

ANNUAL REPORT NEW ENGLAND GOVERNORS

2017



New England States Committee on Electricity

NESCE

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Wholesale Competitive Markets and Required Resources

Since the 1990s, New England states have relied on competitive wholesale markets to select resources to serve electricity consumers at the lowest cost without regard to resource type or fuel source. Thus far, the wholesale markets have done what they were designed to do: provide reliable system operations, attract investment, drive down wholesale prices, and increase generation fleet efficiency—all for the ultimate benefit of consumers.

Resources Required by State Laws: Years ago, the New England states cautioned that for New England-wide system planning and wholesale competitive markets to be sustainable, they must reasonably account for and accommodate the requirements of state energy and environmental laws. In 2016-2017, through the Integrating Markets and Public Policies process, the New England Power Pool (NEPOOL), ISO New England, and states explored how to harmonize the region’s resource-neutral wholesale electricity markets and state laws that require renewable and other no- and low- carbon resources. 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 proposed a new market design known as Competitive Auctions with Sponsored Policy Resources (CASPR), which sought to accommodate state laws in place prior to 2018. The Federal Energy Regulatory Commission (FERC) approved CASPR in March 2018. Going forward, work will remain to assess CASPR’s first-time implementation and to consider further market rule changes to accommodate new state laws.

Resources Required for Reliability: ISO New England’s 2017 *Regional Electricity Outlook* cautioned that the power system is “skating by” on the coldest days. ISO New England’s Winter Reliability Program, which pays extra-market revenue to select resource types, expires in 2018 and its Pay for Performance program, which will pay resources incremental revenue for performance when the system is stressed or penalize them for non-performance, commences. However, ISO New England’s 2018 *Regional Electricity Outlook* cautions that with worsening fuel constraints, the region may need to provide even stronger financial rewards to maintain reliability. That means consumers could be asked to pay, for example, higher prices in the energy and capacity markets for additional incentives to power plant owners to secure fuel when it is needed most, or for regulatory-style contracts between ISO New England and specific generators.

In 2018, exploring these reliability-centric market challenges will test the most often cited goals of competitive wholesale markets: 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 In these discussions, NESCOE will focus on making sure: 1) the precise problem is fully and fairly defined, 2) consumer interests are chief among the metrics by which potential solutions are evaluated, 3) a broad range of potential solutions are considered, and 4) all potential solutions are illuminated by cost-effectiveness analysis to enable assessment of whether the costs of proposed solutions have a reasonable relationship to asserted risks.

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

THE OBJECTIVE

To represent **the interests of the citizens**
of the New England region
by advancing policies that will provide
electricity
at the **lowest reasonable cost**
over the **long-term**,
consistent with maintaining
reliable service and **environmental quality**.

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 a 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.

Nearly all NESCOE determinations have been unanimous, reflecting the New England states' efforts to achieve consensus on regional electricity matters. In circumstances where there may not be 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.



NESCOE Managers

State of Connecticut
Katie Scharf Dykes
Chair, Public Utility Regulatory Authority



Katie Scharf Dykes is the Chair of Connecticut's Public Utilities Regulatory Authority (PURA). She was nominated by Governor Dannel P. Malloy to serve as a PURA Commissioner on October 27, 2016. Katie previously served as Deputy Commissioner for Energy at Connecticut's Department of Energy and Environmental Protection (CT DEEP). She had held that position since March 2012. PURA, which operates under the leadership of three Commissioners, is statutorily charged with regulating the rates and services of Connecticut's investor owned electricity, natural gas, water and telecommunication companies and is the franchising authority for the state's cable television companies. As PURA Chair, Katie plays an active role in helping to achieve the goal of Connecticut's energy agenda to bring cheaper, cleaner, and more reliable energy to the state's families and businesses. Katie also serves as the Chair of the Board of Directors of the Regional Greenhouse Gas Initiative (RGGI), 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.

**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 a 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 on 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 Law Firms

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 2017, NESCOE worked with consultants such as [Wilson Energy Economics](#), [Peter Flynn LLC](#), [Reishus Consulting, LLC](#) and [London Economics International](#).

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 New England consumer interests, representing the collective perspective of New England states in litigated proceedings at FERC and in federal court. In 2017, NESCOE advocated on behalf of consumer interests in four matters before the U.S. Court of Appeals for the D.C. Circuit. Three were in response to challenges that electric power generators initiated. One was NESCOE’s challenge in connection with the public policy provisions of FERC’s

Order 1000.

