

Consumer Liaison Group Coordinating Committee

2018 Report of the Consumer Liaison Group

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

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Section 1 Statement from the Consumer Liaison Group Coordinating Committee

Dear Reader,

Welcome to the *2018 Report of the Consumer Liaison Group* (CLG) prepared jointly by the Consumer Liaison Group Coordinating Committee (CLGCC) and ISO New England (ISO). This is the ninth annual CLG report, the first having been 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 heightened 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.

The CLG bylaws, formulated by stakeholders and the ISO, require the organization to be governed by a Coordinating Committee of up to 12 members. These members represent various stakeholder groups, with no more than four members coming from any one New England state. In 2018, the CLGCC held a Coordinating Committee election for the 2019–2020 term. New Coordinating Committee members were added to represent Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Rebecca Tepper, chief of the Energy and Telecommunications Division of the Massachusetts Attorney General's Office, continues to serve as chair of the CLGCC.

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 have provided information at the quarterly CLG meetings that include a range of cost implications for certain regional initiatives.

Because New England's wholesale electricity markets are continually evolving, the CLG also serves as a forum for consumers to provide input and information to the ISO and to each other regarding 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 consumers on the issues that concern them, including potential changes to the power system and the wholesale markets that might allow consumers to participate more profitably, purchase less expensively, and operate more efficiently.

The CLGCC's goals for 2019 are as follows:

- 1. Celebrate and reflect on the CLG's first 10 years and plan for the future
 - a. Review CLG accomplishments and consider ways to more effectively meet the organization's mission
 - b. Review and revise, as necessary, CLG governance documents
- 2. Increase dialogue and improve communication between the ISO and the CLG, as well as between the CLGCC and CLG members at large
 - a. Meet with the ISO to identify additional avenues of communication (e.g., increasing direct access to ISO personnel at CLG meetings, establishing a CLG/ISO board relationship)

- b. Heighten efforts to provide the ISO with a greater understanding of consumer issues, needs, and concerns relative to the electric power system and its costs by further developing the flow of information among consumers and other stakeholders to and from the ISO
- c. Continue to update methods of communications, including through social media
- 3. Continue to provide a platform for CLG members to learn about proposed and newly enacted wholesale market and state policy actions and the impact these actions may have on issues of concern to consumers.
- 4. Plan to ensure that CLG meeting topics and presentations address consumer cost impacts and, where possible, provide information on potential mechanisms to mitigate increased costs in an understandable and useful manner.

Sincerely,

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

Section 2 Purpose and Structure of the Consumer Liaison Group

The Consumer Liaison Group is a forum for sharing information between ISO New England 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 Consumer Liaison Group is governed by a Coordinating Committee that sets the agenda for four meetings each year. The Coordinating Committee selects the topics and speakers featured at these meetings. ISO New England facilitates the meetings and communications among CLG participants. Consumer Liaison Group meetings provide a forum to share information on regional electricity issues, but they are not intended to be a substitute for end-user or consumer groups that wish to weigh in on items under discussion at the Planning Advisory Committee (PAC) or the New England Power Pool (NEPOOL) committees.¹

2.1 Objectives

The objectives of the CLG are as follows:

- Be generally informed of the operation of the power system and industry issues, which includes having access to ISO subject matter experts
- Be made aware of market changes, in advance of final consideration by the ISO when feasible, which can have an impact on consumers
- Work with the ISO to ensure that it provides timely quantitative and qualitative information on the cost impacts of important initiatives
- Have the ISO assist consumers in identifying the issues that can affect them economically
- Be informed of and participate in the stakeholder process that determines wholesale power market rules and power system needs
- Be informed of the results of any economic analysis conducted and presented to stakeholders in the regional stakeholder process
- Provide the ISO with a greater understanding of the specific issues of interest to consumers

2.2 Participation and Meeting Format

The Consumer Liaison Group is open to the public. 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. Because the CLG is an open forum, several NEPOOL members and state regulators are also regular, active participants in CLG discussions.

¹ The Planning Advisory Committee 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 <u>http://www.iso-</u>

<u>ne.com/committees/planning/planning-advisory</u>. The New England Power Pool 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 stakeholders and market participants. More information on NEPOOL is available at <u>www.nepool.com</u>.

CLG meetings attract a diverse group of approximately 75–100 attendees, both in person and via teleconference. CLG meetings follow the same general format:

- Opening remarks from a keynote speaker—typically, 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 or will be taking place at NEPOOL and ISO 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)

2.3 Governance

The Consumer Liaison Group Coordinating Committee 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 12 members (six members and six alternates) with no more than four members from any one of the New England states. Specific membership requirements ensure that consumers (residential, commercial, and industrial) are represented from a majority of the New England states 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 members 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 an even-numbered calendar year and serve for a term of two years or until successors are selected. The Coordinating Committee annually designates a chairperson from its membership. Should a vacancy occur on the committee, the chairperson fills the vacancy with the approval of a majority of the remaining members. Current CLGCC members are listed on page 7. The ISO designates a point of contact within its External Affairs Department to work with the CLGCC.

2.4 Information and Communications

ISO New England facilitates the meetings and communications among CLG participants. A dedicated section of the ISO's website has been established for all CLG materials, communications, annual reports, and other valuable information.³ 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.

 $^{^2\,\}rm CLG$ governance is fully explained in the "CLG Purpose and Structure" document available at http://www.iso-ne.com/static-

assets/documents/committees/comm_wkgrps/othr/clg/consum_lias_grp_gov/clg_structure_document_revised_12_29_0 9.pdf.

³ ISO New England's Consumer Liaison Group webpage is available at http://www.iso-ne.com/committees/industry-collaborations/consumer-liaison.

A glossary defining electricity market and power system terms is available on the ISO's website to assist CLG members in understanding frequently used electricity market or power system terms and acronyms.⁴

Since 2012, ISO New England has provided a mobile application offering smartphone access to frequently viewed real-time data on the ISO website and data portal, ISO Express.⁵ On June 21, 2018, the ISO launched the latest version of the app, known as "ISO to Go 2.0."

New and improved features of the app include the following:

- A map of pricing data including day-ahead and real-time prices for each of the region's eight load zones, the New England Hub, a reference price for electric energy in the region, and the six interchanges where electricity is imported from, or exported to, neighboring regions. App users can also view a rolling 12-hour pricing chart for each zone, as well as updates on any binding constraints in the region.
- Demand curves providing a simple visual of New England's actual consumer demand for electricity and how it tracks with the forecast. The updated app provides more detail on real-time regional demand throughout the day, as well as demand for previous days and key data from the ISO's morning report, three-day demand forecast, and seven-day capacity forecast.
- An enhanced fuel-mix section detailing the energy sources powering New England at any given moment, including capacity data for renewable energy resources.
- 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.

CLG participants are also encouraged to follow the ISO's online newsletter—the *ISO Newswire*—and subscribe to the mailing list to receive a monthly email highlighting some of the most recent articles.⁶ Likewise, ISO New England's *Regional Energy Outlook*, issued at the beginning of each year, is a valuable source of information on current trends and issues affecting the regional electric power grid.⁷ Each month, ISO New England'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.⁸ These memos can be found on the External Affairs page of the ISO website, along with presentations and speeches delivered by ISO technical experts, and senior management.

⁴ ISO New England's glossary of terms is available at http://www.iso-ne.com/participate/support/glossary-acronyms.

⁵ *ISO to Go 2.0* is available at <u>http://www.iso-ne.com/about/news-media/iso-to-go</u>. *ISO to Go* is available for free for the iPhone or iPad at the Apple App store or for Android devices at Google Play. ISO Express is available at <u>http://www.iso-ne.com/isoexpress/</u>.

⁶ The ISO Newswire is available at <u>http://isonewswire.com/</u>. To subscribe, send a blank email to <u>isolist-isonewswire-subscribe@mail.iso-ne.com</u>.

⁷ ISO New England, 2019 Regional Electricity Outlook (March 2019), <u>https://www.iso-ne.com/about/regional-electricity-outlook.</u>

⁸ The ISO's "Government and Industry Affairs" webpage is available at <u>https://www.iso-ne.com/about/government-industry-affairs</u>.

Section 3 Consumer Liaison Group Meeting Summaries for 2018

In 2018, the Consumer Liaison Group held quarterly meetings on issues of importance to electricity consumers in New England. The members of the CLG Coordinating Committee selected the topics, special guest speakers, moderators, and panelists featured at these meetings.

The topics discussed in 2018 were wide-ranging and diverse, including issues relating to the changing wholesale electricity markets, the evolution of energy efficiency (EE), and the electrification of the heating sector.

The four CLG meetings held in 2018 featured the following topics:

• **March 1**: How Have the Region's Wholesale Electricity Markets Evolved Over Time? Why Should Consumers Care?

Meeting location: New Castle, New Hampshire

• June 14: Transitioning from Energy Efficiency to the Efficient Use of Energy–What Does It Mean for Consumers?

Meeting location: Westborough, Massachusetts

- **September 20**: Electrification of the Heating Sector: Exploring Consumer Choices Meeting location: Windsor Locks, Connecticut
- **December 6**: The Evolving Markets: How Fuel Security Is Changing the Wholesale Electricity Markets and What That Means for Your Bottom Line

Meeting location: Boston, Massachusetts

Time is reserved during each meeting for audience questions and answers.

The following summaries capture the general discussions that took place at CLG meetings in 2018. They are not intended to capture every discussion and do not necessarily reflect the views of the ISO or the CLG Coordinating Committee.

