

ISO New England Overview of Emergency Procedures and Communications Processes



*Briefing for Government Contacts and Corporate Communications
Contacts with New England's Local Control Centers and
Transmission Companies*

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Key Takeaways

Pre-Winter Briefing 2021/2022



- **Energy security risks in New England are well-documented**, with heightened concerns this winter due to sharp increases in global energy demand and supply chain contraction
- **Large, fuel-secure resources continue to retire** while new resources are delayed, thus exacerbating energy security risks
- **Weather, which is becoming more unpredictable and extreme, will be a key factor** affecting regional energy availability and related reliability concerns this winter
- **LNG imports are critical** to meeting New England's energy needs during cold weather; the region is dependent on global cargoes arriving at import terminals in Everett, Mass and New Brunswick



Key Takeaways, cont.

Pre-Winter Briefing 2021/2022



- **A majority of New England's oil-fired generating capability** is from resources that utilize distillate fuel oil; however, those resources account for a small percentage of regional oil storage capability and their inventories are likely to diminish quickly if operated without replenishment
- **Logistics** to support LNG & fuel-oil replenishment must be understood and established by resource owners well in advance of emergencies
- Given the fuel constraints on the natural gas system, **situational awareness** of the available LNG and fuel-oil inventories and replenishment plans for those inventories is essential to understanding regional energy availability



Key Takeaways, cont.

Pre-Winter Briefing 2021/2022



- **Multi-day or longer Energy Emergencies** would have far more serious consequences to residents and the economy than a capacity deficiency over peak load hour(s)
- **ISO's winter preparations and Energy Emergency procedures** will aid in proactive and effective communication with stakeholders
 - However, the ISO and resource owners would need assistance from state and federal governments, including well-coordinated public appeals, to help manage the impacts of an Energy Emergency



High-Level Winter Assessment: Winter 2021/22

If this winter is similar to...

Winter 2020/21

Then...

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

Winter 2017/18

Then...

The ISO anticipates that the system can be operated reliably, but *may require* the implementation of **capacity deficiency procedures**

Winter 2013/14

Then...

Assuming persistent below-normal temperatures 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*

See next slide for a description of these three past-winter periods

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

	Winter 2020/21	Winter 2017/18	Winter 2013/14
Weather:	Milder than normal with a few short periods of below-normal temperatures	Milder than normal except for a two-week span of significantly below-normal temperatures	Colder than normal, highlighted by a polar vortex event with significant stretches of cold weather in New England and surrounding regions
Average temp. departure from normal:	+1.8°F degrees	+0.5°F degrees	-2.3°F degrees
Winter peak load:	18,756 MW	20,631 MW	21,514 MW
Total energy served:	32,188 GWh	33,186 GWh	35,509 GWh
Other weather and fuel characteristics:	Natural gas was available as needed, fuel oil usage was minimal, and fuel supplies remained steady	The region was impacted by an extended stretch of cold weather from Dec. 25–Jan. 8; All major cities in New England experienced temps below normal for at least 13 consecutive days, of which 10 days averaged >10°F below normal The cold snap was marked by significant reductions in natural gas availability, and price inversion contributed to high oil usage; several oil-fired resources were postured to maintain fuel reserves	The region experienced several cold weather stretches of four or more consecutive days, including a stretch of 10 consecutive days at or below freezing High demand on both the electric and natural gas systems



Outline of Presentation and Discussion

- Key Take-Aways Winter 2021/2022, slides 2-6
- ISO Introductions and Background, slides 9-12
- ISO 2021/2022 Winter Outlook and Preparations, slides 13-17
- Action During a Capacity Deficiency (OP-4), slides 18-24
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- Appendices, slides 60-95:
 - Background Information on OP-4
 - Action in an Emergency (OP-7)
 - Abnormal Conditions Alert (M/LCC2)
 - Background on OP-21
 - External Affairs and Corporate Communications Contacts and Notifications
 - Other Information Resources



Focus of Today's Briefing: 2021/2022 Winter Outlook and Relevant ISO New England Operating Procedures



**Action During a
Capacity Deficiency
(OP-4)**



**Action in an
Emergency
(OP-7)**



**Cold Weather
Condition Operations
(SOP-RTMKTS.0050.0007)**



**Energy Inventory
Accounting and
Actions During an
Energy Emergency
(OP-21)**

Additional information can be found in the appendix

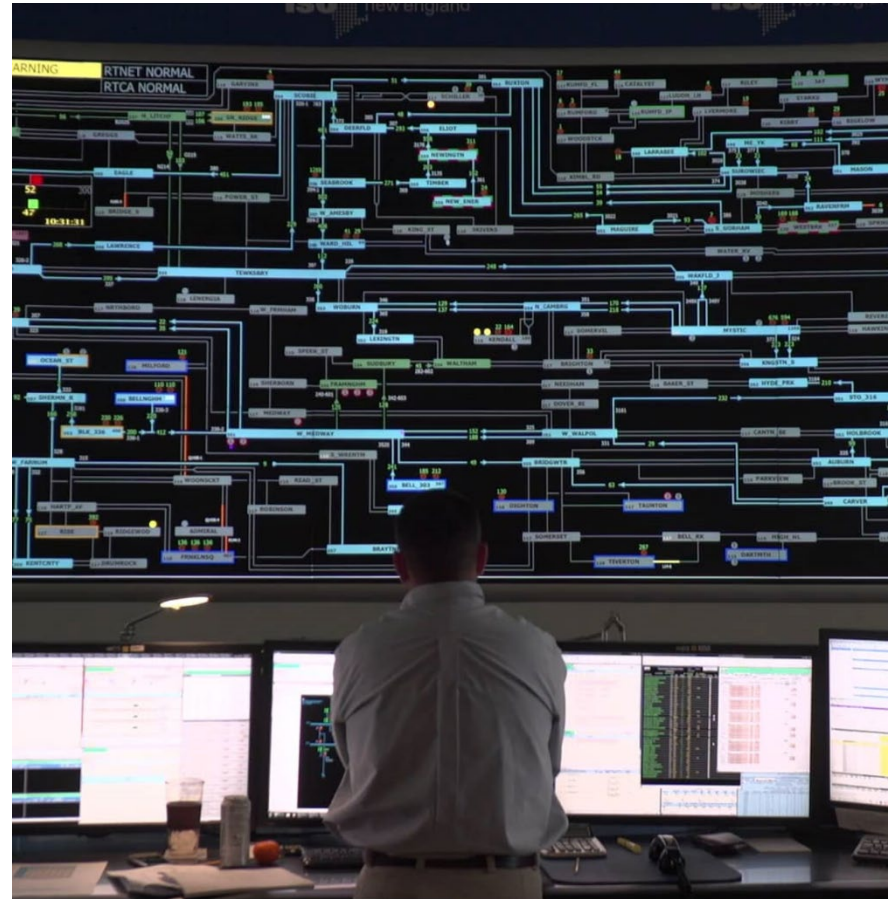
ISO INTRODUCTIONS AND BACKGROUND



One Goal Lies at the Heart of ISO New England's Mission: *Reliability*

ISO New England is:

- **Regulated** by the Federal Energy Regulatory Commission (FERC)
- **Reliability Coordinator** for New England under the North American Electric Reliability Corporation (NERC)
- **Independent** of companies in the marketplace and **neutral** on technology



Generation and Demand Resources Are Used to Meet New England's Energy Needs

- **350** dispatchable generators in the region
- **31,500 MW** of generating capacity
- Almost **30,000 MW** of proposed generation in the ISO Queue
 - Mostly wind, solar, and storage proposals
- Roughly **7,000 MW** of generation have retired or will retire in the next few years
- **767 MW** of active demand response and **2,819 MW** of energy efficiency with obligations in the Forward Capacity Market*
 - Demand resources have had further opportunities in the wholesale markets since 2018



* In the Forward Capacity Market, demand-reduction resources are treated as capacity resources.

ISO-NE Is a Summer-Peaking System but Faces Particular Challenges in the Winter

While the region sees its peak during the summer, it could shift back to a **winter-peaking system**

- Region's all-time **winter** peak demand was **22,818 MW** on **January 15, 2004**
- Extended periods of extreme cold weather could pose challenges
- Natural gas pipeline constraints, coupled with global supply chain issues related to deliveries of oil and liquefied natural gas (LNG), are placing New England's power system at heightened risk under certain conditions



New England shifted from a winter-peaking system to a **summer-peaking** system in the early 1990s, largely because of the growth of air conditioning and a decline in electric heating

- Peak demand on a normal summer day has typically ranged from 17,500 MW to 22,000 MW
- Summer demand usually peaks on the hottest and **most humid** days and averaged roughly 25,600 MW since 2000
- Region's all-time summer peak demand was **28,130 MW** on **August 2, 2006**

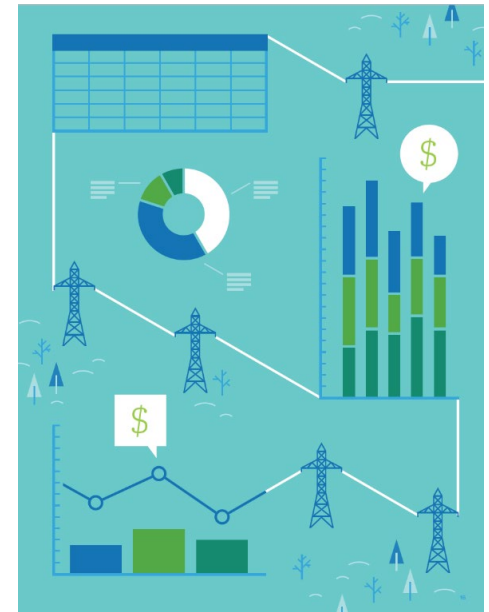


ISO NEW ENGLAND 2021/2022 WINTER OUTLOOK AND PREPARATIONS



Preparations for Winter Peak Demand

- New England's winter peak demand period runs from December through February
- In preparation for the winter, ISO New England:
 - Forecasts New England's demand for electricity and reserves
 - Evaluates region's winter supply outlook
 - Exercises communication plan
 - Conducts Winter Readiness Seminar (10/1) and Surveys
 - Conducts dual-fuel audits
 - Conducts Load Shed and Voltage Reduction Test (10/19)
 - Conducts transmission system assessments



