NESCOE

2018 ANNUAL REPORT

TO THE NEW ENGLAND GOVERNORS

NEW ENGLAND STATES COMMITTEE ON ELECTRICITY
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TABLE OF CONTENTS

~ 2018 ~

Wholesale Competitive Markets, Then and Now

Since the mid-1990s, New England has generally relied on competitive wholesale markets to select resources to serve electricity consumers at the lowest cost without regard to resource type or fuel source. The wholesale markets were designed to provide reliable system operations, attract investment, drive down wholesale prices, and increase generation fleet efficiency—all for the ultimate benefit of consumers. The recent Forward Capacity Auction concluded with excess capacity to meet consumers' demand in 2022/2023 and at the lowest capacity price in six years, while wholesale energy prices remained below costs in the first year of markets.

Nevertheless, in more recent years, ISO New England and some states have also turned to different means to satisfy evolving needs, including "energy security" and state energy and environmental law compliance.

Questions about ***energy security*** - what happens during extended cold weather given New England's resource mix and static fuel delivery infrastructure - dominated discussion in 2018. Under the banner of energy security, ISO New England recommended paying a retiring generator outside of the resource- and fuel-neutral auction that selects resources to serve consumers based on price. FERC approved a first-in-the-nation, two-year energy security cost-of-service contract to retain the generator *and*, in effect, its fuel supply source - a liquified natural gas import terminal.

In 2018, several states continued to pursue contracts to fund development of renewable and/or no- or low-carbon energy resources pursuant to the requirements of ***state energy and environmental laws***. A state also concluded that an existing no-carbon resource was a retirement risk and, after a competitive solicitation, announced an intent to offer that resource a ten-year contract.

Years ago, the New England states cautioned ***that for ISO New England's system planning and wholesale competitive markets to be sustainable, they must reasonably account for and accommodate the requirements of state energy and environmental laws***. The challenges to doing so are fundamental. They include complex jurisdictional questions, ensuring that consumers pay the cost of their own state's laws and not others', and achieving state law compliance at the lowest possible cost to consumers. In 2017, ISO New England implemented a "substitution auction" that offers the potential to accommodate some state laws - those in place prior to January 2018 - *if and to the extent* other resources choose to retire. In 2018, the first substitution auction allowed 54 megawatts of such resources into the market.

Wholesale Market Objectives, Then and Now: In the 1990s, the most often cited state goals of the transition to competitive wholesale markets were: placing risks of business decisions on investors rather than consumers and meeting consumers' needs and preferences with lowest costs, while not diminishing environmental quality, compromising energy efficiency, or jeopardizing reliability.[1]

At that time, wholesale markets were not specifically designed to incent investment in new fuel supply infrastructure or in spare on-site fuel supply at generator facilities in case cold weather rolled in and stayed. Similarly, wholesale markets were not designed to account for or to advance a state's no-or-low carbon energy requirements or other environmental objectives. Back then, states created Renewable Portfolio Standards as the vehicle through which to support development of the types and amounts of new renewable resources each state identified as right for its consumers, and at a price to consumers that each state capped according to its judgment in setting an alternative compliance payment.

ISO New England and states' increasing reliance on non-wholesale market alternatives to satisfy evolving needs calls for a rethink of what we are asking markets to do now and a fresh look at whether and what elements of the decades' old wholesale market objectives stand up to current circumstances and law. To the extent those objectives - and consequent market design - require adjustment, New England consumers will be best served by states, ISO New England and diverse stakeholder perspectives working together to sort out how to make the wholesale markets deliver on them.

[1] *Electric Restructuring in New England, A Look Back*, December 2015, http://nescoe.com/wp-content/uploads/2015/12/RestructuringHistory_December2015.pdf.

advancing policies that will provide electricity at the lowest possible price over the long-term, consistent with maintaining reliable electric service and environmental quality

NESCOE

SECTION I: GOVERNANCE

A Board of Directors representing the six New England states directs NESCOE's affairs and engagement in regional issues. Each Governor appoints the state's NESCOE Manager. Regardless of the number of individuals each Governor appoints as a NESCOE Manager, each New England state has one undivided vote in arriving at NESCOE determinations.

The vast majority of NESCOE determinations have been unanimous, reflecting the commonality of interests across the region and New England states' efforts to achieve consensus on regional electricity matters. In circumstances where there is not consensus, NESCOE makes determinations with a majority vote (i.e., a numerical majority of the states) and a majority weighted to reflect relative electric load of each state within the region's overall load.

2018 NESCOE Managers

State of Connecticut
Katie S. Dykes
Commissioner, Department of Energy and Environmental Protection

Katie Scharf Dykes is the Commissioner of Connecticut's Department of Energy & Environmental Protection (DEEP). She was nominated by Governor Ned Lamont to serve as the Commissioner of DEEP, and was confirmed on February 20, 2019. Katie previously served as Chair of the Connecticut Public Utilities Regulatory Authority (PURA) from 2015-2018, and as Deputy Commissioner for Energy at Connecticut DEEP from 2012-2015. Katie also served as the Chair of the Board of Directors of the Regional Greenhouse Gas Initiative, Inc. (RGGI) from 2014 to 2017. RGGI is a multi-state effort focused on reducing carbon emissions from electric generating facilities. Katie joined CT DEEP in March 2012 after prior service as Deputy General Counsel for the White House Council on Environmental Quality and as a Legal Advisor to the General Counsel for the U.S. Department of Energy. She is a graduate of Yale College and the Yale Law School.

State of Maine
Mark Vannoy
Chairman, Public Utilities Commission

Mark Vannoy was appointed Chairman of the Maine Public Utilities Commission in December 2014 by Governor Paul R. LePage. He had previously served as Commissioner being appointed in June 2012 and reappointed in May 2013. Prior to coming to the Commission, he worked as an Associate Vice President in the infrastructure and civil practice group at Wright Pierce in Topsham, Maine. Before moving to Maine in 2000, he served as an Officer in the United States Navy, completing tours as a NROTC instructor at Cornell University, and a nuclear tour, as the Damage Control Assistant aboard CGN36 USS California. Chairman Vannoy graduated from the United States Naval Academy in 1993 with a Bachelor of Science in Ocean Engineering. He completed his Masters of Engineering at Cornell University in 2000. His term expires in March 2019.

Commonwealth of Massachusetts
Angela O'Connor
Chairman, Department of Public Utilities

Angela M. O'Connor was appointed by the governor of Massachusetts as the Chairman of the Department of Public Utilities (DPU) in January 2015. Prior to being appointed by the governor, O'Connor was the executive director, based in Boston, of Technet for the northeast region. Technet is a national, bipartisan CEO-led trade association founded in 1997 by a group of Silicon Valley visionaries to create a bridge for the technology industry with state and federal policymakers. O'Connor joined Technet from the New England Power Generators Association (NEPGA) – the largest trade association in the region representing electric power generators. As the organization's founding president, O'Connor provided strategic leadership to NEPGA and served as chief spokesperson for the owners and operators of the electric generating infrastructure in New England. O'Connor previously served as vice president of energy policy at Associated Industries of Massachusetts (A.I.M.), the commonwealth's principal statewide employer organization. In that capacity, she represented the energy interests of A.I.M.'s 7,600 members, including a wide range of public, legislative and regulatory activities. Before joining A.I.M., O'Connor was operations manager for the Massachusetts Health and Educational Facilities Authority's Power options program, the largest energy purchasing consortium in New England consisting of colleges and universities, hospitals, other non-profits, and municipalities. Earlier in her career she worked in marketing for the Boston Celtics, served as an environmental assistant to the city of Boston's environmental

department, and was a small business owner. She also served as chairman of the Board of Selectmen for the town of Rockport. O'Connor is a graduate of the University of Massachusetts - Boston.

