



NEEP 2018 QUARTERLY REPORT ANNUAL SUMMARY



Leadership Recognition and Policy Tracking



Advanced Evaluation, Measurement and Verification (EM&V) Solutions

Facilitated stakeholder awareness and discussion of M&V opportunities, challenges, and best practices: Through these efforts, NEEP supported industry trends of buildings as grid assets, integrating distributed energy resources (DERs) into energy efficiency delivery, and the relevancy of EM&V to assess the impacts and value of advanced efficiency as a carbon reduction strategy. Topics addressed included cost-effectiveness best practices, quantification and applications of non-energy benefits, protocol development relevant to advancing M&V, and software and efficiency programs that support whole-building analytical approaches.



Policy and Program Trends and Progress Tracking

Published a [peer reviewed paper](#) for ACEEE's Summer Study: NEEP presented findings from the paper, *Looking Towards Future Integration of Energy Efficiency, Clean Energy, and Strategic Electrification*, during a strategic electrification policy panel at the conference, which took place August 12-17, 2018. This paper laid a pathway toward integrating energy efficiency, clean energy, and strategic electrification to achieve deep decarbonization goals. It also provided foundation for the development of NEEP's policy framework for building decarbonization. Presentation of the paper's findings at the ACEEE Summer Study provided an opportunity for wide dissemination to key stakeholders.



Resilient, High Performance Buildings and Communities



Pathways for Efficient and Resilient Communities

Launched the [Community Action Planning for Energy Efficiency \(CAPEE\)](#) tool: This online resource was developed to help small- to mid-sized and rural communities plan and prioritize energy efficiency projects. CAPEE was designed with input from regional stakeholders to be easy-to-use so that communities can overcome common barriers to public building energy improvement projects. CAPEE users begin by answering a series of questions about their municipality's current status in regard to energy initiatives. The tool then generates a customized action plan with fact sheets, statistics, and additional resources to assist with

projects. The objective of this work is to help communities set and achieve energy reduction goals.



Building Energy Codes and Benchmarking

Renewed and issued a new report, Codes in the Northeast: Myths and Realities of Energy Code Adoption: First [published in 2015](#) the [2018 update](#) uses construction permit data, from [ConstructConnect](#), for each state in the NEEP region to inform its findings. The report dispels the myth that updating energy codes causes building and home construction to slow down or move to areas with less stringent energy codes. For states and municipalities concerned with the myth of economic consequences from adopting new codes, the findings are vital toward shifting perception of the effects of energy code adoption. Additionally, the report assists in removing hurdles to code adoption by providing each state with energy savings and carbon reduction information that is translated into easy to understand equivalencies – such as miles of bike lanes that could be built, and how many homes could be powered from the dollars saved from updated energy code adoption. The report is part of a larger NEEP [tool kit](#) of resources supporting carbon reduction and energy savings through code adoption and compliance.



Home Energy Labeling Information eXchange (HELIX)

Achieved greater data integration in the HELIX database: NEEP and project partners have successfully beta tested the deployment of [HELIX](#) in Mass., Conn., R.I., N.H., and Vt., and discussions are underway in Me. and N.Y. HELIX has integrated the U.S. Green Building Council’s (USGBC) LEED program for homes, as well as National Green Building Standard data into the database for all pilot states. In addition, we have successfully imported solar photovoltaics (PV) in Vermont and Massachusetts, and U.S. Department of Energy (US DOE) Home Energy Score (HES) in Rhode Island. Discussions are underway with Pearl Certification, RESNET, and Passive House. By integrating these different data sources, HELIX will be a central aggregator for home energy information for Multiple Listing Services (MLSs). This contributes to successful implementation of different data providers and the long-term market transformation goal of home energy labels/certifications being used widely in real estate listings.