Preparations for Winter Peak Demand, *continued*

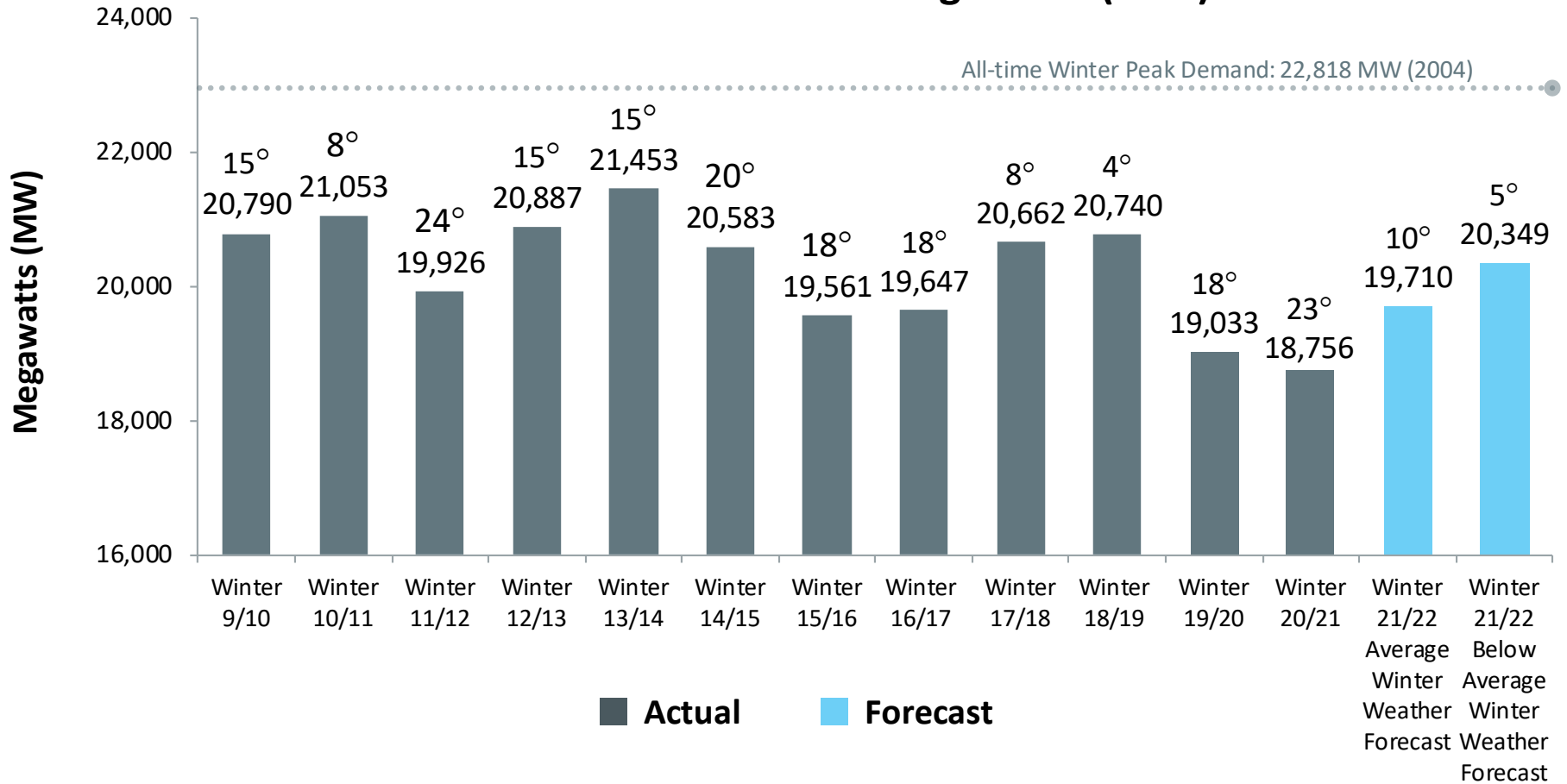
- Ongoing coordination between electric and gas systems
- Short-term actions:
 - Survey fuel inventories of oil- and coal-fired generators monthly
 - Surveys conducted weekly and daily if necessary
 - Confirm scheduled volumes with natural gas-fired generators daily
 - Forecast and report on expected energy availability over a 21-day look-ahead period
 - Reports published weekly during winter months (daily if Energy Alert or Energy Emergency is declared)



Winter Peak Demand

And Corresponding Temperatures*

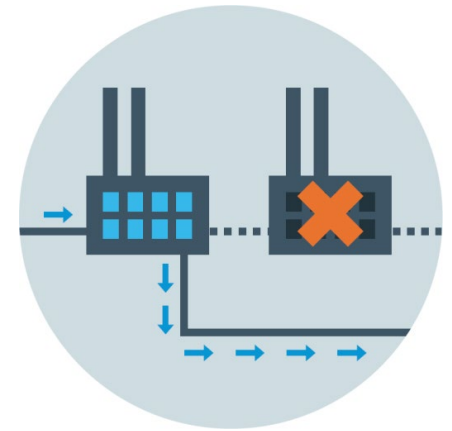
Winter Peak Demand in Megawatts (MW)



Sources: [ISO-NE Seasonal Peaks Since 1980](#), [COO NEPOOL Participants Committee Report](#) (November 2021), [2021 CELT Forecast](#)
 *Temperature is dry-bulb temperature in degrees Fahrenheit based on weighted average of eight New England weather stations.

Reserve Requirements

- ISO New England carries operating reserves to maintain **reliable** power system operations in the event of a contingency on the system*
 - **Ten-Minute Reserve Requirement**
 - ISO maintains Ten-Minute Reserves adequate to recover from the loss of 120% of the largest source of supply
 - Normally 1,560 MW to 2,250 MW
 - **Thirty-Minute Reserve Requirement**
 - ISO maintains Thirty-Minute Reserves adequate to recover from the loss of 50% of the second largest source of supply
 - Normally 625 MW
- A contingency is an **unplanned disconnection** of a power system element, such as a transmission facility or a generator



* Governed by Northeast Power Coordinating Council (NPCC) requirements and ISO New England procedures

ACTION DURING A CAPACITY DEFICIENCY

Operating Procedure No. 4 (OP-4)

OP-4 Is Implemented When One or More of the Following Occur



- **Demand + reserves** cannot be met with available resources
- **Contingencies** (1 or more) result in an immediate deficiency in available capacity
- **Transmission** facilities in a subarea are loaded beyond established transfer limits
- **Manual load shedding** (OP-7) is needed, but OP-4 actions could avoid or reduce that need
- **Abnormal voltage** and/or **reactive conditions** in a subarea
- **Assist other NPCC control areas** that are experiencing a capacity deficiency (would reduce our reserves below required margin)
- **Other serious threat** to the bulk power system for which the ISO determines this procedure would mitigate the impact

11 Actions Can Be Implemented



- OP-4 includes 11 actions that system operators can use to maintain system reliability
- OP-4 can be implemented New England-wide, by local control center area, by state, or targeted to a specific area
- OP-4 actions can be called in any order
- OP-4 can be skipped to move into Operating Procedure No. 7, *Action in an Emergency*, if necessary



Potential Relief Under OP-4

Roughly 1,900 – 4,000 MW of potential relief systemwide from 11 actions

OP-4 Action	Action Description (Page 1 of 3)	Possible Relief (MW)
1	Implement Power Caution and advise resources with a capacity supply obligation (CSO) to prepare to provide capacity and notify “Settlement-Only” generators with a CSO to monitor reserve pricing to meet those obligations	0 ¹
	Begin to allow depletion of 30-minute reserves	600
2	Declare Energy Emergency Alert (EEA) Level 1	0 ⁴
3	Request voluntary load curtailment of Market Participants’ facilities	40 ²
4	Implement Power Watch , a notification that additional OP-4 actions may be taken	0
	If conditions warrant, issue a public appeal for voluntary conservation	0 ²
5	Schedule Emergency Energy Transactions and arrange to purchase Control-Area-to-Control-Area Emergency Capacity and Energy	Variable 0 – 1,000

Source: [OP-4, Action During A Capacity Deficiency, Appendix A](#)

Potential Relief Under OP-4, *continued*

Roughly 1,900 – 4,000 MW of potential relief systemwide from 11 actions

OP-4 Action	Action Description (Page 2 of 3)	Possible Relief (MW)
6	Implement a voltage reduction of 5% of normal operating voltage requiring more than 10 minutes Declare Energy Emergency Alert (EEA) Level 2	Variable 0 – 125 ³ 0 ⁴
7	Request resources without a CSO to provide energy for reliability purposes	Variable 0 – 1,500
8	Implement a voltage reduction of 5% of normal operating voltage requiring 10 minutes or less Declare Energy Emergency Alert (EEA) Level 2 (if not already declared)	Variable 0 – 250 ³ 0 ⁴
9	Request activation of transmission customer generation not contractually available to Market Participants during a capacity deficiency Request voluntary load curtailment by large industrial and commercial customers	5 200 ²

Source: [OP-4, Action During A Capacity Deficiency, Appendix A](#)

Potential Relief Under OP-4, *continued*

Roughly 1,900 – 4,000 MW of potential relief systemwide from 11 actions

OP-4 Action	Action Description (Page 3 of 3)	Possible Relief (MW)
10	Implement Power Warning and issue urgent public appeal for voluntary conservation	200 ²
	Declare Energy Emergency Alert (EEA) Level 2 (if not already declared)	0 ⁴
11	Request state governors' support for ISO appeals for conservation	100 ²
	Declare Energy Emergency Alert (EEA) Level 2 (if not already declared)	0 ⁴
Total Relief (MW)		1,920 – 4,020

NOTES:

1. Based on Summer Ratings. Assumes 25% of total MW Settlement-Only units <5 MW will be available and respond.
2. The actual load relief obtained is highly dependent on circumstances surrounding the appeals, including timing and the amount of advanced notice that can be given.
3. The MW values are based on a 25,000 MW system load and verified by the most recent voltage reduction test.
4. EEA levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations (<https://www.nerc.com/pa/rrm/ea/Pages/Energy-Emergency-Alerts.aspx>) and do not trigger additional communications with OP-4 contacts.