In 2019, Massachusetts Governor Charlie Baker appointed Patrick C. Woodcock, Undersecretary of Energy, Energy and Environmental Affairs, Commonwealth of Massachusetts and Matthew Nelson, Chairman of the Massachusetts Department of Public Utilities as NESCOE Managers

State of New Hampshire
Kathryn Bailey
Commissioner, Public Utilities Commission

Kate Bailey was appointed to serve a six-year term on the New Hampshire Public Utilities Commission in July 2015. She serves on New Hampshire's Site Evaluation Committee and Enhanced 911 Commission, as well as on the NARUC Committee on Electricity. She was appointed NESCOE manager in July 2017. Commissioner Bailey joined the New Hampshire commission staff in 1989, where she held various positions, including Director of Telecommunications and Chief Engineer. Prior to her time at the PUC, Commissioner Bailey was commissioned in the Air Force where she served as a communications officer. After an honorable discharge from active duty, she was hired as a contractor to the federal government and worked on a microwave communications project throughout central Europe. Commissioner Bailey holds a Bachelor of Science degree from Union College in electrical engineering and she is a licensed professional engineer.

State Of Rhode Island
Nicholas Ucci
Deputy Commissioner, Office of Energy Resources

Nicholas Ucci serves as the Deputy Commissioner of the Rhode Island Office of Energy Resources (OER), where he helps develop and oversee policies and programs that advance the energy, economic, and environmental interests of the Ocean State in a sustainable, cost-effective manner. OER works closely with private and public stakeholders to increase the reliability and security of Rhode Island's energy system; reduce long-term energy costs; and promote adoption of clean, no-to-low carbon energy solutions, while balancing ratepayer and environmental impacts. Prior to becoming Deputy Commissioner, Nick served as OER's Chief of Staff, as Principal Policy Analyst for the Rhode Island Public Utilities Commission, and as Coordinator of the state's Energy Facility Siting Board. In each of these roles, Nick has represented

state interests on a wide variety of energy and electric wholesale market issues, working closely with other New England energy officials and various stakeholder bodies to advance Rhode Island policy goals. Nick is a proud graduate of the University of Rhode Island, where he earned a Master's degree in Political Science, with a concentration in Public Policy and a Graduate Certificate in Labor Relations. He also holds Bachelor's degrees in Political Science and Economics.

STATE OF VERMONT
June Tierney
Commissioner, Department of Public Service

Commissioner June E. Tierney was sworn in as the Commissioner of the Vermont Department of Public Service by Governor Phil Scott on January 5, 2017. Prior to her appointment, Commissioner Tierney served as general counsel to the Vermont Public Service Board (2012-2016). Before then, she was a Board hearing officer (2008-2012), as well as a staff attorney at the Vermont Department of Public Service (2001-2008). A 1986 graduate of Boston University and a 1993 graduate of Vermont Law School, Commissioner Tierney began her legal career with a clerkship at the Vermont Supreme Court, followed by three years as an associate at Davis Polk & Wardwell in New York City, where she specialized in securities fraud litigation, white collar crime defense and corporate internal compliance investigations. Before her admission to the bar, Commissioner Tierney enjoyed the privilege of serving on active duty (1986-1990) as a commissioned officer in the United States Army.

Ed McNamara
Director, Energy Policy and Planning Department of Public Service

Ed McNamara is Director of Energy Policy and Planning for the Vermont Department of Public Service. In this role, he is responsible for developing and implementing statewide energy policy, including energy efficiency and demand resource management programs, renewable energy policy, and electric utility planning. In addition, Ed is the lead staff for developing Vermont's positions on federal energy issues, including wholesale electricity market rules and transmission planning processes. Prior to working at the Department of Public Service, Ed worked as a Hearing Officer and Staff Attorney for the Public Service Board.

SECTION II: STAFF & CONSULTANTS

The NESCOE staff team has diverse academic and professional backgrounds, including economics, accounting, engineering, and law and a cross section of private and public sector experience in New England. NESCOE's staff and technical consultants bring comprehensive and deep experience to analysis and filings with the FERC, other federal agencies, federal courts, and ISO New England.

Jeff Bentz
Director of Analysis

Jeff Bentz, CPA was named NESCOE's Director of Analysis in 2011. Previously, Jeff was with a New England generating facility, MASSPOWER, for nearly twenty years. Jeff served in progressive positions with MASSPOWER and was ultimately its General Manager. Earlier in his career Jeff was with Arthur Andersen and Company. Jeff has a Bachelor of Science degree in Accounting from Central Connecticut State University.

Dorothy Capra
Director of Regulatory Services

In 2011, Dorothy Capra was named NESCOE's Director of Regulatory Services. Since 2000, Dorothy was International Power's Director of Regulatory Affairs for NEPOOL and more recently for PJM. In that capacity, she coordinated regulated activities in New England and PJM and related activities at the FERC. Dorothy was elected Vice Chair of the New England Power Pool's (NEPOOL) Transmission Committee and has served in the past as Vice Chair of its Reliability Committee. Before that, Dorothy was with New England Electric System (National Grid) for ten years in a variety of positions, including in transmission and rates. She began her career at BP Oil, Inc. Dorothy has an MBA from the Amos Tuck School at Dartmouth and a BS in Chemical Engineering from Washington University in St. Louis.

Ben D'Antonio
Counsel & Analyst

Ben D'Antonio joined NESCOE in 2012 as Counsel and Analyst. Before that, Ben worked in the Regional and Federal Affairs Division of the Massachusetts DPU as an Economist and Legal Counsel, with a focus on wholesale electricity market and transmission planning issues. Previously, Ben was a Regulatory Assistance Project Energy and Environment Fellow, where he provided support to state utility commissions on clean energy policies. Earlier, Ben worked in financial services. Ben has a Juris Doctor, with honors, and Masters of Environmental Law, with honors, from Vermont Law School and a Bachelor of Arts in Economics from the University of Vermont.

Heather Hunt
Executive Director

Heather Hunt joined NESCOE as Executive Director in 2009. Previously, Heather had a regulatory law practice for six years, was Director, State Government Affairs, United Technologies Corporation and Group Director, then Vice President, Regulatory at Southern Connecticut Gas. Earlier, she was a Public Utility Commissioner in Maine and Connecticut and was on the legal staff of a Connecticut Governor. Heather has a Bachelor of Arts in Politics from Fairfield University and a Juris Doctor from Western New England College School of Law. Heather is a founder and president of Live On Organ Donation, Inc. and is the Vice Chair of the Living Donor Committee of the United Network for Organ Sharing.

Jason Marshall
General Counsel

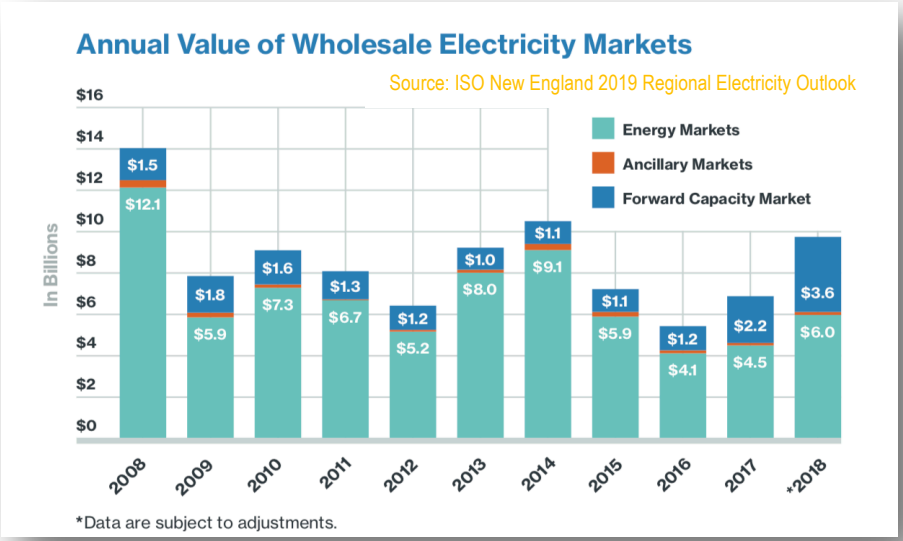
Jason Marshall joined NESCOE in 2012 as Senior Counsel and was named General Counsel in 2014. Previously, he was Counsel with the Regional and Federal Affairs Division of the Massachusetts DPU. Before that, Jason was Legal Counsel to a Massachusetts State Senator. Earlier, Jason was an associate at a Boston law firm and was a Law Clerk to the Chief Justice of the Massachusetts Appeals Court. Jason has a Bachelor of Arts, with honors, from Boston College and a Juris Doctor, with honors, from the University of Connecticut School of Law.