3.1 March 1: How Have the Region's Wholesale Electricity Markets Evolved Over Time? Why Should Consumers Care?

Meeting objective: Discuss the evolution of New England's wholesale electricity markets and their impacts on consumers

Welcoming Remarks: Rebecca Tepper, the chair of the Consumer Liaison Group Coordinating Committee (CLGCC) and chief of the Energy and Telecommunications Division at the Massachusetts Attorney General's Office, offered welcoming remarks. She said the Coordinating Committee had recently held a retreat to discuss the group and that they came away with three main goals. First, they intend to send post-meeting emails to the CLG distribution list providing a summary of the meeting and links to all the meeting materials. Second, they want to explore different ways for the CLG to create additional opportunities for members of the CLG to talk more directly with ISO New England staff.⁹ And, third, the group wants to enhance its social media presence using its new Twitter handle. The CLG can be followed on Twitter at @CLG_NE.



3.1.1 Opening Remarks: Michael Giaimo, Commissioner, New Hampshire Public Utilities Commission

Michael Giaimo, commissioner at the New Hampshire Public Utilities Commission, shared remarks titled, "Observations from the Past Decade: A Look at the CLG and the Regional Power System."¹⁰ New Hampshire Governor Christopher Sununu appointed Giaimo to the post in August 2017.

Giaimo said that the CLG was founded to help inform and engage the consumers who use and pay for electricity in the region, but that ISO New England itself also benefits from direct communications with consumers and their advocates because it allows the ISO staff to better understand issues of concern to the people who use the electric power system.

The CLG has accomplished a lot in a "relatively short timeframe," Giaimo said, citing the following statistics: in nine years, the CLG has hosted 36 meetings, with a total of approximately 2,000 attendees and 150 speakers and presentations. Five Federal Energy Regulatory Commission (FERC) commissioners have addressed the group, as have two governors, one state treasurer, one attorney general, and one US Representative. Giaimo also noted that, in addition to the quarterly meetings, the ISO provides a variety of publications that can be helpful to consumers, including the annual report of the CLG, the monthly issues memo to the states, and analyses of wholesale and retail electricity rates.¹¹ He also made three suggestions for the CLG to be even more successful in the future:

• Try cohosting with state and local chambers of commerce.

assets/documents/2018/02/clg meeting giaimo keynote presentation march 1 2018 final.pdf.

⁹ On September 12, 2018, members of the CLG Coordinating Committee met in Holyoke, Massachusetts with ISO New England staff and members of the ISO's Board of Directors.

¹⁰ Michael Giaimo, "Observations from the Past Decade: A Look at the CLG and the Regional Power System," (March 1, 2018), <u>https://www.iso-ne.com/static-</u>

¹¹ Materials related to External Affairs presentations, speeches, and forums can be found at <u>https://www.iso-ne.com/about/government-industry-affairs/materials</u>.

- Consider outreach to members of the local energy bar associations, renewable and sustainable energy associations, and other pertinent groups.
- Consider inviting members of germane legislative committees.

Giaimo said that the wholesale markets have benefitted the region as a whole and that those markets and the six states' public policies have changed the region's resource mix. A key reason the region restructured was to empower consumers, he said. Competitive markets have also resulted in billions of dollars being invested in New England and have shielded ratepayers from bad investment decisions, he said.

"The system of captive ratepayers being susceptible to stranded costs has been replaced by developers and their shareholders bearing the risk and reward associated with the building, operating, and maintaining a generating resource," he said.

Giaimo concluded his presentation with a quiz that tested participants' knowledge of the region and the bulk electric system. He also took questions from the audience on topics including renewable energy and negative pricing in the wholesale energy markets.

3.1.2 Panel Discussion

Gus Fromuth, managing director of Freedom Energy Logistics and member of the CLG Coordinating Committee, moderated a panel of energy industry representatives to discuss the evolution of New England's wholesale electricity markets and their impacts on consumers.

Panelists included: Senator **Andy Sanborn** (R-Bedford), chairman, Ways and Means Committee, NH State Senate; **Carl Gustin**, senior advisor, Salient Point LLC; **Jonathan Peress**, senior director, Energy Market Policy, Environmental Defense Fund; and **Tanya Bodell**, executive director, Energyzt.

Andy Sanborn said that the majority of people's business challenges originate with elected officials, and he encouraged those in attendance to engage in the legislative process so their needs are better addressed. He said that the Governor's Office of Strategic Initiatives is close to finishing the state's updated 10-year energy plan, and he believes that it will focus on making energy more affordable for the businesses and residents of the Granite State. He also cautioned energy developers against trying to use eminent domain to build their projects.

Carl Gustin discussed the ways the electric system will need to change to meet the carbon-reduction goals of the New England states.¹² He said it can be difficult to plan for long-term needs because often forecasts and studies are not able to predict what change politics and innovation will produce. Also, as state officials attempt to find ways to achieve their carbon-reduction goals, he said that utilities are well suited to invest in renewable energy because of their access to private capital and their relationships with consumers.

Jonathan Peress noted that environmental concerns often go hand-in-hand with the needs of consumers.¹³ He said that the natural gas markets lack transparency, do not value variability, and are structured in a way that do not allow for an efficient buildout of infrastructure to serve natural-gas-fired generators. The natural

¹³ N. Jonathan Peress, "How Have the Region's Wholesale Electricity Markets Evolved Over Time? Why Should Consumers Care?" (March 1, 2018), <u>https://www.iso-ne.com/static-</u>

¹² Carl Gustin, "Pathways to 80% in 2050: Navigating Reality to Fulfill Aspirations," (March 1, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/02/clg meeting gustin panelist presentation march 1 2018 final.pdf</u>.

gas markets need to evolve, he said, so that having natural-gas-fired generators pay for natural gas infrastructure can make more business sense.

Tanya Bodell said that energy prices are significantly lower than 20 years ago, but retail prices have increased.¹⁴ She said that the retirement of baseload generators in the region has given way to many new, more efficient resources but that the New England states will not be able to reach their carbon-reduction goals without addressing the heating and transportation sectors. She said that markets are working and changing technologies will alter the operation of energy resources. These developments will drive change in business models and market rules. She also said that consumers will be able to play bigger roles in the energy markets in the future.

A question and answer session followed, touching on the role of markets in ensuring reliability and the details of the ISO's Forward Capacity Market (FCM).

3.1.3 ISO New England Update

Anne George, vice president for External Affairs and Corporate Communications at ISO New England, provided the ISO New England update.¹⁵ Highlights include:

- **Publications** now available include the following:
 - 2018 Regional Electricity Outlook, which provides an in-depth look at New England's biggest challenges to power system reliability and the solutions the region is pursuing¹⁶
 - The New England Power Grid Profile, which provides key grid and market statistics on how New England's wholesale electricity markets are securing reliable electricity at competitive prices¹⁷
 - New England State Profiles, which provide state-specific facts and figures concerning supply and demand resources tied into the New England electricity grid and state policies transforming the resource mix in the region¹⁸
 - **The** *2017 Report of the Consumer Liaison Group*, which includes meeting summaries, priorities of the CLGCC, and an analysis of wholesale and retail electricity rates¹⁹
- ISO New England's *Operational Fuel-Security Analysis* (OFSA)—In January 2018, the ISO released the results of its Operational Fuel-Security Analysis, a study assessing whether possible future resource combinations would have enough fuel to ensure bulk power system reliability throughout

¹⁴ Tanya Bodell, "The Evolution of New England's Electricity Markets (and What It Means for Consumers," (March 1, 2018), <u>https://www.iso-ne.com/static-</u>

assets/documents/2018/02/clg meeting bodell panelist presentation march 1 2018 final.pdf.

¹⁵ Anne George, "ISO New England Update," (March 1, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/02/clg meeting george iso update presentation march 1 2018 final.pdf</u>.

¹⁶ The latest information on the Regional Energy Outlook is available at https://www.iso-ne.com/about/regional-electricity-outlook/.

¹⁷ Key grid and market statistics are available at <u>https://www.iso-ne.com/about/key-stats/</u>.

¹⁸ New England state profiles are available on the ISO's "Presentations, Speeches, Papers, and Other Materials," webpage at https://www.iso-ne.com/about/government-industry-affairs/materials/.

¹⁹ ISO New England, 2017 Report of the Consumer Liaison Group (February 28, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/02/2017 report of the consumer liaison group final.pdf</u>. (CLG17)

an entire winter.²⁰ The results indicate that maintaining reliability is likely to become more challenging, especially if current power system trends continue. In particular, six major conclusions were as follows:

- **Outages**: The region is vulnerable to the season-long outage of any of several major energy facilities.
- **Stored fuels**: Power system reliability is heavily dependent on liquefied natural gas (LNG) and electricity imports; more dual-fuel capability is also a key reliability factor, but permitting for construction and emissions is difficult.
- **Logistics**: The timely availability of fuel is critical, highlighting the importance of fueldelivery logistics.
- Risk trends: All but four scenarios result in fuel shortages requiring rolling blackouts, indicating the trends affecting New England's power system may intensify the region's fuelsecurity risk.
- **Renewables**: More renewable resources can help lessen the region's fuel-security risk but are likely to drive coal- and oil-fired generation retirements, requiring higher LNG imports to counteract the loss of stored fuels.
- **Positive outcomes**: Higher levels of LNG, imports, and renewables can minimize system stress and maintain reliability; to attain these higher levels, delivery assurances for LNG and electricity imports, as well as transmission expansion, will be needed.
- Forward Capacity Auction #12—The ISO filed with FERC its finalized results of the twelfth Forward Capacity Auction (FCA #12) conducted on February 5 and 6, 2018.²¹ The auction procured 34,828 megawatts (MW) of capacity for 2021 to 2022. The auction acquired 30,011 MW of generation, including 174 MW of new generation, primarily in increased output at existing power plants. The auction also procured 514 MW of new energy-efficiency and demandreduction measures. In all, about 3,600 MW of EE and demand-reduction resources cleared. The FERC filing includes the list of resources obligated to be available in 2021 to 2022. The auction clearing price was \$4.63/kilowatt-month (kW-month) for all resources within New England and imports from New York. Most imports from Québec will be paid \$3.70/kW-month, and imports from New Brunswick will be paid \$3.16/kW-month. The estimated cost of the capacity market in 2021 to 2022 will be approximately \$2.07 billion.
- Wholesale Electricity Costs in New England—New England's wholesale electricity prices in 2017 were the second-lowest in 15 years, following 2016, which holds the record for the lowest average annual price since 2003. As described in Section 7, capacity market costs increased in 2017 due to higher clearing prices in FCA #8 amid significant resource retirements. (FCA #8 was held in February 2014 to procure the capacity resources needed in the 2017 to 2018 timeframe.)