When NESCOE required outside counsel in 2017, it worked primarily with **McCarter & English, LLP** in Washington D.C. From time to time, NESCOE also engaged **Wilkinson, Barker Knauer LLP** in Washington D.C.

SECTION III: COORDINATION WITH REGIONAL STATE ENTITIES

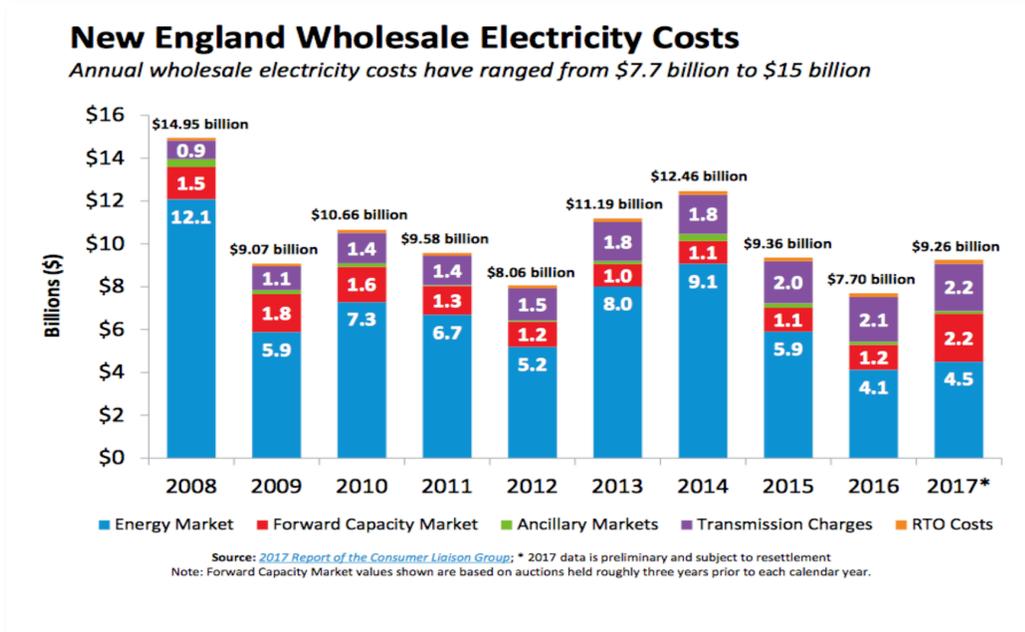
NESCOE communicates and coordinates as appropriate with state entities in the New England region such as New England Conference of Public Utility Commissioners (NECPUC) and the Coalition of Northeastern Governors (CONEG) to share information about matters on which it is working and to avoid duplication of efforts. Throughout 2017, 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, to maximize coordination among states and leverage the technical expertise that exists within state agencies, from time to time as needed, NESCOE facilitates dialogue with subject matter experts from state governments on various matters. This includes, for example, work with technical staff on matters under consideration by the North American Electric Reliability Corporation (NERC).

SECTION IV: 2017 ACTIVITY, FOCUS AREAS & ACCOMPLISHMENTS

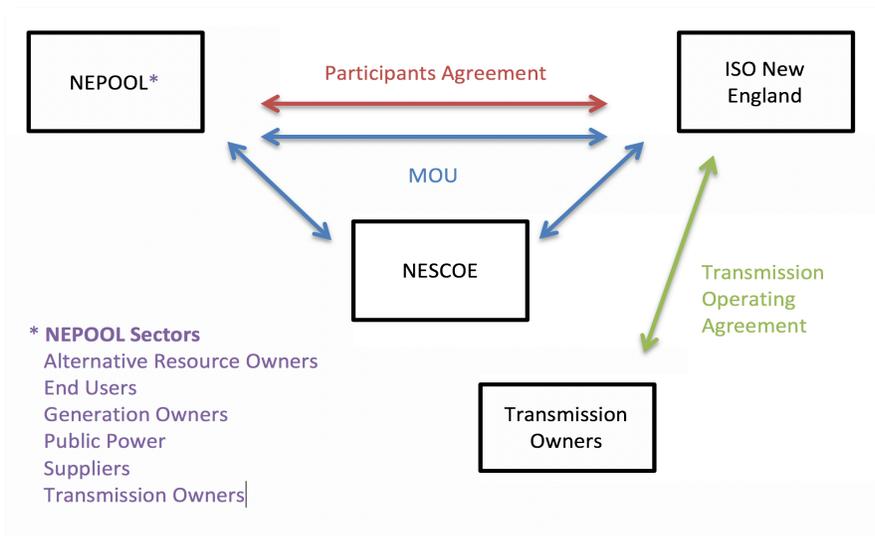
Advocating for Consumer Interests in Regional Stakeholder Forums

New England consumers fund the region's wholesale electricity markets, which have ranged over the past decade from \$7.7 billion in 2016 to nearly \$15 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 (New England's Regional Transmission Organization or RTO).