Integrated Advanced Efficiency Solutions



Air-Source Heat Pumps and Smart Energy Homes

Managed the [Cold Climate Air-Source Heat Pump \(ccASHP\) specification](#) and the list of products that meet the specification’s requirements: These requirements include both specific

performance levels as well as a series of reporting requirements. The development of the specification was informed by NEEP’s [2014 Northeast/Mid-Atlantic ASHP Market Strategies Report](#) that suggested ASHP stakeholders “develop standardized metrics for cold climate ASHP performance” as an opportunity to accelerate adoption of ASHPs. The product list grew to include over 1,300 products in 2018, with eight leading programs – including MassCEC, Efficiency Vermont, and NYSERDA – adopting the specification and products list as part of their qualification for incentives. The list is a mechanism for the market to differentiate ASHP systems that can operate efficiently in cold climates. These programs rely on the specification and list as resources to help implement energy efficiency programs. In 2018, NEEP worked with regional stakeholders to develop [version 3.0](#) of the specification, which went into effect on January 1, 2019.



Efficient, Low Carbon Commercial and Industrial Solutions

Finalized a strategic energy management (SEM) factsheet and supporting informational resource to educate CAPEE users and other stakeholders: The resources shared NEEP’s knowledge on SEM, [ISO 50001 Standard](#), [US DOE’s 50001 Ready Program](#), and [US DOE’s 50001 Navigator Tool](#). CAPEE was created to support community action on energy efficiency. These new resources are specifically targeted to municipalities with water/waste-water (WWW) treatment facilities, which have been found to be an excellent application of SEM. We will continue to drive communities to utilize the CAPEE tool and drive use of the SEM resources in WWW facilities. This effort contributed to one of NEEP’s 2018 intended outcomes to increase the number of commercial and industrial (C&I) companies and municipal water facilities in the region participating in 50001 Ready programs.



Federal and State Appliance Standards

With project partner the Appliance Standards Awareness Project (ASAP), hosted an in-person meeting for regional appliance standards stakeholders: The purpose of this meeting, hosted in October in conjunction with the [NEEP Summit](#) in Middletown, R.I., was to strategize moving forward state standards, and included attendees from R.I., Mass., Ct., N.J., N.Y., and Vt. The gathering provided an opportunity for state stakeholders to share their experiences with appliance standards and plan for the years to come. In addition to the day-long workshop with state stakeholders, NEEP hosted a discussion with businesses interested in supporting appliance standards efforts.



Strategic Electrification



Strategic Electrification

Published the [Action Plan to Accelerate Strategic Electrification in the Northeast](#): The plan provides a series of action areas that key regional stakeholders can take in order to move strategic electrification forward over the next three to five years. NEEP hosted a [webinar](#) to present the elements of the plan, with 96 stakeholders in attendance, and published a [blog](#) on key takeaways from the report. We will continue to leverage existing stakeholder groups to coordinate implementation of the plan in 2019. As evidenced by the regularity of the topic being discussed at regional conferences and meetings, strategic electrification has become core to the regional clean energy narrative and state/local decarbonization efforts.



Leadership Recognition and Policy Tracking

Events & Stakeholder Engagement

- **Hosted the [EM&V Annual Public Meeting](#) to demonstrate the diversity of topics and future roles for efficiency evaluation:** Topics included efficiency in the context of distributed resources, roles for control technologies in EM&V, cost-effectiveness, and the multiple benefits of evaluation. We also published a [blog](#) on the event.
- **Engaged M&V 2.0 stakeholders through a workshop and webinars:** Throughout 2018, NEEP hosted several engagement opportunities for state partners involved in the US DOE State Energy Program M&V 2.0 Project hosted by the Connecticut Department of Energy & Environmental Protection (CT DEEP). We hosted two webinars for partners to provide a forum for states throughout the Northeast to discuss their activities in M&V 2.0. Additionally, on November 7, NEEP hosted a public [M&V 2.0 Workshop](#) in Burlington, Vt. which included a Vermont State Partner Workshop as part of the day-long agenda. The event was well attended with 64 attendees — spanning utilities, state energy offices, evaluation consultants, M&V 2.0 vendors, and others – and received positive reviews toward achieving the mission of advancing understanding of M&V 2.0 and increasing collaboration and coordination in the space, as well as providing an update on the status and next steps for the CT M&V 2.0 pilots. NEEP also produced a [blog](#) summary of the event.
- **Hosted a [Pay for Performance \(P4P\) webinar](#):** This webinar presented case studies that demonstrated that increasing availability of energy meter data and evolving data analysis