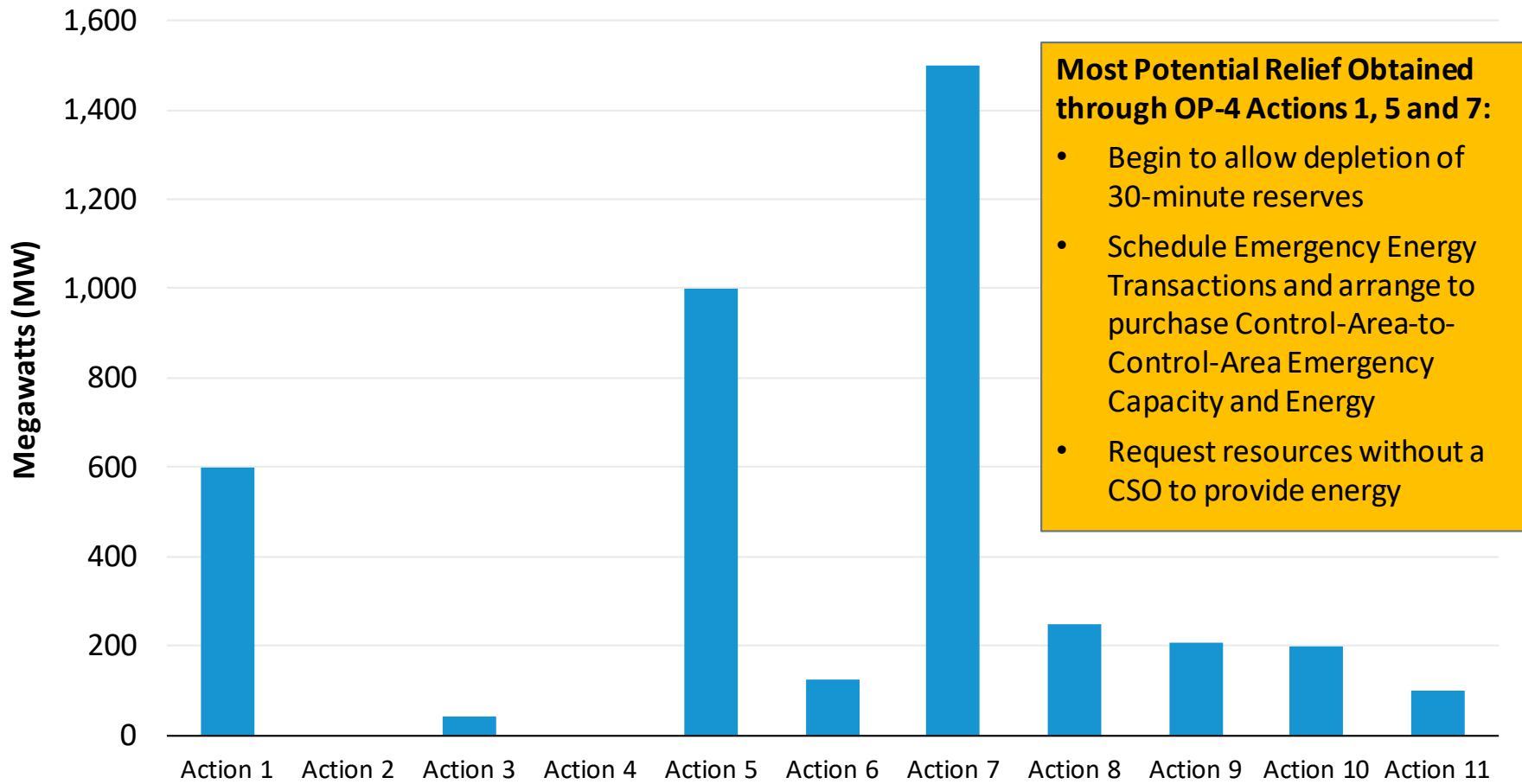
Source: [OP-4, Action During A Capacity Deficiency, Appendix A](#)



Potential Relief Under OP-4, *continued*

Roughly 1,900 – 4,000 MW of potential relief systemwide from 11 actions

Potential Relief Under OP-4 (MW)



COMMUNICATIONS OVERVIEW



When Are Communications Triggered?



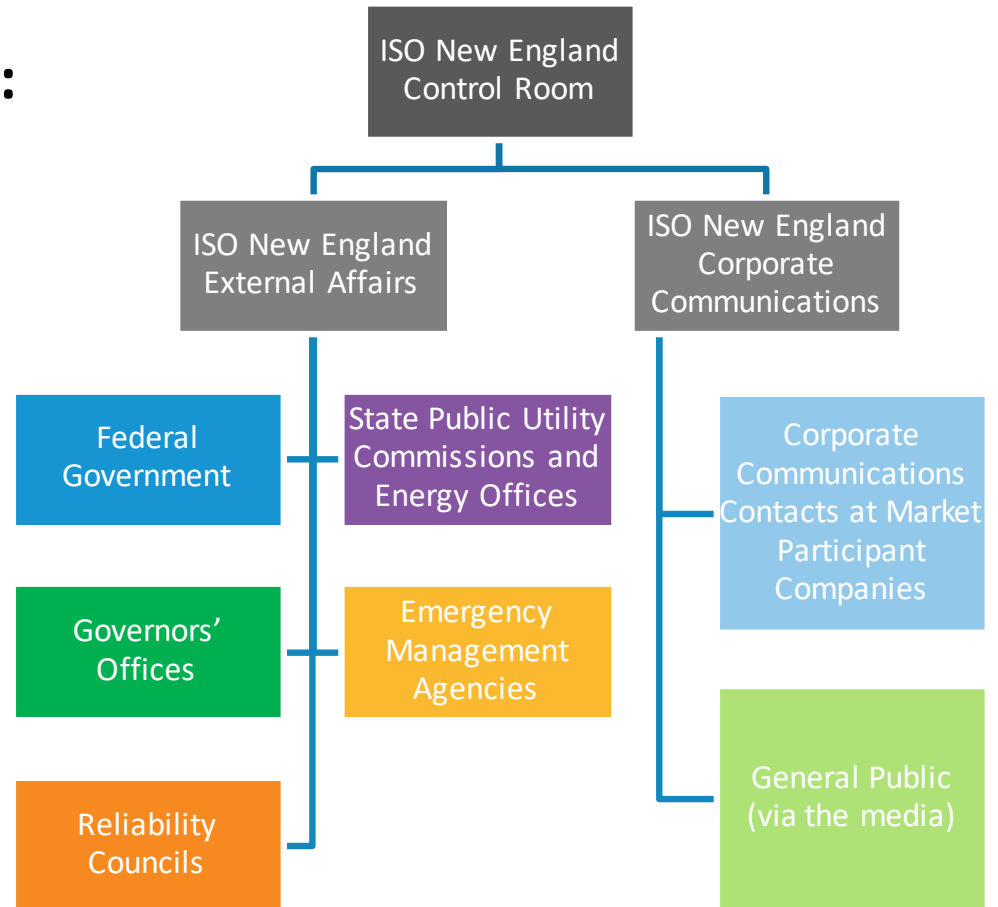
- Several **operating procedures** trigger communications with external stakeholders:
 - Action During a Capacity Deficiency (Operating Procedure No. 4)
 - Action in an Emergency (Operating Procedure No. 7)
 - Cold Weather Condition Operations (SOP-RTMKTS.0050.0007)
 - Actions During an Energy Emergency (Operating Procedure No. 21)
- Other unusual and emergency circumstances in which the ISO communicates with external stakeholders:
 - Conservation appeals not triggered by an operating procedure
 - Emergencies (storms, potential terrorist alerts) that could affect operation and reliability of the region's power grid or wholesale markets
- ISO will use the OP-4 communication process as a **guide** for communicating power system emergencies that are not linked to an operating procedure
- ISO will share system-level information during emergency communications; however, we will not release unit-specific information



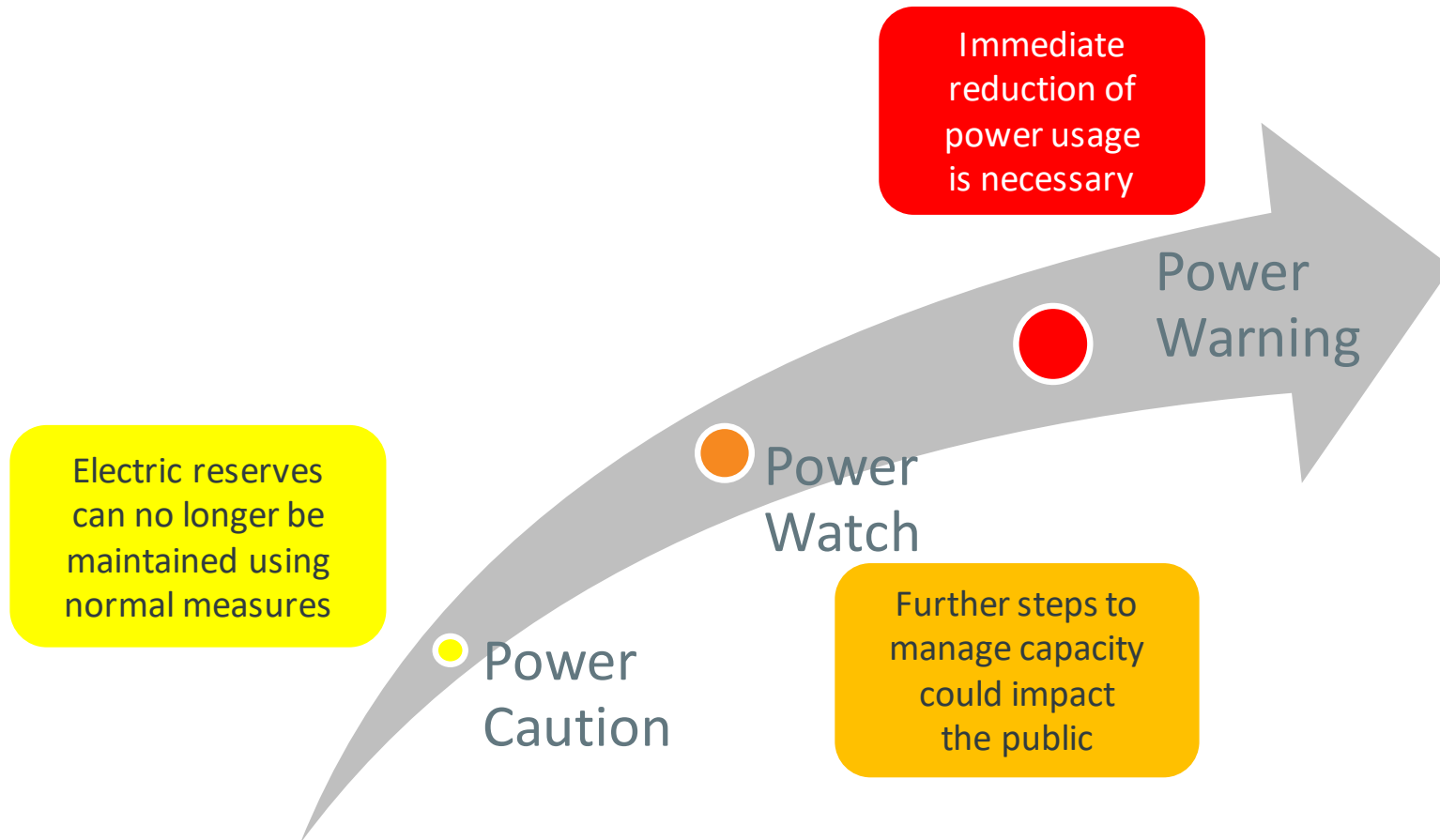
Coordination Is Vital for Accurate and Timely Communications with Stakeholders

Process for Communications:

- Control Room issues notice of a capacity deficiency
- External Affairs (EA) and Corporate Communications (CC) coordinate with the Control Room to verify event details
- EA and CC notify designated OP-4 contacts



OP-4: Three Primary Notifications



OP-4 Communications for a Power Caution

Actions 1-3 and 5-9



- CC and EA will:
 - Inform government officials and NEPOOL communications contacts of implementation of OP-4 and “Power Caution” via e-mail notification
 - No public appeal for conservation is necessary

Action	Description
1	Implement Power Caution and advise resources with a CSO to prepare to provide capacity 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
5	Schedule Emergency Energy Transactions and arrange to purchase Control-Area-to-Control-Area Emergency Capacity and Energy
6	Implement voltage reductions requiring > 10 minutes Declare Energy Emergency Alert (EEA) Level 2*
7	Request generators and demand response resources without a CSO to provide energy for reliability purposes
8	Implement voltage reductions requiring 10 minutes or less Declare Energy Emergency Alert (EEA) Level 2*
9	Request activation of transmission customer generation not contractually available to Market Participants during a capacity deficiency Request voluntary load curtailment by large industrial and commercial customers

*Note: EEA levels are described in Attachment 1 to NERC Reliability Standard [EOP-011 - Emergency Operations](#). These alerts do not trigger any additional communications with OP-4 contacts.