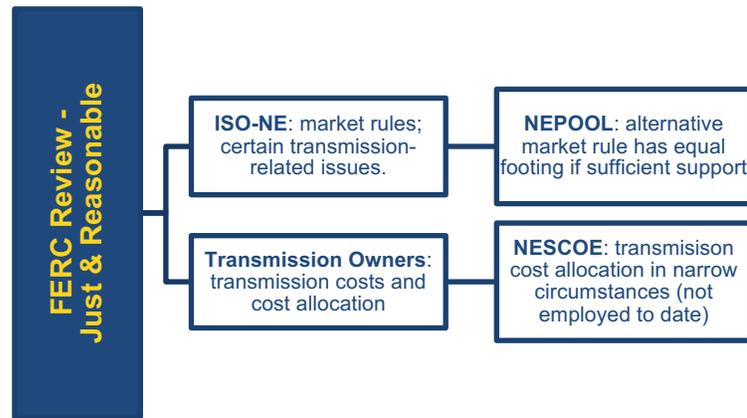


The plans and rules that determine the level and type of consumer investments in these markets are developed in regional stakeholder meetings. Most proposals are then presented to the FERC for its deliberation. Participating in these activities and the subsequent regulatory proceedings is resource intensive but imperative: even small 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, submitted to FERC, among NESCOE, ISO New England, and NEPOOL. The operative relationships are governed as follows:

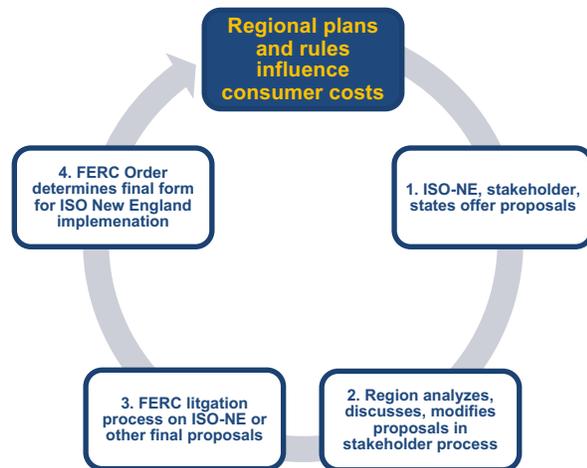


FERC reviews ISO New England’s filings to determine whether market rules and other proposals are “just and reasonable” under the Federal Power Act. Provided there is a certain level of stakeholder support, ISO-NE must include with its proposed market rule filing an alternative rule that NEPOOL supports, and the NEPOOL alternative is considered by FERC on equal legal footing with ISO New England’s proposed rules. New England’s transmission owners have legal authority to make filings with FERC in connection with transmission and transmission cost allocation, and FERC also reviews these filings under the Federal Power Act’s “just and reasonable” standard. Like many other 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 over which they did not prevail in regional discussions and/or at FERC. This highlights 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 2017, NESCOE represented the collective views of the New England states – and regularly played an important role – in substantive New England regional stakeholder forums throughout 2017. 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 policy objectives as appropriate.



Additionally, NESCOE participated in ISO New England’s Planning Advisory Committee (PAC), Power Supply Planning Committee, and Consumer Liaison Group meetings.

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 for NESCOE 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, resource and infrastructure planning studies.



Presenting Consumer Interests and Implications in Filings with Federal Agencies and ISO New England

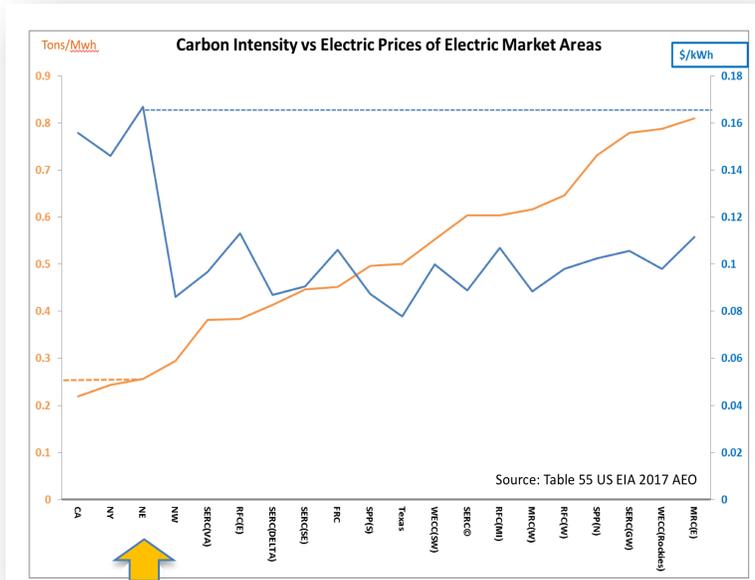
In 2017, NESCOE participated in ISO New England forums and federal-jurisdictional matters concerning resource adequacy and system planning-related issues that have significant implications for New England consumers.