techniques allow P4P programs to reward energy savings on an ongoing basis as the savings occur.

- **Hosted a [cost-effectiveness webinar](#):** This webinar shared information on evidence-based benefits, including E4TheFuture’s repository of non-energy benefit (NEB) studies, NEB theory, National Grid’s NEB evaluation framework, and case studies of high value non-energy benefits in commercial and industrial (C&I) facilities.
- **Hosted a [public webinar on Advanced M&V](#):** This webinar was well attended with 170 people registering, 111 attending, and another seven watching the recording after the event. The webinar featured six speakers, each presenting a unique perspective on new tools and opportunities for advanced M&V. In a post-event survey, participants gave favorable responses to the webinar content and made several requests for additional topics to cover in subsequent webinars.
- **Presented at the [International Energy Agency’s workshop on the multiple benefits of energy efficiency](#):** NEEP participated in a panel for policymakers on what is needed to bring non-energy impacts (NEIs) into cost-effectiveness testing, highlighting NEEP’s research, our [NEI report](#), and the National Standard Practice Manual (NSPM) as resources. Attendees included stakeholders from across the NEEP region, and countries from six continents.
- **Engaged with state energy efficiency boards and council meetings throughout the year:** NEEP engaged with environmental advocacy groups to stay updated on state and local legislative and regulatory policy happenings. NEEP participates in New York’s Clean Energy Organizations Collaborative (CEOC), Maryland Energy Efficiency Advocates, the Massachusetts Global Warming Solutions Group, and other groups to provide educational materials and gain insights into policy updates. We provide technical assistance to stakeholders in these groups as needed. NEEP also engaged with other regional energy efficiency organizations (REEOs) and the California Efficiency + Demand Management Council during quarterly teleconferences for information sharing and to identify areas of common interest among the REEOs’ policy work to provide assistance and share resources.
- **Attended and provided comments at the Connecticut stakeholder meeting regarding cost-effectiveness testing:** At the meeting, hosted by CT DEEP, NEEP served as a technical expert on cost-effectiveness and recommended the NSPM as a framework for the state’s efforts in this area. The presentation highlighted the importance of the core principles and ways in which they relate to current public policy in the state. This will help CT DEEP move the process forward.
- **Provided comments on the 2019-2021 Energy Efficiency Plan at the Massachusetts Energy Efficiency Advisory Council (EEAC) meeting:** NEEP’s comments focused on the second draft of the state’s 2019-2021 Energy Efficiency Plan in response to a request from the Massachusetts Department of Energy Resources (MA DOER). There, we commented on new opportunities for energy and demand savings, as well as the incorporation of the Act to Advance Clean Energy from 2018 into the plan. NEEP highlighted ways to integrate the provisions from the Act into the state’s three-year plan, as well as ways in which NEEP can provide technical assistance on the programs that align with our project areas.



