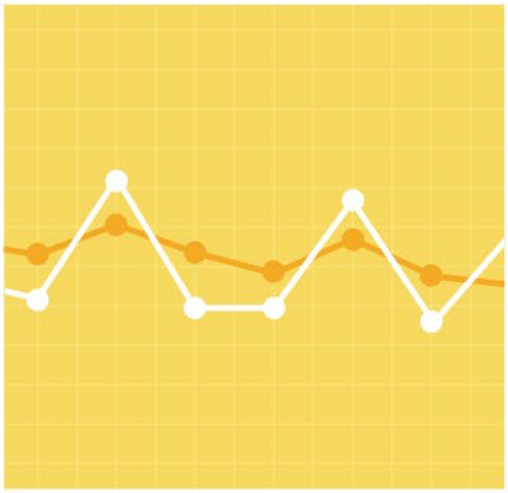
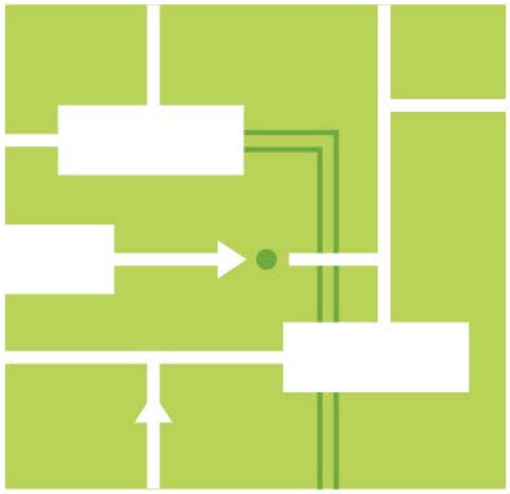
Consumer Liaison Group
Coordinating Committee

2024 Report of the Consumer Liaison Group

Joint Report of the Consumer Liaison Group Coordinating Committee and ISO New England

MAY 2025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Dear Reader,

Welcome to the *2024 Report of the Consumer Liaison Group* (CLG) prepared jointly by the Consumer Liaison Group Coordinating Committee (CLGCC) and ISO New England (ISO-NE). This is the fifteenth annual CLG report, the first published in 2010 summarizing 2009 activities, the year the CLG was established.

The CLG was formed to meet the need, as cited in the Federal Energy Regulatory Commission's (FERC) Order No. 719, for greater communication between Regional Transmission Organizations (RTOs) and their stakeholders, with a particular focus on electricity consumers, consumer advocates, and state government regulators. Like other RTOs across the country, ISO New England is responsible for the reliable operation of the region's bulk power system, administration of the region's wholesale electricity markets, and regional power system planning.

When FERC issued Order 719 in 2008, setting forth the agency's expectations for regional transmission organizations like ISO-NE, the regulators concluded that regional transmission organizations would be "obligated to demonstrate that they are responsive to the needs of customers and other stakeholders through a direct collaboration among the RTOs and their constituencies." Order 719 embraced the objectives of "inclusiveness" and "responsiveness," ruling that an RTO's "business practices and procedures must provide for stakeholder input into the . . . regional transmission organization's decisions as well as mechanisms to provide feedback to stakeholders to ensure that information exchange and communication continue over time." In addition to other stakeholder and state outreach, the Consumer Liaison Group was one of ISO New England's responses to these directives, which FERC approved in ISO-NE's Order 719 compliance filing.

ISO New England's information flow to the CLG is instrumental to fulfilling CLG's mandate to provide for greater understanding of the ISO's activities and decision-making processes and the potential cost impacts of its decisions and initiatives on consumers. The CLG and the ISO have worked collaboratively to identify issues of importance to end-use consumers and create the space for dialogue at quarterly CLG meetings.

Because New England's wholesale electricity markets are continually evolving, the CLG serves as a forum for consumers to provide input and information to ISO New England and to engage in dialogue about what is working well and what may need to be changed. Looking to the future, members of the CLGCC recognize that the CLG's full mandate cannot be fulfilled without greater participation from ratepayers on the issues that concern them, including high electricity costs and potential changes to the power system and the wholesale markets.

In the past, the CLG bylaws, formulated by stakeholders and ISO New England, required the organization to be governed by a Coordinating Committee (CC) of 12 members. Revised bylaws passed in 2024 expanded the CC to 14 members including representation from each of the six New England states: Massachusetts, Rhode Island, Connecticut, Vermont, New Hampshire and Maine. To identify and select topics of interest to address at future CLG meetings for fully engaging consumers and consumer advocates, the members of the CLGCC meet at least quarterly, around the time of the CLG meetings. In particular, the CLGCC attempts to identify market or policy issues likely to have a direct impact on electric ratepayers. The objective is to provide information and perspectives on topics that ratepayers and consumer advocates may not otherwise

acquire in the course of their other professional responsibilities. When choosing a topic for discussion, the CLGCC relies on conversations with and recommendations from the CLG membership, as well as the participant survey conducted after each quarterly CLG meeting. The CLGCC encourages all interested participants to recommend potential topics, via either the participant survey or direct communication with the CLGCC.

Typically, the locations of the CLG quarterly meetings rotate among the New England states and Coordinating Committee members from the host state typically recommend people who might deliver the keynote address and others who might contribute to the panel discussions. The remaining CLGCC members provide additional assistance and approvals, when necessary and helpful. Before the CLG meeting, confirmed panelists participate in a planning call with the panel moderator (a CLGCC member) and ISO New England to plan for a robust, diverse, and well-organized discussion.

In 2024, CLG meetings continued to be "hybrid," allowing for both in-person and remote participation. Locations for the 2024 meetings were Portland, Maine (March); Holyoke, Massachusetts (June); New London, Connecticut (September) and Boston, Massachusetts (December).

The CLGCC made progress toward the four goals outlined at the beginning of 2024, as summarized below:

1) **Continue to Focus on Communities and Civic Spaces for CLG Meetings**: The CLGCC continued to build relationships and extend invitations to communities where CLG meetings were held in 2024. We planned meetings in spaces more accessible and welcoming to residents than corporate hotels – for example, in state parks such as Fort Trumbull in New London, Connecticut and a community college in Holyoke, MA. Multiple tours were arranged as part of some of the meetings, including a wind port in Connecticut, to deepen our connection to the grid, and our understandings of what reliability might look like. Our efforts have led to increased participation in CLG events both in-person and online:

MEETING	IN-PERSON	VIRTUAL
March 6 (Portland, ME)	69	89
June 4 (Holyoke, MA)	85	92
September 12 (New London, CT)	72	109
December 4 (Boston, MA)	119	116

Finally, the CLGCC continued to explore increasing accessibility of the CLG meetings.

2) **Continue to Foster ISO-NE Engagement**: The CLGCC aimed to forge more frequent direct communication between the CLG and the ISO-NE board. Multiple board members attended the meeting in Boston in December 2024 and engaged with community members in an extended Q&A session. We brainstormed how the CLG can become a more effective channel for communicating the concerns and interests of ratepayers to the board, including via presentations to the New England Power Pool (NEPOOL) Participants Committee and via NEPOOL attendance.

3) **Expand Digital and Social Media Outreach for CLG**: The CLGCC created a subcommittee to explore ways to engage in digital and social media outreach to more effectively and consistently communicate about CLG to larger groups of end users. We channeled ratepayer feedback for an easier system for Consumer Liaison Group meeting registration, which will be implemented in 2025. We also had initial meetings with ISO-NE staff regarding how to realize digital and social media outreach goals.

4) **Refine CLG Governance**: The CLGCC undertook analysis and deliberation about how the CLG can become an even more effective vehicle for ratepayer input into the work of ISO New England. We circulated with the CLG a draft of the amended CLG bylaws to solicit input and feedback and published a final version of the amended CLG bylaws prior to the final CLG meeting in 2024, in which the new bylaws took effect. The bylaws increased the membership of the CLG coordinating committee from 12 to 14 members and modified the ways that ISO-NE maintains lists of CLG attendees in order to facilitate easier communication with interested stakeholders who have previously attended CLG meetings.

In the year ahead, there remains much more opportunity to further broaden the diversity of the panelists and attendees, as well as to achieve other important CLGCC goals and opportunities for 2025, as further detailed in Section 4 below.

Sincerely,

Don Kreis (NH)
Co-Chair, CLG Coordinating Committee
New Hampshire Consumer Advocate

Regine Spector (MA)
Co-Chair, CLG Coordinating Committee
Associate Professor, University of Massachusetts Department of Political Science

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Cole Cochrane (ME)
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Jamie Dickerson (RI)
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Drew Hudson (VT)
Vermont ratepayer

Julie Macuga (VT)
Researcher, Global Energy Monitor

Liz Anderson (MA)*
Former Chair, CLG Coordinating Committee
Chief, Energy and Ratepayer Advocacy Division
Massachusetts Attorney General's Office

Ian McDonald (CT)*
Connecticut Ratepayer

Sonja Birthisel (ME)*
Director of the Wilson Center, University of Maine

August Fromuth (NH)*
Managing Director, Freedom Energy Logistics

Jacob Powsner (VT)*
Vermont Ratepayer

Note: Coordinating Committee members' affiliations are listed for identification purposes only.

**Coordinating Committee members marked with an asterisk served during the report period, but did not seek reelection in 2024, and were not involved in the drafting of this report.*

Section 2
Purpose and Structure of the Consumer Liaison Group

The Consumer Liaison Group (CLG) is an open forum for sharing information between ISO New England (ISO-NE) and those who ultimately use and pay for electricity in New England. Through this forum, the ISO improves its understanding of consumer issues, needs, and concerns relative to the electric power system and its costs. Similarly, consumers and their representatives gain a better understanding of regional electricity issues.

The CLG is governed by a Coordinating Committee (CLGCC), which sets the agenda for four meetings each year, including featured topics and speakers. ISO New England does not participate on the CLGCC, but facilitates the meetings and communications among CLG participants. CLG meetings provide a forum to share information on regional electricity issues among end users, consumer advocates, and other interested stakeholders. The subject matter in CLG meetings is designed to be less technical than the information presented in regional discussions through the Planning Advisory Committee (PAC) and New England Power Pool (NEPOOL) technical committees.[1]

2.1 Objectives

The objectives of the CLG are as follows:

- Serve as a forum for consumers to obtain information on developments that have taken place or will take place at meetings that affect reliability and prices, including ISO-NE committees or working groups, or meetings of NEPOOL
- Solicit views and information from ISO-NE and other sectors, including utilities, generators, and transmission owners
- Provide a means of communication to ensure that consumers and their advocates hear from and have access to ISO-NE's senior management and subject matter experts
- Examine and inquire about quantitative and qualitative information about cost impacts of proposed initiatives in the region
- Receive other information from ISO-NE, including through its board
- Raise issues for advocacy or exploration at a future CLG meeting to the CLGCC

2.2 Participation and Meeting Format

CLG meetings are open to the public and there is no registration fee. Participants generally include consumers and consumer representatives (including state consumer and ratepayer advocates), state business and industry associations, chambers of commerce, individual businesses, trade groups, nonprofit organizations, and other end users. State consumer advocates, including those who are NEPOOL members, are regular, active participants in CLG discussions.

1. The PAC is an open stakeholder forum that provides input and feedback to ISO New England on the regional system planning process. More information on the PAC is available at http://www.iso-ne.com/committees/planning/planning-advisory. NEPOOL is a group formed in 1971 by the region's private and municipal utilities to foster cooperation and coordination among the utilities in the six-state region for ensuring a dependable supply of electricity. Today, NEPOOL members are ISO-NE stakeholders and market participants. More information on NEPOOL is available at https://nepool.com/.

CLG meetings typically attract a diverse group of approximately 80–250 attendees, both in person and via teleconference. CLG meetings generally follow the same format:

- Opening remarks from a keynote speaker—typically a representative of the host community, an industry or business executive, policymaker, or regulator—who provides a unique perspective on a particular topic or issue.
- An update, by a representative from the ISO, on regional energy issues and initiatives that may have an impact on electricity prices, which have been or will be discussed at NEPOOL and ISO-NE stakeholder meetings.
- A panel discussion that provides different perspectives on a particular issue, facilitated by a moderator. Panelists have included representatives from industry, the ISO, regulators, and consumer groups.

Time is reserved during each meeting for audience questions and answers. In 2024, the CLGCC invited representatives of the ISO New England Board of Directors to meet with the CLG, and board members Cheryl LaFleur (chair) and Michael Curran met with the CLG at the December meeting. Additional details on the discussion are available in the meeting summaries below.

In 2022, the ISO began holding the meetings in a hybrid format, with virtual and in-person attendance options. The shift to a hybrid format has allowed for greater access to CLG meetings. In 2024, attendance at the quarterly meetings ranged from approximately 160 to 240.