Technical Consultants and Support

NESCOE retains consultants to provide technical analysis in the areas of system planning and expansion and resource adequacy. NESCOE also retains consultants to conduct specific analysis to inform policymakers' consideration of current issues. In 2018, NESCOE worked with consultants such as **Wilson Energy Economics, Peter Flynn LLC, and NewGen Strategies and Solutions, LLC**.

NESCOE does not use litigation as a primary means to accomplish its objectives, and when it needs to, NESCOE staff produces the vast majority of legal pleadings. NESCOE legal activity focuses on consumer interests in litigated proceedings at FERC and in federal court. In 2018, NESCOE participated actively before FERC in complex and accelerated cost-of-service litigation with material consumer implications. It also advocated on behalf of consumer

interests before the U.S. Court of Appeals for the D.C. Circuit. When NESCOE required outside counsel in 2018, it worked primarily with **McCarter & English, LLP** in Washington D.C.



SECTION III: COORDINATION WITH REGIONAL STATE ENTITIES

NESCOE communicates as appropriate with state entities in the New England region such as the New England Conference of Public Utility Commissioners (NECPUC) and the Coalition of Northeastern Governors (CONEG) to share information about matters on which it is working and to avoid duplication of efforts. For example, throughout 2018, NESCOE participated in NECPUC calls with ISO New England and in meetings between state officials and ISO New England's Board of Directors.

In addition, as issues warrant, NESCOE facilitates dialogue with subject matter experts from state governments to enhance coordination and leverage the technical expertise that exists within state agencies on issues with regional electric system implications.

SECTION IV: 2018 ACTIVITY, FOCUS AREAS & ACCOMPLISHMENTS

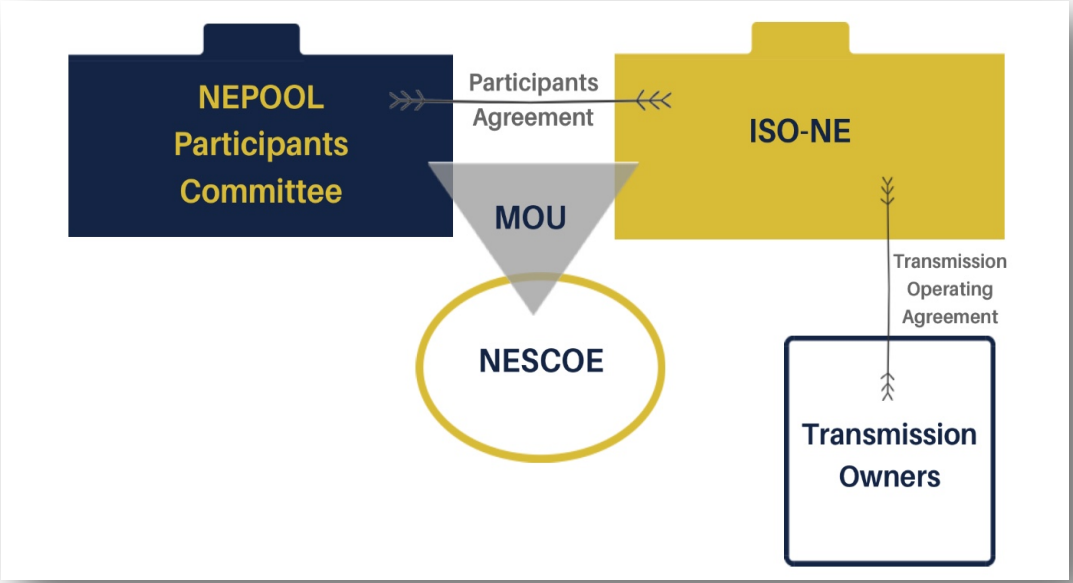
Advocating for Consumer Interests in Regional Stakeholder Forums

New England consumers fund the region's wholesale electricity markets and high-voltage transmission system. The annual costs of the wholesale markets have ranged over the past decade from $5.3 billion in 2016 to $13.6 billion in 2008. As indicated in the chart below, these costs include the energy, capacity, ancillary services markets, and other components, such as transmission and support for ISO New England.

The plans and rules that determine the level and type of consumer investments in these markets are developed as part of a regional stakeholder process. Most proposals must ultimately be

presented to the FERC for its deliberation. Participating in these activities and the subsequent regulatory proceedings is resource intensive but imperative: even "minor" revisions to market rules or planning approaches can mean significant changes and implications for consumer costs.

After FERC approved NESCOE as New England's Regional State Committee, NESCOE commenced activity in 2009, consistent with a Memorandum of Understanding among NESCOE, ISO New England, and NEPOOL submitted to FERC. The operative relationships are governed as follows:



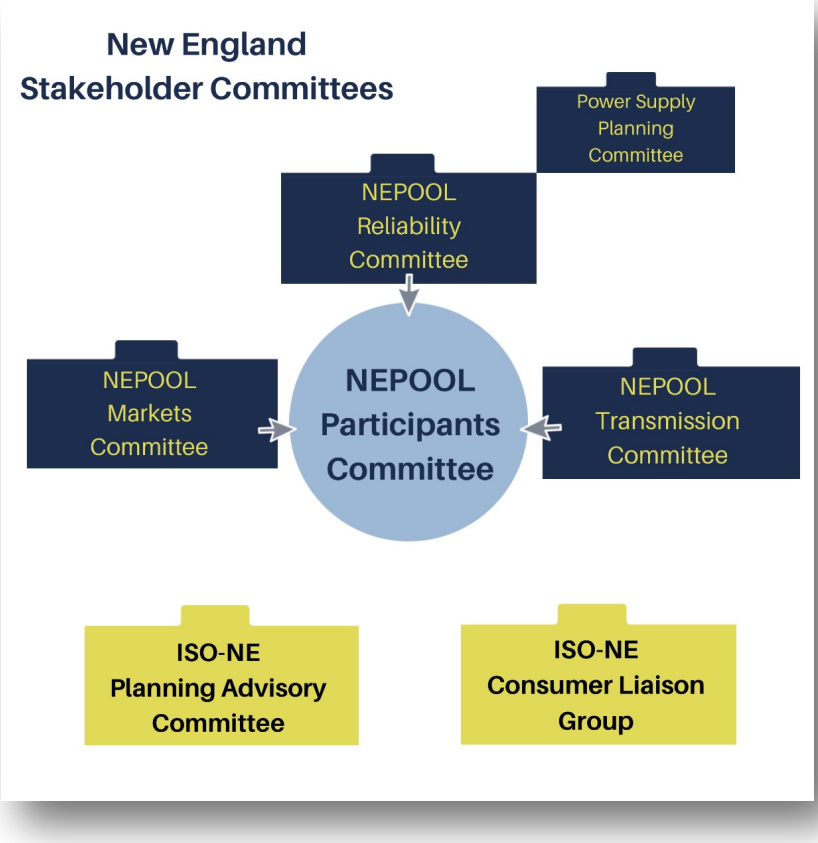
FERC reviews ISO New England's filings to determine whether market rules and other proposals are "just and reasonable" under the Federal Power Act. Provided there is a certain super-majority level of stakeholder support, ISO-NE must include with its proposed market rule filing an alternative rule that NEPOOL supports, and the NEPOOL alternative is considered by FERC on equal legal footing with ISO New England's proposed rule. New England's transmission owners have legal authority to make filings with FERC in connection with transmission rates and cost allocation, and FERC also reviews these filings under the Federal Power Act's "just and reasonable" standard. Like market participants and stakeholders, NESCOE expresses its perspective to FERC on these various filings, which FERC will generally accept or reject.

Further, from time to time market participants and others, most often electric power generators in recent years, ask courts to modify outcomes on matters where they did not prevail in regional discussions and/or at FERC. These cases underscore the importance to consumers of NESCOE's informed, active, and timely engagement in regional stakeholder conversations leading to FERC filings and vigorous advocacy before FERC and courts, as needed.

Throughout 2018, NESCOE represented the collective views of the New England states – and regularly played an important role – in substantive New England regional stakeholder forums. This included NESCOE's regular participation in NEPOOL's Participants, Reliability, Transmission, and Markets Committee meetings. NESCOE also offered proposals in connection with planning and market rule changes to advance consumer interests and states' shared energy objectives as appropriate.