Research, Analysis, Reports, and Case Studies

- **Began development of an M&V 2.0 brief:** This resource will profile regional activities of energy efficiency program administrators that are indicators of the region's experience with advanced M&V.
- **Published quarterly [REED Renderings](#) to highlight different state policies and programs based on the data reported to the [Regional Energy Efficiency Database \(REED\)](#) from utility program administrators:** This publication provides visibility for advanced energy efficiency leadership stories and impacts. Topics covered in 2018 include energy efficiency funding mechanisms, analysis of the 2016 data, and program opportunities for low-income communities. This provides an opportunity to highlight how the data in REED can be used in various different types of analyses.
- **Published bi-monthly policy trackers to provide analysis and updates on recent policy developments, both regulatory and legislative:** This provides an opportunity to highlight trends and leadership throughout the region. [The last policy tracker of 2018](#) provided an analysis of the midterm election results and what we can anticipate for energy efficiency policy in states where political seats changed hands. This helps increase the number of state policies that are passed that contribute to carbon reduction and energy savings.
- **Published the [2018 Energy Efficiency Snapshot](#):** The Snapshot provides an updated look at energy savings from energy efficiency programs, as well as new sections on carbon reduction. The resource also shows progress achieved through energy efficiency programs implemented by utilities and reported to REED.
- **Completed the report [Northeast Regional Energy Efficiency Database, Program and Measure Data](#):** The report provides documentation of the update process for REED, as well as an appendix that includes documentation of efficiency measure incentives in Northeast states, measure-level cost-effectiveness parameters from N.H., Mass., and Conn., and a look at expected trends in the region's energy efficiency program measures and incentives. Data from this report is a resource that states can use to benchmark their measure-level incentives.

Technical Assistance and Resource Centers

- **Published an update to the [Mid-Atlantic Technical Resource Manual \(TRM\)](#):** This update to the TRM is the outcome of a NEEP technical assistance project sponsored by Maryland, Delaware, and the District of Columbia. The intent of the project was to develop and document in detail common assumptions for significant prescriptive residential and commercial/industrial electric energy efficiency measures savings. Measures were chosen by consensus of the subcommittee and project team.
- **Published three topical EM&V blogs:** These blogs shared information on why [rapid feedback](#) is relevant to advanced efficiency; [international priorities](#) in energy evaluation; and the role of evaluation in [carbon reduction](#). They also provide context for the importance of understanding efficiency performance and carbon efficiency.

- **Data for program year 2016 published to the Regional Energy Efficiency Database (REED):** Data was [published to REED](#) along with supporting state information, including utility energy efficiency savings information for Mass., R.I., Conn., N.H., Me., Vt., N.Y., Md., Del., and D.C.
- **Provided technical assistance to various state public policy proceedings:** This included written comments on [Efficiency Maine Trust’s Triennial Plan IV](#), the [CT 2019-2021 Conservation and Load Management Plan](#), and New York Governor Cuomo’s [New Efficiency New York publication](#). Each instance of technical assistance provided an opportunity for NEEP to highlight key areas the states were considering to move advanced efficiency forward, and provided insights and best practices to do so. Additionally, NEEP’s comments encouraged states to be innovative in their program offerings.

Regional Market Transformation Strategies

- **Hosted a [webinar on data and tools to support strategic electrification](#):** This webinar provided a summary of a survey of resources and gaps, focusing on state and local energy officials and program administrators in New England and New York involved in planning.



Resilient, High Performance Buildings and Communities

Events & Stakeholder Engagement

- **Held three high performance school tours:** Sharing success stories and viewing [healthy, energy efficient schools](#) in-person can be powerful drivers to increase the number of communities striving to achieve high performance schools. In collaboration with partner organizations, NEEP held school tours in Maine, New Hampshire, and Massachusetts during Healthy Schools Week. Approximately 60 participated in tours led by project architects and facility directors to give attendees a firsthand look at the design and operations of the school buildings.
- **Convened NEEP’s Regional High Performance Buildings and Communities Leadership Group:** NEEP engaged a regional network of stakeholders including representatives from communities, utilities, state agencies, architects, engineers, and more over the course of the year. The leadership network presents an opportunity for states and communities to share best practices and lessons learned to promote energy efficiency and increase the efficiency of public buildings. Specific topics covered by the group this year included strategies for high performance schools, community-wide resources, information for improving efficiency of water/wastewater treatment facilities, and more.
- **Presented at numerous events and meetings throughout 2018:** NEEP attended and presented at different events to educate stakeholders, share best practices, and disseminate resources related to high performance buildings and communities. Events included the Northern New England Facilities Masters Conference, the National Governor’s Association Leading by Example



Workshop, N.H. School Administrators Association Conference, N.H. AIA December Meeting, an R.I. Building Operator Certification (BOC) course, and others. These engagements present an opportunity for NEEP to create new connections with stakeholders to increase the number of states and communities committing to energy reduction targets.