2.3 Governance

The CLGCC is the governing body that works closely with the ISO to identify issues of importance to the CLG membership, sets the agenda for CLG meetings, and generally guides the work of the CLG.[2]

The CLGCC consists of up to 14 members, with at least two members from each state. Specific membership requirements ensure that consumers (residential, commercial, and industrial) from the six New England states are represented and that a range of consumer interests is considered when determining CLG priorities. The committee has at least one representative of residential ratepayers and one representative of commercial and industrial ratepayers, and each member must be either a ratepayer (or directly represent ratepayers), a member of a consumer organization, or a government consumer or ratepayer advocate.

CLGCC members are selected by vote of the CLG at one of its quarterly meetings in even-numbered calendar years. They serve for a term of two years or until successors are selected. The Coordinating Committee designates a chair or co-chairs. The chair(s) fill any vacancies on the committee with the approval of a majority of the remaining members. CLGCC members are listed in Section 1 of this report. The ISO designates a point of contact within its External Affairs department to support the CLGCC.

2.4 Information and Communications

ISO New England secures meeting space and funds CLG meetings. A dedicated section of the ISO's website has been established for all CLG materials, communications, annual reports, and other valuable information. This practice ensures that the body of information developed through the CLG is transparent, easily accessible, and available to all interested consumers and industry participants.

A glossary is available on the ISO's website to assist CLG members in understanding frequently used electricity market and power system terms and acronyms.

2. The "Purpose and Structure" document (revised Dec. 2, 2024) fully explains CLG governance; see clg_cc_ps_document_final.pdf.

CLG participants are encouraged to follow the ISO's online newsletter, *ISO Newswire*, and subscribe to the mailing list to receive a monthly email highlighting some of the most recent articles.[3] Stakeholders also can follow the ISO on X (formerly Twitter), LinkedIn, and Bluesky.

Since 2012, ISO New England has provided a mobile app, ISO to Go, offering smartphone access to frequently viewed real-time data available on the ISO website and data portal, *ISO Express*. In addition to providing access to timely news coverage via *ISO Newswire,* ISO to Go features the following:

- A map of pricing data, including day-ahead and real-time prices for each of the region's load zones
- Demand curves providing a simple visual of New England's actual consumer demand for electricity and how it tracks with the forecast
- Fuel-mix charts and graphs detailing the energy sources powering the region at any given moment—including net imports[4]
- Customizable push notifications for users who want to be alerted when the power system is operating under abnormal or emergency conditions or when prices cross certain thresholds
- Actual, real-time grid demand coupled with estimated production from behind-the-meter resources[5]
- Estimated real-time carbon dioxide emissions from New England's power plants[6]

ISO New England's *Regional Electricity Outlook* is another valuable source of information on trends and issues affecting the regional power grid.

Each month, the ISO's External Affairs department issues a memo that provides timely updates on regional energy issues, stakeholder meetings, and other information that may be of interest to consumers. These memos are available on the External Affairs and CLG pages of the ISO-NE website, along with presentations and speeches delivered by ISO technical experts and senior management.

3. To subscribe to *ISO Newswire*, visit https://askiso.iso-ne.com/s/Subscribe?listId=156038.

4. "ISO-NE adds net imports to renamed resource mix chart, graph on ISO Express," *ISO Newswire* (August 11, 2022), *https://isonewswire.com/2022/08/11/iso-ne-adds-net-imports-to-renamed-resource-mix-chart-graph-on-iso-express/*.

5. "Let the sunshine in: View regional energy usage—including behind-the-meter solar—through ISO Express," *ISO Newswire* (June 22, 2021), https://isonewswire.com/2021/06/22/let-the-sunshine-in-view-regional-energy-usage-including-behind-the-meter-solar-through-iso-express/.

6. "View real-time estimated carbon dioxide emissions on ISO Express," *ISO Newswire* (April 29, 2022), https://isonewswire.com/2022/04/29/view-real-time-estimated-carbon-dioxide-emissions-on-iso-express/.

Section 3
Consumer Liaison Group Meeting Summaries

In 2024, the Consumer Liaison Group (CLG) held quarterly meetings on issues of importance to electricity consumers in New England. The members of the CLG Coordinating Committee (CLGCC) selected the topics, guest speakers, moderators, and panelists featured at these meetings.

Topics discussed in 2024 included demand response, reliability, offshore wind, and long-term planning, as follows:

- **March 6:** "Incorporating Demand Response into Electricity Markets and Transmission Planning"
  Meeting location: Portland, ME, and via Webex
- **June 4:** "Grid Reliability during the Clean Energy Transition"
  Meeting location: Holyoke, MA, and via Webex
- **Sept. 12:** "Offshore Wind in New England—Opportunities and Challenges"
  Meeting location: New London, CT, and via Webex
- **Dec. 4:** "Discussions with Representatives of the ISO New England Board of Directors and Federal Energy Regulatory Commission Commissioner Judy Chang"
  Meeting location: Boston, MA, and via Webex

The following sections summarize the discussions that took place at CLG meetings in 2024. Meeting summaries are posted to the CLG webpage shortly after each quarterly meeting. They are not intended to capture every discussion and do not necessarily reflect the views of the ISO or the CLGCC. Individual meeting summaries include information that was current at the time of each meeting and may not reflect developments that have since transpired. Section 5 contains further information about the ISO New England updates presented at each meeting.

3.1 March 6: Incorporating Demand Response into Electricity Markets and Transmission Planning

A recording of the meeting is available on the CLG webpage.

Meeting objective: To hear about the ways demand response is being incorporated into the region's electricity markets and regional transmission planning.

3.1.1 *Opening Remarks*

Liz Anderson, division chief of the energy and ratepayer advocacy division at the Office of the Massachusetts Attorney General, and CLGCC chair (Massachusetts), welcomed meeting attendees. Anderson mentioned that the CLGCC is working to amend to the CLG purpose and structure document. Anderson then introduced Sonja Birthisel for the community welcome.

Sonja Birthisel, director of the Wilson Center at the University of Maine, and CLGCC member (Maine), gave the community welcome. Birthisel discussed the history of the Wabanaki Nations in Maine and highlighted a series of past and current transmission projects in the state that faced varying levels of resistance, including opposition from Indigenous groups and communities. She talked about the importance of siting and building clean energy projects while acknowledging community impacts, fostering dialogue, and creating an equitable and just transition. She discussed demand response as an opportunity to reduce load and minimize the need for new transmission infrastructure. She concluded by welcoming attendees to Maine.

Andrew Landry, deputy public advocate for the state of Maine, and CLGCC member (Maine), provided a brief introduction to the demand response topic. Landry referenced ISO-NE's *2050 Transmission Study* and suggested that demand response could help lower peak demand and mitigate the need for additional transmission build-out. Landry then highlighted the recent FERC 2023 Common Metrics Report, which was released in January 2024 and compared demand response capacity in ISO New England and other ISOs/RTOs.

3.1.2 *ISO New England Update*

Eric Johnson, executive director of External Affairs at ISO-NE, provided the ISO's regional update. The decisions to host the CLG meeting in Maine and explore the topic of demand response were based on survey responses from attendees of past CLG meetings. Following a description of roles and responsibilities of ISO-NE, Johnson provided a market administration update, a grid operation update, a system planning update, and an overview of demand response in the region.

Average real-time electricity prices increased 71% in January 2024 compared with December 2023, and were 26% higher than January 2023. Johnson also provided a snapshot of generation resources for January 2024. Forward Capacity Auction (FCA) 18 was held in February and procured capacity for 2027/2028. Auction clearing prices were $3.58 per kilowatt-month across all capacity zones, compared with a range of $2.55 to $2.59 per kilowatt-month in FCA 17. Solar and wind generation, energy storage, and demand response resources accounted for 18% of all capacity clearing FCA 18. FCA clearing prices have been trending down since FCA 9, which was held in 2015. Total wholesale electricity market prices in 2023 were significantly lower than in 2022—$9.6 billion compared to $16.8 billion.

The 2023 *Net Energy and Peak Load by Source* report provides an overview of the region's resource mix in 2023. Compared to 2022, solar generation increased while oil and coal generation decreased. Wind generation was similar across the two years. The *2022 ISO New England Electric Generator Air Emissions Report* showed there was a slight increase in the amount of electricity generated in 2022, but CO_2 emissions were lower than 2021 levels.

The final *2050 Transmission Study* report was released in February. The report evaluated the amount, type, and high-level cost estimates of transmission infrastructure that would be needed to cost-effectively and reliably serve peak loads—including electrified transportation and heating—in a clean-energy future. Johnson announced a public webinar to discuss the findings of the study in the spring. Another public webinar was announced for March 26 to discuss the ISO's compliance plan for FERC Order No. 2023.

To tee up the demand response discussion, Johnson offered background on demand response in New England, including a snapshot of the 4,000 megawatts (MW) of demand resources currently in the ISO-NE markets, which covers load management, distributed generation, and energy efficiency measures. Johnson also discussed how demand response resources can help mitigate over- and under-generation from renewables. Johnson shared that the New England Conference of Public Utilities Commissioners (NECPUC) recently commissioned a working group to study demand response and, in particular, how retail utility measures can help address regional issues.

A question-and-answer period followed the remarks. Johnson responded to questions regarding FCA price variability and existing ISO New England policies around demand response.

3.1.3 *Keynote Address: How California Benefits from Demand Response*

Jill Powers, sector manager of demand response and distributed energy resources at California ISO (CAISO), provided the keynote address. Powers provided an overview of the roles and responsibilities of CAISO and its markets and noted that demand response can be a solution to some of the load shape challenges in CAISO by reducing net peaks and smoothing ramps. Powers proceeded to give an overview of the history of demand response in California and highlighted historical examples of when demand response programs helped

mitigate energy shortages. Existing programs include the Emergency Load Reduction Program (ELRP) and Demand-Side Grid Support Program (DSGS).

A question-and-answer period followed the keynote remarks. Powers addressed questions on infrastructure requirements for participation in demand response programs for consumers, the frequency with which demand response programs are triggered, how consumers are alerted about shortfalls requiring demand response, and reliability expectations.

3.1.4 *Panel Discussion: Incorporating Demand Response into Electricity Markets and Transmission Planning*

Ian Burnes, director of strategic initiatives at Efficiency Maine Trust, **Doug Hurley**, vice president of policy at Icetec Energy Services, and **Bradley Swalwell,** market and analytics manager at Tangent Energy Solutions, participated in a panel discussion moderated by **Andrew Landry**, Maine deputy public advocate and CLGCC member (Maine).

Hurley presented on the challenge of balancing renewables while avoiding curtailment and the importance of flexible load. Discussion continued with an example of how retail rate structures and wholesale prices currently do not incentivize the full potential of batteries. Hurley concluded with a discussion of FERC Order No. 2222, which relates to aggregation of distributed energy resources in wholesale markets.

Burnes highlighted Maine's success incentivizing the adoption of heat pump water heaters through point-of-sale rebates and a simplified process for consumers. According to Burnes, successful demand response programs will need to be affordable with a simple enrollment process. Burnes suggested that demand response programs should be studied and improved upon in the near term before electrification creates higher winter peaks. Burnes' remarks concluded with a discussion of demand response and distributed energy resources as non-wires solutions.

Swalwell provided an overview of the work of Tangent Energy Solutions. The company's goal is to save money for customers, but often also provides additional grid balancing benefits. The software program used by their customers monitors the customers' environment, the wholesale market environment, and the customers' retail contract to identify opportunities to shift load in real time based on price signals.

A question-and-answer period followed, and panelists answered questions related to barriers to the adoption of demand response, physical infrastructure needs, market trends, strategies for consumers to encourage additional changes in demand response policy, options for consumers to receive notifications to encourage conservation, and where to find information about demand response on the ISO-NE website.

3.1.5 *Community Roundtable*

Birthisel introduced the community roundtable and posed the following questions to meeting participants:

- What resources or incentives would you need to participate in demand response?
- What are you still curious about coming out of today's meeting?

3.1.6 *Closing remarks*

Liz Anderson offered closing remarks, thanked everyone who helped to organize the CLG meeting, and announced that the next CLG meeting would be held on June 4 in Holyoke, MA. Attendees were encouraged to fill out the survey after the meeting.

3.2 June 4: Grid Reliability during the Clean Energy Transition

A recording of the meeting is available on the CLG webpage.

Meeting objective: To hear perspectives regarding efforts to ensure reliability throughout the clean energy transition.