At the conclusion of her presentation, George took questions on topics that included the future of baseload generation, the recent fuel-security analysis, and the ISO's role in the electric generator retirement process.

²⁰ ISO New England, *Operational Fuel-Security Analysis* (January 17, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/01/20180117 operational fuel-security analysis.pdf</u>. (OFSA 2018)

²¹ ISO New England, *Docket No. ER18-940 -000 Forward Capacity Auction Results Filing*, FERC filing for FCA #12 (February 28, 2018), https://www.iso-ne.com/static-assets/documents/2018/02/fca_12_results_filing.pdf.

3.2 June 14: Transitioning from Energy Efficiency to the Efficient Use of Energy–What Does It Mean for Consumers?

Meeting objective: Discuss the evolution of energy efficiency and its impact on consumers.

Opening Remarks: Rebecca Tepper, chair of the Consumer Liaison Group Coordinating Committee (CLGCC) and chief of the Energy and Telecommunications Division at the Massachusetts Attorney General's Office, offered welcoming remarks. She said the Coordinating Committee developed two initiatives to make clearer the group's communication with meeting participants and the public. First, it wants to make information about the group more accessible using its new social media presence on Twitter (@CLG_NE). Second, it aims to promote openness to new ideas for future meetings by encouraging attendees to submit their ideas in writing. The CLG intends to review the ideas and hopefully implement them in upcoming meetings.

3.2.1 Keynote Address: Edward Anthes-Washburn, Port Director, Port of New Bedford

Edward Anthes-Washburn, port director of the Port of New Bedford, shared remarks titled, "Developing Compatible Infrastructure and Economic Development for the Offshore Wind and Commercial Fishing Industries."²² Anthes-Washburn also serves as the chairman of a national committee on maritime economic development affiliated with the American Association of Port Authorities, a unified voice for the seaport industry.

Anthes-Washburn said that he wanted to explain the importance of promoting both the infrastructure and economic development of offshore wind "through the lens of the commercial fishing industry," which, he said, is the cornerstone of the economy of New Bedford and directly affected by the presence of the offshore wind industry soon to enter the area.

For 17 consecutive years, the Port of New Bedford ranked as America's #1 fishing port by value. In its *2016 Economic Impact Report*, three key points stood out as a reflection of what the port director considered the economic potency of commercial fishing in New Bedford:²³

- **\$9.8 billion of total economic value** was generated by the port, with \$3.3 billion generated by direct business revenue.
- **36,578 jobs were generated by the port**, creating 91% of direct jobs from the seafood industry. This economic impact broadens beyond those typically associated with commercial fishing because fabricators, fuel suppliers, welders, truckers, data scientists, marine biologists, and more contribute to the economic activity fostered by the port.

\$1.2 billion of federal, state, and local taxes were generated by the port,

Anthes-Washburn said that this economic activity resulting from the natural resources provided by the port holds enormous promise for the offshore wind industry if its entrance into New Bedford is well integrated with the commercial fishing industry. He explained how the port is already working to prevent conflict

²² Edward Anthes-Washburn, "Developing Compatible Infrastructure and Economic Development for the Offshore Wind and Commercial Fishing Industries," (June 14, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/06/clg meeting washburn keynote presentation june 14 2018 final.pdf</u>.

²³ New Bedford Harbor Development Commission, *Economic Impact Study of New Bedford/Fairhaven Harbor* (September 2016),

http://www.portofnewbedford.org/New%20Bedford%20Economic%20Impact%20Assessment%20September%20201 6.pdf.

between multiple users and that the siting of offshore wind plants must be strategically planned with regard for other marine users.

Anthes-Washburn noted current offshore wind developments that will affect the Port of New Bedford, including the 800 MW procurement from developer Vineyard Wind for Massachusetts electricity consumers, the 400 MW procurement from developer Deepwater Wind for Rhode Island electricity consumers, and the 200 MW procurement from developer Deepwater Wind for Connecticut electricity consumers. He said that with the size of the wind industry growing rapidly, as well as the East Coast fishing industry gravitating toward New Bedford, facilitating coexistence between the industries is essential for operating the port efficiently. He noted that the versatility in the port's water-dependent activities as well as its plans for dredging projects could accelerate economic diversity.

Anthes-Washburn concluded his presentation with an introduction to the Fisheries Advisory Committee on Offshore Wind, which is dedicated to integrating the offshore wind industry into the commercial fishing presence in New Bedford.

Anthes-Washburn also took questions from the audience on topics including economic planning and workforce development for the offshore wind industry.

3.2.2 Panel Discussion

Bob Espindola, Energy Systems program manager of Acushnet Company and member of the CLG Coordinating Committee, moderated a panel of energy industry representatives to discuss the evolution of energy efficiency and its impact on consumers.

Panelists included: **Sue Coakley**, executive director, Northeast Energy Efficiency Partnerships; **Brett Feldman**, principal research analyst, Navigant Research; Wendy O'Malley, vice president, MassDevelopment, and program manager, Property Assessed Clean Energy (PACE); and **Andy Haun**, chief technology officer, microgrids, Schneider Electric.

Sue Coakley said that the benefit of energy efficiency for consumers is clean, affordable energy that meets reliability needs and carbon-reduction goals.²⁴ While she stated that buildings are underutilized as a flexible electric power system resource, she noted that building-energy rating and labeling as well as integrated demand-side solutions could create more efficient homes and buildings and help meet grid needs. She said that the grid of the future entailed a two-way power flow dependent on responsive buildings.

Brett Feldman discussed why customer engagement is necessary and explained Customer Engagement through Demand-Side Management (CEDSM).²⁵ He explained that CEDSM can be achieved through home or business energy reports, virtual energy audits, and utility or vendor marketplaces. He also demonstrated how CEDSM can add value to commercial and industrial (C&I) and residential customers, noting automation, rewards programs, and user-friendly online access as the three pillars of energy customer engagement.

Wendy O'Malley explained PACE, or Property Assessed Clean Energy, a tax-assessment-based financing mechanism that makes it possible for owners of commercial, industrial, multifamily, nonprofit, and residential properties to obtain low-cost, long-term financing for energy-efficiency measures, water

²⁴ Sue Coakley, "Advanced Energy Efficiency," (June 14, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/06/clg meeting coakley panelist presentation june 14 2018 final.pdf</u>.

²⁵ Brett Feldman, "Customer Engagement Through Demand Side Management," (June 14, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/06/clg meeting feldman panelist presentation june 14 2018.pdf</u>.

conservation, renewable energy projects, and more.²⁶ PACE financing for commercial properties in Massachusetts was approved in 2016 and will be available in 2018, she said. She explained that a key element of PACE is the requirement for energy cost savings to exceed the cost of improvements.

Andy Haun said that advanced microgrids, which are integrated energy systems consisting of interconnected loads and distributed energy resources that can be controlled as a single entity, could help create a new energy landscape.²⁷ He explained how automated peak demand could minimize or avoid costs and how advanced microgrids could optimize for resiliency in threatening weather. He explained how Schneider Electric's Energy Control Center, battery energy storage system, and uninterruptible power supply could promote energy efficiency and resiliency.

A question and answer session followed, touching on strategic energy management for commercial industries and how consumers can self-monitor their energy efficiency.

3.2.3 ISO New England Update

Anne George, vice president for External Affairs and Corporate Communications at ISO New England, provided the ISO New England update.²⁸ Highlights include:

- **2018 summer outlook**—In the beginning of May, the ISO released its 2018 summer outlook press release, which assessed New England's capacity to meet consumer demand this summer. While the results indicate that New England is expected to have adequate electricity supplies, tight supply margins could develop if hot and humid weather occurs. New England possesses 32,000 MW of total capacity this summer, and approximately 1,630 MW of new generating capacity is expected to be available. Two major market projects will be implemented this summer:
 - **Pay-for-performance (PFP) capacity market incentives**, which aim to ensure that resource owners meet their obligations to provide energy or reduce demand during times of stress on the regional power system.
 - **Full integration of price-responsive demand into the daily energy market**—ISO New England will become the first grid operator to fully integrate demand-response resources into its daily energy dispatch and reserves process.
- ISO New England's 2018 Capacity, Energy, Load and Transmission (CELT) Report—In May 2018, the ISO released its annual CELT report, a long-term forecast report of capacity, energy, loads, and transmission.²⁹ The results indicate that energy efficiency and behind-the-meter (BTM) solar are reducing peak demand growth and overall electricity use over the next 10 years. The ISO forecasts a -0.2% annual growth rate for summer peak demand and a -0.9% annual growth rate for overall electricity use with EE and BTM solar. In particular, two major conclusions were as follows:

²⁶ Wendy O'Malley, "Property Assessed Clean Energy (PACE)," (June 14, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/06/clg meeting o-malley panelist presentation june 14 2018.pdf</u>.

²⁷ Andy Haun, "Schneider Electric: New Energy Landscape," (June 14, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/06/clg_meeting_haun_panelist_presentation_june_14_2018.pdf</u>.

