating customers, who paid for the pipeline infrastructure, are served first and the remaining gas is available for electric plants. When pipeline gas isn't available, or when the price of gas is very high, the region uses other fuel sources, such as oil or liquefied natural gas, otherwise known as LNG. This leads directly to variable number two.

The second variable is the availability of oil and LNG. Current storage levels of these fuels are lower than in recent winters. The region has yet to find a robust solution to bolster the supply chain for these fuels during inclement weather. The region has also not yet taken other mitigating measures, such as increasing the imports of hydroelectricity from Québec.

Higher prices for these fuels globally, as well as pandemic-related supply chain challenges, could affect deliveries into New England. This could limit the availability of these fuels if generators need to replenish their tanks this winter. Adverse weather conditions could further exacerbate these supply chain issues.

Emissions restrictions could also limit the amount of electricity that can be produced by dual-fuel or oil-fired generators, further straining the ability of these plants to operate.

The third variable, and the hardest to predict, is the weather. Weather events are becoming more frequent and more extreme. Earlier, I noted that NOAA was predicting above average temperatures this winter in New England, but even a mild winter forecast does not preclude extended cold snaps. Such prolonged cold snaps would heighten the probability that emergency measures would have to be taken to keep the system from collapsing.

In an effort to improve situational awareness entering the winter, the ISO compared expected consumer demand levels and other system conditions for this winter with three historical weather scenarios. The results of this analysis are detailed in the press release and on the screen, so I won't go into them now. Suffice it to say, however, we will need to take emergency action if extreme weather occurs and fuel supplies aren't replenished.

I am not saying this to cause undue alarm at this early stage. Rather, by identifying and sharing the conditions under which the power system would be most challenged, we hope to prepare

the region. If a worst-case scenario develops, the ISO, utilities, and government officials will need to act quickly to avoid an overall power grid collapse. Steps, such as asking for conservation of electricity and natural gas usage throughout the cold snap, could help minimize or avoid the possibility of more drastic actions.

I also want to emphasize that New England is not Texas. Our system is better winterized, meaning the power plants, transmission lines, and other equipment needed to produce and deliver electricity can better withstand cold temperatures. However, as I noted earlier, we are concerned about the fragile energy supply chain to the region during extreme weather.

Ahead of each winter, ISO New England hosts a series of meetings with generators and industry and governmental officials to review what is expected for the upcoming season. In these meetings, we outline supply and demand forecasts, as well as how the ISO will communicate throughout the season if challenging conditions materialize.

Throughout the winter, ISO New England prepares and publishes an energy adequacy forecast on a rolling 21-day basis aimed at identifying potential energy shortfalls. This forecast is based on a weather outlook, projected fuel supply inventories and expected deliveries, expected production from wind and behind-the-meter solar resources, and a consumer demand outlook.

As I mentioned earlier, the region is firmly moving towards an even cleaner power system, and ISO New England has been actively supporting and enabling the transition. However, the region is likely to face challenges under extended cold snaps until we have a robust regional solution that addresses the vulnerable energy supply chain.

Insufficient in-region energy storage, limited access to hydro storage in Quebec, and continued dependence on a fragile fuel supply chain for gas and oil will continue to inject uncertainty into the supply picture. This uncertainty will only grow as plans to significantly increase electricity demand through decarbonization of the heating and transportation sectors develop.

Offshore wind and increased imports from other regions will help with our winter issues, but these projects remain years away from completion and face challenges in their development. I say this not to minimize their importance to the region's energy future; but only to point out the reality of their uncertain timing.

As we become more dependent on wind and solar energy, we need to bolster the availability of in-region or imported energy supplies to balance the variations in wind and solar output. In particular, we need to have sufficient on-call supplies to cover extended periods of diminished wind and solar output.

The need for a regional energy strategy is central to achieving the region's climate goals while maintaining a reliable supply of electricity.

ISO New England, the New England states, and industry stakeholders have launched the Future Grid Initiative. This broad, collaborative effort will define and quantify the trajectory of the region's power system. It will quantify the nature of the services needed to ensure a reliable clean energy transition.