Additionally, NESCOE participated in ISO New England's Planning Advisory Committee (PAC) and Power Supply Planning Committee and followed the Consumer Liaison Group activities.

NESCOE also participated in various working groups and *ad hoc* subject matter forums, such as the Energy Efficiency Forecast Working Group, the Distributed Generation Forecast Working Group, and the Environmental Advisory Group. These groups and activities provide an opportunity to communicate about data that drive investment decisions.



NESCOE also continued to monitor from a New England consumer point of view the Eastern Interconnection States Planning Council (EISPC), National Council on Energy Policy (NCEP), and the Eastern Interconnection Planning Collaborative (EIPC) meetings relating to interregional coordination and resource and infrastructure planning studies.

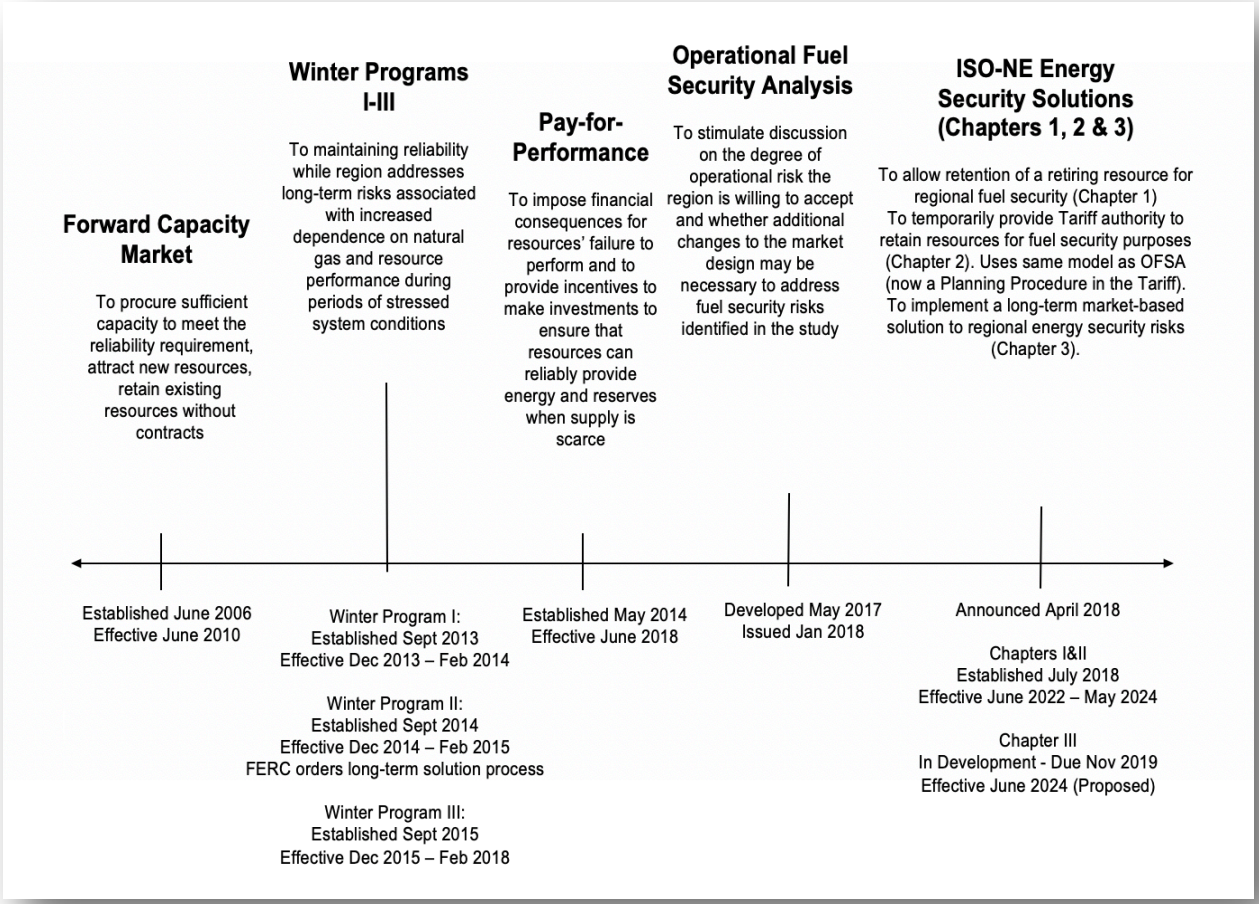
Presenting Consumer Interests and Implications in Filings with Federal Agencies

In 2018, NESCOE participated in ISO New England forums and federal-jurisdictional matters concerning resource adequacy and system planning-related issues with significant implications for New England consumers. NESCOE's substantive filings in 2018 were, as in

years' past, diverse but had in common New England consumer interests and shared state objectives.

ISO New England's identification of energy security risks, however, dominated regional discussions throughout 2018. The term "energy security" and its importance to reliable power system operations emerged on the heels of other reliability-oriented mechanisms, such as temporary Winter Reliability Programs and the new Pay for Performance market design within the Forward Capacity Market.

The Path Toward Energy Security Mechanisms



Intense activity in connection with energy security began with ISO New England's release of a study in January 2018, the Operational Fuel Security Analysis (OFSA). FERC also commenced a proceeding in 2018 to examine grid resilience in each organized market, including New England. NESCOE actively participated in all of these discussions and proceedings, which have substantial implications for consumer dollars and the region's resource mix.

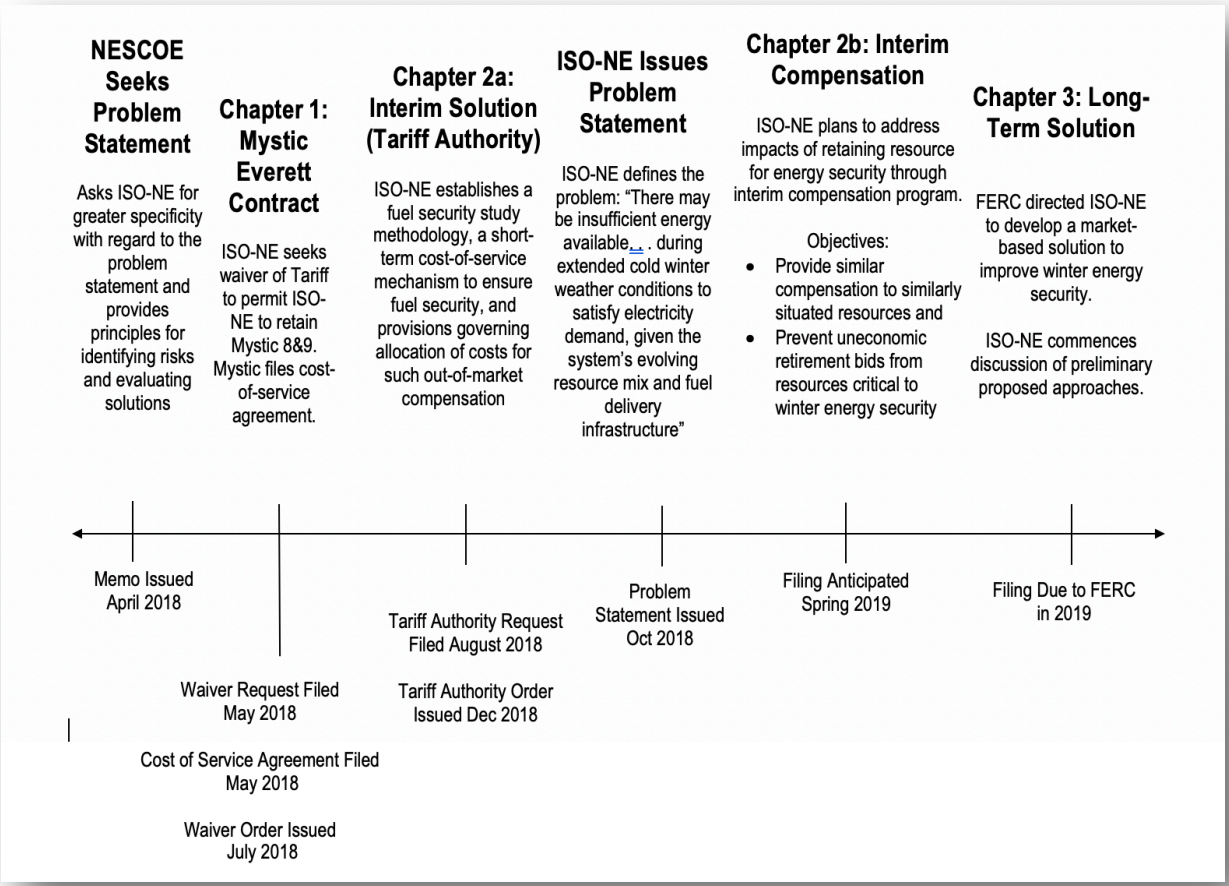
Advocating for a Precise Energy Security Problem Statement and Rigorous Analysis to Enable Risk-Informed Judgments

NESCOE underscored to ISO New England and to FERC the need for ISO New England to precisely define and fully analyze the problem to be solved and to consider a broad range of solutions guided by consumer interests and cost-effectiveness.