²⁸ Anne George, "ISO New England Update," CLG presentation (June 14, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/06/clg meeting george iso update presentation june 14 2018 final.pdf.</u>

²⁹ The ISO's CELT reports and related material are available at <u>https://www.iso-ne.com/system-planning/system-plans-studies/celt/</u>.

- **Growth in solar PV**: The region has seen significant growth in solar PV installed on the distribution system.
- **Historic dip in midday demand**: April 21, 2018, saw an historic dip in midday demand with record-high solar power output in that demand in the afternoon hours was lower than during the overnight hours.

2017 *Annual Markets Report*—In May 2018, ISO New England's internal market monitor (IMM), which functions independently of ISO management and reports to the ISO Board of Directors, issued the 2017 Annual Markets Report (AMR). The AMR assesses the state of competition in the wholesale electricity markets administered by the ISO during the most recent operating year. The report included several key findings:

- Total costs: The cost of wholesale electricity experienced a 20% (or \$1.5 billion) increase over 2016, resulting in a total cost of \$9.1 billion in 2017. This increase was largely due to higher capacity market costs associated with the eighth Forward Capacity Auction (FCA #8), which took effect during the second half of 2017.
- Capacity costs: Capacity costs totaled \$2.2 billion in 2017, representing a 93% (or \$1.1 billion) increase over 2016.
- **Energy costs:** Energy costs totaled \$4.5 billion in 2017, representing a 9% (or \$400 million) increase over 2016, due largely to higher natural gas prices in 2017.
- **Fuel-security update**—New England is trending toward greater fuel-security risk based on historical experiences and the forward-looking results of the ISO's *Operational Fuel-Security Analysis*. Premature loss of existing non-pipeline-gas units will accelerate operational risks, and Exelon's plans to retire Mystic Generation Station in 2022 place added pressure on the fuel-security discussion. The ISO is pursuing three tracks to address fuel-security challenges over three different time frames:
 - **Immediate**: Seeking a waiver from FERC to retain Mystic generating units #8 and #9 for fuel security
 - **Short term:** Developing criteria to retain future resources for fuel security under the ISO tariff
 - **Long term:** Developing a market-based solution to ensure sufficient firm energy to maintain reliability in the winter
- **ISO to Go 2.0**—On June 21, 2018, ISO New England launched *ISO to Go 2.0*, a free mobile app updated with new and enhanced features, including day-ahead and real-time wholesale electricity price data; past, present, and future demand charts; statistics on what energy sources power New England at any given moment; and customizable push notifications.

At the conclusion of her presentation, George took questions on demand response and firm energy in winter, battery storage, and the ISO's role in long-term fuel-security solutions, among other topics.

3.3 September 20: Electrification of the Heating Sector: Exploring Consumer Choices

Meeting objective: Explore consumer choices for electrifying the heating sector

Welcoming Remarks: Elizabeth Mahony, senior policy advisor for energy in the Energy and Telecommunications Division at the Massachusetts Attorney General's Office, offered welcoming remarks.

She said the CLG plans to hold elections for members of its Coordinating Committee at the next quarterly meeting, which will take place on December 6 in Boston.

Mahony explained the criteria to run for the CLG Coordinating Committee. She said that any CLG member who is an electricity end user, directly represents ratepayers, is a member of a consumer organization, or is a government consumer or ratepayer advocate is eligible to serve. She also said that no more than four members of the committee can come from any one New England state. Employees of ISO New England do not serve on the committee, although the committee may invite them to participate in its meetings.

Any CLG member, including a current committee member, may present him or herself as a candidate for election at the December 6 meeting. Any CLG member, including current committee members, may nominate another CLG member as a candidate for election.

Mahony said any expression of interest in being a candidate for the Coordinating Committee, with supporting documentation (e.g., a cover letter, resume, or both), must be received by the close of business on Friday, November 2, 2018.

Mahony said that anyone interested in serving should contact her or Rebecca Tepper, chair of the CLG Coordinating Committee and chief of the Energy and Telecommunications Division at the Massachusetts Attorney General's Office, at (617) 963-2470 or <u>Rebecca.tepper@state.ma.us</u>

3.3.1 Opening Remarks: Robert Klee, Commissioner, Connecticut Department of Energy and Environmental Protection (DEEP)

Commissioner Klee explained that his agency and the administration of Governor Dannel Malloy are working to find ways to bring "cheaper, cleaner, more reliable energy" to the people of Connecticut. Commissioner Klee said that he hopes these priorities will be valued by the next governor's administration and that people of all political beliefs are demanding cleaner sources of energy. He said that climate change is driving these policies.

"Climate change is real, and it is happening," Commissioner Klee said. "It is something we are trying to address through our energy policy." He said that the state has set ambitious carbon-reduction goals and that the transition to a zero-carbon, clean energy future will require the electrification of the heating and transportation sectors.³⁰

"You need to electrify everything," Commissioner Klee said.

Commissioner Klee said that a series of storms have hit the state particularly hard in the last few years (including Irene, Irma, and Sandy), leaving hundreds of thousands of people without power and causing billions of dollars in damage. He said that such storms typically had occurred less frequently but now represent the "significant impact" climate change is having on the state. These storms have been raising costs on electricity ratepayers who need to pay for recovery efforts.

Commissioner Klee said that states throughout the country, including Connecticut, have taken on leadership roles after the Trump Administration withdrew the United States from the Paris Agreement regarding climate

³⁰ Connecticut passed "An Act Concerning Connecticut Global Warming Solutions" in 2008 that requires the state to reduce its greenhouse gas (GHG) emissions to 80% below 2001 levels by 2050. More information is available in the ISO Newswire article, "The New England states have an ongoing framework for reducing greenhouse gas emissions," (March 1, 2017), <u>http://isonewswire.com/updates/2017/3/1/the-new-england-states-have-an-ongoing-framework-for-reducin.html.</u>

change.³¹ Commissioner Klee said that states are investing in clean energy sector jobs making these decisions based on science, not politics; he noted that Connecticut's Renewable Portfolio Standard requires at least 40% of the state's electricity needs to be met by renewable energy sources by 2030.

Commissioner Klee said that the state is taking a multipronged approach to reach its goals, such as contracting for large-scale renewable energy projects, providing rebates for electric vehicles, and pursuing energy-efficiency projects. He said that the transportation and heating sectors are the most difficult to penetrate, noting that half of Connecticut's homes are heated by oil. Commissioner Klee said that it is easier to engage people in a discussion about cars than it is to discuss an appliance such as a hot water heater. He noted that the state needs to be careful to electrify its economy in a way that does not exacerbate the winter reliability challenges the New England grid currently faces. He said that his agency's efforts seek to protect the environment both now and 100 years in the future.

The commissioner took questions from the audience on topics including the siting of power lines underground instead of above ground, the merits of biofuels, and the role of natural gas plants in Connecticut's renewable energy future.

3.3.2 Panel Discussion

Joseph Rosenthal, principal attorney at the Connecticut Office of Consumer Counsel, moderated the discussion by a panel of industry representatives on the electrification of the heating sector and consumer choices.

Panelists included: **Mary Sotos**, deputy commissioner for energy, Connecticut Department of Energy and Environmental Protection; **Ronald Araujo**, manager, energy efficiency, Eversource Energy; **Emily Lewis O'Brien**, senior policy analyst, Acadia Center; and **Christian Herb**, president, Connecticut Energy Marketers Association.

Mary Sotos outlined the state's goals for reducing carbon emissions and described the emissions' profiles for different sectors of the Connecticut economy.³² She compared the state's profile with the rest of the country and described the projected reductions the state would need to make to meet its goals.

Ronald Araujo explained the types of heat pumps that customers can install and how varying technologies work.³³ He described the circumstances in which heat pumps offer savings to customers, the varying emissions reductions that can be tied to the appliances, and the different financial incentives available for Connecticut utility customers.

Emily Lewis O'Brien explained Acadia Center's EnergyVision 2030 project, which explores the clean energy market levels needed to achieve a 45% reduction in GHGs from 1990 levels.³⁴ She said the analysis shows that

³¹ The White House, "Statement by President Trump on the Paris Climate Accord," (June 1, 2017), <u>https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/</u>.

³² Mary Sotos, "Connecticut Department of Energy and Environmental Protection," (September 20, 2018), <u>https://www.iso-ne.com/static-</u>

assets/documents/2018/09/clg meeting sotos panelist presentation september 20 2018 final.pdf.

³³ Ronald Araujo, "Heat Pump Technology and Application," (September 20, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/09/clg meeting araujo panelist presentation september 20 2018 final.pdf</u>.

³⁴ Emily Lewis O'Brien, "Advancing the Clean Energy Future," (September 20, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/09/clg_meeting_obrien_panelist_presentation_september_20_2018_final.pdf</u>.

the Northeast states can achieve their 2030 climate goals if they act now on efforts to decarbonize the heating, transportation, and electricity sectors.

Christian Herb said that the amount of sulfur in heating oil has been reduced by 97%, and a study by the University of Connecticut showed that Connecticut fuel oil contained about 7% biodiesel.³⁵ He discussed the benefits of low-sulfur oil and the possible role that biofuels can play in the state's future energy mix and economy.

A question and answer session followed, touching on subjects including hot water heater design, the role of heat pumps in cooling, and the environmental impacts of natural gas extraction.

3.3.3 ISO New England Update

Anne George, vice president for External Affairs and Corporate Communications at ISO New England, provided the ISO New England update.³⁶ Highlights include:

• ISO New England's short- and long-term plans to address fuel-security challenges

George explained that fuel-security risk is the risk that resources in the region will not have, or be able to obtain, the fuel they need to produce the power required to meet system demand and maintain required reserves, particularly during extended periods of cold weather or other stressed system conditions. George explained that, working with stakeholders, the ISO recently filed a proposal with the FERC to retain resources seeking retirement on the basis of a fuel-security reliability need.³⁷ The ISO filed the proposal in response to a July 2, 2018, FERC order calling for interim tariff changes to address demonstrated fuel-security concerns in the near term.