3.2.1 *Opening Remarks*

Liz Anderson, division chief of the energy and ratepayer advocacy division at the Office of the Massachusetts Attorney General, and CLGCC chair (Massachusetts), welcomed meeting attendees. Anderson introduced Naia Tenerowicz for the community welcome.

Naia Tenerowicz, environmental justice organizer at Springfield Climate Justice Coalition, gave the community welcome. Tenerowicz discussed the impacts of siting decisions for energy projects on the health and welfare of environmental justice communities, as well as proposals to alleviate those impacts.

3.2.2 *Reliability Roundtable*

Regine Spector, associate professor, Department of Political Science, University of Massachusetts Amherst, and CLGCC member (Massachusetts), moderated a reliability roundtable discussion with **Joshua Macey**, assistant professor, University of Chicago Law School, and **Darrin Korte**, executive director, Cambridge Community Center.

Macey presented on reliability regulations and grid operator governance, highlighting challenges and opportunities related to reliability through the clean energy transition. Macey discussed existing reliability-related initiatives, the various roles of entities with reliability oversight, Regional Transmission Organization (RTO)/ISO governance, and concluded with opportunities for changes to the existing structures.

Korte presented on resilience hubs, with a focus specifically on the work of the Cambridge Community Center. Korte provided a brief history of the center, highlighted the various community-based programs it offers, described the ways in which the center is pursuing initiatives to aid in its role as a resilience hub (including on-site clean energy and energy storage development), and discussed the community needs the center may serve in the event of a multiday electric grid outage.

A question-and-answer period followed, and panelists answered questions related to the NEPOOL stakeholder processes, wholesale electricity market structures, ISO/RTO governance, Pay-for-Performance penalties, the process for creating a community resilience hub, reliability-must-run-agreements, and funding for resilience hubs.

3.2.3 *ISO New England Update*

Henry Yoshimura, director of demand resource strategy at ISO-NE, presented the role of demand resources versus demand response. Yoshimura detailed how demand resources can be passive or active resources, while demand response is something that needs to be dispatched in an automated fashion, and both have opportunities in New England. Participating demand response resources are paid to provide capacity and can be dispatched (like generation resources) based on price. Separately, the ISO has the ability to issue a public appeal to conserve electricity under tight grid conditions.

Anne George, vice president of external affairs and communications, provided the ISO's regional update. Following a description of roles and responsibilities of ISO-NE, George provided a market administration update, a grid operation update, a system planning update, and an overview of demand response in the region. The decision to explore the topic of demand response was based on survey responses from attendees of past CLG events, she said.

Average real-time wholesale electricity prices decreased 10% in April 2024 compared with April 2023 and were 6% higher than March 2024. George also provided a snapshot of generation resources for April 2024. George provided an overview of the *2023 Annual Markets Report* (AMR), which was released in May 2024. The AMR assesses the state of competition in the wholesale electricity markets and presents the most important findings, market outcomes, and market design changes of New England's wholesale electricity markets for 2023. The total wholesale electricity market cost was $9.5 billion in 2023, a 43% decrease compared to 2022 costs. Energy market costs totaled $4.8 billion, down 59% from 2022 driven by a 67% year-over-year decrease in natural gas prices.

The ISO reported results from the Probabilistic Energy Adequacy Tool (PEAT) in 2023. The PEAT framework, which assess risk under extreme weather events, will be essential for development of a Regional Energy Shortfall Threshold (REST). The ISO introduced a scope of work for the REST concept at the December NEPOOL Reliability Committee meeting.

The ISO issued the *2024 Forecast Report of Capacity, Energy, Loads, and Transmission* (CELT Report) on May 1. The report shows that overall electricity use is expected to increase 1.8% annually over a 10-year period. Summer and winter peaks are expected to increase by 1% and 3.1%, respectively. The ISO filed Phase II of the Longer-Term Transmission Planning tariff changes with FERC on May 9. Tariff changes would create a new process to give the states greater control in achieving environmental policies and goals.

A question-and-answer period followed. George and Yoshimura responded to questions regarding operations during the April 8 solar eclipse and any lessons learned, public appeals for energy conversation, virtual power plants as demand response resources, the role of demand response under the prompt/seasonal capacity market framework, Canadian hydroelectric generation capacity, retail rate design, FERC filings related to the forward capacity auction results, Pay-for-Performance, managed charging incentives for electric vehicles, and ISO-NE compliance with FERC's order on distributed energy resource aggregations (Order No. 2222).

3.2.4 *Closing remarks*

Liz Anderson offered closing remarks and thanked everyone who helped to organize the CLG meeting. Anderson announced that the next CLG meeting would be held on September 12 in New London, CT. Attendees were encouraged to fill out the survey after the meeting.

3.3 September 12: Offshore Wind in New England—Opportunities and Challenges

A recording of the meeting can be found on the CLG webpage.

Meeting Objective: To discuss opportunities and challenges of offshore wind development in New England, and related transmission and energy storage development.

3.3.1 *Opening Remarks*

Liz Anderson, division chief of the energy and ratepayer advocacy division at the Office of the Massachusetts Attorney General, and CLGCC chair, welcomed meeting attendees. Anderson introduced Ulysses Hammond for the community welcome.

Ulysses Hammond, executive director of the Connecticut Port Authority, gave the community welcome. Hammond discussed the role of the state of Connecticut and the Port Authority in supporting infrastructure for offshore wind development.

3.3.2 *Panel Discussion: Regional Planning and Transmission Build-Out*

Claire Coleman, Connecticut consumer counsel, moderated a panel with **Al McBride**, vice president of system planning at ISO New England, **Abraham Silverman**, assistant research scholar at Johns Hopkins University Ralph O'Connor Sustainable Energy Institute, and Hammond.

McBride presented on transmission planning for the future grid. The presentation included information regarding longer-term transmission planning, new resource interconnection, and capacity auction reforms.

Silverman presented on coordinated advanced planning for offshore wind transmission infrastructure. Silverman highlighted studies discussing affordability and reliability benefits associated with pre-built transmission infrastructure. The presentation continued with a discussion of the Northeast States Collaborative on Interregional Transmission.

A question-and-answer period followed and panelists answered questions related to the role of the federal government in transmission planning, return on previous investments in transmission infrastructure, labor and economic impacts of the New London State Pier, repurposing transmission from retired generation for new interconnections, consideration of US Department of Energy (DOE) National Interest Electric Transmission Corridor (NIETC) designations, and grid enhancing technologies (GETs).

3.3.3 *Panel Discussion: Storage, Potential Cost Savings, and Winter Reliability*

Ian McDonald, CLGCC member (Connecticut), moderated a panel discussion with **Josh Berman**, senior attorney at the Sierra Club, **Liz Mettetal**, director of integrated system planning at E3, and **Susan Muller**, senior energy analyst at the Union of Concerned Scientists.

Berman presented on the benefits of offshore wind in the region based on an analysis performed by Synapse Energy Economics. Berman highlighted retail price savings, greenhouse gas emissions reductions, and public health benefits associated with adding significant offshore wind capacity to New England that were identified in the study.

Mettetal presented on the resource adequacy of storage and offshore wind in the region. Mettetal highlighted that the combined value, or diversity benefits, of offshore wind and storage is higher than the value of the resources individually.

Muller presented on the value of offshore wind for winter reliability. Muller highlighted a recent study by the Union of Concerned Scientists that modeled how the addition of offshore wind may reduce the risk of energy shortfalls and blackouts.

A moderated question-and-answer period followed, and panelists responded to questions related to details of the report performed by Synapse Energy Economics; impacts of offshore wind on wholesale electricity markets; benefits of various durations of energy storage; pairing energy storage with renewable generation; and natural gas and winter reliability.

3.3.4 *ISO New England Update*

Anne George, vice president and chief external affairs and communications officer at ISO New England, provided the ISO's regional update. George introduced the ISO's new hire, Ruben Flores-Marzan, as a policy advisor for environmental and community affairs on the ISO's external affairs team. George also highlighted the ISO to Go app as a way to stay up to date on the electric system, noted that the annual open meeting of the ISO board of directors would take place on November 6 in Boston, MA, and highlighted the recent U.S. DOE grant award of $389 million to the New England states. George provided a market administration update, a grid operation update, and a system planning update.

Average real-time electricity prices increased 9% in July 2024 compared with July 2023 and were 38% higher than June 2024. George noted that total electricity use increased by 2% in July 2024 compared with July 2023 and was 22% higher than June 2024.

The ISO issued a Power Caution on June 18 when generation outages and reductions led to a capacity deficiency. The ISO implemented low-level actions of Operating Procedure No. 4 (OP 4), which do not trigger public appeals for conservation. The event triggered the region's Pay-for-Performance rules, penalizing resources that failed to meet their capacity supply obligations in real time and rewarding resources that exceeded their obligations. During hot summer weather, behind-the-meter (BTM) solar tempered midday demand for grid electricity. George highlighted June 20, when BTM solar contributed approximately 5,100 MW of power at noon, and 160 MW during the peak hour. A Power Caution was issued on August 1 when higher temperatures and higher demand paired with unplanned outages and reductions led to a capacity deficiency. Public appeals for conservation were not necessary given the short duration of the event and the ability of reserve resources to make up the deficiency. The event triggered the region's PFP rules.

ISO-NE proposed its 2025 operating and capital budgets, with budget increases driven by the ISO's commitment to supporting the region as it transitions to clean energy driven by state policies. George explained that ISO-NE is the only ISO/RTO in the country to submit a budget to FERC for review and approval. Following stakeholder engagement, the NEPOOL participants committee and ISO board will vote on the budgets in October before the ISO files them with FERC.

The ISO published the *Economic Planning for the Clean Energy Transition* (EPCET) draft report in August for public comment. EPCET explores the operational, engineering, and economic challenges the region must address to support the New England states' commitment to reducing carbon emissions over the next several decades. George highlighted the key findings from the report.

A question-and-answer period followed. George responded to questions regarding key findings from the EPCET study and the impact of heating electrification on peak loads.

3.3.5 *Closing remarks*

Liz Anderson offered closing remarks and thanked Matthew Rolnick from FERC's Office of Public Participation for attending the meeting. Anderson explained that the CLGCC had updated the CLG purpose and structure document and published a draft on the CLG webpage for comments.

Anderson announced that the next CLG meeting would be held on December 4 in Boston, MA, and that both in-person and virtual attendees of that meeting would have the opportunity to vote for the members of the CLGCC for the next two-year term. Anderson urged attendees to send nominations via email to the Office of the Massachusetts Attorney General. Nominations were accepted until November 20. Attendees were encouraged to fill out the survey after the meeting.

3.4 December 6: A Discussion with Representatives of the ISO New England Board of Directors and Federal Energy Regulatory Commission Commissioner Judy Chang

A recording of the meeting can be found on the CLG webpage.

Meeting objective: To hear from Federal Energy Regulatory Commission (FERC) Commissioner Judy Chang, host a discussion with representatives from the ISO New England Board of Directors, and elect CLGCC members for the next two-year term.

3.4.1 *Opening Remarks*

Liz Anderson, division chief of the energy and ratepayer advocacy division at the Office of the Massachusetts Attorney General, and CLGCC chair, welcomed meeting attendees. Anderson explained the election process and then introduced Kannan Thiruvengadam for the community welcome.

Anderson provided an overview of the process for the election of the CLGCC members for the 2024–2026 term. Both in-person and virtual attendees were able to vote, through both paper and online ballots. Anderson explained the process, including reference to the CLGCC purpose and structure document. Instructions and nominee bios were shared via email prior to the meeting. Anderson recognized members of the CLGCC who are stepping down and not running for reelection. Anderson confirmed the list of nominees prior to opening the vote. The outcome of the election was announced at the end of the meeting (and is covered at the end of this summary).

Kannan Thiruvengadam, executive director of Eastie Farm in East Boston, MA, gave the community welcome. Thiruvengadam discussed best practices for how to foster climate-focused sustainable agriculture and highlighted the importance of bringing in the community to build stronger relationships with local government.

3.4.2 *ISO New England Update*

Anne George, vice president and chief external affairs and communications officer at ISO-NE, provided the ISO's regional update. George provided a brief history of the Consumer Liaison Group, beginning with its inception in 2009, around the time the ISO and stakeholders were developing a response to FERC Order No. 719, which pertained to ISO responsiveness to stakeholders. For the past fifteen years, the CLG has been meeting to enhance interactions with consumers and consumer representatives. In the early years of the CLG, the primary focus was on costs, but in recent years the conversation has shifted to include a focus on environmental issues.

October Wholesale Prices
The average real-time electricity price in October 2024 was $34.84, an increase of 43% compared to October 2023 and 9% compared to September 2024. Peak demand was down 11% year-over-year. George highlighted the October resource mix, where natural gas and nuclear made up about 82% of New England's electricity generation, and renewables represented 13%.