NESCOE’s substantive filings in 2017 were diverse but had in common New England consumer interests or shared state policy objectives. They ranged from urging NERC to revise its draft Long-term Strategy to include the magnitude of risk and expected consumer costs associated in the transmission system reliability standard development process to supporting ISO New England’s generator interconnection queue proposal that may remove obstacles to new clean energy resource development. Some other representative matters are as follows:

Visit the **Resource Center** at www.nescoe.com to access filings or follow NESCOE on Twitter @nescoestates for alerts to major filings

- ◆ **FERC Technical Conference on State Policies and Wholesale Markets:** NESCOE submitted comments to FERC in connection with its technical conference on the execution of state laws and the operation of wholesale markets. Among other views, NESCOE

explained that the states did not support an additional, separate carbon pricing-style mechanism that would be administered by ISO New England and subject to FERC jurisdiction to execute the requirements of various states' laws. Concerns included risks to states' ability to make their own determination regarding the implementation of their



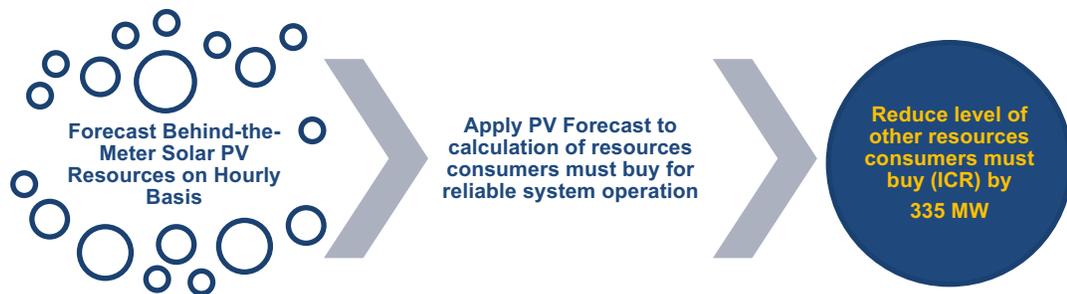
carbon-reduction laws. For example, as illustrated in recent years, a few market participants with an appetite and budget to litigate matters could seek to disrupt a design over which ISO New England, NESCOE, and NEPOOL find agreement.

Another concern was the significant consumer cost risk associated with creating an increased

revenue stream, whether needed or not, applicable to all non-carbon emitting resources without identifying the conditions under which such a need would be determined. The accompanying chart, for example, illustrates how New England is already among the lowest carbon intense regions but has the highest regional electric costs. NESCOE expressed interest in sorting through market and/or other changes that may be required over the long-term in a way that is thorough, holistic, and mindful of New England-specific considerations.

- ◆ **Installed Capacity Requirement and the Solar PV Forecast:** The demand for power in New England has trended downward due to consumer investment in energy efficiency and local resources such as solar photovoltaics (PV). Consistent with advocacy in years past, NESCOE urged ISO New England to accurately reflect consumer investment in distributed generation when it determines the level of other resources consumers need to buy for reliable system operations, or the Installed Capacity Requirement (ICR). In 2017, ISO New England proposed an important change to the PV Forecast methodology to more accurately reflect the effects of behind-the-meter PV in all hours of the day and all months of the year. This translated to a 335 MW reduction in the amount of other generating resources consumers needed to buy. For context, that is approximately half the size of a traditional central station power generator.

NESCOE provided the sole consumer perspective to FERC in support of ISO New England’s ICR methodology with the adjustment to account for the contributions of behind-the-meter PV resources. Some traditional generators opposed the adjustment and sought to delay its implementation, which would have fictionalized the state of the system and risked ISO New England procuring more capacity resources than the system needs, exposing consumers to unnecessary costs. FERC approved ISO New England’s approach.



Legal Advocacy 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 legal and regulatory matters to advance state interests when necessary, primarily at FERC and in the U.S. courts.