In addressing the long-term challenges, George said that, working with stakeholders, the ISO is developing a market-based mechanism to address long-term fuel-security challenges facing the region and intends to file its proposal with FERC by July 1, 2019. The ISO has identified three broad objectives for improving winter energy security over the long term:

- **Risk reduction**: Minimize the heightened risk of unserved electricity demand during New England's cold winter conditions.
- **Cost effectiveness**: Efficiently use the region's existing assets and infrastructure to achieve this risk reduction in the most cost-effective way possible.
- **Innovation**: Provide clear incentives for new resources and innovative technologies that can reduce this risk effectively over the long term.
- The ISO's preparations for the thirteenth Forward Capacity Auction (FCA #13) FCA #13 is scheduled to take place in February 2019 to procure the resources needed during the June 1, 2022, to May 31, 2023, capacity commitment period. The annual auction procures resources

assets/documents/2018/09/clg meeting herb panelist presentation september 20 2018 final.pdf.

³⁵ Christian Herb, Connecticut Energy Marketers Association, "Connecticut Energy Marketers Association," (September 20, 2018), <u>https://www.iso-ne.com/static-</u>

³⁶ Anne George, "ISO New England Update," (September 20, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/09/clg meeting george iso update presentation september 20 2018 final.pdf</u>.

³⁷ On December 3, 2018, FERC accepted ISO New England's proposal to retain resources seeking retirement on the basis of a fuel-security reliability need. In its order, FERC accepted the ISO's near-term proposal in all respects. FERC, *Order Accepting Compliance Filing and Requiring Informational Filings*, 165 FERC ¶ 61,202 (December 3, 2018), https://www.iso-ne.com/static-assets/documents/2018/12/fuel_security_order.pdf.

to meet New England's forecasted capacity needs three years in the future and selects a portfolio of supply and demand resources through a competitive Forward Capacity Auction process.

• Update on ISO New England's Proposed 2019 Budget

The ISO's proposed capital budget for 2019 is projected to be \$28 million, the same as the 2018 capital budget. After depreciation and true up, the r**evenue requirement** for 2019 is projected to be \$190 million, which is \$5.5 million or 2.8% less than the 2018 revenue requirement. If the ISO's projected revenue requirement for 2019 was fully passed through to end-use customers, their cost would average \$0.98/month (based on average consumption).

• Operating Procedure No. 4 Event on Labor Day, September 3, 2018

Due to hotter-than-forecasted weather and unplanned generator outages (roughly 1,900 MW in total), power system operating reserves ran short in New England on Monday, September 3, 2018. The ISO implemented five out of eleven actions of Operating Procedure No. 4 (OP 4), *Action During a Capacity Deficiency*, to manage the shortage of reserves.

Capacity scarcity conditions were triggered under the ISO's pay-for-performance program. The PFP design allows for transfers of capacity revenue from underperforming resources to over-performing resources during scarcity conditions, providing strong incentives for resources to perform when needed. Charges for underperformance are paid by the underperforming resources, not electricity ratepayers.

At the conclusion of her remarks, George took questions on topics covering the duration of the OP 4 event, the FERC proceeding regarding the Mystic Generation Station, and communications procedures during a contingency event.

3.4 December 7: The Evolving Markets: How Fuel Security Is Changing the Wholesale Electricity Markets and What That Means for Your Bottom Line

Meeting objective: Discuss recent developments in wholesale electricity markets regarding winter energy security and the possible impacts on consumers in New England.

3.4.1 Facilitated Conversation: State Representative Thomas Golden, House Chair, Joint Committee on Telecommunications, Utilities, and Energy at the Massachusetts General Court

Representative Golden, a Democrat from Lowell, Massachusetts, participated in a conversation with Elizabeth Mahony, senior policy advisor for energy in the Energy and Telecommunications Division at the Office of the Massachusetts Attorney General. Their conversation covered a wide range of topics, including renewable energy procurements and natural gas safety.

Golden shared with the group that he is a small business owner and a "cautious" person by nature, a tendency that informs his policy positions. He said that he and his leadership team in the General Court wanted to pursue renewable energy and energy diversity while keeping energy bills affordable for his constituents. He said that the Massachusetts laws to procure offshore wind and other renewable resources have struck the balance lawmakers sought.

Golden also discussed some of the issues he believes will come to his committee when the legislative session begins in early 2019. He said that that the accidents that happened in September 2018 in the Merrimack Valley of Massachusetts when pipelines on the natural gas distribution system exploded will prompt his committee to give significant attention to pipeline safety. He told the group he does not believe the state should give up on natural gas for heating and electricity, but people need to feel safe in their own homes and so safety must be a priority. When asked to speak about the progress of the state's recently launched Solar Massachusetts Renewable Target (SMART) Program, which supports solar development in the state, Golden said he would prefer to give officials more time to implement the program and see what data comes in before offering an opinion.

A University of Massachusetts-Lowell graduate who often mentions his school pride, Golden was asked what role the state's public university system could play in Massachusetts' energy future. Golden was enthusiastic about the role that universities can play, saying everyone should affiliate with and look to a university for research and other resources. Golden noted that energy is never "fixed" because its technology and challenges are constantly evolving. He said that he is enthusiastic about the role that battery storage can play in the future of the electric grid, in part because of the state's newly-enacted "clean peak standard," which seeks to increase the use of clean energy during periods of high, carbon intensive, and expensive electricity demand.

Golden also took questions from the audience regarding natural gas pipeline safety, the ratepayer costs of distributed generation and renewable energy, and the possibility of state or ratepayer funding for interveners in rate cases.

3.4.2 Panel Discussion

Mary Smith, associate director of Energy Supply and Utility Administration at Harvard University, moderated the panel on winter energy security.

Panelists were: **Mark Karl**, vice president, Market Development, ISO New England; **Paul Peterson**, principal analyst, Synapse Energy Economics; and **Eric Annes**, associate research analyst, Office of Energy Supply, Bureau of Energy and Technology Policy, Connecticut Department of Energy and Environmental Protection.

Mark Karl explained that the region is shifting away from resources with on-site fuel supplies (coal, oil, nuclear) toward those that rely on "just-in-time" fuel delivery (natural gas) or variable weather conditions (renewables).³⁸ Karl explained that, during extended cold weather periods, energy may be insufficient to satisfy electricity demand, and the ISO is developing market-based mechanisms to attract and retain resources that can reliably deliver energy to the New England power system. These changes include three, conceptual designs: (1) multi-day-ahead energy markets, (2) a new ancillary service product that provides a price signal to maintain an energy inventory; and (3) a new (voluntary) seasonal auction ahead of the winter period to provide an incentive for resource owners to arrange energy inventory and replenishment for the coming winter.

Paul Peterson said that, between 2015 and 2030, natural gas use is projected to decrease by more than 40% and that the region needs to do more to ensure it can meet its carbon-reduction goals.³⁹ He also said that markets need to evolve to better value resources such as Millstone Nuclear Power Station, which is a source of carbon-free electricity.

Eric Annes said the possibility that power plants will not have or be able to procure the fuel they need to run, particularly in winter, is the foremost challenge to the region's power grid.⁴⁰ He also said that it will be

assets/documents/2018/12/clg meeting peterson panelist presentation december 6 2018 final.pdf.

³⁸ Mark Karl, "ISO New England Identifies Growing Energy-Security Risk as the Power System Undergoes Rapid Transformation," (December 6, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/12/clg meeting karl panelist presentation december 6 2018 final.pdf</u>.

³⁹ Paul Peterson, "The Evolving Grid: How Fuel Security Concerns are Affecting Your Costs," (December 6, 2018), <u>https://www.iso-ne.com/static-</u>

⁴⁰ Eric Annes, "The Evolving Markets: How Fuel Security is Changing the Wholesale Electricity Markets and What that Means for Your Bottom Line," (December 6, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/12/clg meeting annes panelist presentation december 6 2018 final.pdf</u>.

important to continue to reduce greenhouse gas emissions as the region works to reduce fuel-security risks. He also said that the energy-security challenges the region faces are a result of a market failure, and its associated costs should be shared by the entire region.

3.4.3 ISO New England Update

Anne George, vice president of External Affairs and Corporate Communications for ISO New England, delivered the ISO update. providing information on the 2018/2019 winter season, FCA #13, projected wholesale electricity market costs for 2018, and other information on wholesale and retail electricity costs in New England.

Highlights include:

• 2018/2019 Winter

Under normal weather conditions, the ISO expects to have adequate capacity to meet demand for electricity for winter 2018/2019. The Winter Reliability Program, which incentivized oil- and gasfired generators to secure fuel before the winter, has been discontinued because pay-forperformance incentives are now in place. A new energy-availability forecasting and reporting framework has been added to Operating Procedure No. 21 (OP 21), *Energy Inventory Accounting and Actions During and Energy Emergency*, to improve situational awareness and encourage proactive measures to ensure that energy is available when forecasted to be deficient.⁴¹ Also, a new market mechanism has been added to the daily energy market to allow generators to incorporate opportunity costs into their daily offers to help ensure that limited fuel supplies are used when most valuable for system reliability and cost effectiveness.