OP-4 Communications for a Power Watch

Action 4 Power Watch and Request for Voluntary Conservation if Warranted



- CC and EA will:
 - Inform government officials and NEPOOL communications contacts of OP-4 implementation and “Power Watch” via e-mail notification
 - Update “pre-scripted” public appeal for voluntary electricity conservation and issue it via media advisory *if conditions warrant*
 - Activate conference call “bridgeline” and conduct regular conference call updates *if public appeal is issued*
 - Publicize conservation appeal: ISO-NE home page, Newswire, mobile app, and Twitter

OP-4 Communications for a Power Warning

Action 10 Power Warning and Radio/TV Appeal



- CC and EA will:
 - Inform government officials and NEPOOL communications contacts of OP-4 implementation and “Power Warning” via e-mail notification
 - Update “pre-scripted” public appeal for voluntary electricity conservation and issue it via media advisory
 - Activate conference call “bridgeline” and conduct regular conference call updates
 - Publicize conservation appeal: ISO-NE home page, Newswire, mobile app, and Twitter

OP-4 Communications for a Governors' Appeal

Action 11 Governors' Appeal

- CC and EA will:
 - Issue notice as far in advance as possible
 - ISO notifies state contacts to assist with appeal
 - Notify pre-determined governors' staff members
 - Action requested is for the governors to make an urgent public appeal for conservation



OP-4 External Notifications



- ▲ OP-4 Actions 1-3 and 5-9
- ▲ Serves as a notice to Market Participants that a capacity deficiency exists
- ▲ No public appeal for electricity conservation is made



- ▲ OP-4 Action 4
- ▲ All internal and external stakeholders are notified
- ▲ Public appeal for electricity conservation if conditions warrant



- ▲ OP-4 Action 10
- ▲ All internal and external stakeholders are notified
- ▲ Urgent public appeal to immediately turn off all unnecessary power use



Governors' Appeal

- ▲ OP-4 Action 11
- ▲ ISO notifies state government contacts to assist with appeal
- ▲ ISO requests Governors' support for Power Warning

What Government OP-4 Contacts Can Expect



- External Affairs will notify Government OP-4 contacts via **ISOAlert** if the ISO implements any OP-4 actions
 - **ISOAlert** will trigger an automated email, phone call, and text message to all Government OP-4 contacts (i.e., those designated as primary, secondary, and alternate)*
- If the ISO implements a Power Watch *with a public appeal* or a Power Warning, **ISOAlert** will prompt the recipient to connect to a conference **bridgeline**
- ISO staff will communicate the **status of the power system** on the bridgeline
- OP-4 contacts will be notified when actions are **cancelled**
- For **localized** events, we will only notify the primary OP-4 contact in the affected area

	Actions	Email	Text Message	Phone Call	Activate Bridgeline
Power Caution	1-3 5-9	●	●	●	
Power Watch	4	●	●	●	If ISO issues a public appeal
Power Warning	10	●	●	●	●
Governors' Appeal	11	●	●	●	

* If ISO-NE External Affairs needs to bypass ISOAlert, we will reach out to primary contacts first; we will only call secondary and alternate contacts if the primary contact is unreachable.



What NEPOOL OP-4 Contacts Can Expect

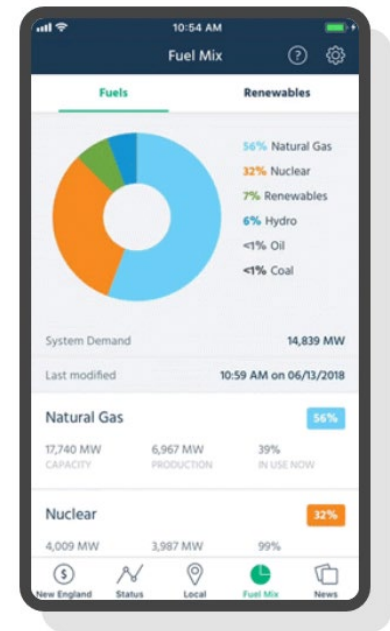
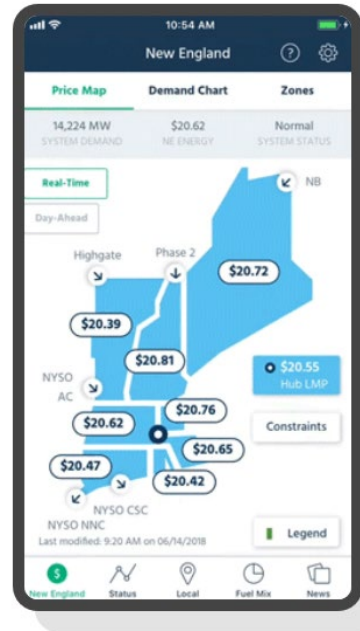


- Corporate Communications will notify NEPOOL OP-4 contacts via **ISOAlert** if the ISO implements any OP-4 actions
 - **ISOAlert** will trigger an automated email and text message to all NEPOOL OP-4 contacts (i.e., those designated as primary, secondary, and alternate)*
- If the ISO implements a Power Watch *with a public appeal* or a Power Warning, **ISOAlert** will prompt the Transmission Companies that operate a Local Control Centers to connect to a conference **bridgeline** call
- ISO staff will communicate the **status of the power system** on the bridgeline to the LCC Communications contacts
- OP-4 contacts will be notified when actions are **cancelled**
- For **localized** events, we will only notify the primary OP-4 contact in the affected area



Digital and Social Media Communications Are Used to Provide System Updates

- Log on to **ISO Express**
 - [ISO Express](#) provides real-time data and notifications regarding power system conditions
- Follow the ISO on **Twitter**
 - [@isonewengland](#)
- Download the **ISO to Go App** for free
 - [ISO to Go](#) is a free mobile application that puts real-time wholesale electricity pricing and power grid information in the palm of your hand



POWER SYSTEM CONDITIONS

REGION	STATUS	TIME IN
New England	Normal	

Normal for New England

The current electricity capacity status in New England is **NORMAL**. Conditions are considered normal when electricity supply is sufficient to meet expected demand plus required operating reserves.

[View All Condition Definitions >](#)



Provide Updated Contact Information to the ISO

- **Government Contacts:**

- External Affairs Department:

- By phone: (413) 535-4138
- By email: gwarmangold@iso-ne.com



- **NEPOOL Contacts:**

- Corporate Communications/
Media Relations Department:

- By phone: (413) 535-4309
- By email: rjohnson@iso-ne.com

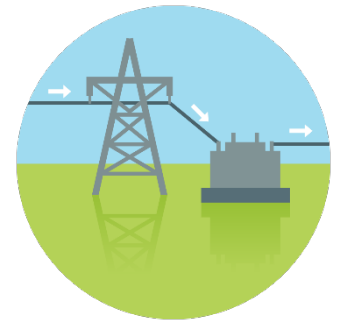


ACTION IN AN EMERGENCY

Operating Procedure No. 7 (OP-7)

Link: <https://www.iso-ne.com/participate/rules-procedures/operating-procedures>

Action in an Emergency (OP-7)



- If OP-4 actions are not adequate to manage a capacity deficiency, the ISO will implement OP-7
 - OP-4 can be skipped to move into OP-7 immediately, if necessary
- OP-7 allows system operators to order the **disconnection** of firm customer load—frequently referred to as manual load shedding, load curtailment, controlled power outages, or rolling blackouts—as a means of maintaining the integrity of the bulk power system
- OP-7, like OP-4, can be called region-wide or locally
- When OP-7 actions are required, transmission and/or distribution companies disconnect customers at the direction of the ISO or the Local Control Centers (LCC)
 - ISO system operators do not have the ability to disconnect customers



Communications During OP-7

Communications follow the general framework for OP-4 events



- Control Room will:
 - Notify LCCs, U.S. DOE, NERC, and NPCC
- CC and EA will:
 - Inform government officials and NEPOOL communications contacts of OP-7 implementation (prior to implementation, if possible)
 - Activate conference call “bridgeline” and conduct regular conference call updates when time permits
 - Issue *Controlled Power Outage* notice and, if necessary, conservation appeal (prior to implementation, if possible)



COLD WEATHER CONDITION OPERATIONS

SOP-RTMKTS.0050.0007: Perform Cold Weather Condition Operations

Cold Weather Condition Operations

- Procedure assesses both **weather** and **capacity** thresholds
 - Developed to help maintain adequate capacity during extreme cold weather conditions
 - Designed to avoid a situation where emergency procedures are required



Electric/Gas Industry Coordination



- ISO confers with natural gas pipeline companies as needed during the winter
 - Review conditions for upcoming week:
 - Weather and temperature forecasts
 - Posted notices by pipeline operators
 - Equipment-related restrictions on delivery of gas supply
 - Overall capacity requirements to serve electric load in New England
- Generators are required to report their anticipated availability to ISO New England
 - Ability to procure fuel
 - Limitations that could reduce capacity or energy production

Evaluating Conditions

- ISO develops a Seven-Day Capacity Margin Forecast each day
- For the winter period, ISO incorporates the following inputs:
 - Review gas pipeline notices and potential impact on gas unit availability
 - Review weather forecast and potential impact of extreme cold weather conditions on gas unit availability
- ISO will classify the next two days as:
 - No Cold Weather Conditions;
 - Cold Weather Watch;
 - Cold Weather Warning; or
 - Cold Weather Event
- Classifications are posted under Notices and the Seven-Day Capacity Margin Forecast

Seven-Day Capacity Forecast Sample

WEATHER	DAY 2 TUE 11/23	DAY 3 WED 11/24	DAY 4 THU 11/25	DAY 5 FRI 11/26	DAY 6 SAT 11/27	DAY 7 SUN 11/28
High Temperature - Boston	40	42	53	44	38	40
Dew Point - Boston	18	14	28	33	19	20
High Temperature - Hartford	40	43	54	43	39	41
Dew Point - Hartford	16	13	26	28	18	19

LOAD RELIEF ACTIONS ANTICIPATED						
Power Watch	N	N	N	N	N	N
Power Warning	N	N	N	N	N	N
Cold Weather Watch	N	N	-	-	-	-
Cold Weather Warning	N	N	-	-	-	-
Cold Weather Event	N	N	-	-	-	-

Link: <https://www.iso-ne.com> (Markets and Operations > Power System Forecast and Status > Seven-Day Capacity Forecast)

Implementation Requires Conditions that Meet Weather *and* Capacity Thresholds

Threshold Categories	Cold Weather Watch**	Cold Weather Warning**	Cold Weather Event***
Cold Weather Conditions*	Extreme cold	Extreme cold	Extreme cold
Seven-Day Capacity Margin Forecast	$\geq 1,000$ MW	$< 1,000$ MW	\leq zero MW

* Effective Temperature must be less than or equal to (\leq) zero degrees F for any single on-peak hour and Total Effective Heating Degree Days (EDD) must be greater than or equal to (\geq) 65.