The OFSA illustrated a range of potential winter seasonal risks that, based on the study assumptions, could present risks to New England's power system if fuel is constrained and resources are therefore unable to run. NESCOE advocated for additional analysis to help states and stakeholders make risk-informed judgments about the line between acceptable and unacceptable risks. NESCOE also identified principles ISO New England should apply in identifying fuel security risks and solutions. Further, in the NEPOOL process and at FERC, NESCOE challenged several aspects of the fuel security analysis as too conservative. For example, the fuel security analysis does not assume that the future requirements of state laws will be met and applies a more conservative standard for unacceptable risk than other resource adequacy studies. Notably, additional fuel security analysis incorporating renewable and imported resources at levels commensurate with state laws indicated a significantly smaller fuel security risk than ISO-NE's original analysis. Such results highlight the importance of these resources to regional fuel security. NESCOE will continue to monitor and evaluate the application of such analyses in resource adequacy studies.

Regional energy security discussion unfolded in 2018 through what ISO New England referred to as a series of "chapters," some of which will continue to be written through 2019.

ISO New England's Energy Security "Chapters"



Chapter 1: Exelon's Retirement Announcement for Mystic Units and ISO New England's Request To FERC for Energy Security Cost-of-Service Agreement Authority

In conjunction with the cost-of-service agreement between Exelon Corporation and ISO New England, ISO New England sought a waiver from FERC to allow ISO New England to retain two generating units at risk of retiring. FERC rejected that specific request. Instead, FERC preliminarily found that ISO-NE's tariff failed to address fuel security concerns and instituted a proceeding under section 206 of the Federal Power Act requiring ISO New England either to show cause why no changes are needed or to make two subsequent filings relating to short-term (Chapter 2) and long-term (Chapter 3) changes.

Guarding Consumer Interests in Exelon Cost-of-Service Litigation: NESCOE dedicated substantial resources in 2018 to representing consumer interests in response to Exelon's request to FERC for cost-of-service

compensation outside of the ISO New England wholesale markets. Earlier in 2018, Exelon informed ISO New England of its intent to retire two generating facilities located in Greater Boston, which provide approximately 1,400 MW of power to the system. ISO New England identified fuel security concerns if the units retired, including concerns that an adjacent liquefied natural gas facility that is the sole fuel source for the power plants might also retire. Exelon and ISO New England entered into a cost-of-service agreement to compensate Exelon outside of the market over a two-year period, from 2022 to 2024. This agreement and an associated arrangement with the liquefied natural gas facility became the subject of complex, fact-tracked litigation at FERC in 2018.

NESCOE challenged Exelon's initial request to FERC for contract approval, which exposed New England consumers to hundreds of millions of dollars in costs. After FERC set the agreement for hearing, NESCOE was an active participant at trial. NESCOE sponsored multiple expert witnesses, sought discovery, cross-examined Exelon and ISO New England witnesses, and filed detailed briefs, providing consumer counterpoints on issues ranging from depreciation and capital structure to fuel management and the repayment of investments to consumers if Exelon returns the power plants to the market. The complex litigation was conducted on a fast-track and included more than thirty pieces of testimony from twenty-five witnesses who were cross-examined over a ten-day hearing.

2018 was notable for the unusual need to advance consumer interests through intense litigation at FERC rather than through the historic and preferred approach of analysis driven discussion and collaboration with ISO New England and diverse stakeholders in NEPOOL

In December 2018, FERC issued an order directing material changes to the cost-of-service agreement, including adopting a number of NESCOE positions. The total cost impact of the agreement will not be known until further issues are resolved as part of the proceeding and actual costs are trued-up at the end of the agreement period. However, the changes that FERC has already mandated translate to a level approaching one hundred million dollars in consumer savings.

Chapter 2: ISO New England Pursuit of Short-term Tariff Authority for Energy Security Cost-of-Service Agreements

ISO New England developed and filed with FERC a proposed tariff that provided short-term authority to enter into cost-of-service agreements to retain resources ISO New England concludes are needed for energy security pending implementation of a long-term, market-based solution. This new authority

authorized ISO New England to contract with the Exelon facilities and others in the future that ISO New England may conclude are required for energy security. ISO New England filed its Chapter 2 tariff changes in August 2018, which FERC accepted. In this process, NESCOE advanced a proposal, which ISO New England adopted as part of its FERC filing, that requires ISO New England to provide quantitative and qualitative information regarding contract provisions that change resource performance requirements.

Chapter 2B: Interim Compensation for Energy Security Resources

ISO-NE subsequently identified that New England required an interim compensation program until it implements a long-term, market-based solution. ISO New England indicated that the intent of this two-year program is to provide similar compensation for similar services and reduce the likelihood that (otherwise economic) resources will seek to retire due to not being fully compensated for winter energy security attributes in the wholesale markets.

Chapter 3: Long-term Market-Based Energy Security Reforms

In 2018, ISO-NE began early discussions with stakeholders regarding long-term, market-based changes to address energy security concerns.

In early 2018, NESCOE requested that ISO New England articulate the long-term problem to be solved with greater particularity. ISO New England provided the following in October 2018: *"There may be insufficient energy available. . . during extended cold winter weather conditions to satisfy electricity demand, given the system's evolving resource mix and fuel delivery infrastructure."*

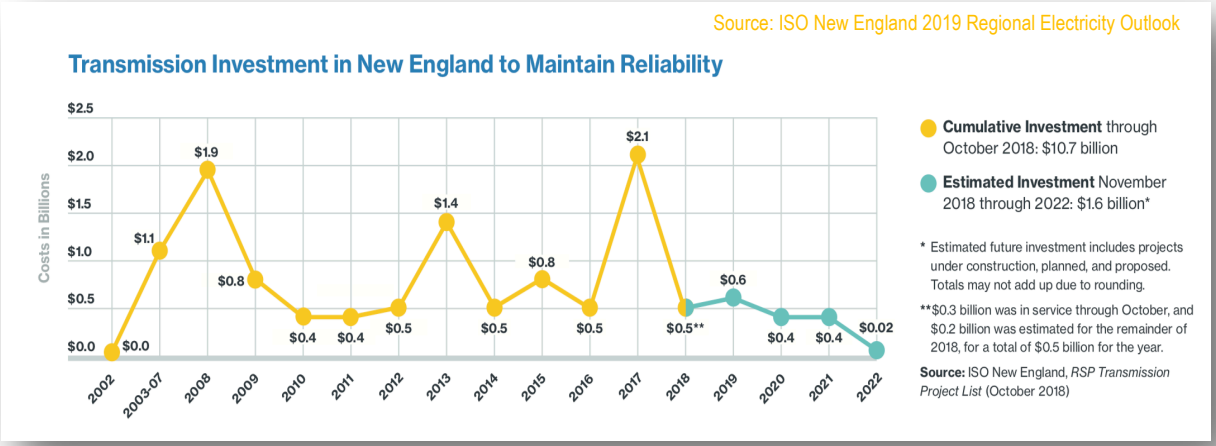
ISO New England must conduct qualitative and quantitative analysis of the proposed energy security market reforms. NESCOE provided initial input into such analysis and posed several questions to ISO New England about the forthcoming analysis. In short, NESCOE requested that ISO New England examine a range of potential future scenarios and adjustments to its proposed market reforms in its impact analysis. NESCOE posed questions to better understand how the impact analysis will not have the same shortcomings of the OFSA and provide states and stakeholders with an adequate level of information to determine whether the proposed solutions will sufficiently address regional fuel security risks. NESCOE will continue to engage ISO New England on its qualitative and quantitative analysis of these risks in 2019.