2025 Annual Workplan
George discussed the 2025 anchor projects as part of the 2025 Annual Workplan.

The markets anchor project is Capacity Auction Reforms (CAR). To better ensure power system reliability and cost-efficiency as New England's resource mix evolves, CAR would transition the capacity market from a forward/annual market to a prompt/seasonal market with accreditation reforms. CAR is anticipated to be implemented ahead of the capacity commitment period scheduled to start on June 1, 2028.

The operations anchor project is the Regional Energy Shortfall Threshold. In 2022 and 2023, the ISO worked with the Electric Power Research Institute (EPRI) to conduct a probabilistic energy-security study for New England under extreme weather events and developed the Probabilistic Energy Adequacy Tool (PEAT) for the ISO to assess operational energy-security risks associated with extreme weather events. Using PEAT results, the ISO is working with regional stakeholders to establish a Regional Energy Shortfall Threshold (REST). Once established, the ISO and stakeholders can evaluate whether exceeding REST requires solutions to mitigate risks.

The system planning anchor project is the competitive solicitation for Longer-term Transmission Planning (LTTP) solutions. In 2025, the ISO will issue a request for proposals (RFP) in response to a request from the states, through NESCOE, for a competitively selected transmission solution to address New England's future

clean energy needs in connection with the *2050 Transmission Study*. Additionally, the ISO will continue compliance with and implementation of FERC Order No. 1920, and is assessing the assimilation of FERC Order No. 1920-A with New England's innovative LTTP framework.

Winter Outlook and Preparations
George highlighted how the ISO calculates available capacity to compare to anticipated demand under both normal and abnormal weather conditions. The capacity analyses and energy assessments show the region is well-positioned heading into winter 2024/2025. George discussed the 21-Day Energy Assessment Forecast and Report, which raises awareness about energy availability so resources can take action. The information is posted to the ISO-NE website and mobile app.

Emissions Report
The *2023 ISO New England Electric Generator Air Emissions Report* found that there were significant reductions in emissions from 2001 through 2023. Emissions were also reduced in 2023 as compared to 2022, primarily driven by lower demand on the system and less use of oil- and coal-fired resources.

A question-and-answer period followed. George responded to questions on penalties for generators with supply obligations that fail to perform and the role of demand response in ISO markets. More information on demand response is available on the ISO-NE website.

3.4.3 *Discussion with Representatives of the ISO New England Board of Directors*

ISO New England Board of Directors Chair **Cheryl LaFleur** and member **Michael Curran** held an open dialogue with CLG attendees. LaFleur began with opening remarks on the purpose and structure of the board of directors, and work at the ISO-NE to run markets efficiently while maintaining reliability to keep the lights on. LaFleur outlined several of the key projects currently undertaken by the ISO, including changes to markets and development of transmission to account for new resources coming onto the grid and highlighting the value of the Long-Term Transmission Planning process. LaFleur also discussed upscaling IT infrastructure to account for these changes. LaFluer touched on how this is a challenging time in the energy space due to a pending change in federal administration, including changes to leadership at FERC, the Environmental Protection Agency, and the Department of Energy. She observed, however, that much of the energy policy is being driven by the states. Curran provided opening remarks and discussed his background and differences between the Midcontinent Independent System Operator and ISO-NE regions.

A question-and-answer period followed the opening remarks. LaFleur and Curran responded to questions regarding the CLG purpose and structure document, carbon pricing and damages associated with fossil fuels, transmission planning, incorporating public feedback, the generator interconnection queue, harmonizing build-out of state and regional transmission, wholesale electricity market costs, the role of gas in the ISO market, and the role of demand response.

3.4.4 *Keynote Address*

FERC Commissioner **Judy Chang** provided the keynote address. Chang touched on the importance of the public stakeholder process in conducting business and project development. Chang detailed the responsibilities of FERC, including regulating interstate transmission and wholesale electricity, interstate sale and transport of natural gas, and interstate oil pipeline rates. Chang reaffirmed that FERC does not make any decisions about siting or what kinds of generation should be invested in, and that those decisions are left to the states. Chang emphasized the work of the FERC Office of Public Participation, and the office's efforts to communicate with consumer and public groups. Chang discussed the importance of FERC Order Nos. 1920 and 1920-A to encourage the country to plan for the longer term in order to understand what growth is happening, what resources are needed, and identify actions to maintain reliability and lower costs. Chang remarked that this was an important step in breaking down barriers in the planning space as well as cost allocation across states and regions. Regarding artificial intelligences and data centers, Chang

discussed how FERC is seeing an increase in electricity consumption as a result. Chang expressed support for programs to increase demand-side flexibility.

A question-and-answer period followed. Chang responded to questions regarding navigation of the stakeholder process, evaluating prudence in rates and how projects are planned, consideration of impact on climate in FERC decision-making, fuel neutrality, and market structure and design.

3.4.5 *Closing Remarks*

Anderson provided the results of the CLGCC election results, thanked outgoing CLGCC members, offered closing remarks, and thanked everyone who helped to organize the CLG meeting.

3.4.6 *Election Results*

The following thirteen individuals were elected to serve a two-year term on the CLGCC. Anderson noted that there were only thirteen nominees for fourteen positions, and only one representing Rhode Island. The CLGCC is structured to have two representatives for each state, so Anderson announced that the newly elected coordinating committee will elect a second Rhode Island member by majority vote.

1. Joshua Macey (CT)
2. Jamie Talbert-Slagle (CT)
3. Cole Cochrane (ME)
4. Andrew Landry (ME)
5. Robert Laraway (ME)
6. Benny Meshoulam (MA)
7. Nathan Phillips (MA)
8. Regine Spector (MA)
9. Rev. Kendra Ford (NH)
10. Don Kreis (NH)
11. Jamie Dickerson (RI)
12. Drew Hudson (VT)
13. Julie Macuga (VT)

Section 4
Consumer Liaison Group Future Initiatives

The Consumer Liaison Group Coordinating Committee (CLGCC), working with ISO New England and CLG members, will continue to conduct outreach in the states to inform consumers and consumer advocates of the existence, role, and information provided by the CLG.

In 2025, working with ISO New England, the CLGCC will devote the CLG's quarterly public meetings and other efforts throughout the year to make strides in four issue areas below. These issues areas represent the views of the CLGCC and do not necessarily represent the views of ISO New England or members of the CLG. The CLGCC looks forward to engaging with ISO staff, including the new policy advisor for environmental and community affairs, on these topics:

1) **Increase General Public Understanding of Electric Grid's Governance**: The CLGCC will focus on helping the general public and other stakeholders, such as citizen groups, municipalities, and others, better understand the region's energy system decision-making processes, especially in light of high energy costs. We envision addressing initiatives using plain language discussions and summaries of relevant events and topics. We will address how we can support efforts to promote affordability and cost of electricity in light of federal change and uncertainties. In particular, we have heard ratepayers are interested in topics such as efficiency, demand response, renewables, storage, and others, and will prioritize learning how ISO-NE planning processes, including related to transmission and market redesign, are taking these concerns and priorities into consideration.

2) **Expand Reach via Communities and Civic Spaces for CLG Meetings**: The CLGCC will continue to build relationships and extend invitations to communities where CLG meetings will be held in 2025. Our March and June meetings, in Rhode Island and Massachusetts, respectively, will take place in community spaces, and we intend to continue the recent tradition of inviting local community members to speak about how the electric grid impacts local citizens. The CLGCC will continue to explore increasing accessibility for the CLG meetings, including via other outreach avenues as deliberated in subcommittee and described below.

3) **Continue to Foster ISO-NE Engagement**: The CLGCC continues to seek ways to forge more frequent and substantial direct communication between the CLG and the ISO-NE board, and between the CLG and the region's statutorily designated ratepayer advocates. We will continue to propose concrete ideas about how the CLG can become a more effective channel for communicating the concerns and interests of ratepayers to the board, including via presentations to NEPOOL members.

4) **Expand Digital and Social Media Outreach for CLG**: The CLGCC will continue to work via a subcommittee to explore ways to engage in digital and social media outreach to more effectively and consistently communicate about CLG meetings to larger groups of end users. Over the past two years, the CLGCC has heard a variety of concerns related to electric cost, climate, and grid governance. We will continue to enhance the tools to better learn from ratepayers especially impacted by cost and public health burdens of our grid. We will continue meetings with ISO-NE staff regarding how to realize digital and social media outreach goals. The CLGCC will explore opportunities to reach people who are not able to attend the quarterly in person meetings, and communicate in a wider range of formats to increase who we can reach.

In 2025, CLG meetings will continue to be “hybrid,” allowing for both in-person and remote participation. Locations for the 2025 meetings will include Providence, Rhode Island (March); Springfield, Massachusetts (June); New Hampshire (September) and Boston, Massachusetts (December).

Section 5
ISO New England Activities and Initiatives

ISO New England (ISO-NE) provides educational and informational materials to the CLG throughout the year. This section highlights the major topics presented by ISO-NE at CLG meetings in 2024. In addition to these presentations, the ISO's External Affairs department issues a memo each month to provide timely updates on regional energy issues, stakeholder meetings, and other information that may be of interest to consumers.[7]

ISO-NE undertakes a variety of short- and long-term projects to enhance the region's competitive wholesale electricity markets and ensure reliable operation of the power grid. Certain long-term projects of significance are called key projects, and related information is grouped together on the Key Projects webpage for stakeholder convenience.

More information about the ISO's role in the energy industry can be found on the ISO-NE website.

5.1 Power System Operations

Overseeing the day-to-day operation of New England's power grid is one of three critical roles ISO-NE performs in the region. The ISO is like the air traffic controller for the region's power grid. From its state-of-the-art master control center in Holyoke, MA, certified system operators monitor, dispatch, and direct the flow of electricity across the power grid 24 hours a day, 365 days a year.

Changing weather extremes and variability are key factors affecting resource availability, demand patterns, and related reliability concerns. Adding to the complexities of the future, ISO New England considers things like how different resource types and policy changes may impact future energy security.

The ISO has identified energy adequacy as one of the "four pillars" essential to developing and maintaining a reliable, clean, decarbonized grid. The future grid faces energy adequacy challenges on two fronts: electrification of the transportation and heating sectors will significantly increase demand in the coming decades, all while extreme weather will increasingly affect the productivity of energy resources and could threaten the stability of the grid as a whole. Ensuring that New England has adequate energy will require both responding to increased demand and preparing for low-probability, high-impact weather events.

In 2024, the ISO provided the CLG with updates regarding its efforts to reliably operate New England's power grid, including addressing operational risks associated with extreme weather events and the region's energy adequacy issues. Key points from these efforts are discussed below.

5.1.1 *Operational Impact of Extreme Weather Events: Probabilistic Energy Adequacy Tool and Regional Energy Shortfall Threshold*

In 2022 and 2023, the ISO collaborated with the Electric Power Research Institute (EPRI), an independent, nonprofit research and development organization, to conduct a probabilistic energy-security study for New England under extreme weather events and developed the Probabilistic Energy Adequacy Tool (PEAT) to assess operational energy-security risks associated with extreme weather events. This initiative has been a collaborative opportunity for industry leaders and regional stakeholders to learn about how extreme weather events in the future may affect the evolving power system and to prompt thinking about how best to prepare.

7. The monthly memos are posted to the ISO's CLG webpage at http://www.iso-ne.com/committees/industry-collaborations/consumer-liaison.

Weather—particularly changing extremes and variability—is a key factor affecting energy availability, demand patterns, and related reliability concerns.

Using PEAT results, the ISO began working with regional stakeholders in 2024 to establish a Regional Energy Shortfall Threshold (REST) that would identify an acceptable level of reliability risk. Once REST is established, the ISO can evaluate if staying above the threshold requires development of specific regional solutions, which could range from market designs to infrastructure investments to dynamic retail pricing and responsiveness by end-use consumers. Starting in spring and into the fall, the ISO facilitated discussions on the REST scope of work, addressing the following project components:

- Periodicity: Determination of the periodicity (e.g., annual, seasonal, etc.) and, as applicable, the time horizon over which the region's energy shortfall risk is assessed. Discussion included the benefits of a seasonal assessment of energy shortfall risk against the REST criteria as well as longer-term assessments that can inform risk trends over time.
- Extreme Event Selection Process: Specification of the event selection process to be used in determining the set of 21-day events to be considered when using the PEAT framework to assess the region's energy shortfall risk. PEAT-based selection of a set of extreme events would efficiently facilitate calculation of REST metrics based on tail risk events.
- REST Metrics and Thresholds: Identification of the key risk metrics and establishment of the criteria that define the region's level of risk tolerance with respect to energy shortfall in extreme weather.