** Declarations are made in advance for the following 7-day period, and expire at the end of the day at midnight unless cancelled earlier by ISO.

*** A Cold Weather Event will normally be declared one day prior to the Operating Day.

Communications Protocol



- SOP-RTMKTS.0050.0007 specifies communications with state regulators when a Cold Weather **Event** is declared
- External Affairs will communicate with government contacts for Cold Weather Watches, Cold Weather Warnings, and Cold Weather Events
 - Government contacts include:
 - State public utility commissions and certain state, regional, and federal energy offices
 - Regular contacts for OP-4 communication
 - State environmental regulators responsible for permitting of dual-fuel generating units
 - Not part of normal OP-4 communications



Cold Weather Watch

- ISO forecasts that sufficient capacity is available to meet the forecasted demand and reserve requirements
- **Operations:**
 - Post Notice to ISO website
- **Communications:**
 - Notify government contacts (by email)

Cold Weather Warning

- ISO forecasts that sufficient capacity may not be available to meet the forecasted demand and reserve requirements
- **Operations:**
 - Request dual-fuel units to prepare to switch to secondary fuels
 - Within limitations of equipment and in compliance with environmental/operating permits
 - Dual-fuel units are requested but not required to switch fuels
 - Post Notice to ISO website
- **Communications:**
 - Notify government contacts (by email)
 - Emphasize in communications with state environmental regulators the ISO's request for dual-fuel units to prepare to switch to secondary fuels
 - Initiate teleconferences with government contacts

Cold Weather Event

- ISO forecasts that sufficient capacity will not be available and that OP-4 actions may be taken to address an anticipated capacity deficiency (emergency actions are expected)
- **Operations:**
 - Units must confirm gas supplies to cover scheduled energy commitments
 - Daily review of gas nominations to determine if gas units have confirmed gas supplies
 - Post Notice to ISO website
 - Request for gas units that can burn oil to switch to oil for Cold Weather Event days
 - Dual-fuel units are requested but not required to switch fuels
 - Verify whether units have switched fuels or plan to switch

Cold Weather Event, *continued*

- **Communications:**

- Notify government contacts (by email and phone)
 - Emphasize in communications with state environmental regulators the ISO's request for dual-fuel units to switch to secondary fuels
- Initiate teleconferences with government contacts (OP-4 contacts and environmental regulators)
 - Generally surrounding morning/evening peak hours, or as needed
- Public appeals and other OP-4 actions will be implemented as appropriate

Implementation of Cold Weather Operations

- Cold Weather Watch declared on many occasions
 - Cold Weather Watch declared approx. 20 times in the last five years
- Cold Weather Warning declared on only a few occasions
- No Cold Weather Events declared to date



ENERGY INVENTORY ACCOUNTING AND ACTIONS DURING AN ENERGY EMERGENCY

Operating Procedure No. 21 (OP-21)

Note: *Changes to OP-21 were put into effect in 2018, adding an energy forecasting and reporting framework to establish energy alert thresholds similar to those used in NERC standards.*

ISO New England Publishes 21-Day Energy Assessments on a Weekly Basis During Winter

- The **energy assessment** is based on New England generators' reports of their fuel inventories, emissions limitations, and other factors that could limit their availability
- Hourly forecast results compared against established thresholds to trigger the declaration of:
 - **Energy Alerts** (declared in Day 6-21 timeframe), or
 - **Energy Emergencies** (declared in Day 1-5 timeframe)
- Energy assessments are published to the ISO website (iso-ne.com)
 - **Weekly (December – March)**
 - **Bi-weekly (April – November)**
- During Energy Alert or Energy Emergency conditions, the ISO will publish energy assessments **on a daily basis**



21-Day Energy Assessment Raises Awareness About Energy Availability So Resources Can Take Action

- Resource owners and other stakeholders, including regulatory and government entities, will be made aware of actual or anticipated near-term **energy deficiencies**
 - For example, when oil or other fuels start running low or emissions limitations are constraining resource availability
- With up to three weeks' notice, resource owners have time to **evaluate status** of their resources and **take action** as needed to increase their availability
 - For example, make arrangements to have more fuel delivered or reschedule maintenance to transmission facilities



21-Day Energy Assessments Are Posted to the ISO's Operations Reports Webpage

The screenshot shows the ISO-NE website's 'Operations Reports' page. The main navigation bar includes 'About Us', 'Participate', 'Committees and Groups', 'System Planning', and 'Markets and Operations'. The current page is 'Operations Reports' under 'Markets and Operations > ISO Express'. A sidebar on the left lists categories: Transmission, Generation, System, and Fuel. The main content area features a section titled '21-Day Energy Assessment Forecast and Report' with a descriptive paragraph and a 'Download Selected Files' button. Below this is a table listing several reports with their descriptions, timestamps, and download links.

IN THIS SECTION

- Transmission**
 - Short-Term Outage Report
 - Long-Term Outage Report
 - Transmission Element Derates
 - Single-Source Contingency
 - TTC Tables
- Generation**
 - Seasonal Claimed Capability
 - Daily Capacity Status
 - Daily Regulation Requirement
 - Annual Maintenance Schedule
 - Annual Maintenance Schedule Archive
 - Net Energy and Peak Load
 - Aggregate Monthly DDG Undelivered Energy
 - Operator Initiated Commitments
- System**
 - Seven-Day Capacity Forecast
 - Seven-Day Wind Power Forecast
 - Seven-Day Wind Power Forecast Archive
 - Morning Report
- Fuel**
 - 21-Day Energy Assessment Forecast and Report
 - Oil-Depletion and Usable-Oil Inventory Graphs
 - Daily Generation by Fuel Type
 - Dispatch Fuel Mix

21-Day Energy Assessment Forecast and Report

View the 21-Day Energy Assessment Forecast and resulting forecasted system conditions: Normal, FEEA1, FEEA2, FEEA3. The forecast is based on current system conditions, forecasted weather, load, generators' reports of stored-fuel inventories and emissions limitations, and status of fuel delivery systems. These forecasts are non-binding as forecasted and expected conditions utilized in the forecasts can change. Hourly forecast results are compared against established thresholds to trigger the declaration of Energy Alerts (declared in Day 6-21 timeframe), or Energy Emergencies (declared in Day 1-5 timeframe).

Download Selected Files

21-DAY ENERGY ASSESSMENT FORECAST AND REPORT			
<input type="checkbox"/>	DESCRIPTION	TIMESTAMP	DOWNLOAD
<input type="checkbox"/>	2021-11-09 21-Day Energy Emergency Forecast and Report	11/09/2021 12:00 AM EST	PDF
<input type="checkbox"/>	2021-10-26 21-Day Energy Emergency Forecast and Report	10/26/2021 12:00 AM EDT	PDF
<input type="checkbox"/>	2021-10-12 21-Day Energy Emergency Forecast and Report	10/12/2021 12:00 AM EDT	PDF
<input type="checkbox"/>	2021-09-28 21-Day Energy Emergency Forecast and Report	09/28/2021 12:00 AM EDT	PDF
<input type="checkbox"/>	2021-09-14 21-Day Energy Emergency Forecast and Report	09/14/2021 12:00 AM EDT	PDF
<input type="checkbox"/>	2021-08-31 21-Day Energy Emergency Forecast and Report	08/31/2021 12:00 AM EDT	PDF
<input type="checkbox"/>	2021-08-17 21-Day Energy Emergency Forecast and Report	08/17/2021 12:00 AM EDT	PDF

Link: <https://www.iso-ne.com> (Markets and Operations > ISO Express > Operations Reports > 21-Day Energy Assessment Forecast and Report Results)

Next Steps

- **Test scheduled for Tuesday November 23 (today) for OP-4 government contacts**
- Early December
 - 2021/22 Winter Outlook Factsheet
 - Press Release

Reminder

- Send updated contact information to the ISO



Provide Updated Contact Information to the ISO

- **Government Contacts:**

- External Affairs Department:

- By phone: (413) 535-4138
- By email: gwarmangold@iso-ne.com



- **NEPOOL Contacts:**

- Corporate Communications/
Media Relations Department:

- By phone: (413) 535-4309
- By email: rjohnson@iso-ne.com



Questions



APPENDIX

BACKGROUND INFORMATION ON OP-4

Link: <http://www.iso-ne.com/participate/rules-procedures/operating-procedures>

Action 1



- Inform all resources that a capacity deficiency exists
 - Each resource with a Capacity Supply Obligation (CSO) should prepare to provide capability
 - “Settlement-Only” Resources with real-time obligations and CSOs need to monitor the status of reserve pricing and meet their obligations under “Capacity Scarcity Condition” definitions in the Tariff
- Begin to allow depletion of 30-minute operating reserve
- Implement a **Power Caution**
 - Does not involve public appeals for conservation

Action 2



- Declare Energy Emergency Alert (EEA) Level 1
- EEA levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations:
 - <https://www.nerc.com/pa/rrm/ea/Pages/Energy-Emergency-Alerts.aspx>

Action 3



- Request voluntary load curtailment of Market Participants' facilities in New England

Action 4



- Implement a **Power Watch**
 - Notification that additional OP-4 actions may be taken
- If conditions warrant, issue a public appeal for voluntary conservation

Action 5



- Implement Actions 5 and above to maintain 10-minute reserves
- Arrange to purchase available emergency capacity and energy, or energy only (if capacity backing is not available), from Market Participants or neighboring regions

Action 6



- Declare Energy Emergency Alert (EEA) Level 2*
- Implement a voltage reduction of 5% of normal operating voltage requiring more than 10 minutes to implement
 - Local Control Centers (LCCs) implement voltage reduction on distribution and sub-transmission systems
- Alert NYISO that sharing of reserves within Northeast Power Coordinating Council (NPCC) may be required

*Note: EEA levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations (<https://www.nerc.com/pa/rmm/ea/Pages/Energy-Emergency-Alerts.aspx>).