In 2017, a significant focus of NESCOE’s legal activity was in defense of consumer interests when other entities, most often owners of New England generating facilities, sought to challenge or overturn outcomes of regional stakeholder processes or FERC orders.

Throughout 2017, NESCOE continued its active participation in numerous FERC proceedings, including many contested matters. NESCOE led efforts in many of these proceedings to advocate for consumer and states’ interests, providing in some instances the sole counterpoint to shareholder and other interests.



In 2017, NESCOE participated actively in four cases at the D. C. Circuit Court of Appeals, including presenting oral argument in two of those cases. In each case, NESCOE sought to prevent unjustified ratepayer costs. One involved a NESCOE/five state petition regarding Order 1000 compliance in New England and the other three cases related to capacity

market rules.

The Court decided the Order 1000 case in April 2017 as part of a consolidated proceeding, *Emera Maine et al. v. FERC*, 854 F.3d 662 (D.C. Cir. 2017). NESCOE's petition was narrowly focused on whether FERC had impermissibly required ISO New England to select a project as part of its evaluation of transmission solutions to meet identified policy-driven needs, including those arising from state laws or regulations. Although the Court denied the petition, its ruling provided the clarity NESCOE had long sought, answering definitively that no project selection is required under Order 1000 and FERC's related orders. Most importantly, the ruling confirmed that ISO New England's tariff includes this critical "off ramp" from project selection. This helps to prevent costly projects from being selected for development that states do not view as advancing their policies or that are not in consumers' interest.

In late 2017, NESCOE took the lead on behalf of numerous intervenors in a brief supporting ISO New England tariff rules that promote 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 electric generators filed with the Court seeking to overturn the rule.

FERC Order 1000: State Laws and Public Policy-Driven Planning

In 2017, NESCOE participated in the region's first Order 1000 process to consider any requirements of federal, state, and local law that drive transmission needs. After carefully considering the ISO New England Planning Advisory Committee members' input, NESCOE determined that there were no state or federal public policy requirements driving transmission needs and explained why NESCOE did not request an ISO New England public policy transmission study (ISO New England concluded that no local laws required a study as well). NESCOE's communication included responses from the NESCOE Manager(s) of each New England state. The Tariff requires a planning cycle at least every three years for public-policy driven transmission and the timing of the next cycle has not yet been established. As noted, in 2017, NESCOE was satisfied with the outcome of its appeal in federal court regarding a critical aspect of FERC's Order 1000.

Transparency and Consistency in Transmission Planning

In 2017, 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 (see, for example, ISO New England's 2018 *Regional Electricity Outlook*). However, 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 \$2.3 billion is planned through 2023, 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.

According to data that Regional Transmission Operators such as ISO New England provided to FERC, between 2010 and 2014, New England wholesale electric consumers paid more for transmission infrastructure relative to other bill components than did consumers in other regions.² It is often suggested that these investments were needed to make up for New England's underinvestment in transmission projects to meet reliability needs in prior years. ISO New England has also noted that the ability to flow power efficiently across the region has allowed New England consumers to avoid the costs of reliability contracts with certain generating resources since 2010.



The absolute and relative level of transmission costs underscore the importance of ISO New England transmission planning approaches to New England consumers, and, even with the expected forward-looking decline in 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 Through the Use of Probabilities in Transmission Planning

In 2017, following years of advocacy from NESCOE and states, ISO New England modified the direction of transmission planning in New England. Consequently, ISO New England paused development of some proposed transmission solutions analyses and restarted relevant studies pursuant to these new approaches. The underlying drivers included the introduction of probabilities into base case formation, a concept NESCOE advanced several years ago, and changes to ISO New England's Planning Procedure Number Three. The use of probabilities is an analytically sound approach to developing planning assumptions that enhances transparency and helps to achieve consistency across planning studies. Directionally, and taken together, these changes are expected to result in reduced need for transmission identified for reliability needs and therefore lower costs over time.

² For more information, see NESCOE's summary of the 2015 ISO/RTO Metrics Report (November 2015), at slide 10, available at http://nescoe.com/wp-content/uploads/2015/11/ISO-RTO_Metrics_25Nov2015.pdf.

Increasing Transparency Through Changes to FERC’s “Formula Rates”

In 2015, NESCOE joined consumer representatives from across the region in discussing with New England Transmission Owners the development and implementation of protocols to increase transparency and accessibility of information regarding transmission rate recovery. FERC does not subject this category of costs to traditional contested regulatory scrutiny before they are passed through to consumers through use of a “formula rate.” In late 2015, FERC opened a proceeding on New England’s “formula rates,” consistent with what FERC has done in other regions and instituted a settlement process.