- **Convened annual Regional Energy Codes Working Group in-person meeting:** NEEP’s annual in-person meeting was held in December in Boston, Mass. The agenda focused on two primary topics: 1) existing building decarbonization; and 2) energy resiliency in codes. The topics drew nearly 50 attendees in person and virtually, who participated in the meeting by sharing best practices and new ideas for code adoption, compliance, and administration. Additional meeting outcomes included:
 - Overview of lead-by-example legislation for existing buildings decarbonization in New York City and Washington, D.C.;
 - Understanding International Code Council (ICC) code development related to energy resiliency; and
 - Awareness of new and existing initiatives of U.S. DOE and the Pacific Northwest National Laboratory (PNNL).

The annual meeting assists NEEP in understanding regional and state needs and anticipating what technical assistance will be needed in the year ahead. Eleven states in the NEEP region will adopt codes in 2019.

- **Convened the Regional Energy Codes Working Group for three quarterly meetings via webinar:** Reaching a total of 100 stakeholders, topics for discussion included code compliance attribution, strategic electrification, and the 2021 International Energy Conservation Code® (IECC®) development process. Each of these topics contributed to the initiative’s intended 2018 project outcomes including increasing compliance rates, new states adopting energy codes, and new states adopting stretch energy codes.
- **Led, facilitated, and reconvened state energy code working groups:** The goal of this work is to increase the number of states adopting updated energy codes and increase compliance rates. To support this, NEEP:
 - Providing ongoing technical assistance and organizational guidance to stakeholders in Maine seeking to update the state’s energy code. The stakeholders involved include various resident organizations, the [Institute for Market Transformation](#), and the [Carbon Neutral Cities Alliance](#). This paves the way for a potential energy code update in 2019.
 - Facilitated three meetings of the Pennsylvania Energy Code Collaborative, which in 2018 focused on sharing best practices to accelerate code compliance.
 - Planned for reconvening the New Hampshire Energy Code Collaborative which will meet in 2019.
- **Helped plan for and participated in the 2018 National Energy Codes Conference:** The 2018 [Department of Energy National Codes Conference](#) in Austin, Texas, featured two NEEP-organized sessions as well as the main plenary session. One NEEP session educated approximately 200 attendees about the Energy Rating Index compliance path, and the second session highlighted unconventional and new stakeholders, including real estate professionals,

sustainability directors, and environmental advocates. The plenary session was an open forum for all conference attendees to have the opportunity to discuss “Whose Job is it Anyway?” to adopt, comply with, and enforce codes. This activity relates to NEEP’s long-term goal to increase building energy code efficiency to zero energy by 2030.