Action 7



- Request generators and demand response resources not subject to a CSO to voluntarily provide energy for reliability purposes
 - Either on a forecast basis or in real time when ISO anticipates it will be unable to maintain 10-minute reserves

Action 8



- Implement a voltage reduction of 5% of normal operating voltage that is attainable within 10 minutes
 - LCCs implement voltage reduction on distribution and sub-transmission systems
- Declare Energy Emergency Alert (EEA) Level 2 if not already performed under an earlier action*

*Note: EEA levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations (<https://www.nerc.com/pa/rmm/ea/Pages/Energy-Emergency-Alerts.aspx>).

Action 9



- Request activation of all customer generation not contractually available to Market Participants
- Request voluntary load curtailment by large industrial and commercial customers
- Request is made through Transmission and Distribution owners



Action 10



- Initiate radio/television appeals for voluntary load curtailment
- Implement a **Power Warning**
 - Public appeals made when an immediate reduction in power usage is necessary to avert overload of the electrical system
 - Public appeals made when other efforts (e.g., emergency purchases, voluntary curtailment, contracted curtailment and voltage reductions) have been unsuccessful in bringing supply and demand back into balance
- Declare Energy Emergency Alert (EEA) Level 2 if not already performed under an earlier action*

Action 11



- Request New England governors to reinforce **Power Warning** appeals initiated in Action 10
- Declare Energy Emergency Alert (EEA) Level 2 if not already performed under an earlier action*

*Note: EEA levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations (<https://www.nerc.com/pa/rrm/ea/Pages/Energy-Emergency-Alerts.aspx>).

OP-4 Actions from Beginning of FCM to Present

Action	1	2	3	4	5	6	7	8	9	10	11
Date	Power Caution	Power Caution	Power Caution	Power Watch	Power Caution	Power Caution	Power Caution	Power Caution	Power Caution	Power Warning	Governors' Appeal
6/24/2010	•	•	•	•	•						
7/5/2010	•										
8/9/2010	•										
4/22/2011	•										
7/22/2011	•	•	•		•						
8/16/2011	•	•			•						
12/19/2011	•	•									
1/28/2013	•	•									
7/19/2013	•	•	•		•						
12/14/2013	•	•			•						
9/28/2014	•										
12/4/2014	•										
9/9/2015	•										
8/11/2016	•	•									
9/3/2018	•	•	•	•	•						

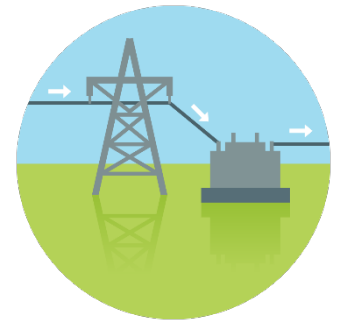
Note: The OP-4 actions above were called New England-wide, except on July 19, 2013 (actions 2, 3, and 5 were called for all zones but Maine) and on August 11, 2016 (action 2 was called for all zones but Maine).

ACTION IN AN EMERGENCY

Operating Procedure No. 7 (OP-7)

Link: <http://www.iso-ne.com/participate/rules-procedures/operating-procedures>

Action in an Emergency (OP-7)



- If OP-4 actions are not adequate to manage a capacity deficiency, the ISO will implement OP-7
 - OP-4 can be skipped to move into OP-7 immediately, if necessary
- OP-7 allows system operators to order the **disconnection** of firm customer load—frequently referred to as manual load shedding, load curtailment, controlled power outages, or rolling blackouts—as a means of maintaining the integrity of the bulk power system
- OP-7, like OP-4, can be called region-wide or locally
- When OP-7 actions are required, transmission and/or distribution companies disconnect customers at the direction of the ISO or the Local Control Centers (LCC)
 - ISO system operators do not have the ability to disconnect customers



Communications During OP-7

Communications follow the general framework for OP-4 events



- Control Room will:
 - Notify LCCs, U.S. DOE, NERC, and NPCC within the times prescribed by the various agencies
- CC and EA will:
 - Inform government officials and NEPOOL communications contacts of OP-7 implementation (prior to implementation, if possible)
 - Notification by phone and email
 - Activate conference call “bridge-line” and conduct regular conference call updates when time permits
 - Issue *Controlled Power Outage* notice and, if necessary, conservation appeal (prior to implementation, if possible)

ABNORMAL CONDITIONS ALERT

Master/Local Control Center Procedure No. 2 (M/LCC 2)

Link: <https://www.iso-ne.com/participate/rules-procedures/master-lcc-procedures>

M/LCC 2 – Abnormal Conditions Alert

- What is an abnormal condition on the bulk power system?
 - Forecasted or actual deficiency of operating reserves requiring implementation of OP-4 and/or OP-7
 - Low transmission voltages and/or low reactive reserves
 - Inability to provide first contingency protection when an undesirable post-contingency condition might result (e.g., load shedding)
 - Geomagnetic Disturbance (GMD)
 - Cold Weather Event is declared
 - Operational staffing shortage impacting normal power system operations within New England
 - Any other credible threat to power system reliability and integrity (e.g., terrorism, sabotage, storms)



M/LCC 2 – Abnormal Conditions Alert, *continued*

- The purpose of M/LCC 2:
 - Alerts power system personnel and market participants of abnormal system conditions
 - Outlines steps to be taken, including:
 - Cancellation of maintenance on power system resources
 - Delineates which outages can and cannot be allowed
- M/LCC 2 may be issued systemwide or locally
- M/LCC 2 may be skipped – the ISO may move straight into OP-4 and/or OP-7, if necessary
- Typically, the ISO does not send M/LCC 2 notices to OP-4 contacts

BACKGROUND INFORMATION ON OP-21

Link: <http://www.iso-ne.com/participate/rules-procedures/operating-procedures>

Background on OP-21

- **Purpose:** OP-21 documents the processes and establishes the associated requirements to:
 - Collect fuel availability and environmental limitation information from each coal, oil, and natural gas-fired generator in the region, and any other resource that the ISO determines to be necessary
 - Forecast and report on expected energy availability over a 21-day look-ahead period
 - Declare Energy Alerts and Energy Emergencies based on forecasted or real-time system conditions
 - Take appropriate action in anticipation of, or during, an Energy Alert or Energy Emergency
 - Communicate with interstate natural gas pipelines, LNG import facilities, local gas distribution companies, generating resources, and all other regional stakeholders regarding matters related to resource fuel availability and environmental limitations

Background on OP-21

- **Applicability:** Energy Emergencies may occur at any time as a result of sustained national or regional shortages in fuel availability or deliverability to New England's generating resources
 - Shortages of fuel may come in many forms, including, but **not** limited to: severe drought, interruption to availability or transportation of natural gas, LNG, oil, or coal
- Because fuel shortages and/or environmental limitations may impact New England's ability to fully meet system load and ten-minute operating reserve requirements for days, weeks, or months at a time, the ISO may need to take action **in advance of** a projected Energy Emergency to manage and preserve fuel supplies within the region
 - Changes to OP-21 are intended to improve **situational awareness** and encourage **proactive measures** to avoid forecasted energy deficiencies

Potential Initiating Conditions for an Energy Emergency Include, *But Are Not Limited to:*

- One or more pipeline Operational Flow Orders (OFOs) have been declared
- Significant reductions in resource capability due to natural gas-related issues
- Weather forecast for an extended period of cold or hot weather
- Fuel delivery to fossil fuel-fired generating resources is, or may be, impaired
- Prolonged drought
- Adverse weather conditions within the Gulf of Mexico, Western Canada, or regional shale gas basins
- Abnormal conditions at regional LNG import, satellite storage, or LNG trucking facilities
- Extremely cold regional, national, or international weather conditions
- Extreme storm conditions offshore in the Maritimes
- Any viable threat to one or more of the pipelines or LDCs supplying the region
- Sustained environmental limitation on some, or several, regional resources
- Any other serious threat to the integrity of the bulk electric system for which the ISO determines that this procedure may mitigate the impact



Forecasting and Reporting Framework Has Been Added to OP-21 to Encourage Proactive Measures

- ISO New England performs Energy Emergency forecasting and reporting using an **hourly 21-day energy assessment** and comparing the results of that assessment with Energy Emergency **forecast alert thresholds** in order to identify and communicate potential reliability issues to regional stakeholders
- Forecasting and reporting framework:
 - Alerts stakeholders to the potential for near-term forecasted energy deficiencies
 - Allows resources in short supply of fuel to take action to replenish fuel supplies
 - Allows resources with potential environmental limitations to purchase additional credits or pursue regulatory relief to mitigate the limitation
 - Allows participants to take action to shorten or reschedule maintenance or repair to transmission facilities or resources throughout the region
 - Informs regulatory and government entities of potential energy deficiencies

Forecasted and Real-Time Energy Emergency Alerts

Forecast Alert Thresholds	Established Real-Time Alert Thresholds
<p>Forecast M/LCC-2 (FMLCC2)</p> <ul style="list-style-type: none"> Resources during any hour are forecasted to be less than 200 MW above operating reserve requirements 	<p>M/LCC-2</p> <ul style="list-style-type: none"> Resources are less than 200 MW above operating reserve requirements
<p>Forecast Energy Emergency Alert Level 1 (FEEA1)</p> <ul style="list-style-type: none"> Resources during any hour are forecasted to be less than operating reserve requirements and implementation of OP-4 Actions 1 – 5 is being forecasted (deficiency in 30-minute operating reserves) 	<p>Energy Emergency Alert Level 1 (EEA1)</p> <ul style="list-style-type: none"> OP-4 Action 2 implementation
<p>Forecast Energy Emergency Alert Level 2 (FEEA2)</p> <ul style="list-style-type: none"> Resources during any hour are forecasted to be less than operating reserve requirements and implementation of OP-4 Actions 6 – 11 is being forecasted (deficiency in 10-minute operating reserves) 	<p>Energy Emergency Alert Level 2 (EEA2)</p> <ul style="list-style-type: none"> OP-4 Actions 6, 8, 10, or 11 implementation
<p>Forecast Energy Emergency Alert Level 3 (FEEA3)</p> <ul style="list-style-type: none"> Resources during any hour are forecasted to be insufficient to serve firm load and implementation of load shedding under OP-7 is being forecasted 	<p>Energy Emergency Alert Level 3 (EEA3)</p> <ul style="list-style-type: none"> OP-7 implementation