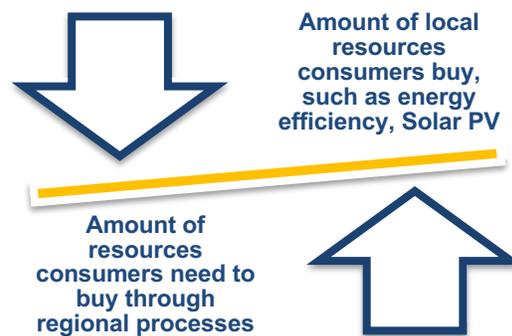
Throughout 2016 and 2017, NESCOE played a leading role in negotiations between New England Transmission Owners and consumer interested parties as part of the FERC settlement proceeding. In February 2018, the settlement judge reported that significant progress has been made toward achieving a settlement and that a schedule is in place for filing the settlement with FERC.

Local Resources Offsetting Regional Resource Needs

New England consumers are increasingly investing in technologies such as solar 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 electricity demand and slowing the growth in peak demand. This reduces the level of resources and infrastructure consumers need to plan for or ultimately pay for, such as transmission or central power plants. Achieving these savings depends on ISO New England accounting for local resources in regional planning. NESCOE has continued work to ensure that these investments are properly recognized in ISO New England forecasts and 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 ICR. In 2017, ISO New England made important adjustments to the forecast methodology, described in more detail above, 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 successfully defended against power generators’ arguments that these important changes should be deferred, which would have required consumers to over-invest in resources.

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 already translated into hundreds of millions of dollars of savings for consumers in the form of transmission project deferrals. Looking ahead, ISO New England estimates that the New England states will collectively invest over \$7.2 billion in energy efficiency from 2021 to 2026, and NESCOE will continue to advocate for regional planning and markets to appropriately account for these investments.

Power System Reliability and Associated Market Matters

Over a decade ago, New England transitioned to wholesale competitive markets to serve consumers in a way that is fuel neutral and at the lowest cost.³ 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.

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 in prior years, in 2017, NESCOE advanced and contributed to the development of market mechanisms related to the region's diverse challenges, which ranged from increased reliance on natural gas-fired units at a time of natural gas constraints, to the integration of variable resources, such as wind power, to the potential retirement of generation units. As expected, in 2017, the pace of new market proposals was slower than in prior years to allow ISO New England time to implement previously-adopted material market changes and to develop what ultimately became the CASPR proposal.

³ For more information regarding New England's electricity industry restructuring, see *Electric Restructuring in New England – A Look Back* (December 2015), available at http://nescoe.com/wp-content/uploads/2015/12/RestructuringHistory_December2015.pdf.

Over the last several 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.

NESCOE spent considerable time in early 2017 on NEPOOL's IMAPP process. IMAPP was a venue through which stakeholders advanced

ideas about potential means to integrate the requirements of state laws into wholesale markets. Following the region's exploration of potential solutions that could either accommodate or achieve the requirements of state laws, ISO New England introduced its accommodate-style CASPR proposal. For the balance of 2017, ISO New England, states, and stakeholders discussed the CASPR proposal, as well as potential enhancements and variations to it. ISO New England filed its final CASPR proposal with FERC in early 2018. Five of the six New England states expressed to FERC their support for CASP, which FERC subsequently approved.



Other market design changes discussed in 2017 included replacement of the capacity supply bilateral trading construct with a new instrument to facilitate substitutable annual bilateral transfers of capacity supply obligations; modifications to the capacity market requirements for covering an obligation associated with a repowering project; and a package of market rule revisions to support the implementation of full integration of demand response into the New England wholesale markets. In addition, NESCOE reviewed various other proposed changes to ISO New England's tariff and manuals, including for example, modifications to reduce the Dynamic De-List Bid Threshold, which sets the value that existing resources can exit the market without undergoing market monitoring review.

Providing Context and Analysis to Inform Decisions

In 2016, NESCOE began 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 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. Phase II examined various mechanisms that states could use to achieve certain policy objectives and the associated benefits and challenges of each mechanism. The two-part study is intended to inform states' consideration of potential mechanisms through which they could execute energy and environmental laws and their consumer cost implications. The study demonstrates market-based impacts from a range of hypothetical renewable and clean energy resource and infrastructure scenarios.

In 2017, 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 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. NESCOE will conclude the analysis in mid-2018 and welcome stakeholder observations.