- **Convened two regional stakeholder meetings to discuss residential labeling efforts with state energy offices and utilities:** These meeting helped inform efforts of our Home Energy Labeling Information eXchange (HELIX) project by identifying the needs of states in the region to advance voluntary and/or mandatory policies and programs. These invitation-only meetings provided a space for stakeholders to discuss the barriers to residential labeling and potential solutions, such as HELIX. Takeaways from these meetings were used to inform the marketing and communication strategy to accelerate market adoption of home energy labels in each state.
- **Presented on the Home Energy Labeling Information eXchange (HELIX) at a national conference of state energy offices:** NEEP presented at the annual meeting of the National Association of State Energy Officials (NASEO) to educate stakeholders about the [HELIX database](#) and how it can be used to advance state policies and programs for residential labeling. HELIX was presented during a panel with cities and states across the country that are implementing home energy labeling initiatives, which highlighted HELIX as a key tool for connecting this information to the real estate market.
- **Presented on HELIX during a [webinar hosted by Northeast Home Energy Rating System Alliance \(NEHERS\)](#):** Fifteen NEHERS members, the majority of which were Home Energy Rating System Index (HERS) raters, attended the webinar to learn how HELIX benefits HERS raters and the HERS rating industry as a whole. The webinar recording is posted the NEHERS website, accompanied by a 10-question quiz that members can take to receive Residential Energy Services Network (RESNET) continuing education credits.
- **Hosted a webinar on [The Emerging Green Homes Marketplace: Fear, Challenges, and Opportunities](#):** The June 27 webinar focused on educating the real estate community on green data fields and the value of HELIX auto-populating multiple listing service (MLS) listings with this information. Ninety-four stakeholders attended, representing 12 of the 13 states in the NEEP region, along with 11 states from outside of the NEEP region.
- **Hosted the third [HELIX Summit in Providence, R.I. in December](#):** The purpose of the Summit was to show the progress made during the past year to bring HELIX to the pilot states and integrate home energy scores, labels, and other data into MLS listings. The bulk of the Summit focused on how this data can drive market transformation through policy and available information. HELIX plays a critical role in filling the gap between the available data and the real estate industry.
- **Facilitated the HELIX Advisory Committee:** NEEP convened the HELIX Advisory Committee over the course of the year, hosting meetings where we provided updates on the project, informed stakeholders on the 2018 HELIX Summit, and gathered input on the HELIX outreach and education resources in development. Engaging this committee helps ensure successful pilot testing and development of HELIX across the pilot region.



Research, Analysis, Reports, and Case Studies

- **Developed four new high performance school exemplars:** These case studies highlight model school buildings and feature key components of the building that make it a healthy, energy efficient learning environment. The new exemplars are for the [Christa McAuliffe School](#), the [Morton Middle School](#), [Wells High School](#), and [Mill Brook Primary School](#). By featuring these schools in case studies, stakeholders can gain an understanding of the true impacts a high performance school has on a community. These exemplars are shared with other communities that are pursuing the development of high performance schools to ultimately increase the number of buildings in the region put on the path to zero energy performance.
- **Researched and began development of new modules for CAPEE:** To ensure that the topics covered in the [CAPEE](#) tool are relevant to regional stakeholders, NEEP updates the resources on an ongoing basis. In the fourth quarter of 2018, new modules were released for water and wastewater treatment facilities and high performance schools. Research and development of a third module, to be released in early 2019, is underway on innovative stretch code strategies for communities. The development of these modules will lead to an increase in the number of public buildings in the region establishing and achieving energy reduction targets.
- **Published several blogs contributing to regional building decarbonization:** These blogs not only highlight the work NEEP is doing to assist states in the adoption, compliance, and enforcement of energy codes, but directly contribute to NEEP's 2018 intended project outcomes discussed throughout this report. In total, the following blogs reached approximately 1,000 people:
 - [Step Up to the Plate and Benchmark Your Building Energy Usage](#)
 - [Building Energy Codes: A Critical Piece of the Climate Change Puzzle](#)
 - [Pennsylvania Rings the Bell of Energy Efficiency](#)
 - [Codes, Cryptids, and Creatures](#)
 - [The Rural Energy Cost Burden: Designing Code Compliance and Energy Efficiency Programs For Underserved Populations](#)
 - [High Hopes for Energy Efficiency In Massachusetts](#)
- **Updated and enhanced our Renter's Guide and Checklist:** One of NEEP's most widely distributed resources, the [Renter's Guide and Checklist](#), assists potential rental property seekers to determine if the property they are considering is efficient or non-efficient. The updated checklist ensures that information remains relevant as new HVAC and control systems enter the marketplace. Additionally, NEEP published [a blog](#) to highlight the update. The update also provided opportunities to co-brand the checklist with the Buildings Performance Institute and National Grid-New York, furthering the scope of distribution.
- **Published an exemplar on Connecticut's Home Energy Solutions program and its connection to HELIX:** This exemplar highlights the relevance of home energy labeling in achieving energy efficiency goals in the residential sector, as well as taking the Home Energy Solutions program to the next step by populating the MLS with the data via HELIX. This provides an example to point to for how a successful voluntary labeling program can be established at the state level and where HELIX fits into the equation.