Through the end of the year and into early 2025, stakeholders and ISO discussed preliminary REST designs. With consideration for stakeholder feedback collected over the last year, the ISO is expected to present the REST proposal and initial thresholds in summer 2025.

5.1.2 *2023 Net Energy for Load*

In February 2024, the ISO published a breakdown of the total amount of electricity produced by generators in New England and imported from neighboring regions to satisfy all residential, commercial, and industrial customer demand from the power grid in 2023.[8] In 2023, most of the region's energy needs were met by natural gas, nuclear, imported electricity, renewables, and other low- or non-carbon-emitting resources. Total production for the year amounted to 114,727 gigawatt-hours (GWh), down 3.5% from 2022.

Output from solar installations increased by 6% from 2022, rising to 3,851 GWh, or 3% of net energy for load. Wind power was relatively steady from year to year at 3% of net energy for load. Oil-fired resources produced less electricity in 2023 than 2022, accounting for 322 GWh, or 0.32% of net energy for load, compared to the previous year's 1,844 GWh. Production from coal-fired resources decreased to 0.16% of net energy for 2023, decreasing 320 GWh to 182 GWh.

5.1.3 *2023 ISO New England Electric Generator Air Emissions Report*

The annual Electric Generator Air Emissions Report provides a comprehensive analysis of New England electric generator air emissions, regional average and marginal emissions rates, and a review of relevant system conditions.[9] The report, published in 2024, presents data from 2023.

The 2023 analysis, which draws information from US Environmental Protection Agency databases and other sources, found that New England continues to see levels of power system emissions that are well below those observed in the 2000s and early 2010s. Annual carbon dioxide (CO_2) emissions fell 18% from 2014 to 2023, nitrogen oxide (NO_x) emissions fell by 48%, and sulfur dioxide (SO_2) emissions fell by 85%. Compared

8. *2023 Net Energy and Peak Load by Source* (November 15, 2024); https://www.iso-ne.com/isoexpress/web/reports/load-and-demand/-/tree/net-ener-peak-load. Data is subject to adjustment.

9. *2023 ISO New England Electric Generator Air Emissions Report* (October 16, 2024); https://www.iso-ne.com/static-assets/documents/100016/2023-air-emission-report-20241016.pdf.

to 2022, New England saw an overall reduction in average and marginal emissions of CO_2, SO_2, and NO_x from the electric sector in 2023.

The 2023 *New England Electric Generator Air Emissions* report found that, from 2001 through 2023, CO_2 emissions fell by 40%, NO_x emissions fell by 82%, and SO_2 emissions fell by 99%. Emission reductions for all three pollutants were attributed to lower load, peak demand, and less coal- and oil-fired generation compared to 2022.

In addition to the annual analysis, the ISO publishes data on estimated CO_2 emissions from New England power plants in a monthly recap of the wholesale electricity markets. Real-time estimates are available on ISO Express and ISO to Go.[10]

On March 13, 2025, the ISO hosted a public webinar on its annual Electric Generator Air Emissions Report.[11] The webinar provided an overview of the study methodology and 2023 results. It was designed to give the public and opportunity to ask questions and learn more about the ISO's emissions reporting.

5.1.4 *2024 Hot Weather Operations*

As the region's independent system operator, ISO New England is responsible for balancing supply and demand on the regional power system at all times. While the ISO has developed a significant number of tools and procedures to better assess and respond to energy security issues, continued hot, humid weather often drives increased consumer demand for electricity.

During the summer months, New England's power grid operated reliably. Consumer demand for electricity peaked at 24,816 MW on July 16, 2024, between 5 and 6 p.m., when the regional average temperature was 91° Fahrenheit (F).[12] The summer was relatively mild, with an average regional temperature 1.5°F above normal. New Englanders consumed about 5% more electricity during summer 2024 than the previous summer—33,279 gigawatt-hours (GWh) in June, July, and August of 2024 versus 31,787 GWh during the same period in 2023.

Higher-than-forecast temperatures and unexpected resource outages and reductions led to capacity scarcity conditions on June 18 and Aug. 1.[13] Both incidents temporarily left the region short of required operating reserves but did not result in power outages.

On both days, ISO New England system operators implemented a Power Caution and followed well-established procedures that include activating a portion of the region's operating reserves and declaring and Emergency Energy Alert (EEA) Level 1, the lowest of three alert levels.

5.1.5 *Winter 2024/2025 Outlook*

While the ISO has developed a significant number of tools and procedures to better assess and respond to energy security issues, a severe, prolonged cold snap could necessitate emergency actions if power-producing resources lack access to the fuel they need to operate. To enhance situational awareness entering

10. "Monthly Prices," archive (January 26, 2024), https://isonewswire.com/tag/monthly-prices/.

11. *ISO New England Annual Electric Generator Air Emissions Report*, public webinar (March 13, 2025); https://www.iso-ne.com/event-details?eventId=157375.

12. "Summer 2024 recap: Grid reliability maintained through heat waves," news release (October 11, 2024), https://isonewswire.com/2024/10/11/summer-2024-recap-grid-reliability-maintained-through-heat-waves/.

13. "What Is a Capacity Deficiency?" webpage; https://www.iso-ne.com/about/what-we-do/in-depth/capacity-deficiency.

winter, the ISO begins planning months in advance. Information on the seasonal outlook is posted twice each year, for both summer and winter.[14]

The ISO works closely with generators, the New England states, and regional utilities to plan and prepare for operational conditions. The ISO coordinates with generators to understand fuel procurement plans, while offering pre-winter training to discuss market and operational changes.[15] ISO-NE also holds a pre-winter briefing with the region's utilities and government officials to discuss expectations for the season and test emergency communications procedures.[16]

Since weather is the largest driver of energy use and resource availability in New England, ISO-NE closely monitors seasonal weather forecasts. The National Oceanic and Atmospheric Administration's 2024/2025 winter forecast projected above-average temperatures in New England, though a warmer-than-average season does not eliminate the threat of prolonged stretches of cold weather.

The ISO's 2024/2025 winter outlook anticipated that New England would have adequate electricity supplies under mild and moderate weather conditions. Prolonged periods of very cold weather continue to pose reliability risks to the region, but ISO-NE will use procedures and plans, including a rolling three-week energy supply forecast, with the goal of mitigating these conditions should they materialize.[17, 18]

The ISO's 2024/2025 winter outlook anticipated:

- Peak demand of 20,308 megawatts (MW) under typical weather
- Peak demand of 21,089 MW under below-average temperatures
- 30,030 MW of total resources would be available to meet demand

Despite winter of 2024/2025 being the first winter in a decade with colder-than-normal temperatures, New England's power system operated reliably. There were two notable cold snaps, short in duration, from December 22 to 23 and January 20 to 22. Consumer demand peaked for the season at 19,607 MW on January 22, slightly below the ISO's projections.

New England's all-time winter peak is 22,818 MW, set on January 15, 2004.

5.2 Wholesale Electricity Markets

ISO-NE designs, administers, and oversees the region's competitive wholesale electricity markets. The ISO continuously works to modernize and enhance the wholesale markets, ensuring that they remain competitive and continue to provide efficient outcomes to support a reliable grid.

In 2024, ISO New England provided updates to the CLG regarding the markets it designs and operates, with key points summarized below.

14. "ISO-NE highlights winter readiness," news release (December 3, 2024), https://isonewswire.com/2024/12/03/iso-ne-highlights-winter-readiness/.

15. "2024-2025 Winter Generator Readiness Seminar," presentation (November 12, 2024); https://www.iso-ne.com/static-assets/documents/100017/2024_2025_winter_generator_readiness_seminar.pdf.

16. "ISO New England Overview of Emergency Procedures and Communications Process," presentation (November 25, 2024), https://www.iso-ne.com/static-assets/documents/100017/webex-2024-pre-winter-op-4-briefing.pdf.

17. "An Innovative Energy Supply Forecast," webpage (February 15, 2024), https://www.iso-ne.com/about/what-we-do/in-depth/21-day-forecast.

18. "Seasonal System Outlook," webpage (February 15, 2024), https://www.iso-ne.com/markets-operations/system-forecast-status/seasonal-system-outlook.

5.2.1 *Capacity Auction Reforms*

To better ensure power system reliability and cost-efficiency as New England's resource mix evolves, ISO New England is proposing Capacity Auction Reforms (CAR) that would transition the capacity market from a forward/annual market to a prompt/seasonal market with accreditation reforms.[19]

For 18 years, the ISO administered a Forward Capacity Market, using annual auctions to secure commitments from energy resources three years in advance. This model reflected the market and system conditions of the time, including the concentration of peak loads and reliability risks in summer months and the prominence of natural-gas-fired resources with more predictable development timelines than some other resource types.

"Prompt" means the capacity auction would take place much closer to the delivery period. As a result, the auctions would be based on more accurate information about the expected demand for electricity and resources' ability to meet that demand during the most stressed system conditions. A prompt auction would better accommodate the development timelines of diverse resources and reduce risk of resources securing capacity supply obligations but being unable to deliver.

The "seasonal" element involves procuring capacity in a way that better addresses the distinct reliability challenges of winter and summer, as well as variations in resource performance from season to season. Winter risks are expected to increase as weather becomes more extreme and unpredictable, and as public policies guide the region toward wider adoption of weather-dependent clean energy resources and the electrification of heating and transportation.

It is critical to a reliable and efficient clean energy transition that capacity accreditation methodologies are updated to reflect evolving resource capabilities and how those capabilities contribute to resource adequacy. The former Resource Capacity Accreditation in the FCM project began to identify methodologies that would more accurately reflect resource contributions to resource adequacy.[20] The capacity accreditation work continues through CAR in the context of the new market constructs.

The ISO kicked off regional discussion of the project scope and objectives in summer of 2024, with discussion continuing throughout the summer and fall. Beginning in December and continuing into the first quarter of 2025, discussion focused on the key design elements that must be considered in a prompt auction format and proposed changes to capacity accreditation.

5.2.2 *Annual Reports from ISO New England's Independent Market Monitors*

The ISO regularly reports on the performance of the region's wholesale electricity markets.[21] In addition to detailed quarterly, monthly, and weekly reports, the ISO's internal and external market monitors (IMM and EMM, respectively) prepare comprehensive annual reports on the development, operation, and performance of the markets.[22] Each year, the IMM meets with state officials, including public utilities commissioners,

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19. The most up-to-date information about the CAR project can be found at the "Capacity Auction Reforms (CAR) Key Project" webpage (2025), https://www.iso-ne.com/committees/key-projects/capacity-auction-reforms-key-project.

20. Resource Capacity Accreditation in the FCM, webpage (January 2025), https://www.iso-ne.com/committees/markets/markets-committee/?closed_projects_value=Resource%20Capacity%20Accreditation%20in%20the%20FCM%20-%20WMPP%20ID:%20157.

21. The ISO's various market reports are posted at its "Market Performance Reports" webpage (2024), http://www.iso-ne.com/markets-operations/market-performance/performance-reports.

22. The internal market monitor's annual reports are posted at http://www.iso-ne.com/markets-operations/market-monitoring-mitigation/internal-monitor. The external market monitor's annual reports are posted at http://www.iso-ne.com/markets-operations/market-monitoring-mitigation/external-monitor.

consumer advocates, and attorneys general, to discuss its annual markets report and field questions about the performance of the markets.

In May 2024, the IMM published the *2023 Annual Markets Report*.[23] The report assessed the state of competition in the wholesale electricity markets administered by the ISO during the prior operating year, January 1 to December 31, 2023. The IMM determined that New England's capacity, energy, and ancillary services markets performed well and exhibited competitive outcomes. Among other observations, the report noted that the total wholesale cost of electricity in 2023 was $9.5 billion. This was $7.2 billion (43%) lower than the 2022 total. The decrease in energy prices was primarily driven by significantly lower energy costs (natural gas prices fell by 67% year over year). Energy costs fell to $4.8 billion, marking a 59% decline from the $11.7 billion recorded in 2022—a year characterized by high natural gas prices. Capacity costs totaled $1.3 billion, down 30% ($560 million) from 2022, driven by clearing prices in FCA 13 and FCA 14.