In 2017, NESCOE produced an *Electricity Ancillary Services Primer* (Primer). Ancillary services are tools and procedures that help grid operators maintain the reliability of the electric system over a scale of time that ranges from a fraction of a second to years in the future. The Primer explains and discusses ancillary services specific to New England and other regional grids in the U.S.; surveys ancillary services in Europe where renewable resources are a relatively larger share of the power mix; examines the evolution of ancillary services over time; and provides observations on potential changes ahead.

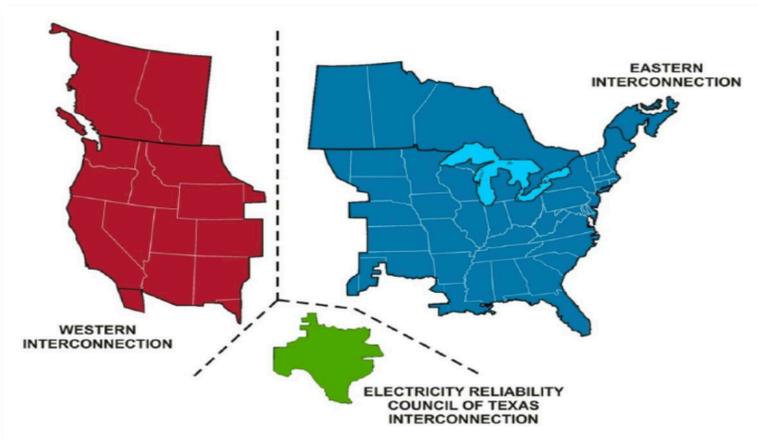
**Electricity Ancillary Services
Primer
August 2017**

Ancillary services are a measurable but relatively small proportion of the total cost to consumers of the New England wholesale market over the last five years. Looking ahead, New England will likely grapple with many of the same issues identified in grids around the world that are facing significant changes to the power supply mix. Early concerns about how difficult integrating renewables might be in terms of managing this additional need for flexibility were largely overstated, as power systems around the world have since easily accommodated much higher amounts of renewables than first anticipated. Given the modest levels of variable generation currently in New England and its expected future growth levels, New England has

time to further explore this issue: ISO New England’s ancillary service products are already relatively aligned with other system operators that are experiencing higher levels of renewables. In the next five to ten years, New England can learn from observing the success or failure of specific modifications or enhancements made to system reliability tools in other regions discussed in the Primer.

Eastern Interconnection Planning Collaborative: Examining New England Consumer Interests

In 2017, NESCOE continued to provide 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 performed 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. New England is a sub-region within the Northeast Planning and Coordinating Council (NPCC). To date, EIPC analyses have focused on the seam between NPCC and the PJM Interconnection and have not yet identified any transmission system issues within New England or with its neighbors in NPCC.

Presentations

In 2017, various organizations invited NESCOE representatives to make presentations on current issues. NESCOE appreciates the opportunities to share information and the states' collective perspective and to receive feedback. The following is a representative sample of meetings at which NESCOE presented:



SECTION V: PRIORITIES FOR 2018 AND 2019

NESCOE carries into 2018 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 and 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 2018 and 2019:

- ◆ **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 NPCC in addition to NERC planning criteria; and continue to urge NERC to consider cost-effectiveness in its reliability standard development.

- ◆ **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 2018, NESCOE will participate actively in discussion about the outstanding issues associated with cost containment in the Order 1000 competitive transmission environment and encourage work on an ISO New England manual that establishes procedures on cost caps and containment.

To assess transmission investment vis a vis other potential means to meet power system needs, consumers require:

- ◆ **accurate transmission project cost estimates**
- ◆ **controls to keep actual costs in line with estimates**
- ◆ **transparency in both planning and cost recovery**

- ◆ **Transmission Formula Rates:** Advocate to bring the proposed settlement to closure, and thereafter, analyze New England transmission cost information the settlement made more transparent and bring to FERC's attention any costs that appear unreasonable.
- ◆ **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.
- ◆ **NERC Standards and Consumer Cost Implications:** Continue to track and comment on major NERC policy activities when they have the potential for significant cost implications for New England electricity consumers; seek to ensure that reliability standards development and other NERC activities appropriately consider the costs relative to potential incremental reliability gains and take regional differences into account.

It is a priority that the appropriate level of infrastructure is in place to achieve a robust and reliable bulk electric system. At the same time, mandatory standards cannot be considered in a vacuum. The standard development process must recognize the magnitude of risk and expected costs associated with such standards.