Energy Alert Declarations and Actions

- An **Energy Alert** is declared when:
 - FEEA2 or FEEA3 is forecasted to occur in at least one hour on one or more consecutive days in **days 6 through 21** of the **21-day energy assessment**, or
 - Any other reason for which the ISO Chief Operating Officer, or designee, determines that the actions described below may mitigate the impact of an actual or forecasted energy deficiency
- Once an **Energy Alert** has been declared, the ISO must take the following actions:
 - Alert each Local Control Center (LCC) and surrounding Reliability Coordinator/Balancing Authority of the Energy Alert
 - Alert all market participants of the Energy Alert by posting to the ISO website
 - Alert New England state regulators and officials of the Energy Alert
 - Initiate daily data collection using OP-21 survey forms, and daily Energy Emergency forecasting and reporting

Energy Alert Declarations and Actions, *continued*

- Once an **Energy Alert** has been declared:
 - Each lead market participant must evaluate actual and anticipated fuel supplies and environmental limitations and should consider taking action as necessary to replenish fuel supplies and/or mitigate environmental limitations
 - Each lead market participant and Local Control Center must evaluate scheduled maintenance or repair to transmission facilities or resources in the region that reduces the capability of a facility or resource to supply energy to the region and should consider taking action, if possible, to maximize availability of those facilities or resources

Energy Emergency Declarations

- An **Energy Emergency** is declared when:
 - FEEA2 or FEEA3 is forecasted to occur in at least one hour on one or more consecutive days in **days 1 through 5** of the **21-day energy assessment**, or
 - Shedding of firm load under OP-7 is occurring or is anticipated to occur due to an actual energy deficiency resulting from a sustained shortage of fuel availability or deliverability to, or sustained environmental limitations on, some or several of New England's resources, or
 - Any other reason for which the ISO Chief Operating Officer, or designee, determines that the actions described below may mitigate the impact of an actual or forecasted energy deficiency

Energy Emergency Actions

- Once an **Energy Emergency** has been declared, the ISO must take the following actions:
 1. Alert each Local Control Center (LCC) and surrounding Reliability Coordinator/Balancing Authority of the Energy Emergency
 2. Alert all market participants of the Energy Emergency by posting to the ISO website
 3. Alert New England state regulators and officials of the Energy Emergency
 4. Report the Energy Emergency to the U.S. Department of Energy
 5. Initiate daily data collection using OP-21 survey forms, and daily Energy Emergency forecasting and reporting
 6. Request that each dual-fuel generator scheduled to operate voluntarily switch to operation on the fuel source that is not in short supply
 7. Implement specific capacity and load relief measures available through actions of OP-4, **excluding** requesting the New England State Governors to reinforce appeals for voluntary load curtailment (Action 11)

Energy Emergency Actions, *continued*

- If the seven actions described on the previous slide do not result in the necessary relief from the Energy Emergency, or if there is insufficient time for those measures to provide relief, the following actions may be taken:
 8. Implement Action 11 of OP-4: Request the New England state governors to reinforce appeals for voluntary electrical load curtailment through Power Warning implementation
 9. Under extreme conditions, the ISO must seek reliability relief through load shedding actions available through implementation of OP-7



Forecasting and Reporting



- During Normal Conditions, ISO New England performs Energy Emergency forecasting and reporting:
 - **Weekly** (December through March)
 - **Bi-weekly** (April through November)
- During Energy Alert or Energy Emergency conditions, the ISO performs Energy Emergency forecasting and reporting on a **daily** basis, until such time as the conditions no longer exist
- Reports are posted to the **ISO website** and include:
 - A summary, by operating day, detailing whether conditions are expected to be Normal, Forecast M/LCC-2, Forecast Energy Emergency Alert 1, Forecast Energy Emergency Alert 2, or Forecast Energy Emergency Alert 3
 - A determination of whether the threshold for declaring an Energy Alert or Energy Emergency has been met
 - To the extent possible, the reasons why the threshold was met

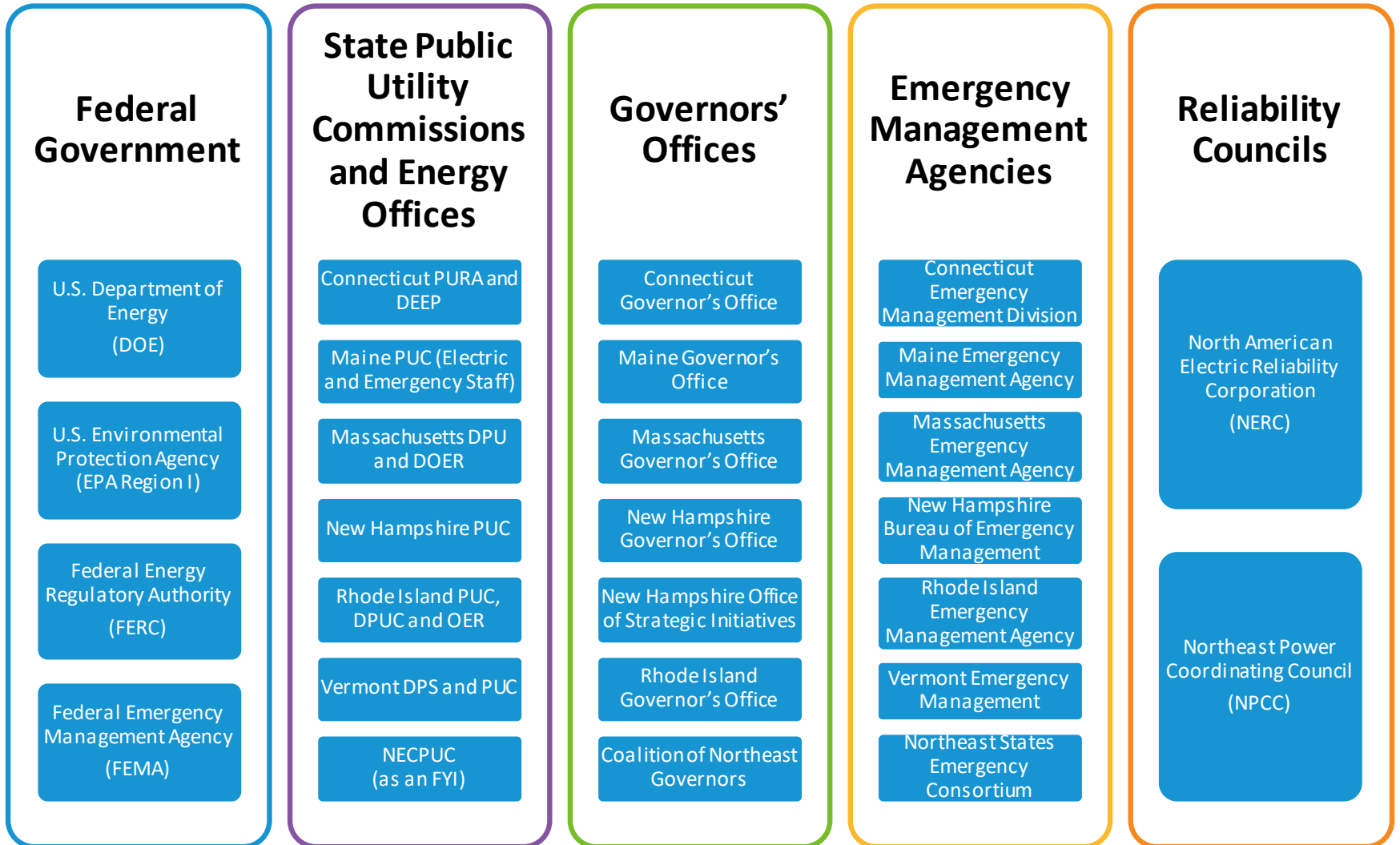
EXTERNAL AFFAIRS AND CORPORATE COMMUNICATIONS CONTACTS AND NOTIFICATIONS



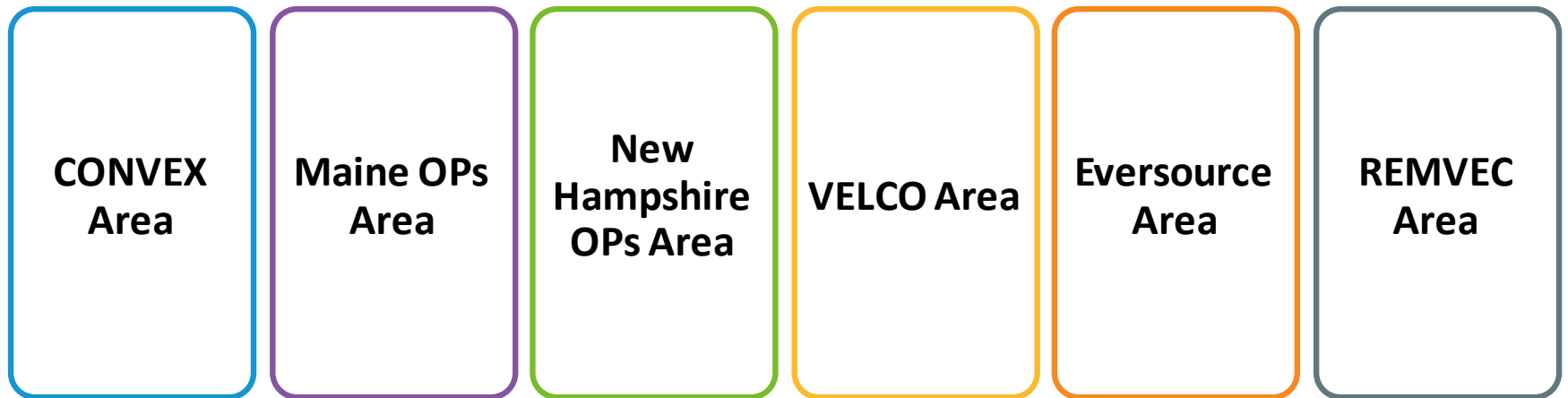
The ISO Communicates with Various Stakeholders During Capacity Events

- **External Affairs notifies:**
 - Governors' offices
 - State and federal regulators and staff
 - State emergency management agencies
 - Reliability councils
- **Control Room notifies:**
 - Local Control Centers
 - Generation station designated entities
 - Demand designated entities
- **Corporate Communications notifies:**
 - Communication contacts from market participant companies
 - Public via the media
- **Customer Service notifies:**
 - Market participants