5.2.3 *Forward Capacity Auction 18*

On February 5, 2024, ISO-NE conducted its 18th annual Forward Capacity Auction. After four rounds of competitive bidding, FCA 18 concluded with sufficient resources to meet peak demand during the 2027/2028 capacity commitment period (CCP). The auction secured capacity supply obligations (CSOs) from 31,556 MW of resources to be available during the 2027/2028 CCP. The auction closed with clearing prices of $3.58 per kilowatt-month (kW-month) in all zones and import interfaces. In comparison, prices in the 2023 auction ranged from $2.55/kW-month to $2.59/kW-month across different pricing zones.[24]

Continuing the trend seen in recent auctions, new generating resources securing CSOs were non-carbon-emitting resources, including offshore wind, solar, and hydroelectric resources. New and existing solar and wind generation, energy storage, and demand resources secured obligations totaling about 5,540 MW, accounting for about 18% of all capacity clearing the auction. New solar generation and energy storage resources, or facilities combining the two, secured obligations totaling about 795 MW. This accounted for the majority of new generating resources, which also included about 185 MW of new wind resources.

More than 8% of the total obligations secured in FCA 18 went to new and existing demand-reducing resources. This category includes an assortment of business models, including traditional energy efficiency and demand response programs, as well as aggregations of residential homes that agree to reduce grid demand during peak summer hours through a combination of solar panels and batteries.

5.2.4 *FERC Order No. 2222*

In 2020, FERC issued Order No. 2222: *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*.[25] The rule required ISOs and RTOs to modify their tariffs to reduce barriers to the wholesale market participation of distributed energy resources (DERs) by allowing DERs to provide wholesale services through distributed energy resource

23. *2023 Annual Markets Report* (May 24, 2024), https://www.iso-ne.com/static-assets/documents/100011/2023-annual-markets-report.pdf.

24. "New England's Forward Capacity Auction Closes with Adequate Power System Resources for 2027/2028," news release (February 9, 2024), https://www.iso-ne.com/static-assets/documents/100008/20240209_pr_fca18_initial_results.pdf.

25. FERC, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators, Docket No. RM18-9-000; Order No. 2222 (September 17, 2020), https://www.ferc.gov/sites/default/files/2020-09/E-1_0.pdf.

aggregation. ISO-NE, joined by NEPOOL and the Participating Transmission Owners, made its primary compliance filing in February 2022, with subsequent compliance filings in 2023 and 2024.[26]

DERs participating in the wholesale markets exclusively through an aggregation arrangement were already exempt from the ISO's interconnection process under FERC Order No. 2222. The revisions to the ISO tariff extend that treatment to individual DERs so that, in New England, all DERs will follow the applicable state interconnection process. The revisions will reduce uncertainty regarding the interconnection process of DERs. The ISO will continue to review reliability analyses, as required under its tariff. Other changes from the order include measures that will improve the coordination of interconnection studies.

The ISO dedicated significant resources to develop its compliance proposals and subsequent revisions through a comprehensive stakeholder process and substantial coordination among many affected entities across the six New England states, including prospective DER aggregators, electric distribution companies and meter readers, electric retail regulatory authorities, and others. The primary compliance filing changes went into effect in August 2022.

New England is home to a diverse and growing fleet of solar photovoltaic resources. The ISO estimates that, at the end of 2023, New England had about 7,300 MW in solar nameplate capacity. Each of these solar resources falls into one of four categories—telemetered, settlement-only, passive distributed generation, and behind all meters—according to how they interact with ISO's control room and with the region's wholesale electricity markets. Understanding how much electricity these resources can produce is an important part of operating the grid reliably today and planning for the power system of the future.

Most small solar farms participate as settlement-only resources (SORs). SORs are not telemetered or dispatchable, and do not provide output data to the ISO until after the day is over. SORs are paid for injecting electricity into the grid according to prices in the Real-Time Energy Market and may also participate in the capacity market. Today, about 2,250 MW of solar capacity in New England falls into the SOR category. Starting in November 2026, this category will include DER aggregations as described in FERC Order No. 2222.

5.3 Regional System Planning

The ISO's final critical role is to manage the regional power system planning process. To aid in power system planning, reliability studies, and other processes, the ISO forecasts future demand for electricity in New England so the region and the marketplace will be informed about the potential need for additional energy infrastructure. The ISO also forecasts the long-term growth of resources like energy efficiency and distributed generation that may impact the ISO's planning functions. This information drives decisions on transmission needs and provides signals in the wholesale markets for development of supply and demand resources.

ISO-NE maintains an ongoing 10-year plan for the region to ensure the power grid continues to operate reliably as conditions change. The Regional System Plan (RSP) is built on a foundation of standards and criteria for reliability set by the ISO, the Northeast Power Coordinating Council, and the North American Electric Reliability Corporation. These studies and analyses inform the RSP and are also used to evaluate proposed projects initiated in response to the plan or market signals. The ISO does not select specific supply resources for development or retirement. Those decisions are made by resource owners and developers through the wholesale markets.

26. ISO New England Inc. and New England Power Pool, "Revisions to ISO New England Inc. Transmission, Markets and Services Tariff to Allow for the Participation of Distributed Energy Resource Aggregations in New England Markets," FERC filing, Docket No. ER22-___-000 (February 2, 2022); https://www.iso-ne.com/static-assets/documents/2022/02/order_no_2222_filing.pdf.

Key aspects of the ISO's planning process in 2024 included developing forecasts of energy use, energy efficiency, distributed generation development, and transportation and heating electrification; completing 10-year and longer-term transmission studies; undertaking significant reforms to generator interconnection procedures and agreements; and exploring asset condition project process improvements.

The ISO's forecasts are captured in the annual *Forecast Report of Capacity, Energy, Loads, and Transmission* (CELT Report).[27]

5.3.1 *Energy Efficiency and Distributed Generation Forecasts*

Since 2012, the ISO has developed an annual energy efficiency (EE) forecast to equip system planners and regional stakeholders with information about the long-term impacts of EE investments on the region's peak electricity use and overall demand for energy. Energy efficiency has been a key topic of interest to consumers and consumer advocates since the inception of the CLG.

Developing the forecast is a collaborative process led by the ISO with input from the Energy Efficiency Forecast Working Group (EEFWG).[28] The process incorporates input from representatives of state-sponsored EE programs and state regulatory agencies. State policies are the major drivers of EE investments, and thus the forecast model is built using state policy information on EE statutory targets, funding levels, and economic trends, as well as FCM inputs such as clearing prices.

The most recent EE forecast was released on April 28, 2024, and was subsequently incorporated into the 2024 CELT Report.[29, 30] The ISO forecasts that by 2033, EE investments in New England will reduce summer peak load by approximately 2,023 MW, and the region will experience annual load reductions of 11,210 gigawatt-hours (GWh) from EE.[31]

Since 2013, the ISO has led a regional Distributed Generation Forecast Working Group (DGFWG) to collect data on distributed generation (DG) policies and implementation and to forecast long-term incremental DG growth in New England.[32] For the purposes of this forecast, DG resources are usually 5 MW or less in nameplate capacity and are interconnected to the distribution system. Photovoltaic (PV) resources represent the largest share of DG resources throughout New England.

The *Final 2024 PV Forecast* shows steady growth, with approximately 13,465 MW (AC nameplate rating) of distributed solar power resources to be installed by 2033 throughout New England.[33] According to the forecast, about 6,540 MW of distributed PV had been installed throughout the region through the end of 2023.

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27. The ISO's CELT Reports and related materials are available at https://www.iso-ne.com/system-planning/system-plans-studies/celt/.

28. More information about the EEFWG is available at the ISO's "Energy-Efficiency Forecast Working Group" webpage, https://www.iso-ne.com/committees/planning/energy-efficiency-forecast/.

29. "Final 2024 Energy Efficiency Forecast," presentation (April 28, 2024); https://www.iso-ne.com/static-assets/documents/100010/eef2024_final_4site.pdf.

30. The ISO is discontinuing the EE forecast in 2025. Load reductions from EE will be captured directly in the load forecast. For more information on changes to the EE forecast, see the "Energy Efficiency Forecast Process Changes for CELT 2025," presentation (September 30, 2024); https://www.iso-ne.com/static-assets/documents/100015/eef2025-intro.pdf.

31. "2024 CELT Report," spreadsheet (May 17, 2024); https://www.iso-ne.com/system-planning/system-plans-studies/celt.

32. Information about the DGFWG is available at the ISO's "Distributed Generation Forecast Working Group," webpage, https://www.iso-ne.com/committees/planning/distributed-generation/. Information about the latest DG forecast is available at https://www.iso-ne.com/system-planning/system-forecasting/distributed-generation-forecast/.

33. "Final 2024 Solar PV Forecast," presentation (April 25, 2024); https://www.iso-ne.com/static-assets/documents/100010/2024_pv_forecast_final_updated.pdf.

Table 5-1
Final 2024 PV Forecast (MW)
Note: The values shown may not sum to total due to rounding.

States	Annual Total MW (AC nameplate rating)										
	Through 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
CT	1,090.5	150.8	160.6	164.9	164.7	158.5	160.4	162.4	170.9	174.4	170.0
MA	3,712.0	326.5	320.9	313.6	309.7	300.1	288.0	279.2	283.7	290.5	284.9
ME	588.0	223.6	123.0	119.6	118.9	113.0	111.0	107.6	109.3	107.0	105.8
NH	244.0	27.3	26.5	25.6	24.0	22.7	22.0	22.8	24.4	25.4	25.6
RI	400.0	46.4	49.0	49.0	49.3	48.2	48.7	49.2	52.0	53.1	51.3
VT	507.0	29.3	29.2	29.0	29.8	25.4	27.3	28.9	34.0	37.1	38.3
Regional – Annual	**6,541.5**	**803.9**	**709.1**	**701.7**	**696.5**	**667.9**	**657.5**	**650.2**	**674.3**	**687.5**	**675.8**
Regional – Cumulative	**6,541.5**	**7,345.4**	**8,054.5**	**8,756.2**	**9,452.6**	**10,120.5**	**10,778.0**	**11,428.2**	**12,102.5**	**12,790.0**	**13,465.8**

5.3.2 *Transportation and Heating Electrification Forecasts*

Since 2020, the ISO has forecasted the impacts of heating and transportation electrification on state and regional electricity use. The forecasts are included in the annual CELT Report.

The electrification of the heating and transportation sectors is expected to play a pivotal role in meeting the New England states' greenhouse gas reduction mandates and goals over the coming decades. To help ensure the power grid is prepared for the decarbonized future, ISO-NE expanded its 10-year planning forecasts to capture growth in air-source heat pumps and a broader variety of electric vehicles, and to quantify resulting increases in grid electricity demand. In spring 2024, the ISO published its 10-year heating electrification forecast and transportation electrification forecast.[34]

In New England by 2033, the ISO forecasts that there will be more than one million households with heat pumps, and more than 600 million square feet of commercial space heated with heat pumps—increasing annual energy consumption by 7,996 GWh and contributing up to 2,334 MW to winter peak load. For the 2023 transportation electrification forecast, in addition to light-duty personal vehicles, the ISO considers four classes of fleet vehicles: light-duty fleet, medium-duty delivery, school buses, and transit buses. Over the next ten 10 years (2024–2033), the ISO forecasts that the region will add over 294,000 fleet electric vehicles. Over 2.9 million light-duty personal electric vehicles, including cars and trucks, were estimated to be added over the same time period regionwide. The ISO forecasted that in 2033, transportation electrification will increase annual energy consumption by 15,182 GWh and contribute 2,342 MW to summer peak and 3,345 MW to the winter peak. Approximately 1% of EV owners are forecasted to participate in managed charging programs in 2024, increasing over the 10-year period to roughly 10% by 2033.

The ISO continues to modify its heating and transportation electrification forecasting methodologies as state policies and initiatives are further developed and additional data becomes available. The 2025 CELT Report is expected to be released in the second quarter of 2025.

5.3.3 *2050 Transmission Study*

In 2020, the New England States Committee on Electricity (NESCOE) recommended that the ISO work with

34. "Final 2024 Heating Electrification Forecast," presentation (April 27, 2024), https://www.iso-ne.com/static-assets/documents/100010/final-2024-heating-electrification-forecast.pdf; "Final 2024 Transportation Electrification Forecast," presentation (May 1, 2024), https://www.iso-ne.com/static-assets/documents/100011/transfx2024_final.pdf.

stakeholders to conduct a comprehensive longer-term transmission study.[35] In response, the ISO began the study and received approval from FERC to revise the ISO tariff to establish a repeatable longer-term study process.