FERC has ordered ISO New England to file a long-term market solution by July 1, 2019. ISO New England, with support of NEPOOL and NESCOE, has asked FERC to extend that deadline until November 15, 2019, with no extension needed for the implementation.

Transparency and Consistency in Transmission Planning

In 2018, NESCOE continued to advocate for transparency and consistency in transmission planning. ISO New England has noted the diverse benefits of transmission investments, including enhanced system reliability and lower priced power. Consumer investment in transmission has grown steadily, and it is now one of the major contributors to consumer electric bill increases. New England consumers have invested more than $10 billion in transmission infrastructure for reliability needs since 2002. Another $1.6 billion is planned through 2022, with most of that investment happening through 2019. NESCOE has been working to ensure that the investment is cost-effective and that both planning and the resulting costs are appropriately transparent.

Source: ISO New England 2019 Regional Electricity Outlook



The absolute and relative level of transmission costs underscore the importance of ISO New England transmission planning approaches to New England consumers. Even with the expected forward-looking decline in reliability-based transmission infrastructure investment, these costs warrant continuing scrutiny. Transparency is critical – in both planning and cost recovery. Furthermore, to assess transmission investment compared to other potential means to meet power system needs, consumers require accurate transmission project cost estimates and controls to keep actual costs in line with estimates.

Increasing Transparency in the Transmission Formula Rates Consumers Pay

Several years ago, NESCOE joined consumer representatives from across the region to discuss with New England Transmission Owners the development of "formula rate protocols." The objective was to increase transparency and accessibility of information regarding transmission rate recovery since FERC had not historically subjected this category of costs to traditional, contested regulatory scrutiny before passing the costs through to consumers. In late 2015, FERC opened a proceeding on New England's "formula rates," consistent with FERC-approved approaches in other regions and instituted a settlement process. In 2018, after two-and-one-half years of settlement discussions on complex and far-ranging issues, NESCOE had a lead role in achieving a settlement agreement regarding New England's transmission formula rate. Working with other consumer-interested parties across the region, NESCOE proposed and advocated for central features of the settlement that strengthen consumer protections and enhance transparency. The agreement is pending before FERC.

The objective is to increase transparency and accessibility of information regarding transmission rates that consumers pay

Local Resources Offsetting Regional Resource Needs

New England consumers increasingly invest in technologies such as solar photovoltaics (PV) and energy efficiency in connection with state laws and programs that encourage resources located close to where consumers use power. The level of investment is so significant that it is reversing New England's growth in wholesale electric energy demand and slowing the growth in peak demand. This reduces the level of resources and infrastructure consumers need to plan and ultimately pay for, such as transmission or central power plants. Achieving these savings depends on ISO New England properly accounting for local resources in regional planning. NESCOE continues work to this end.

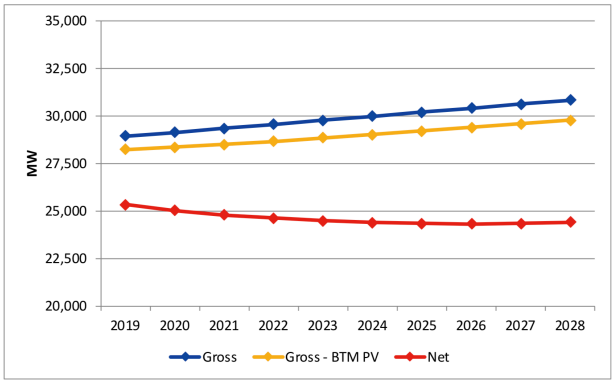
Achieving savings associated with consumer investment in energy efficiency and distributed generation depends on ISO New England properly accounting for these local resources in regional planning.

- ***Distributed Generation Forecast***: Several years ago, NESCOE requested that ISO New England produce a Distributed Generation (DG) Forecast to account for the dramatic increase of distributed resources expected to interconnect to the power system in the next ten years. NESCOE worked with ISO New England and stakeholders to develop the forecast to be applied to the Installed Capacity Requirement. In 2017, ISO New England made adjustments to the forecast methodology that reduced by 335 MW the amount of other generating resources consumers would need to buy - roughly half the

size of a new large-scale fossil generation unit. In the NEPOOL process and before FERC, NESCOE defended against power generators' arguments that these important changes should be deferred, which would have required consumers to over-invest in resources. In 2018, ISO-NE made additional adjustments to the input assumptions for the Installed Capacity Requirement. These assumptions have the effect of negating state investments in energy efficiency and distributed generation for the Installed Capacity Requirement associated with the 2022-23 capacity commitment period. NESCOE protested such assumption changes in the NEPOOL process and before FERC.

2019 New England 50/50 Summer Peak Forecast

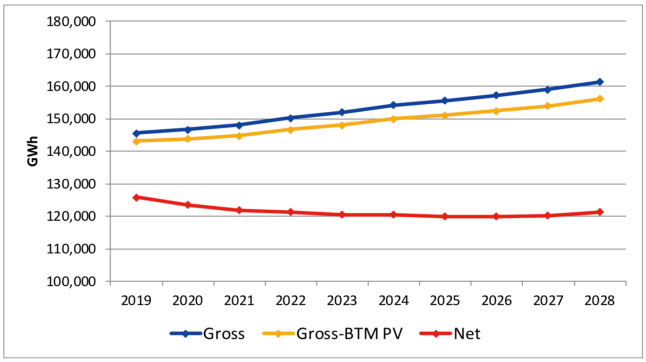
Source: Draft 2019 ISO-NE Annual Energy & Summer Peak Forecast



- ***Energy Efficiency Forecast***: The sustained effort by the New England states and NESCOE to obtain from ISO New England greater integration of energy efficiency savings in the regional load forecast and in system planning process has achieved continuing results for consumers through ISO New England's Energy Efficiency Forecast. The forecast reflects projected annual reductions in electric energy use, including peak demand, related to the New England states' investments in energy efficiency measures. Implementation of the Energy Efficiency Forecast has translated into hundreds of millions of dollars of savings for consumers in the form of transmission project deferrals. In 2018, ISO New England adjusted the forecasting methodology by using more recent information from which to begin the forecast. The methodology change is likely to increase the accuracy of the forecast over time. Looking ahead, ISO New England estimates that the New England states will collectively invest over $10.5 billion in energy efficiency from 2019 to 2027, and NESCOE will continue to advocate for regional planning and markets to appropriately account for these investments.

2019 New England Energy Forecast

Source: Draft 2019 ISO-NE Annual Energy & Summer Peak Forecast



Power System Reliability and Associated Market Matters

For over a decade, New England's wholesale competitive markets have been designed to serve consumers in a way that is fuel neutral and at the lowest cost. The New England states have demonstrated continuing support for competitive wholesale markets through, for example, endorsing reforms that would improve the efficiency and operation of those markets - even when it did not mean the lowest possible immediate prices for consumers but would provide consumers expected optimal market-driven results and prices over the longer-term.

To be sustainable, New England-wide system planning and wholesale competitive markets must reasonably account for and accommodate state energy and environmental laws.

ISO New England, states, market participants, and stakeholders regularly explore market-based solutions to emerging risks to the New England power system. Some proposed solutions follow years of analysis and discussion. Others emerge in reaction to more immediate circumstances. As noted, ISO New England's proposed energy security cost-of-service agreement with Exelon for its Mystic units and associated fuel source, and related issues dominated 2018. In addition, NESCOE advanced and contributed to the development of market mechanisms related to the region's diverse challenges. A representative sample of other 2018 market matters are as follows:

- For years, NESCOE has expressed to federal regulators, ISO New England, and stakeholders that New England-wide system planning and wholesale competitive markets will only be sustainable if they reasonably account for and accommodate state energy and environmental laws. After spending considerable time in 2017 exploring means to integrate the requirements of state laws into wholesale markets, ISO New England filed with FERC its substitution auction proposal (Competitive Auctions and Sponsored Policy Resources or CASPR) through which to accommodate resources required by state laws adopted before January 2018. The CASPR substitution auction works if and to the extent other existing resources wish to retire. In 2018, NESCOE, on behalf of five of the six New England states, expressed to FERC its support for this proposal, which FERC subsequently approved. In the first-time substitution auction, 54 megawatts cleared.