• Forward Capacity Auction #13

FCA #13 will take place in February 2019 to procure the capacity resources needed to meet the installed capacity target for the June 1, 2022, to May 31, 2023, capacity commitment period. The ISO qualified 34,925 MW of existing capacity resources and 8,716 MW of new capacity resources to compete in the auction to satisfy the capacity target, which is 33,750 MW. Three capacity zones will be modeled in the next auction:

- o Northern New England, including Vermont, New Hampshire, and Maine
- Southeastern New England, including Northeast Massachusetts/Boston and Southeast Massachusetts/Rhode Island
- o Rest-of-Pool, including Western Central Massachusetts and Connecticut

Competitive Auctions with Sponsored Policy Resources

The first Competitive Auctions with Sponsored Policy Resources (CASPR) substitution auction will be held in conjunction with FCA #13 for state-sponsored resources seeking commitments in the 2022 to 2023 timeframe. The CASPR design is intended to accommodate sponsored policy resources into the Forward Capacity Market over time while also preserving competitively based capacity pricing for other resources.

• **Projected 2018 Wholesale Electricity Market Costs** For 2018, the combined value of the energy market, the ancillary services market, and the capacity

⁴¹ ISO New England, Operating Procedure No. 21, *Energy Inventory Accounting and Actions During and Energy Emergency* (October 19, 2018), <u>https://www.iso-ne.com/static-assets/documents/rules_proceds/operating/isone/op21/op21_rto_final.pdf.</u>

market is projected to total about \$9.7 billion.⁴² A cold spell that ran from December 26, 2017, to January 8, 2018, resulted in significant increases in total wholesale energy market costs for the region. Figure 3-1 shows the total wholesale electric energy costs for winter 2017/2018 compared with winter 2016/2017.



Figure 3-1: Total wholesale electric energy costs for winter 2017/2018 compared with winter 2016/2017 (millions).

Note: Includes the Day-Ahead and Real-Time Energy Markets.

3.4.4 Election

The CLG bylaws provide for Coordinating Committee elections every two years, and the committee consists of 12 members with no more than four from any one New England state. This year, 16 people sought positions on the Coordinating Committee for the 2019 to 2020 term. At the meeting, the CLG voted for the following people to serve on the Coordinating Committee:

- Deena Frankel (VT)
- August Fromuth (NH)
- Douglas Gablinske (RI)

⁴² FCM values are based on auctions held roughly three years before each calendar year. The 2018 projection is the sum of preliminary 2018 January to October actuals and the November to December projected values. The November to December projections were derived as follows: on average, over the past five years (2013–2017), the value of the energy market and the ancillary markets accrued over the first 10 months of the year was approximately 82.28% and 81.19% of the annual total for the respective market. These percentages were applied to the totals from the first 10 months of 2018 to produce the November to December projections for these markets. The FCM values reflect the October 2018 value held constant for the remainder of the year. This projection is for illustrative purposes only; data are preliminary and subject to reconciliation.

- D. Maurice Kreis (NH)
- Erika Niedowski (RI)
- Guy Page (VT)
- Robert Rio (MA)
- Joseph Rosenthal (CT)
- Mary Smith (MA)
- Rebecca Tepper (MA)
- Liz Wyman (ME)
- Mary Usovicz (MA)

Section 4 Consumer Liaison Group Future Initiatives

ISO New England, working with the CLG Coordinating Committee 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 Consumer Liaison Group.

Additionally, the CLG Coordinating Committee will continue striving to attract more end-user participation, to increase participation from all New England states, and to increase the consumers' presence in ISO New England stakeholder discussions and initiatives. The CLG Coordinating Committee will also explore more ways to educate end users about industry institutions, such as NEPOOL and FERC, and about how consumers can advocate before industry institutions, government bodies, and elected officials.

As this marks the tenth year of the CLG, a special focus in 2019 will be on the accomplishments of the last decade and the goals for the next. The CLG Coordinating Committee and CLG members will work toward a renewed focus and updated bylaws.

Additional efforts will be made to pinpoint and explain to end users the basic policy dilemmas and choices currently facing the energy industry, the public, and government.

To fully engage consumers and consumer advocates, the members of the CLG Coordinating Committee meet before each of the quarterly meetings to identify and select topics of interest to address at future CLG meetings. In particular, the CLG Coordinating Committee attempts to identify market or policy issues likely to have a direct impact on consumers. The objective is to provide information and perspectives on a topic that consumers and consumer advocates may not otherwise acquire in the course of their other professional responsibilities.

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 discussion. The remaining CLG Coordinating Committee members provide additional assistance and approvals, when necessary. Before the CLG meeting, confirmed panelists participate in a planning call with the panel moderator (a CLG Coordinating Committee member) and ISO New England to plan for a robust, diverse, and well-organized discussion.

When choosing a topic for discussion, the CLG Coordinating Committee relies on conversations with and recommendations from the CLG membership, as well as the participant survey conducted after each quarterly CLG meeting. The CLG Coordinating Committee encourages all interested participants to recommend potential topics, either via the participant survey or direct communication with the CLG Coordinating Committee.

Section 5 ISO New England Activities and Initiatives

This section highlights the major topics presented by the ISO at CLG meetings in 2018. In addition to these presentations, the ISO's External Affairs Department issues a memo each month that provides timely updates on regional energy issues, stakeholder meetings, and other information that may be relevant to consumers.⁴³

5.1 Challenges and Opportunities Facing the New England Power System: Transformation of the Resource Mix

The New England electric power grid is undergoing a dramatic change in the resource mix. It is shifting away from resources with on-site fuel supplies (nuclear, oil and coal) toward resources with "just-in-time" fuel delivery (natural gas) and resources that are weather dependent (renewables). Nearly 20 years ago, more than 70% of the resources used to generate electricity—including nuclear, oil, and, coal— were able to store fuel on site, but these resources are retiring. In 2000, natural gas and renewables accounted for only 15% and 8%, respectively, of the region's electric generation, but this resource mix has changed dramatically. By 2018, renewables—both on the bulk electric system and on the distribution systems of the six New England states—accounted for a growing share of the region's electricity. Moreover, nuclear continued to supply a large portion of the electricity generated in New England, but oil and coal combined supplied only 2%, and the natural gas supply had increased to approximately half. Figure 5-1 shows the percentage of total electric energy production in New England by fuel type for 2000 and 2018.



Figure 5-1: Percentage of total energy production in New England by fuel type for 2000 and 2018.

Note: Renewables include landfill gas, biomass, other biomass gas, wind, grid-scale solar, municipal solid waste, and miscellaneous fuels. The data represents electricity generation within New England; it does not include imports or behind-the-meter (BTM) resources, such as BTM solar. Source: ISO New England <u>Net Energy and Peak Load by Source</u>.

⁴³ The monthly memos are posted at the ISO's CLG webpage at <u>http://www.iso-ne.com/committees/industry-collaborations/consumer-liaison</u>.

This evolving dynamic will pose both challenges and opportunities to the ISO and the region in the years to come, particularly during extended cold weather conditions, when the region's resources and fuel-delivery infrastructure could be particularly stressed.

5.1.1 Fuel-Security Challenge

ISO New England has been engaged with its regional stakeholders in a long-running dialogue about the fuelsecurity challenges the region faces during extreme cold weather periods, especially in light of the rapid transformation of the resource mix underway in New England. The ISO shared regular reports on these stakeholder discussions with the Consumer Liaison Group in 2018 to keep consumers informed, not only of the fuel-security challenges, but also about emerging solutions.

The 2017 CLG Report (Section 5.1.2), published in February 2018, and the March 2018 CLG meeting (see Section 3.1.3 above), discussed the ISO's *Operational Fuel-Security Analysis* (OFSA) issued in January 2018.⁴⁴ In the March 2018 meeting the ISO covered highlights of the OFSA and discussed opportunities for stakeholders to request alternative assumptions and scenarios for further analysis. At the June CLG meeting (see Section 3.2.3), the ISO explained that Exelon's announced plan to retire the Mystic generating units in Boston for the February 2019 Forward Capacity Auction (FCA #13) accelerated discussions on fuel security and triggered immediate action by the ISO.⁴⁵ In June 2018, the ISO also highlighted work with stakeholders to develop criteria to retain resources for fuel security (considered a short-term solution) and also a marketbased solution to ensure that firm energy was sufficient to maintain reliability in the winter (considered a long-term solution).

In September 2018, the ISO updated the CLG on short- and long-term plans to address fuel security (see Section 3.3.3). The ISO highlighted an August filing with FERC to retain resources seeking retirement on the basis of a fuel-security reliability need.⁴⁶ The ISO also highlighted ongoing discussions with stakeholders to develop a long-term, market-based solution and identified three broad objectives for improving winter energy security over the long term:

- Risk reduction: Minimize the heightened risk of unserved electricity demand during New England's cold winter conditions
- Cost effectiveness: Efficiently use the region's existing assets and infrastructure to achieve this risk reduction in the most cost-effective way possible
- Innovation: Provide clear incentives for new resources and innovative technologies that can reduce this risk effectively over the long term.

In December 2018, the ISO outlined the three elements of its long-term, conceptual approach to address energy security: **creating multi-day-ahead energy markets** and optimizing all energy over that timeframe, **creating new ancillary services** integrated into the multi-day-ahead optimization, and **creating a new**

⁴⁴ CLG17, https://www.iso-ne.com/static-

assets/documents/2018/02/2017_report_of_the_consumer_liaison_group_final.pdf, and OFSA 2018, https://www.isone.com/static-assets/documents/2018/01/20180117_operational_fuel-security_analysis.pdf.

⁴⁵ The ISO filed a waiver request with FERC to retain the Mystic generating units, but the agency subsequently denied this request. See FERC, *Order Accepting and Suspending Filing and Establishing Hearing Procedures*, 164 FERC ¶ 61,022, Docket No, ER18-1639-000 (July 13, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/07/er18-1639-000.pdf</u>.

⁴⁶ ISO New England, ISO New England Inc. Compliance Filing to Establish a Fuel Security Reliability Standard, Short-Term Cost-of-Service Mechanism, and Related Cost Allocation for Out-of-Market Compensation in Docket No. EL18-182-000, and Docket No. ER18-___-000 (August 31, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/08/fuel security compliance filing.pdf</u>.