- ◆ **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 New England consumers will pay for through ISO New England’s Pay-for-Performance modifications to the Forward Capacity Market.
- ◆ **Energy Efficiency Forecast:** 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.
- ◆ **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. 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 and provide analysis about mechanisms - implemented and/or proposed - designed to reasonably harmonize as needed the regional electricity market and the energy and environmental requirements in New England states’ laws. This includes, but is not limited to, policies and/or programs related to carbon reduction, storage, and distributed generation. In connection with CASPR, this will include assessment of its first-time implementation and further consideration of market rule changes to account for new state laws. 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.

◆ **Power System Reliability and Competitive Markets:**

Participate actively in New England discussions about ISO New England's analysis and operational experience that has caused it to conclude that the competitive wholesale markets, without a Winter Reliability Program and after implementation of Pay for Performance, require change in order to provide reliable service. NESCOE will focus on making sure: 1) the precise problem is fully and fairly defined, 2) consumer interests are chief among the metrics by which potential solutions are evaluated, 3) a broad range of potential solutions are considered, and 4) all potential solutions are illuminated by cost-effectiveness analysis to enable assessment of whether the costs of proposed solutions have a reasonable relationship to asserted risks. To the extent ISO New England discovers an unforeseen, nearer-term risk to system reliability that requires administrative adjustments to the market after its Winter Reliability Programs ends, apply the same general criteria to ensure any stop-gap program serves consumers at the lowest reasonable cost.

2018 will test the most often cited goals of competitive wholesale markets:

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

- ◆ **Energy Affordability Task Force:** Provide technical support as requested by NESCOE Managers to CONEG's task force to identify cooperative action on energy affordability and regional coordination.
- ◆ **Advocate on behalf of Consumer Interests in Litigation Advanced by New England Market Participants:** Continue to advocate as appropriate in pending litigation at the U.S. Court of Appeals for the D.C. Circuit; track any new federal appeals 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.
- ◆ **Analysis of Renewable and Clean Energy Mechanisms:** By mid-2018, finalize and welcome stakeholder observations on Phase II of the *Renewable and Clean Energy Scenario Analysis and Mechanisms 2.0 Study*, one of many pieces of information that may assist consideration of how states may choose to implement policy objectives and how wholesale competitive markets and state public policies might best move forward together.
- ◆ **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 study, 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; monitor and provide collective state views in connection with FERC's proceeding to examine aggregation of distributed energy resources and their participation in wholesale electricity markets.
- ◆ **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., finding the right 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. 2017 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 2017, an independent audit of NESCOE's books for the year-end December 31, 2016, 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 2017 Statement of Spending is as follows:

NESCOE

Statement of Spending December 31, 2017

Expenses	
Direct Expenses, Consulting	
Legal (FERC) Services	130,365
Technical Consulting	327,378
Total Direct Expenses, Consulting	<u>457,743</u>
Employment and Benefits	
Disability	9,792
Employee Health Insurance	28,589
Life Insurance	990
Payroll Taxes	52,002
Pension Contributions	24,710
Salaries & Wages	799,728
Total Employment and Benefits	<u>915,810</u>
General and Administrative	
Dues and Subscriptions	9,450
Depreciation	4,021
Insurance	6,429
Office Expenses	2,812
Professional Services	23,984
Rent, Parking & Utilities	24,148
Telephone & Communications	8,559
Travel and Meetings	59,052
Total General and Administrative	<u>138,455</u>
Total Expenses	<u><u>1,512,009</u></u>

VII. BUDGET 2018 & PRELIMINARY BUDGET 2019

NESCOE's 2018 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 2017. The 2018 NESCOE budget was submitted to the FERC and accepted in December 2017. The 2018 and preliminary 2019 budgets are as follows:

NESCOE		
Actual 2018 Budget and Preliminary 2019 Budget		
	2018	2019
Salaries and Wages		
Salaries	983,020	1,012,511
Payroll Taxes	98,302	101,251
Health and Other Benefits	82,500	84,975
Retirement §401(k)	39,321	40,501
Total, Salaries and Wages	1,203,143	1,239,237
Direct Expenses - Consulting		
Technical Analysis	502,700	517,781
Legal (FERC)	140,689	144,910
Total, Direct Expenses, Consulting	643,389	662,691
General and Administrative		
Rent	27,000	27,810
Utilities	5,305	5,464
Office and Administrative Expenses	43,497	44,802
Professional Services	55,000	56,650
Travel/Lodging/Meetings	90,000	92,700
Total General and Administrative	220,802	227,426
Capital Expend. & Contingencies		
Computer Equipment	7,500	7,725
Contingencies	207,483	213,707
Capital Expend. & Contingencies	214,983	221,432
 TOTAL EXPENSES	 2,282,317	 2,350,787