The resulting landmark *2050 Transmission Study* informs stakeholders of the amount and type of transmission infrastructure necessary to provide reliable, cost-effective electricity to the region over the next quarter-century, amid an evolving resource mix and expected near-tripling of winter peak demand driven by state policy. The final *2050 Transmission Study* report and two-page fact sheet were published in February 2024.[36] The report includes sets of potential solutions, or roadmaps, designed to assist stakeholders in their efforts to facilitate the clean energy transition. The ISO hosted an informational public webinar on the study on May 1, 2024.[37]

In response to stakeholder feedback on the *2050 Transmission Study*, the ISO conducted additional analysis to both explore connecting some offshore wind further south in the region to reduce the overloads observed on the North–South interface in the initial study, and to examine possible points of interconnection to provide high-level information about their viability for connecting future offshore wind farms. The resulting draft report was posted on January 15, 2025, and the final report was published on March 21, 2025.[38, 39]

5.3.4 *Longer-Term Transmission Planning*

On May 9, the ISO filed a second phase of Longer-Term Transmission Planning (LTTP) tariff changes with FERC to provide a mechanism for the states to evaluate and finance transmission upgrades identified in a longer-term transmission study, the first of which was the *2050 Transmission Study* described above. The changes were accepted by FERC on July 9, creating a process by which the New England states, through NESCOE, can request that the ISO issue and evaluate requests for proposals (RFPs) to address needs identified in longer-term transmission studies, and provides a way for the states to evaluate and finance these upgrades.[40]

On December 13, 2024, NESCOE issued the first formal request for an RFP through the LTTP process. The request seeks to solicit projects that would relieve transmission bottlenecks between northern and southern New England and accommodate more clean energy resources in Maine.[41] (Subsequently, on March 14, 2025, the ISO released a draft RFP for public comment through the Planning Advisory Committee.[42] On March 31,

35. New England State Committee on Electricity, "New England States Vision Statement," webpage (October 16, 2020), https://nescoe.com/resource-center/vision-stmt-oct2020/.

36. *2050 Transmission Study*, fact sheet (February 14, 2024); https://www.iso-ne.com/search?query=2050%20transmission%20study%20fact%20sheet.

37. *2050 Transmission Study*, public webinar (May 1, 2024); https://www.iso-ne.com/event-details?eventId=154784

38. *2050 Transmission Study: Offshore Wind Analysis*, draft report (January 15, 2025); https://www.iso-ne.com/static-assets/documents/100019/2050-transmission-study-osw-analysis-draft.docx.

39. *2050 Transmission Study: Offshore Wind Analysis*, final report (March 21, 2025); https://www.iso-ne.com/static-assets/documents/100021/2050_osw_report_final.pdf

40. Materials related to Longer-Term Transmission Studies are available at https://www.iso-ne.com/system-planning/transmission-planning/longer-term-transmission-studies.

41. New England State Committee on Electricity, "Transmission Needs for a Longer-term Transmission Planning RFP," request letter (December 13, 2024); https://www.iso-ne.com/static-assets/documents/100018/a05_2024_12_18_pac_transmission_needs_for_a_longer-term_transmission_planning_rfp_final.pdf.

42. Posting of Draft 2025 Longer-Term Transmission Planning RFP, memo (March 14, 2025); https://www.iso-ne.com/static-assets/documents/100021/draft_lttp_rfp_posting_memo.pdf

2025, the ISO released the final RFP with proposals due by Sept. 30.[43])

5.3.5 *FERC Order No. 1920*

On May 13, FERC issued Order No. 1920 to set new requirements for how organizations like ISO New England conduct long-term planning for regional transmission facilities and determine how to pay for them to ensure the identification of more efficient or cost-effective regional transmission solutions. Many elements of Order No. 1920 align with the LTTP framework to address future regional transmission planning to help meet state clean energy policy, described above, but with some differences.

The ISO filed a request with FERC to, among other items, extend the deadline for a compliance filing for Order No. 1920 by 24 months. As noted in the request, this extension would allow more time for New England to leverage "lessons learned" from the LTTP solicitation process. (Subsequently, in February 2025, FERC issued an order granting the request for an extension to June 14, 2027 to meet the requirements of Order No. 1920.)

5.3.6 *Economic Planning for the Clean Energy Transition*

The *Economic Planning for the Clean Energy Transition* (EPCET) study explored the operational, engineering, and economic challenges the region would need to address to support the New England states' commitment to reducing carbon emissions over the next several decades.[44, 45]

EPCET grew out of an effort by ISO New England, market participants, and state entities (including NESCOE) to assess the future of the regional power system considering state energy and environmental laws. Most of the six states aim to cut emissions by 80% from 1990 levels by the year 2050 through a shift to renewable energy and electrification of heating and transportation. Launched in 2022, the study identifies trends and challenges likely to materialize during the region's clean energy transition.

On December 10, 2024, ISO hosted a public webinar on the EPCET study.[46] The webinar was part of a series of free presentations intended to give the public an opportunity to learn about ISO-NE initiatives and engage with staff.

5.3.7 *FERC Order No. 2023*

In July 2023, FERC issued Order No. 2023.[47] The order requires transmission providers, including Regional Transmission Organizations and Independent System Operators, to implement reforms intended to ensure a reliable, efficient, transparent, timely, and fair interconnection process; address transmission interconnection queue backlogs; improve certainty; and prevent undue discrimination for new technologies as those resources proliferate. On March 21, 2024, FERC issued Order No. 2023-A with some incremental reforms to the order.[48]

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43. Issuance of the 2025 Longer-Term Transmission Planning Request for Proposal, memo (March 31, 2025); https://www.iso-ne.com/static-assets/documents/100021/2025lttprfp_postingannouncement.pdf

44. *Economic Planning for the Clean Energy Transition: Illuminating the Challenges of Tomorrow's Grid*, report (October 24, 2024); https://www.iso-ne.com/static-assets/documents/100016/2024-epcet-report.pdf.

45. *Economic Planning for the Clean Energy Transition*, fact sheet (October 24, 2024); https://www.iso-ne.com/static-assets/documents/100016/2024-epcet-report-fact-sheet.pdf.

46. *Economic Planning for the Clean Energy Transition*, public webinar (December 10, 2024); https://www.iso-ne.com/event-details?eventId=156836.

47. FERC, Improvements to Generator Interconnection Procedures and Agreements, Docket No. RM22-14-000; Order No. 2023 (July 28, 2023), https://www.ferc.gov/media/order-no-2023.

48. FERC, Improvements to Generator Interconnection Procedures and Agreements, Docket No. RM22-14-001; Order No. 2023-A (March 21, 2024), https://www.ferc.gov/media/e1-rm22-14-001.

Primary elements of the order include:

- Implementing a first-ready, first-served cluster study process, eliminating New England's current serial first-come, first-served study process
- Speeding up interconnection queue processing through improved processes, deadlines, and penalties
- Incorporating technological advancements into the interconnection process, including modeling and performance standards for inverter-based resources

On May 14, 2024, the ISO, joined by the NEPOOL Participants Committee and the Participating Transmission Owners Administrative Committee, filed the Order No. 2023 Compliance Revisions and Order No. 2023-Related Revisions.[49, 50] The ISO requested an August 12, 2024, effective date for its proposed rules.

In September 2024, given the lack of an order from FERC, the ISO announced it would cease implementation activities relating to the compliance proposal and would continue processing existing entries in the Interconnection Request Queue on a serial basis under the current tariff provisions.[51] The ISO said it would also move ahead with upcoming Forward Capacity Market activities under current rules.

(Subsequently, on April 4, 2025, FERC issued an order in which it found the ISO's compliance proposal partially complied with the requirements of Order Nos. 2023 and 2023-A.[52] Accordingly, FERC accepted the compliance filing in part, effective August 12, 2024. The order directed the ISO to submit a further compliance filing by June 3, 2025. ISO New England is currently reviewing FERC's order in detail, assessing next steps, and will provide updates to stakeholders at the appropriate time. The compliance order from FERC did not change the eligibility date regarding participation in the transition process that was previously set. Interconnection requests that were submitted and confirmed as valid by June 13, 2024, are eligible to participate in the transition process. The ISO is not considering new interconnection requests submitted after that date.)

The ISO has and will continue to dedicate significant resources to this important initiative to develop and implement its compliance proposal.

5.4 Board Announcements, Governance Enhancements, and Public Meeting

The ISO elects its board of directors through a joint nominating process that involves representatives from the board, NEPOOL, and the New England Conference of Public Utilities Commissioners (NECPUC).

The members of the board have expertise in financial markets, law, electric power operations, and regulation, among other disciplines. Board members are subject to the company's code of conduct, which includes a non-affiliation provision designed to maintain the independence of the company from participants

49. ISO New England Inc. and New England Power Pool, "Revisions to the ISO New England Inc. Transmission, Markets and Services Tariff in Compliance with Order Nos. 2023 and 2023-A," FERC filing, Docket Nos. RM22-14-___, ER24-___-000 (May 14, 2024); https://www.iso-ne.com/static-assets/documents/100011/rev_in_compliance_with_order_2023_and_2023-a.pdf.

50. ISO New England Inc. and New England Power Pool, "Revisions to Section II of the ISO New England Inc. Transmission, Markets and Services Tariff Related to Compliance with Order Nos. 2023 and 2023- A," FERC filing, Docket Nos. RM22-14-___, ER24-___-000 (May 14, 2024); https://www.iso-ne.com/static-assets/documents/100011/rev_to_tariff_related_order_2023_and_2023a_compliance.pdf.

51. ISO New England Inc., "Suspension of Ongoing Order No. 2023 Compliance Proposal Implementation Activities," memo (September 5, 2024); https://www.iso-ne.com/static-assets/documents/100015/memo_re_order_2023_implementation.pdf.

52. FERC, Order on Compliance and Tariff Revisions, Docket Nos. ER24-2009-000, ER24-2007-000; Order No. 2023 (April 4, 2025), https://www.iso-ne.com/static-assets/documents/100022/er24-2007_and_er24-2009.pdf.

in New England's wholesale markets and their affiliates.[53]

5.4.1 *ISO New England Elects 2024 Board Slate*

In May 2024, the ISO announced the election of its 2024 board of directors slate. Caren Anders, Steve Corneli, and Michael J. Curran were all reelected to three-year terms that began in October 2024.[54]

5.4.2 *ISO Hires New Policy Advisor for Environmental and Community Affairs*

In July 2024, ISO New England hired Ruben Flores-Marzan, the organization's first policy advisor for environmental and community affairs.[55] This new role was created in response to the growing interest in regional energy issues among community groups and follows a request from five New England states related to the ISO's 2025 budget.

5.4.3 *ISO New England Annual Open Board Meeting*

In November 2024, the board held its annual open meeting with attendees joining both in person in Boston and virtually via Webex. The board conducts these open sessions to give the public an opportunity to observe the board's discussions firsthand. Attendees heard updates from President and CEO Gordon van Welie and a presentation from Executive Vice President and Chief Operating Officer Vamsi Chadalavada on the ISO's annual work plan. Senior leadership provided updates on wholesale markets, system planning, and information technology and cybersecurity. Board Chair Cheryl LaFleur provided remarks to reiterate the ISO's commitment to working with the New England states toward their clean energy goals.

The meeting concluded with a listening session where the public had an opportunity to engage directly with the board, in addition to providing written comments. In response to stakeholder requests, both in-person and virtual attendees were able to provide verbal comments at the meeting, and a compilation of the written comments from participants were posted to the ISO-NE website.[56] (In early 2025, the board posted a response to comments related to this meeting to address key themes.[57]) Meeting materials, including the presentation slides and a video recording of the meeting, have been posted to the ISO-NE website.[58]

The board of directors plans to host another open meeting in 2025.

5.5 The ISO's Budget Review Process

ISO New England is committed to providing an open and transparent budgeting process, starting with preliminary reviews by the states, followed by detailed discussions with state and regional stakeholders, and culminating with a FERC review. On October 15, 2024, following consultation with New England state regulators, consumer advocates, attorneys general, and other stakeholders, the ISO filed its proposed 2025

53. "Board of Directors," webpage (February 21, 2024), https://www.iso-ne.com/about/corporate-governance/board/.

54. "ISO New England Elects 2024 Board Slate," *ISO New England Board Press Release* (May 16, 2024), https://www.iso-ne.com/static-assets/documents/100011/20240516_pressrelease_2024boardslate.pdf.

55. "ISO Minute: Meet ISO New England's first policy advisor for environmental and community affairs," *ISO Newswire* (November 21, 2024), https://isonewswire.com/2024/11/21/iso-minute-meet-iso-new-englands-first-policy-advisor-for-environmental-and-community-affairs/.

56. "Public Comments to the Board of Directors," webpage (February 5, 2025), https://www.iso-ne.com/about/corporate-governance/board/public-comments-to-the-board-of-directors.

57. "ISO New England Board of Directors' Response to 2024 Open Board Meeting Comments," webpage (February 5, 2025); https://www.iso-ne.com/static-assets/documents/100020/iso-board-response-to-2024-open-board-meeting-comments.pdf.