(voluntary) seasonal auction ahead of the winter period to provide an incentive for resource owners to arrange energy inventory and replenishment for the coming winter.

The ISO is still developing this long-term, market-based solution and is working toward making a filing with FERC in the second half of 2019.

5.1.2 For More Information

In addition to the quarterly CLG meetings, the ISO posts a monthly issues memo on the CLG webpage.⁴⁷ The memo features regular updates on fuel security and related ISO filings and FERC orders.

The ISO has also created a webpage to post updates on operational fuel-security analysis and winter energy security.⁴⁸ This webpage includes a link to the OFSA, subsequent stakeholder meeting materials, and relevant ISO filings to the FERC.

5.2 Regional System Planning

Two aspects of the ISO's planning process are developing forecasts of energy use and preparing the 10-year Regional System Plan.

5.2.1 2019 Regional System Plan and Public Meeting

One of ISO New England's central missions is ensuring that the regional transmission system can reliably deliver power to consumers under a wide range of future system conditions. The ISO conducts comprehensive regional power system planning through an open stakeholder process and publishes a regional system plan (RSP) that summarizes the long-term (10-year) reliability needs of New England's transmission system. Stakeholders, including state consumer advocates, have opportunities to provide input to the planning process and the RSP through the Planning Advisory Committee (PAC).

The RSP is published every other year, the latest one in November 2017, although information about system planning is shared regularly with stakeholders through the PAC.⁴⁹ In addition to regular PAC meetings, the ISO hosts a biennial public meeting to review the final draft RSP. The next RSP public meeting will be held in September 2019. The ISO will provide more details to the CLG as they become available.

5.2.2 Energy-Efficiency and Distributed Generation Forecasts

Since 2012, the ISO has developed an energy-efficiency (EE) forecast to equip system planners with information about the long-term impacts of state-sponsored EE investments on the region's peak and overall demand for energy.

Through the Forward Capacity Market, the ISO identifies EE resources that will be developed in the near term (i.e., in approximately the three-to-four-year timeframe) if these resources take on a commitment through the capacity auction. The ISO develops the EE forecast to identify EE resources that will be developed beyond the

⁴⁷ The ISO's "Consumer Liaison Group," webpage is available at https://www.iso-ne.com/committees/industry-collaborations/consumer-liaison/.

⁴⁸ Information on the OFSA and winter energy security is available at https://www.iso-ne.com/committees/key-projects/operational-fuel-security-analysis/.

⁴⁹ ISO New England, *2017 Regional System Plan* (November 2, 2017), <u>https://www.iso-ne.com/static-assets/documents/2017/11/rsp17 final.docx</u>. The ISO's "System Planning." webpage is available at <u>https://www.iso-ne.com/system-planning</u>, and the "Regional System Plan," webpage is available at <u>https://www.iso-ne.com/system-planning/system-plans-studies/rsp/</u>.

FCM timeframe; this information is an input to long-term transmission planning studies. The last 2018 EE forecast was released on May 1, 2018, with the next one scheduled for release in May 2019.⁵⁰ See Figure 5-2.



Figure 5-2: Energy efficiency in New England, through 2017 and forecasted for 2027 (MW).

Note: EE through 2017 includes EE resources participating in the Forward Capacity Market. EE in 2027 includes an ISO-New England forecast of incremental EE beyond the FCM. **Source:** Final 2018 CELT Report.

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. For purposes of this forecast, DG resources are 5 MW or less in nameplate capacity and are interconnected to the distribution system. Solar PV resources represent the largest share of DG resources throughout New England.

The final 2018 PV forecast shows steady growth in PV through 2027, with approximately 5,750 MW of solar PV (nameplate) to be installed by 2027 throughout New England.⁵¹ The forecast also reported that about 2,390 MW of solar PV had been installed throughout New England through the end of 2017. Table 5-1 shows the 2018 PV forecast for New England and a breakout for each state.

<u>assets/documents/2018/03/a03-2018-pv-forecast.pdf</u>. More information on the ISO's PV forecast is available at its "Distributed Generation Forecast Working Group," webpage (2019), <u>http://www.iso-ne.com/committees/planning/distributed-generation</u>.

⁵⁰ ISO New England, *Final 2018 Energy-Efficiency Forecast for 2018-2027* (May 1, 2018), <u>https://www.iso-ne.com/system-planning/system-forecasting/energy-efficiency-forecast</u>. More information on the ISO's energy-efficiency forecast is available at its "Energy-Efficiency Forecast Working Group," webpage (2018), <u>http://www.iso-ne.com/committees/planning/energy-efficiency-forecast</u>.

⁵¹ ISO New England, *Final 2018 Solar PV Forecast* (May 1, 2018), <u>https://www.iso-ne.com/static-</u>

States		Annual Total MW (AC nameplate rating)														
	Thru 2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Totals				
СТ	365.6	88.6	86.8	89.8	80.6	72.9	53.7	52.2	50.6	49.0	47.4	1,037.3				
МА	1,602.3	296.7	228.0	228.0	215.3	215.3	215.3	215.3	135.1	130.9	126.7	3,608.9				
ME	33.5	10.2	10.2	10.2	9.6	9.6	9.6	9.6	9.6	9.6	9.6	131.4				
NH	69.7	13.8	13.8	13.8	13.1	13.1	13.1	13.1	13.1	13.1	13.1	202.7				
RI	62.2	34.5	34.5	31.4	29.6	29.6	29.6	29.6	29.6	29.6	29.6	370.2				
VT	257.2	31.5	22.5	22.5	21.3	21.3	21.3	21.3	21.3	21.3	21.3	482.5				
Regional Annual (MW)	2,390.5	475.3	395.8	395.8	369.5	361.9	342.7	341.1	259.3	253.5	247.7	5,832.9				
Regional Cumulative (MW)	2,390.5	2,865.8	3,261.6	3,657.4	4,026.9	4,388.8	4,731.4	5,072.5	5,331.8	5,585.3	5,832.9	5,832.9				

Table 5-1ISO New England 2018 PV Forecast (Nameplate Capacity, MWac)

Source: ISO New England, Final 2018 PV Forecast, presentation (March 19, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/03/a03-2018-pv-forecast.pdf.</u>

The EE and solar PV forecasts are developed with input from stakeholders and published in the ISO's annual *Capacity, Energy, Load and Transmission (CELT) Report.* ⁵²

5.3 Wholesale Electricity Markets

In 2018, the ISO New England provided updates regarding the markets it designs and operates, with key points summarized below.

5.3.1 Reports on Market Performance

The ISO regularly reports on the performance of the region's wholesale electricity markets.⁵³ In addition to detailed quarterly, monthly, and weekly reports, the ISO's internal and external market monitors prepare comprehensive annual reports on the development, operation, and performance of the markets.⁵⁴

In May 2018, the internal market monitor published the *2017 Annual Markets Report*.⁵⁵ 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, 2017, and found that New England's capacity, energy, and ancillary service markets performed well and exhibited competitive outcomes.

Among other observations, the report noted that the total wholesale cost of electricity in 2017, at \$9.1 billion, was considerably higher than 2016, increasing by 20%, or by \$1.5 billion. This increase was substantially due to higher capacity market costs associated with the eighth Forward Capacity Auction (FCA #8), which took effect during the second half of 2017. Capacity costs increased by \$1.1 billion, or by 93%, over 2016 costs. Up

⁵² The ISO's CELT reports and related material are available at <u>https://www.iso-ne.com/system-planning/system-plans-studies/celt/</u>.

⁵³ The ISO's various market reports are posted at its "Market Performance Reports," webpage (2018), <u>http://www.iso-ne.com/markets-operations/market-performance/performance-reports</u>.

⁵⁴ The internal market monitor's annual reports are posted at <u>http://www.iso-ne.com/markets-operations/market-monitoring-mitigation/internal-monitor</u>. The external market monitor's annual reports are posted at <u>http://www.iso-ne.com/markets-operations/market-monitoring-mitigation/external-monitor</u>.

⁵⁵ ISO New England, *2017 Annual Markets Report* (May 17, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/05/2017-annual-markets-report.pdf</u>.

until FCA #8, capacity prices were relatively low and set administratively at the market floor prices due to surplus capacity conditions. The report also noted that capacity costs represent an increasing share of overall wholesale costs.

5.3.2 Forward Capacity Auction #13

The thirteenth Forward Capacity Auction, which was conducted on February 4, 2019, concluded with sufficient resources to meet peak demand in 2022 to 2023. Preliminary results indicated the clearing price was the lowest in six years.

The auction was the first run under the Competitive Auctions with Sponsored Policy Resources rules, which include a secondary substitution auction where resources interested in retiring can trade their capacity supply obligation to new state-sponsored resources that did not clear in the primary auction.

FCA #13 closed at a preliminary clearing price of \$3.80/kW-month across New England, compared with \$4.63/kW-month in the previous year's auction. The substitution auction closed with Vineyard Wind, an offshore wind project in development off the coast of Massachusetts, assuming an obligation of 54 MW from an existing resource that will retire in 2022 to 2023.

Resources totaling 43,641 MW, including 34,925 MW of existing capacity and 238 new resources totaling 8,716 MW, qualified to participate in the FCM, while the regional capacity target for 2022 to 2023 was 33,750 MW.

The primary auction concluded with commitments from 34,839 MW to be available in 2022 to 2023, with 1,089 MW of surplus supply over the capacity requirement. (The auction rules allow the region to acquire more or less than the capacity target, providing flexibility to acquire additional capacity and enhanced reliability at a cost-effective price.) More than 2,600 MW of new resources secured obligations during the primary and substitution auctions, including the Killingly Energy Center, a 650 MW natural gas plant under development in Connecticut, new energy-efficiency and demand-response resources, and imports.