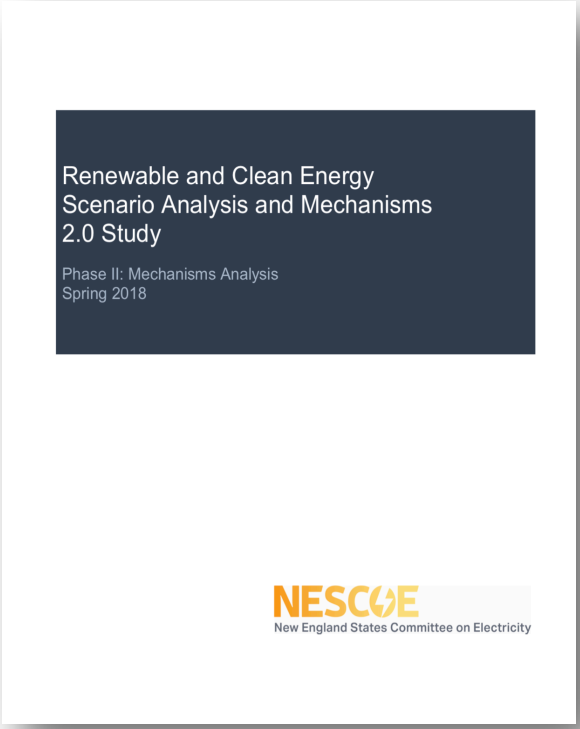
- NESCOE's work on behalf of consumers on an Offer of Settlement with New England generators requiring a modified Peak Energy Rent (PER) Strike Price that adjusts the PER Strike price upward was adopted by FERC.

- In late 2018, ISO-NE proposed conforming market rule changes in connection with its first "substitution auction" in its CASPR program. As part of these revisions, NESCOE advocated for a clarification to resource eligibility rules to reflect the original intent that certain offshore wind resources located in federal waters qualified

for a market rule accommodating the participation of renewable resources in the capacity market. FERC approved that clarification.

Providing Context and Analysis to Inform Decisions

In 2018, NESCOE completed a two-phase study of regional wholesale energy market dynamics and potential mechanisms to advance the requirements of state laws. The study is just one piece of information that may assist consideration of how wholesale competitive markets and state laws might move forward together.



The Phase I Report, published in 2017, showed the potential implications of various hypothetical renewable and clean energy futures on existing and new resources in New England, and ultimately on the consumers who pay for them.

In 2018, the Phase II analysis examined mechanisms such as a Renewable Portfolio Standard, a Clean Energy Standard, Long-Term Contracts, a Forward Clean Energy Market, and Strategic Transmission Investments. Phase II compared and contrasted various approaches through which states might choose to provide economic support to certain resources, beyond the revenue they are forecasted to receive from the wholesale energy and capacity markets. In short, whether one or more mechanisms may better serve consumers than another depends on a state's objectives and the trade-offs a state is interested in making. The study shows that wholesale energy and capacity costs move in the opposite direction from mechanism costs, both of which directly affect consumer bills and that the most significant factor influencing consumer costs is a state's target quantity of renewable or clean energy. Generally, the cost differences between mechanisms are smaller than the cost differences that result from adjusting state targets and the costs of resources able to meet state objectives.

Eastern Interconnection Planning Collaborative: Examining New England Consumer Interests

In 2018, NESCOE provided technical support to states as needed in connection with the Eastern Interconnection Planning Collaborative (EIPC). The EIPC was formed in 2010 to develop and analyze hypothetical future scenarios for the bulk power system throughout the eastern interconnection. The eastern interconnection includes 39 states, extending from the foot of the Rocky Mountains to the Atlantic seaboard and part of Canada. The EIPC produces engineering and economic analysis of the transmission system on a two-year cycle. Consumers fund EIPC work conducted by Regional Transmission Organizations such as ISO New England and through state participation. The New England states have worked to ensure that analyses in the EIPC process reflect - to the fullest extent - the states' implementation of energy and environmental goals and that they provide objective data to inform future policy decisions. To date, EIPC analyses has not yet identified any transmission system issues within New England or with its neighbors.

Litigation in Support of New England Consumer Interests

NESCOE does not use litigation as a primary means to achieve its objectives. It does, however, engage in federal appellate court cases to advance state interests when necessary.

In 2018, NESCOE continued its active participation at the U.S. Court of Appeals for the D.C. Circuit. Leading up to 2018, NESCOE took the lead on behalf of numerous intervenors in supporting ISO New England tariff rules enabling the participation of renewable resources in the wholesale market. NESCOE supported FERC's affirmation of the rule - in four separate orders spanning multiple years - and challenged the petition that several New England electric generators filed with the Court seeking to overturn the rule. In early 2018, NESCOE participated in oral argument at the Court in defense of the participation of renewable resources in the wholesale market. In July 2018, the Court issued an opinion upholding the legality of the rule.

The Court issued two other opinions in 2018 in cases where NESCOE served as a lead intervenor advocating for consumer interests. Both cases resulted from challenges filed by owners of New England electric generating facilities. The first case related to ISO New England market rules that adjusted capacity payments depending on shortage events or scarcity conditions that arise on the system. In January 2019, the Court issued an opinion dismissing the generators' petition on procedural and substantive grounds.

The second case involved a market rule that allowed new resources to lock in a market price for multiple years. The market rule is intended to encourage new resources to enter the market and increase competition. The Court remanded the case to FERC, finding that FERC did not sufficiently explain its actions. In so doing, the Court cited favorably to NESCOE's brief as making a compelling case for the rule.

SECTION V: PRIORITIES FOR 2019 AND 2020

NESCOE carries into 2019 several priority matters that require significant attention. At the direction of Managers, NESCOE will also continue to identify areas for proactive engagement related to resource adequacy and system planning and expansion. Where needed, NESCOE will conduct independent technical analyses to inform policymakers' decisions. NESCOE will continue to participate actively in NEPOOL stakeholder forums, exchanging ideas with ISO New England and market participants, and representing the collective interests of New England states at FERC and, where appropriate, before other federal agencies and the courts.

In addition to addressing emerging issues as they arise, NESCOE anticipates focus on the following areas in 2019 and 2020:

- **Transmission Planning for Reliability:** Review and provide input on ISO New England's plans and planning processes, including but not limited to Regional System Plans, forecasting, and certain transmission needs assessments and solution studies; provide feedback on ISO New England's planning assumptions and continued incorporation of probabilities in planning; provide input as appropriate to ISO New England's review of whether Bulk Power System facilities have been properly classified in New England, which classification increases the stringency of planning standards and hence transmission upgrades; monitor and comment as appropriate on ISO New England's inquiry into the need for separate regional planning criteria by the Northeast Power Coordinating Council in addition to North American Electric Reliability Corporation (NERC) planning criteria; and continue to explore opportunities to comment on major NERC policy activities when they have the potential for significant cost implications for New England electricity consumers and urge NERC to consider cost-effectiveness in its reliability standard development.

- **Winter Energy Security Improvements:** Participate actively in regional discussions about ISO New England and other proposed long-term, market-based winter energy security mechanisms including but not limited to market-based mechanisms that value the contribution that existing nuclear generation resources make to regional energy security and winter reliability; provide analysis as needed to support state evaluations, proposals, and/or amendments; ensure that consumer interests are chief among the metrics by which potential solutions are evaluated and that all potential solutions are illuminated by cost-effectiveness analysis to enable assessment of whether the consumer costs of proposed solutions have a reasonable relationship to asserted risks.

- **Additional Energy Security Cost-of-Service Contracts:** Advocate for consumer interests in the cost, terms and conditions of any additional energy security cost-of-service contract ISO New England seeks to enter.