- **Began research on a new HELIX business model:** This will ensure that HELIX has a revenue model and is self-sufficient following the conclusion of U.S. DOE funding for the project. Development of the business model included a questionnaire to guide conversations with state energy offices to collect data on the types of services that would be most valuable and of interest to have in the business model. States responded in support of a sustainable revenue model for the next few years with state funding.

Technical Assistance and Resource Centers

- **Convened the New Hampshire High Performance Schools Working Group:** The group met on a monthly basis throughout 2018 to assess and plan for how the state can move forward in regard to high performance schools. One of the group's focal points throughout the year was to obtain a benchmark for all schools in the state. Progress to date includes over 50 schools benchmarked using the U.S. Environmental Protection Agency's (U.S. EPA) Portfolio Manager with the initiative continuing into 2019. The purpose of this work is to help schools understand how much energy is being used and to build the case, at the state level, for school building aid to help communities build schools to high performance standards.
- **Provided technical assistance and resources to regional stakeholders:** NEEP provided direct technical assistance to a number of states and communities throughout 2018. These direct engagements often led to ongoing discussions based on the needs of the community. The goal of this work is to provide communities with customized technical assistance that leads to the formation of energy plans, energy reduction goals, and an increased capacity to take on projects. These engagements include, but are not limited to, the following:
 - The state of Rhode Island on zero energy building efforts
 - Belmont, Massachusetts on their goal of building a zero energy school
 - Burlington, Vermont on their new high school building project
 - Providence, Rhode Island on their zero energy building challenge program
 - Amherst, Massachusetts on their zero energy public buildings plans
 - South Portland, Maine on their community-wide energy efforts
 - The Pioneer Valley in Massachusetts on zero energy communities
 - Carlisle, Massachusetts on their community-wide energy plans
- **Provided continuous technical assistance to states across the region:** NEEP disseminated various code resources, including the reports and guides discussed above, and provided in-depth technical assistance leading to the progression of code adoption, code compliance, and the refinement of regulatory processes. This technical assistance included:
 - Supporting the Delaware Codes Coalition: NEEP continued to provide extensive technical assistance to the [Delaware Codes Coalition](#), which is in the process of adopting the [2018 International Energy Conservation Code \(IECC\)](#).
 - Providing technical assistance to the state of Maryland: Maryland is also in the process of adopting the 2018 IECC.
 - Providing technical assistance to New Hampshire: New Hampshire is considering adoption of new residential and commercial codes and NEEP provided the [NH](#)