The annual FCM auction is held three years before each capacity commitment period to provide time for new resources to be developed. Capacity resources can include traditional power plants, renewable generation, imports, and demand resources such as load management and energy-efficiency measures. Resources that clear in the auction will receive a monthly capacity payment in that future year in exchange for their commitment to provide power or curtail demand when called on by the ISO.

Resources that fail to meet their capacity commitment during a shortage event must refund part of their capacity payment; this refunded money goes to resources that overperformed during the shortage event. The capacity market is separate from the energy market, where resources with and without a capacity commitment compete on a daily basis to provide power and are paid for the electricity they produce.

5.4 The ISO's Budget Review Process

After an extensive review process with state regulators, the ISO filed its proposed 2019 administrative and capital budgets with FERC on October 15, 2018.⁵⁶ The ISO's 2019 revenue requirement, after depreciation and true-up for actual expenses and collections in 2018, is \$188.7 million, which is \$6.8 million or 3.5% less than the 2018 revenue requirement. If the ISO's projected revenue requirement for 2019 was fully passed

⁵⁶ ISO New England Inc., *Filing of 2018 Capital Budget and Revised Tariff Sheets for Recovery of 2019 Administrative Costs, Docket No. ER18*- (October 15, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/10/2019 iso budget filing.pdf</u>.

through to end-use customers, their cost would average \$0.98/month. The 2019 capital budget is projected to be \$28 million, the same as the 2018 capital budget.

On December 18, FERC issued a letter order accepting the ISO's proposed 2019 administrative and capital budgets, effective January 1, 2019, as requested by the ISO.⁵⁷

The ISO's budget-development process begins in January of each year with stakeholder discussions on priorities in planning, operations, and capital projects. The ISO then presents a five-year strategic plan to give stakeholders a better understanding of its longer-term, multiyear objectives. In the June to August timeframe, 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 includes a preliminary budget presentation at the annual New England Conference of Public Utilities Commissioners (NECPUC) Symposium in June and an additional budget presentation with the New England states in August.⁵⁸ After the budget presentation in August, the New England states can submit questions and comments on the proposed budget, for which the ISO issues formal responses. The comments submitted by the New England states and the ISO's responses are filed with FERC in October alongside the proposed budget.

⁵⁷ FERC, 2019 Capital Budget and Revised Tariff Sheets for Recovery of 2019 Administrative Costs, Docket No. ER19-

^{107-000,} letter order (December 18, 2018), <u>https://www.iso-ne.com/static-assets/documents/2018/12/er19-107-000_2019_Capital_Budget_Order.pdf.</u>

⁵⁸ ISO New England, *Settlement Agreement*, Docket Nos. ER13-185, ER13-192 (May 13, 2013), <u>http://www.iso-ne.com/regulatory/ferc/filings/2013/may/er13-185-000 5-9-13 settlement agreement.pdf</u>.

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. The ISO first conducted this analysis in 2009 and has subsequently updated it each year for the annual CLG report.

The analysis concluded that 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 the retail power procurement practices of each utility and state. Understanding these differences is essential when comparing the two markets.

Table 6-1 shows the range of average wholesale market costs for calendar years 2012 to 2018 among the New England states and the range of residential retail power supply rates in effect immediately thereafter (i.e., on January 1 of each year) for each of the states with unbundled retail electricity markets.

	Wholesale Market Costs (¢/kWh)	Date Residential Retail Power Supply Rates in Effect	Residential Retail Power Supply Rates ^(b) (¢/kWh)
2012	4.82 - 5.10	January 1, 2013	7.19 - 9.08
2013	6.75 – 7.23	January 1, 2014	6.81 - 9.56
2014	7.53 – 8.27	January 1, 2015	7.56 – 15.56
2015	5.43 - 5.78	January 1, 2016	6.56 - 11.85
2016	4.11 - 4.37	January 1, 2017	6.64 - 10.36
2017	5.36 - 5.68	January 1, 2018	7.83 – 12.61
2018	7.48 - 7.81	January 1, 2019	8.92 - 13.51

 Table 6-1

 Wholesale Market Costs and Residential Retail Power Supply Rates^(a)

(a) The analysis is based on a hypothetical residential consumer that uses 750 kWh per month. The values indicate a range of lowest-to-highest costs among the states. Wholesale markets costs for 2018 are preliminary.

(b) The range of residential retail power supply rates includes the states that have unbundled retail electricity markets. Vermont has not unbundled its retail electricity market; therefore, its rates are not included as part of this analysis.

Additional results of the analysis are as follows:

• From 2017 to 2018, wholesale market costs increased 38 to 40% in all the New England states, largely because of increases in wholesale capacity costs during 2018, which were driven by significant resource retirements, resulting in higher clearing prices in FCA #8 and FCA #9. Connecticut, Maine, Massachusetts, and Rhode Island saw an increase in power supply rates in effect on January 1, 2019, compared with power supply rates in effect on January 1, 2018. New Hampshire saw a decrease in its power supply rate year over year.

- Five out of six states saw an increase in total residential retail electricity rates in effect on January 1, 2019, compared with total residential retail electricity rates in effect on January 1, 2018. These rates include costs for power supply, transmission, distribution, and all other delivery service charges.⁵⁹
- The estimated regional transmission rate increased by approximately 2% from 2017 to 2018 (from 1.7190 ¢/kWh in 2017 to 1.7584 ¢/kWh in 2018) and is equivalent to 7 to 10% of total residential retail electricity rates in effect on January 1, 2019, which ranged from 17.17 ¢/kWh to 25.28 ¢/kWh.⁶⁰
- A review of actual transmission rates for residential retail consumers in Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island in effect on January 1, 2019 shows that transmission represents 11% to 18% of total residential retail electricity rates.⁶¹

⁵⁹ Total residential retail electricity rates in effect on January 1, 2018, ranged from 16.20 to 24.20 ¢/kWh among the New England states. Total residential retail electricity rates in effect on January 1, 2019, ranged from 17.17 to 25.28 ¢/kWh among the New England states.

⁶⁰ 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 2018, the period is based on the 12 months ending December 31, 2018. 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/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.

⁶¹ The difference between actual transmission rates for residential consumers and the regional transmission rate is the inclusion of local transmission costs and projects in the residential transmission rates. Additionally, methodologies to allocate transmission costs to residential customers are likely to vary by state and utility.

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 decade, total annual costs have ranged from a low of \$7.7 billion in 2016 to a high of nearly \$15 billion in 2008. Table 7-1 summarizes New England's wholesale electricity costs for 2008 to 2018.

	2008		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018 ^(b)	
	\$ Mil.	¢/kWh	\$ 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)	\$12,085	8.4	\$5,884	4.3	\$7,284	5.2	\$6,695	4.9	\$5,193	3.9	\$8,009	6.0	\$9,079	6.9	\$5,910	4.5	\$4,130	3.2	\$4,498	3.5	\$6,041	4.7		
Ancillaries ^(d)	\$366	0.3	\$190	0.1	\$164	0.1	\$39	0.0	\$56	0.0	\$152	0.1	\$331	0.3	\$210	0.2	\$146	0.1	\$132	0.1	\$143	0.1		
Capacity ^(e)	\$1,505	1.1	\$1,768	1.3	\$1,647	1.2	\$1,345	1.0	\$1,182	0.9	\$1,039	0.8	\$1,056	0.8	\$1,110	0.8	\$1,160	0.9	\$2,245	1.8	\$3,606	2.8		
Subtotal	\$13,956	9.8	\$7,842	5.8	\$9,095	6.5	\$8,079	5.9	\$6,431	4.8	\$9,200	6.9	\$10,466	8.0	\$7,229	5.5	\$5,437	4.2	\$6,875	5.4	\$9,789	7.6		
Transmission charges ^(f)	\$869	0.6	\$1,115	0.8	\$1,417	1.0	\$1,368	1.0	\$1,493	1.1	\$1,822	1.4	\$1,828	1.4	\$1,964	1.5	\$2,081	1.6	\$2,199	1.7	\$2,249	1.7		
RTO costs ^(g)	\$124	0.1	\$116	0.1	\$145	0.1	\$130	0.1	\$139	0.1	\$167	0.1	\$165	0.1	\$165	0.1	\$180	0.1	\$193	0.2	\$195	0.2		
Total	\$14,949	10.5	\$9,073	6.6	\$10,657	7.6	\$9,577	7.0	\$8,063	6.0	\$11,189	8.4	\$12,459	9.5	\$9,358	7.1	\$7,698	5.9	\$9,267	7.3	\$12,233	9.4		

 Table 7-1

 New England Wholesale Electricity Costs, 2008 to 2018 (in Millions and ¢/kWh)^(a)

(a) Average annual costs are based on the 12 months beginning January 1 and ending December 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 2018 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.

(e) Capacity charges are those associated with the transitional Installed Capacity (ICAP) Market through May 2010 and the Forward Capacity Market from June 2010 forward.

(f) Transmission charges reflect the collection of transmission owners' revenue requirements and tariff-based reliability services, including blackstart capability, voltage support, and FCM reliability. In 2018, the cost of payments made to these generators for reliability services under the ISO's *Open-Access Transmission Tariff* (OATT) was \$37.0 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 run and 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 2008 and 2018, the ISO's annual costs have ranged from \$116 million to \$195 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 2018, the total value of all wholesale electricity costs, including the cost of regional transmission upgrades and ISO operations, was approximately \$12.2 billion. Allocating this cost across the load served at a wholesale level (real-time load obligation) in 2018 yields a rate of 9.4 ¢/kWh. Wholesale values for 2018 are preliminary and subject to reconciliation.