
Multiple Approaches Undertaken to Address Region’s Energy Security Risks
A Journey Spanning Four **Eras** and Five **Approaches**

**2004–2009**
Identify Fuel Security Risk and Initial Attempts at Solutions

**2010–2016**
Strategic Focus on Fuel Security Risk; ISO Innovations; Unsuccessful State Efforts to Expand Gas Infrastructure

**2017–2020**
Polar Vortex; Retention of Mystic Units; Energy Security Improvements Initiative

**2021–2025**
Energy Security Risks Escalate; Focus on Expanded Ancillary Services; Markets Cannot Cover Extreme Weather Risks

1. **Advocacy** for energy infrastructure
2. **Actions** to address risks through the wholesale market design
3. **Temporary Measures** by the ISO to fill short-term reliability gaps
4. **Improvements** to situational awareness for ISO system operators
5. **Actions** by the New England states
FOUR “ERAS” FOR ADDRESSING ENERGY SECURITY IN NEW ENGLAND
Identify Fuel Security Risk and Initial Attempts at Solutions

- January 2004 Cold Snap spotlights New England’s vulnerability to fuel security risks
- ISO attempts to address the problem through programs to incent additional dual-fuel capability
- ISO begins to develop additional tools to improve situational awareness for system operators
- Summer 2005 Gulf hurricanes cause major damage to gas infrastructure, affecting supply to New England
- ISO revamps Oil Embargo-era operating procedures to deal with energy emergencies
- Marcellus Shale gas boom begins around 2005, bringing supply closer to New England
- Pipelines into the region are constrained and cold weather drives price volatility in gas and electricity markets
Focus on Fuel Security Risk; ISO Innovations Around Situational Awareness and Market Design; Unsuccessful State Efforts to Expand Gas Infrastructure

• ISO announces Strategic Planning Initiative to address region’s increased reliance on natural gas and potential for reduced operational performance during stressed system conditions

• Region considers multiple timeframes to address risks:
  o Long-term: expand fuel infrastructure
  o Short-term: winter reliability programs

• ISO implements market enhancements to strengthen generator performance during stressed system conditions (Pay for Performance)

• ISO improves situational awareness on the gas system and begins monthly fuel surveys

• Three successive winters with cold weather, reliability concerns, and high prices (2012/13, 2013/14, 2014/15)

• In 2016, the states’ efforts to expand gas infrastructure were effectively stymied by a Massachusetts’ court ruling that electric distribution customers could not be charged for gas infrastructure
Polar Vortex; Retention of Mystic Units; Energy Security Improvements Initiative

- New England considers market-based solutions to long-term energy security risks
  - FERC directs ISO to transition away from stopgap winter programs
- Major retirements of non-gas resources occur (nuclear, coal)
- ISO continues to improve situational awareness and to signal energy risks to the marketplace
- Polar Vortex drives ISO to quantify energy security risk
- ISO seeks to retain Mystic Generating Units due to fuel security concerns
- States accelerate decarbonization efforts, driving renewable (intermittent) resources onto the power system
- Three warm winters after winter 2017/18
- ISO proposes Energy Security Improvements (“ESI”), but the states and stakeholders object and FERC rejects ESI
Energy Security Risks Escalate; Focus on Expanded Ancillary Services; Recognition that Markets Cannot Cover Extreme Weather Risks

- “What we have is what we’ve got” until approximately the 2023–2025 timeframe
  - Retirements are moving forward as expected (Bridgeport Harbor, Mystic); but new state-sponsored resources (e.g., offshore wind and HVDC imports) are challenged to meet expected in-service dates
  - No changes to market rules for this winter; new ancillary services implementation is targeted for 2025
  - Region is not receptive to incremental fuel infrastructure
- New England is highly dependent on LNG imports for power generation in the winter, and this winter faces competition for LNG cargoes from strong global demand; region remains vulnerable to high prices
- ISO kicks off joint effort with EPRI to model energy security risks in New England
- Public conservation appeals and emergency actions may be needed during extreme cold weather

ISO’s focus is managing power system reliability throughout the clean energy transition
MULTIPLE APPROACHES UNDERTAKEN TO ADDRESS REGION’S ENERGY SECURITY RISKS

By ISO New England and the New England States
ISO-NE Energy Security Timeline: 2004 to 2025

Highlighting efforts in five areas related to energy security:

1. **Advocacy** for energy infrastructure to improve power system resiliency
2. **Actions** to address risks through the wholesale market design
3. **Temporary Measures** by the ISO to fill short-term reliability gaps
4. **Improvements** to situational awareness for ISO system operators
5. **Actions** by the New England states

**Note:** Actions that were blocked or rejected are indicated by this symbol.
Advocacy for Energy Infrastructure

- ISO evaluates dual-fuel capability and environmental constraints at gas/oil-fired generators (2005)
- ISO works with state DEPs to enable dual-fuel use at gas-fired generators during emergencies
- ISO launches Strategic Planning Initiative (2010)
- ISO testifies before Congress to spotlight energy security concerns (2013, 2017, 2018)
- NERC calls attention to New England’s risk (2020)

Actions Through the Wholesale Markets

- Increase reserve constraint penalty factors to strengthen price signals in the reserve market (2012)
- ISO advocated for generators to firm up fuel arrangements; FERC limited the strict performance obligation to real time fuel procurement (2013)
- Shift Day Ahead Market timeline to better align electric day with the gas day (2013)
- Expand definition of “shortage hours” in FCM to better align with stressed system conditions (2013)
- Create Hourly Energy-Offer Flexibility to better reflect fuel prices in generators’ energy offers (2014)
- Implement Pay-for-Performance to strengthen generator performance incentives (2018)

Continued
2. **Actions Through the Markets, continued**

- Introduce *opportunity costs* into energy market offers for resources with short-term fuel limitations (2018)
- ISO proposed *Energy Security Improvements “ESI”* (2018); FERC rejected it (10/2020); and the ISO is proposing a two-phase reformulation

3. **Temporary Measures to Fill Short-Term Gaps**

  - Incentives for dual-fuel (winter 2013/14)
- Retain Mystic Units for fuel security (2022–2024)
- Inventoryed Energy Program (2023–2025)

4. **Improvements to Situational Awareness**

- Revamp legacy operating procedure to forecast and manage energy emergencies (2005)
- Begin monthly generator fuel surveys and annual winter Generator Readiness seminars (2013)
- Modify Information Policy to share info with gas pipeline operators (2014)
- Create Gas Utilization “GUT” Tool (2015)
- Create 21-day energy assessment forecast (2018)
- Identify lessons learned from GridEx (2013–present)
- Hold long-running pre-winter calls with Northeast Gas Association and ongoing coordination with Electric-Gas Operations Committee (EGOC)
**Actions by the New England States**

- NESCOE seeks ISO support to flow the cost of electric and natural gas infrastructure through the ISO tariff (2014); ISO (and FERC) determine that this is not feasible
- Several states coordinate with their Electric Distribution Companies (EDCs) to consider funding gas infrastructure expansion; the State Supreme Judicial Court blocked this approach in Massachusetts (2016)
  - Other states determined that only a regional approach would be viable
- States exercise their procurement authority to solicit resources to meet their long-term decarbonization goals, e.g., HVDC imports from Québec, wind, nuclear, solar, and DG (MA, CT, RI, ME) (~2017–present)

**Distinctions Between the Actions of the States and the ISO**

**The States:**
- Can enter *long-term* contracts with *specific* resources to achieve their policy objectives
- Can select resources based on considerations other than price, such as *environmental attributes* (i.e., states may be discriminatory in their selections)

**The ISO:**
- Markets are *short-term* (up to three years) and select the *lowest-priced* resources
- Market rules must be *non-discriminatory*
- Cannot enter *long-term* contracts with individual resources
Other Potential State Actions During Emergencies

- **Governors’ appeals** to the public to reduce energy consumption to reduce *need for* or *duration of* ISO emergency actions during extreme weather events
- Waive **driver-hours restrictions** for fuel-oil delivery to generators
- Waive **emissions** or **run-time** limits on oil-fired generators
- **Potential longer-term solutions:**
  - Link retail electricity prices to wholesale prices to enable retail demand response
  - Contract for fuel storage within the region

ISO Communications with Public Officials and the Public During Emergencies

The ISO has well-established tools to communicate with states and stakeholders about these risks – including during actual emergency situations – and continually works to exercise and build upon efforts in this area

- **Annual Regional Electricity Outlook**
- **Annual State of the Grid** report
- **Pre-summer** and **pre-winter briefings** for government officials and EDCs
- **Seasonal Outlook** press releases
- **New: Pre-winter press conference** *(Dec. 6)*
- **ISO Website, ISO Express Portal, ISO Newswire, social media, and listservs**
- **Automated voice/email/text communications** with government officials and EDCs