58. "Open Meeting of the ISO New England Board of Directors," presentation (November 6, 2024), https://www.iso-ne.com/static-assets/documents/100017/nov-6-2024-iso-bod-open-meeting-master-slides-final.pdf; "2024 Open Meeting of the ISO New England Board of Directors," video recording (November 6, 2024), https://vimeo.com/1030866920.

operating and capital budgets with FERC for review and approval.[59] FERC approved the budget on December 23, 2024.[60]

5.5.1 *Proposed Operating Budget*

The proposed operating budget for 2025, before depreciation and true-up, is projected to be $269.4 million, which is $25.1 million or 10.3% higher than the 2024 operating budget. After depreciation and true-up, the revenue requirement for 2025 is projected to be $311.2 million, which is $37.3 million or 13.6% higher than the 2024 revenue requirement of $273.9 million. If the ISO's projected revenue requirement for 2025 was fully passed through to end-use customers, their cost would average $1.71 per month (up from $1.46 per month for the 2024 revenue requirement).

5.5.2 *Proposed Capital Budget*

The 2025 capital budget is projected to be $42.5 million ($7.5 million higher than the 2024 capital budget). The increase is driven by investments in software, cybersecurity needs, market and reliability projects, the replacement of IT assets and infrastructure, and workspace changes.

5.5.3 *Budget Review Process*

The ISO's budget-development process begins in January of each year with stakeholder discussions on priorities in planning, operations, and capital projects. From June to August, the ISO presents preliminary operating and capital budgets to its stakeholders for review. By the end of October, the ISO submits its final operating and capital budgets to FERC for review. The ISO's board of directors plays an active role throughout the budget-review process, taking into account feedback from stakeholders before voting on the proposed budget in October.

The ISO's formal budget-review process also includes a preliminary budget presentation in May or June and an additional budget presentation with the New England states in August. The states have the opportunity to submit questions and comments, to which the ISO issues formal responses. The comments submitted by the states and the ISO's responses are filed with FERC in October alongside the proposed budget and posted to the ISO's website.[61] More information regarding the ISO's budget, including an overview of the budget-development process, is available on the ISO-NE website.[62]

59. *Filing of 2025 Capital Budget and Revised Tariff Sheets for Recovery of 2025 Administrative Cost*, Docket No. ER25- (October 15, 2024); https://www.iso-ne.com/static-assets/documents/100016/cap_budget_and_rev_tariff_sheets_for_recovery_of_2025_admin_costs.pdf.

60. *Delegated Letter Order Accepting ISO Capital Budget Filing for Calendar Year 2025*, Docket No. ER25-110-000 (December 23, 2024); https://www.iso-ne.com/static-assets/documents/100018/er25-110-000.pdf.

61. "Budget," webpage (2023), https://www.iso-ne.com/about/corporate-governance/budget/.

62. "The ISO's Funding and Budgeting Process," webpage (2023), https://www.iso-ne.com/about/what-we-do/in-depth/the-iso-funding-and-budgeting-process.

Section 6
Analysis of Wholesale Costs and Retail Rates

One of the primary goals among CLG participants when the group first formed was to better understand how a typical retail consumer's bill reflects wholesale market costs.

Wholesale costs and the rates for residential retail power supply can vary dramatically among the states and from year to year, mainly because wholesale electricity markets and retail electricity markets are used to obtain different products. Wholesale markets reflect the short-term spot market for electric energy, whereas retail rates reflect longer-term, fixed-price contracts. The relationship between wholesale costs and retail rates will also vary with each utility's and state's procurement practices for retail power. Understanding these differences is essential when comparing the two markets.

Table 6-1 shows the range of average wholesale market costs for calendar years 2014–2024 and the average price of electricity for residential customers in the New England states.

Table 6-1
Wholesale Market Costs and Annual Average Price of Electricity for Residential Customers in New England (¢/kWh)[(a)(b)(c)]

	Wholesale Market Costs (¢/kWh)	Annual Average Price of Electricity for Residential Customers (¢/kWh)[(d)]
2024	5.12–5.84	22.14–29.35
2023	4.87–5.37	20.82–29.88
2022	9.98–10.62	19.93–25.97
2021	5.49–5.76	17.02–22.89
2020	3.45–3.63	16.81–22.71
2019	4.42–4.63	17.71–21.92
2018	5.81–6.45	16.84–21.61
2017	4.35–5.06	15.97–20.29
2016	3.66–4.05	15.83–20.01
2015	5.04–5.39	15.61–20.94
2014	7.16–7.90	15.27–19.75

(a) Ranges are based on ISO New England markets data that delineate average 2024 wholesale market costs by state. In 2024, total wholesale market costs across the New England states ranged from $51.22/MWh (Maine) to $58.42/MWh (Rhode Island).

(b) To provide a more comprehensive look at the average price of electricity for residential customers across all six of the New England states, starting with the 2024 CLG annual report the data provided differs from what was provided in previous CLG annual reports. Previous methodology only included states with unbundled retail electricity service. It therefore did not include Vermont, as Vermont has not unbundled its retail electricity service. The updated methodology instead uses publicly available data provided by the US Energy Information Administration (EIA) for all six New England states. The ranges show the lowest and highest values for the individual states in New England.

(c) Annual average price of electricity data is provided by EIA and represents the cost per unit of electricity sold, calculated by dividing electric revenue from ultimate customers by the corresponding sales of electricity. This value does not reflect the actual retail rate charged by the electric utilities to individual customers as it would appear on a monthly bill.

(d) Additional information on data sources is available on the EIA website. Values for 2024 are preliminary and subject to change by EIA, sourced from the Electric Power Monthly reports. Values for 2023 and earlier are final and sourced from the Electric Power Annual reports. The range represents the lowest and highest price for the six New England states. [63]

63. U.S. Energy Information Administration EIA, “Electricity”, webpage (March 1, 2025), https://www.eia.gov/electricity/.

Key Takeaways:

- From 2023 to 2024, wholesale market costs increased 6.6% to 10.4% across the New England states.
- Residential retail rates fall under state regulatory jurisdiction and include costs for power supply, transmission, distribution, and all other delivery service charges.[64] The average price of electricity provided above serves as a proxy comparison for retail rates in New England. From 2023 to 2024, the lowest average price of electricity increased by 6.3% and the highest decreased by 1.8%.
- The estimated regional transmission rate increased by approximately 9.1% from 2023 to 2024 (from 2.19 ¢/kWh in 2023 to 2.39 ¢/kWh in 2024).[65]

64. More information about state residential retail rates can be found on state regulatory websites including from the following webpages for Connecticut (https://portal.ct.gov/PURA/Industries/Rates), Maine (https://www.maine.gov/mpuc/regulated-utilities/electricity/delivery-rates), Massachusetts (https://www.mass.gov/info-details/basic-service-information-and-rates), New Hampshire (https://www.puc.nh.gov/), Rhode Island (https://ripuc.ri.gov/utility-information/electric), Vermont (https://greenmountainpower.com/rates/)

65. The regional transmission rate reflects the costs of reliability projects identified through the regional transmission planning process as providing a regional benefit. These costs are considered part of the regional network service (RNS). The regional transmission rate is calculated as the sum of all RNS charges and tariff-based reliability services for the specific period, divided by the total net energy for load for the same period. For 2024, the period is based on the 12 months ending December 31, 2024. The regional transmission rate is established by the region's transmission owners and is collected through ISO New England's *Transmission, Markets, and Services Tariff*. For more information, see http://www.iso-ne.com/participate/rules-procedures/tariff and http://www.iso-ne.com/participate/support/faq/oatt-iso-tariff. Information on net energy for load is available at: http://www.iso-ne.com/isoexpress/web/reports/load-and-demand/-/tree/net-ener-peak-load.

Section 7
New England Wholesale Electricity Costs

The annual wholesale costs of meeting consumer demand for electricity in New England can vary significantly. Over the past 10 years, total annual costs have ranged from a low of $7.7 billion in 2016 to a high of $16.8 billion in 2022. Table 7-1 summarizes New England's wholesale electricity costs from 2015 to 2024.

Table 7-1

New England Wholesale Electricity Costs, 2015–2024 (in Millions and ¢/kWh)[a]

	2015		2016		2017		2018		2019		2020		2021		2022		2023		2024[b]	
	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh
Wholesale market costs																				
Energy (LMPs)[c]	$5,910	4.5	$4,130	3.2	$4,498	3.5	$6,041	4.7	$4,105	3.3	$2,996	2.4	$6,101	4.8	$11,712	9.0	$4,847	3.9	$5,624	4.4
Ancillaries[d]	$210	0.2	$146	0.1	$132	0.1	$147	0.1	$83	0.1	$62	0.1	$52	0.0	$124	0.1	$183	0.1	$183	0.1
Capacity[e]	$1,110	0.8	$1,160	0.9	$2,245	1.8	$3,606	2.8	$3,401	2.7	$2,662	2.2	$2,243	1.8	$1,864	1.4	$1,308	1.1	$1,248	1.0
Subtotal	*$7,229*	*5.5*	*$5,437*	*4.2*	*$6,875*	*5.4*	*$9,794*	*7.6*	*$7,589*	*6.0*	*$5,720*	*4.7*	*$8,404*	*6.6*	*$13,701*	*10.5*	*$6,338*	*5.1*	*$7,054*	*5.5*
Transmission charges[f]	$1,964	1.5	$2,081	1.6	$2,199	1.7	$2,250	1.7	$2,146	1.7	$2,331	1.9	$2,688	2.1	$2,739	2.1	$2,640	2.1	$2,931	2.3
RTO costs[g]	$165	0.1	$180	0.1	$193	0.2	$196	0.2	$184	0.1	$191	0.2	$216	0.2	$214	0.2	$214	0.2	$275	0.2
									Mystic cost-of-service agreement						$173	0.1	$465	0.4	$139	0.1
Total	**$9,358**	**7.1**	**$7,698**	**5.9**	**$9,267**	**7.3**	**$12,240**	**9.4**	**$9,915**	**7.9**	**$8,242**	**6.7**	**$11,308**	**8.9**	**$16,828**	**13.0**	**$9,657**	**7.8**	**$10,399**	**8.2**

(a) Average annual costs are based on the 12 months beginning Jan. 1 and ending Dec. 31. Costs in millions = the dollar value of the costs to New England wholesale market load servers for ISO-administered services. Cents/kWh = the value derived by dividing the dollar value (indicated above) by the real-time load obligation. These values are presented for illustrative purposes only and do not reflect actual charge methodologies.

(b) The wholesale values for 2024 are preliminary and subject to reconciliation.

(c) Energy values are derived from wholesale market pricing and represent the results of the Day-Ahead Energy Market plus deviations from the Day-Ahead Energy Market reflected in the Real-Time Energy Market.

(d) Ancillaries include first- and second-contingency Net Commitment-Period Compensation (NCPC), forward reserves, real-time reserves, regulation service, and a reduction for the Marginal Loss Revenue Fund. After December 2023, this total also includes the Inventoried Energy Program.

(e) Capacity charges are those associated with the Forward Capacity Market (FCM).

(f) Transmission charges reflect the collection of transmission owners' revenue requirements and tariff-based reliability services, including blackstart capability, voltage support, IROL CIP, and FCM reliability. In 2024, the cost of payments made to these generators for reliability services under the ISO's *Open Access Transmission Tariff* (OATT) was $62.4 million. Transmission charge totals for 2010 forward reflect the refund of OATT Schedule 1 through-or-out (TOUT) service charges to regional network load.

(g) RTO costs are the costs to operate ISO New England and are based on actual collections, as determined under Section IV of the *ISO New England Inc. Transmission, Markets, and Services Tariff*.

Total wholesale costs include the cost of traditional supply resources and demand resources and the annual cost of transmission investment to serve all the region's power needs. These costs also include the cost of all ISO functions to operate the power grid, administer the markets, implement the 10-year power system planning process, and provide market-monitoring oversight of participant behavior and in-depth market analysis and reporting. Between 2015 and 2024, the ISO's annual costs have ranged from $165 million to $275 million.

Market participants that purchase electricity from the wholesale market for their own use or to supply to retail customers pay wholesale electricity costs. In turn, suppliers and utilities provide electricity to retail customers according to the retail market structures and requirements of the six New England states. Utilities charge retail customers for power supply through their monthly bills using the rates approved by the state or local public utilities commissions. Retail customers share in the cost of regional transmission upgrades for reliability and generally pay for it over a 35- to 40-year period through the transmission rates in their retail bill.

In 2024, the total value of all wholesale electricity costs, including the cost of regional transmission upgrades and ISO operations, was approximately $10.4 billion. Allocating this cost across the load served at a wholesale level (real-time load obligation) in 2024 yields a rate of 8.2 ¢/kWh. Wholesale values for 2024 are preliminary and subject to reconciliation.