External Affairs (EA) Contacts

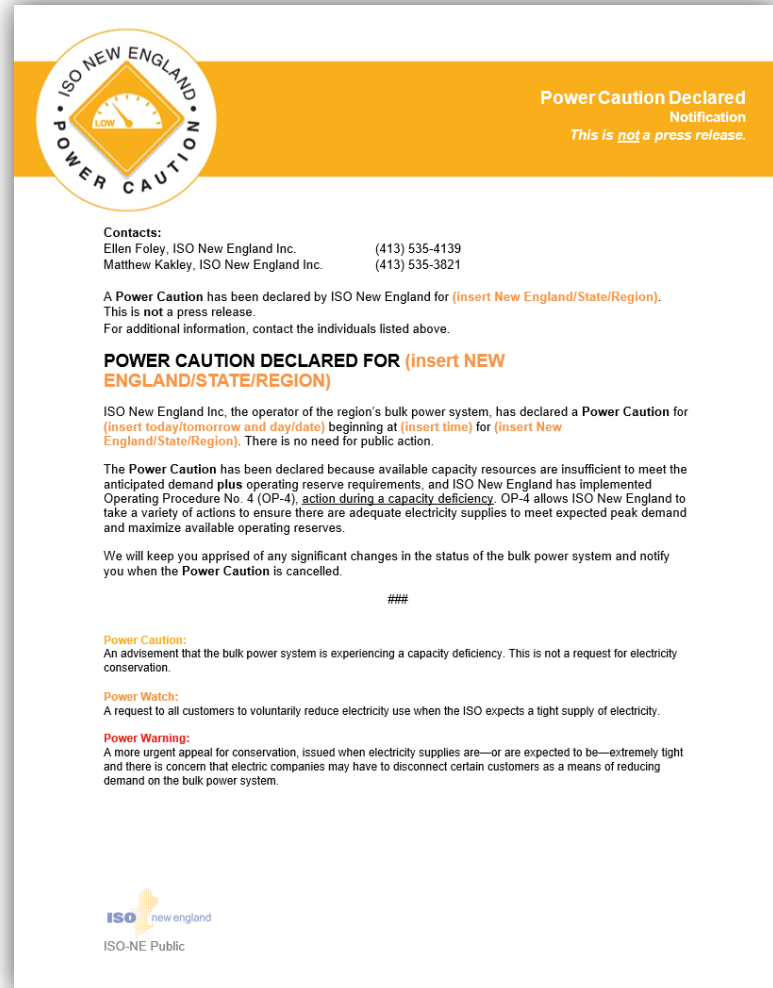


Corporate Communications (CC) Contacts



Corporate Communications Notifications

- Pre-scripted messages include:
 - *Power Caution, Power Watch, Power Warning, and Controlled Power Outage*
 - New England-wide
 - State- and area-specific
 - e.g., State of Connecticut, Greater Boston area
 - Time-specific
 - e.g., Today, Extended through Tomorrow, Power Watch Lifted



The image shows a template for a "Power Caution Declared Notification" from ISO New England. It features a circular logo with a gauge and the text "ISO NEW ENGLAND POWER CAUTION". The notification text includes contact information for Ellen Foley and Matthew Kakley, a section for declaring a power caution for a specific region, and definitions for Power Caution, Power Watch, and Power Warning. The footer includes the ISO New England logo and "ISO-NE Public".

ISO NEW ENGLAND
POWER CAUTION

Power Caution Declared Notification
This is not a press release.

Contacts:
Ellen Foley, ISO New England Inc. (413) 535-4139
Matthew Kakley, ISO New England Inc. (413) 535-3821

A **Power Caution** has been declared by ISO New England for **(insert New England/State/Region)**. This is **not** a press release.
For additional information, contact the individuals listed above.

POWER CAUTION DECLARED FOR (insert NEW ENGLAND/STATE/REGION)

ISO New England Inc, the operator of the region's bulk power system, has declared a **Power Caution** for **(insert today/tomorrow and day/date)** beginning at **(insert time)** for **(insert New England/State/Region)**. There is no need for public action.

The **Power Caution** has been declared because available capacity resources are insufficient to meet the anticipated demand plus operating reserve requirements, and ISO New England has implemented Operating Procedure No. 4 (OP-4), action during a capacity deficiency. OP-4 allows ISO New England to take a variety of actions to ensure there are adequate electricity supplies to meet expected peak demand and maximize available operating reserves.

We will keep you apprised of any significant changes in the status of the bulk power system and notify you when the **Power Caution** is cancelled.

###

Power Caution:
An advisement that the bulk power system is experiencing a capacity deficiency. This is not a request for electricity conservation.

Power Watch:
A request to all customers to voluntarily reduce electricity use when the ISO expects a tight supply of electricity.

Power Warning:
A more urgent appeal for conservation, issued when electricity supplies are—or are expected to be—extremely tight and there is concern that electric companies may have to disconnect certain customers as a means of reducing demand on the bulk power system.

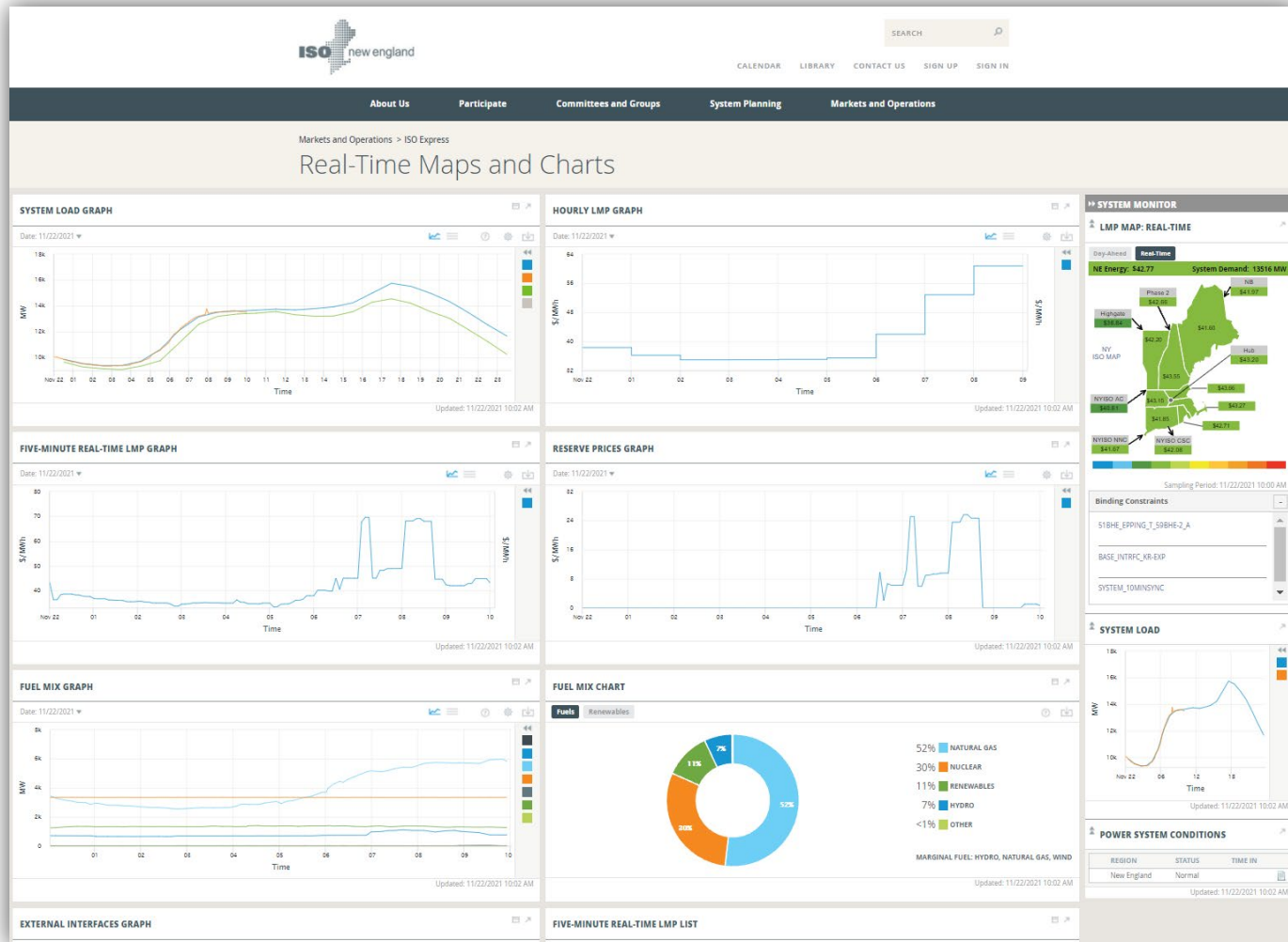
ISO new england
ISO-NE Public

OTHER INFORMATION RESOURCES



For a Quick Look at Power System Conditions...

Visit the System Monitor on ISO Express



ISO Express is available at: <http://www.iso-ne.com/isoexpress/>

Options to Subscribe to ISO New England Email Lists

Subscribe to receive All Notices, Emergency Operating System Notices, and others

ISO new england

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IN THIS SECTION

- Support
- Participant Readiness Project Outlook
- Request Data and Information
- Request CEII Access
- Request Software
- Mailing Lists**
- Web Feeds
- Web Conferencing Support
- User Guides
- Glossary and Acronyms
- Web Browser Support
- Web Services Data
- Library of Participant Support Forms
- Upload and Download File Format Protocols
- FAQs
- Website Help

ISO New England offers several email lists to help market participants and other stakeholders keep up with ISO and industry developments. To subscribe, click on a mailing list name, and hit send when the subscription email opens up.

General ISO and Industry Information

ISO Newswire
A monthly list of the most recent articles from the ISO's news blog, [ISO Newswire](#)

ISO Training
Announcements of training courses offered by the ISO

Participant Readiness
Notification of updates to the [Participant Readiness Project Outlook](#) webpage or the near-term project pages listed therein, which discuss major upcoming ISO projects that require action from affected market participants

Notices

Subscribe to [All Notices](#) to receive all of the following mailing lists. Or, select only the specific mailing lists you'd like.

Participant Issues
Notices of miscellaneous reports, changes in policy issues, and other general matters related to our customers

Emergency Operating System Notices
Alerts on abnormal operating system conditions, including:

- Implementation of ISO operating procedures, such as [OP 4: Action During a Capacity Deficiency](#)

RELATED LINKS

Subscribe here: <http://www.iso-ne.com/participate/support/mailing-lists>

FOR MORE INFORMATION...



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Log on to ISO Express

[ISO Express](#) provides real-time data on New England's wholesale electricity markets and power system operations



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[ISO to Go](#) is a free mobile application that puts real-time wholesale electricity pricing and power grid information in the palm of your hand