We are in the midst of a seismic shift in our electric system. The transformation to a cleaner power system is well underway and we will eventually depend on the electric grid to supply the bulk of the energy needed in our economy. We need to make sure that the grid is reliable and a critical element in that assurance is to ensure that the energy supply chain, within and into the region, is robust.

Thank you for listening and we'll now take your questions.

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ISO New England's *Mission and Vision*

Mission: *What we do*

Through collaboration and innovation, ISO New England plans the transmission system, administers the region's wholesale markets, and operates the power system to ensure reliable and competitively priced wholesale electricity

Vision: *Where we're going*

To harness the power of competition and advanced technologies to reliably plan and operate the grid as the region transitions to clean energy



*The ISO's new **Vision** for the future represents our long-term intent and guides the formulation of our Strategic Goals*



WINTER 2021/2022 OUTLOOK



Winter 2021/2022 Overview



- New England's demand for electricity is expected to peak at **19,710 megawatts (MW)** during average winter conditions of 10°F, and **20,349 MW**, if temperatures reach below average conditions of 5°F.
- The National Oceanic and Atmospheric Administration is predicting **a milder than average winter in New England.**
- ISO New England **expects to have the resources needed** to meet consumer demand throughout the winter season, if this forecast holds.



THREE VARIABLES



Pipeline Gas Availability



- Natural gas pipeline constraints occur when there is **simultaneous demand** for natural gas for heating homes and operating electric generating plants.
- **Heating customers are served first** and the remaining gas is available for electric generators.
- Region uses other fuels (**oil or LNG**) when pipeline gas is unavailable or prohibitively expensive.



Availability of Other Fuels



- Current storage levels of oil and LNG are **lower** than in recent winters, while prices are high globally.
- The region has **yet to find** a robust solution to bolster the supply chain for these fuels during inclement weather.
- Pandemic-related supply chain issues and adverse weather could **limit deliveries** to the region this winter.
- Emissions restrictions could limit the availability of dual-fuel and oil-fired plants.



Weather



- NOAA is predicting **above-average temperatures**.
- A mild season **does not eliminate risk** of prolonged cold snaps, as evidenced in recent winters.
- Prolonged cold snaps **heighten risk** of the probability that the ISO would need to implement emergency procedures.



High-Level Scenario Analysis: Winter 2021/2022

If this winter is similar to...

Winter 2020/21

(Mild weather)

The ISO anticipates that the system can be operated reliably *without* the need for emergency procedures.

Winter 2017/18

(Two-week cold snap)

The ISO anticipates that the system can be operated reliably, but *may require limited emergency procedures.*

Winter 2013/14

(below-normal temps and several cold stretches)

The ISO anticipates that it *may require implementation of all available emergency procedures.*

All three scenarios for this winter:

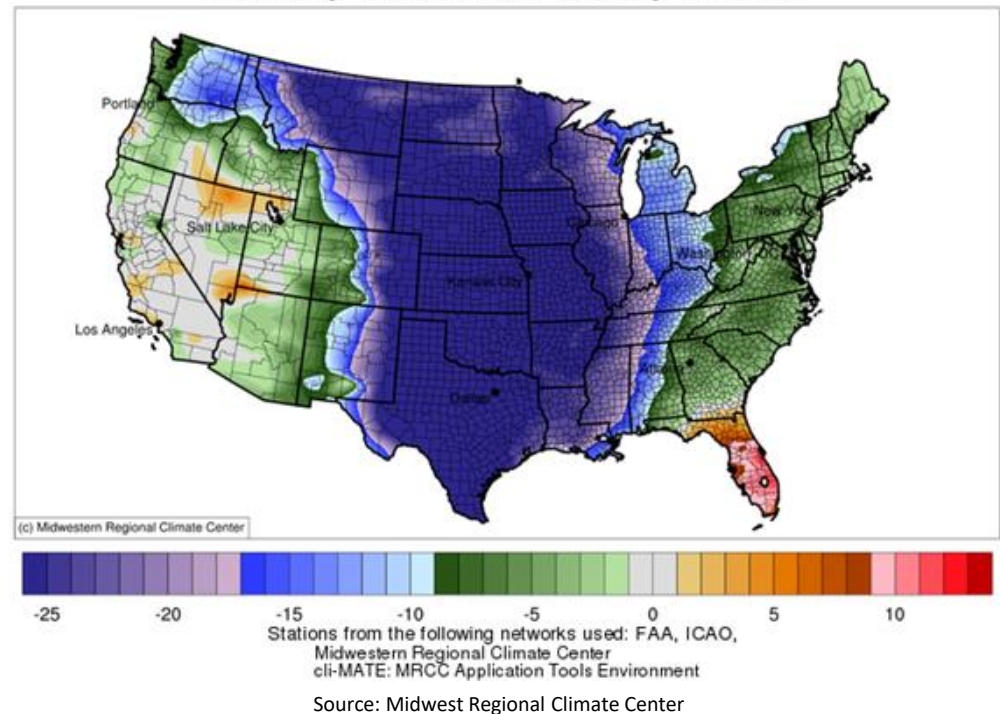
Assume no significant generation or transmission outages and *limited fuel replenishment*

If the region has *adequate fuel replenishment* this winter, the ISO anticipates that the system can be operated reliably without the need for emergency procedures.

New England Is Not Texas, but Risks Remain

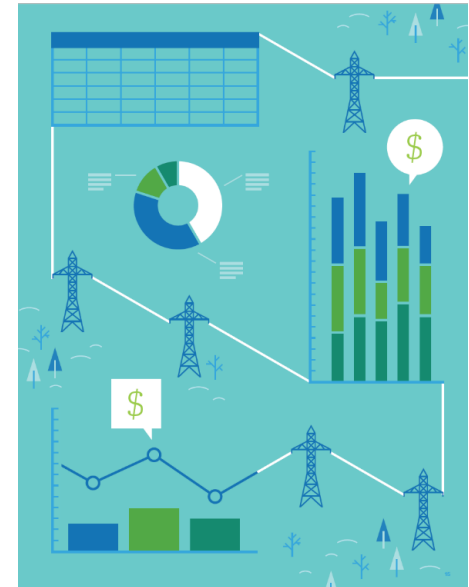
- New England generators and transmission lines are **better winterized**, but this region remains vulnerable during *extreme* and *extended* cold weather.
- **Transmission** to neighboring power systems is beneficial; however, a *large-scale weather event* is likely to impact New York and Canada, limiting their ability to export power to New England.

Average Temperature (°F): Departure from 1981-2010 Normals
February 12, 2021 to February 18, 2021



Preparations and Actions during Winter

- Before and during the winter, ISO New England:
 - Evaluates region's winter supply outlook
 - Meets with generators, industry stakeholders, and governmental officials to review forecasts
 - Prepares short-term forecasts on a rolling 21-day basis to identify potential energy shortfalls
 - Can take emergency actions to prevent grid collapse
 - May request energy conservation over hours or days to minimize need for emergency actions



A CLEANER FUTURE, BUT CHALLENGES REMAIN



Energy Security Challenges

- Insufficient in-region energy storage, limited access to hydro storage in Québec, and continued dependence on a fragile fuel supply chain for gas and oil will continue to inject uncertainty into the supply picture.
- Offshore wind and increased imports from Canada will help, but remain years away and face development challenges.
- Balancing resources will continue to be needed as we become more dependent on wind and solar resources.



Future Grid Initiative

- A regional energy strategy is central to achieving the region's climate goals while maintaining a reliable supply of electricity.
- ISO New England, the New England states, and industry stakeholders have launched the Future Grid Initiative.
- This broad, collaborative effort will define and quantify the trajectory of the region's power system, including quantifying the nature of the services needed to ensure a reliable clean energy transition.



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