- **Competitive Transmission and Cost Containment:** New England has yet to develop detailed transmission project cost estimation and containment practices in the context of ISO New England's implementation of FERC's Order 1000. Pursuant to that order, transmission developers may offer competing transmission proposals to satisfy the same need, and projected costs influence project selection. However, certain approaches to cost containment have the potential to create consumer risk and unintended consequences. So too can running costly competitive transmission processes when the consumer benefits of competition are not apparent. In 2019, NESCOE will analyze and advance cost containment approaches, including those developed in other regions of the country, in the Order 1000 competitive transmission environment and advance proposals to ISO New England on cost containment and sensible approaches to competition.

- **Transmission Cost Estimation and Tracking:** Continue to track transmission project costs and monitor cost overruns. To the extent tracking reveals cost overruns, which, among other issues, suggests alternative means would have been a better choice for consumers to satisfy the identified need, work with ISO New England and transmission companies to modify cost estimating practices and/or mitigate cost escalation.

- **Resource Reliability (Installed Capacity) Requirements:** Provide input on ISO New England's recommended ICR and associated assumptions, with particular attention to ensuring that the ICR appropriately reflects New England consumers' investment in local distributed generation and other clean energy resources and the improved generator performance driven through ISO New England's Pay-for-Performance modifications to the Forward Capacity Market.

- **Energy Efficiency Forecast and Related Issues:** Continue focus on ISO New England's Energy Efficiency Forecast to ensure that the transmission planning process continuously and accurately reflects consumers' significant investments in energy efficiency resources and the resulting reduction to the region's energy use; following the first Pay-for-Performance penalty event, address issues associated with a settlement shortfall that occurred due to the energy efficiency resource exemption from Pay-for-Performance penalties in off-peak hours.

- **Distributed Generation Forecast:** So that consumers receive the full benefit of state policies and consumer investments in all forms of local power generation technologies, continue work to ensure that ISO New England's plans and resource determinations appropriately capture in the load forecast the increased penetration of solar PV and other distributed energy resources, and to ensure the application of this forecast to the transmission planning process and resource adequacy determinations.

- **Resource Adequacy and Reliability Over the Long-Term**: Work with stakeholders and ISO New England to ensure that any proposed modifications to the Forward Capacity Market or other market rules provide consumers with reliable service at the lowest possible cost over the long-term while maintaining environmental quality. In

2019, this will include evaluating the operation of the first CASPR substitution auction and whether the design appears likely to accommodate the requirements of state laws into wholesale markets over the long-term and assessing the need for modifying the effective date of state laws that are CASPR-eligible (currently those laws in effect as of January 2018). Additionally, to inform consideration of proposed solutions, provide analyses where appropriate to confirm the nature of identified risks, and to understand the range of potential cost-effective solutions, including whether the costs of proposed solutions have a reasonable relationship to asserted risks. In any proposed modifications, seek to have consumer impacts weighed appropriately among other objectives, such as an interest in theoretical market purity (e.g., minimal application of adjustments or use of judgment).

- **New England States' Energy and Environmental Laws and Regional Wholesale Markets:** Continue to assess, develop and/or provide analysis about mechanisms designed to reasonably harmonize as needed the regional electricity market and the energy and environmental requirements in some New England states' laws; provide analysis on potential mechanisms that value the attributes of resources implicated by such state laws, while ensuring consumers in any one state do not fund the public policy requirements mandated by another state's laws. This includes, but is not limited to, policies and/or programs related to carbon dioxide emissions reduction, energy storage, and distributed generation. Continue conversations about the design of the future grid and associated market rules, including, for example, the relative size and proper form of the ancillary service markets, other possible "achieve"-type mechanisms to integrate state laws into markets that satisfy states' threshold objectives, and continued evaluation of previously implemented price formation-related changes.

- **FERC Order 1000 in Connection with State Public Policy Determinations:** Participate in New England's 2020 Order 1000 public policy study process in conformance with the tariff.

- **Advocate on behalf of Consumer Interests in Litigation Advanced by New England Market Participants:** Continue to advocate as appropriate in litigation implicating the interests of New England's electricity consumers and, where necessary to safeguard consumer and states' interests, intervene or bring matters to courts as needed.

- **State Input into and Perspectives on ISO New England's Economic Studies:** Monitor ISO New England's ongoing and prospective studies conducted at the request of stakeholders, and, as appropriate, provide inputs into studies, particularly with respect to assumptions about state laws and policies and offer the states' observations about outcomes for context.

- **Eastern Interconnection Planning Collaborative:** Monitor and analyze interconnection-wide study activities conducted by EIPC to ensure that New England consumers' interests are appropriately represented and that system planning determinations that have economic implications for New England ratepayers remain a function of regional

decision-making; and work to ensure that any customer-supported interconnection-wide studies provide value to New England customers.

- **Electric Storage Resource Participation in Wholesale Markets**: Monitor ISO New England's compliance with FERC's 2018 rule for the participation of electric storage resources in the wholesale electricity markets and offer collective state views on the avenues for storage participation to ISO New England and/or FERC as appropriate.

- **Reasonable Decision-Making Processes and Metrics that Enable Full and Fair Consideration of Economic Implications on Consumers:** Advocate for decision-making processes that provide reasonable notice and opportunity to consider fully the consumer implications of proposed rule changes and an opportunity for states and ISO New England to explore the lowest cost means to achieve identified objectives; when appropriate, advance states' perspectives on objectives and on the metrics by which ISO New England and others should evaluate potential solutions (e.g., the balance between market pricing and consumer cost implications).

- **ISO New England "Major Initiatives" Assessments:** Advance consumer interests in connection with ISO New England's execution of the required quantitative and qualitative analysis of major market initiatives; ensure the consumer cost implications of proposed initiatives, and any alternatives, are understood and considered in decision-making.

VI. 2018 EXPENDITURES

NESCOE operations are funded by a FERC-approved charge collected through Schedule 5 of Section IV.A of ISO New England's tariff. In 2018, an independent audit of NESCOE's books for the year-end December 31, 2017, was completed and presented to the NESCOE Managers. The independent auditor opined that the organization's books conform to generally accepted accounting principles and issued an unqualified opinion letter. A 2018 Statement of Spending is as follows:

NESCOE
Statement of Spending
December 31, 2018

Expenses	
Direct Expenses, Consulting	
Legal (FERC) Services	494,167
Technical Consulting	268,780
Total Direct Expenses, Consulting	762,947
Employment and Benefits	
Disability	9,936
Employee Health Insurance	26,043
Life Insurance	990
Payroll Taxes	52,904
Pension Contributions	32,102
Salaries & Wages	848,119
Total Employment and Benefits	970,094
General and Administrative	
Dues and Subscriptions	6,966
Depreciation	3,462
Insurance	6,697
Office Expenses	3,318
Professional Services	22,514
Rent, Parking & Utilities	25,552
Telephone & Communications	8,604
Travel and Meetings	46,714
Total General and Administrative	123,827
Total Expenses	**1,856,868**

VII. BUDGET 2019 & PRELIMINARY BUDGET 2020

NESCOE's 2019 budget, which is consistent with the current five-year *pro-forma* approved by NEPOOL and accepted by FERC, was presented to and affirmed by NEPOOL in October 2018. The 2019 NESCOE budget was submitted to the FERC and accepted in December 2018. The 2019 and preliminary 2020 budgets are as follows:

NESCOE Pro Forma Budget
2019 and Preliminary 2020 Budget

	2019	2020
Salaries and Wages		
Salaries	1,012,511	1,042,886
Payroll Taxes	101,251	104,289
Health and Other Benefits	84,975	87,524
Retirement §401(k)	40,501	41,716
Total, Salaries and Wages	**1,239,238**	**1,276,415**
Direct Expenses - Consulting		
Technical Analysis	331,345	341,285
Legal (FERC)	331,346	341,286
Total, Direct Expenses, Consulting	**662,691**	**682,571**
General and Administrative		
Rent	27,810	28,644
Utilities	5,464	5,628
Office and Administrative Expenses	44,802	46,146
Professional Services	56,650	58,350
Travel/Lodging/Meetings	92,700	95,481
Total General and Administrative	**227,426**	**234,249**
Capital Expend. & Contingencies		
Computer Equipment	7,725	7,957
Contingencies	213,708	220,119
Capital Expend. & Contingencies	**221,433**	**228,076**
TOTAL EXPENSES	**2,350,788**	**2,421,310**
BUDGET	***2,395,513***	***2,467,379***