- [Department of Environmental Services \(NHDES\)](#) with resources, case studies, and technical information to inform the process.
 - Assisting Rhode Island with their benchmarking goals: One of the recommendations of the state’s Zero Energy Building Pathway to 2035 whitepaper is to make energy consumption data more accessible and understood.
- **Supported state energy code adoptions throughout the region:**
 - Worked to advance Rhode Island’s commercial stretch code and adopt a residential stretch code: Effective on February 16, 2018, NEEP provided extensive technical assistance to the state of Rhode Island to update the state’s commercial stretch code and promulgate, for the first time, a residential stretch code. The commercial stretch code was updated from the 2012 [International Green Construction Code \(IGCC\)](#) to the 2015 IGCC. The residential code utilized the U.S. DOE’s [Zero Energy Ready Homes Program \(ZERH\)](#).
 - Provided code adoption technical assistance to the states of Connecticut and Pennsylvania: NEEP provided comments on proposed adoptions of the [2015 IECC](#) in Connecticut and Pennsylvania. Philadelphia also advanced their energy code by adopting the 2018 IECC for commercial only. With these states’ adoptions of the 2015 IECC, both effective on October 1, 2018, seven states in the NEEP region are now using the code.
- **NEEP and HELIX project partners met with the New England Real Estate Network (NEREN) to discuss the export functionality of HELIX:** At this meeting, the application programming interface (API) export format and approach was approved by NEREN. NEREN covers all of the New England states as an MLS and their CRS platform is a data aggregator that would feed the information from HELIX, so it is crucial that the HELIX data export functionality is compatible with CRS, a function that will move forward with pilot testing. This proof of concept and successful beta testing has been useful in engaging with other MLSs over the course of the year to discuss how the technical integration is working with a regional MLS.
- **Completed HELIX fact sheets:** NEEP developed a [one-pager](#) for [communities](#), [states](#), [appraisers](#), [real estate professionals](#), and [MLSs](#) to highlight how each stakeholder group can use HELIX as a solution for populating real estate listings with home energy information. A city may consider HELIX when implementing a city ordinance or policy, or states may be interested in understanding how it works for a voluntary or mandatory policy. These resources will be used as part of a three-year marketing and communication strategy to accelerate the market adoption of home energy labeling.
- **Published [an exemplar on Connecticut’s Home Energy Solutions program](#) and its connection to HELIX:** This exemplar highlights the relevance of home energy labeling in achieving energy efficiency goals in the residential sector, as well as taking the Home Energy Solutions program to the next step by populating the MLS with the data via HELIX.

Regional Market Transformation Strategies

- **Updated the [Northeast Collaborative for High Performance Schools \(NE-CHPS\)](#) criteria:** Throughout 2018, NEEP engaged with stakeholders to update the energy and acoustics sections

of the NE-CHPS criteria. This update advances the baseline energy efficiency requirement to the 2018 IECC. Documentation requirements have also been revised in both the energy and acoustics sections to streamline the process and reduce project costs. The goal of this work is to ensure that the criteria remains in alignment with the most recent energy code and to reduce the cost burden on school districts leading to more communities utilizing NE-CHPS.

- **Engaged with the [U.S. DOE’s Better Buildings Zero Energy Schools Accelerator](#):** Zero energy schools are the next generation of healthy, energy efficient learning environments. The U.S. Department of Energy is leading a national effort to break down barriers and create a roadmap for schools to achieve zero energy performance. NEEP participates in the accelerator to share insights and lessons learned from around the Northeast and Mid-Atlantic region. Upon completion of the accelerator, the NEEP region will benefit from this collaborative effort to help build zero energy schools.
- **Launched the HELIX solar photovoltaic (PV) auto-population initiative:** The objective of this project is to modify and maintain HELIX to accept solar PV data and auto-populate this information into the MLS. This is the beginning of a three-year initiative in partnership with the Lawrence Berkley National Laboratory, which will expand HELIX beyond the seven pilot states. By integrating solar PV, HELIX is being positioned as a central database with energy efficiency and renewable information for the residential sector. MLSs have responded to HELIX with excitement for this reason – it is a one-stop shop for home energy information.



Integrated Advanced Efficiency Solutions

Events & Stakeholder Engagement

- **Convened Air-Source Heat Pump (ASHP) Working Group meetings:** NEEP convened the ASHP Working Group quarterly in 2018. The meetings were well attended with roughly 50 participants at each; the group has grown to over 200 regional stakeholders in total. The working group serves as the implementation vehicle for NEEP’s regional market transformation strategies, and a survey of group members reflected greater adoption of regional strategies between 2017 and 2018, highlighting the value and success of these partnerships.
- **Co-hosted the [Renewable Heating and Cooling Workshop](#) in Saratoga Springs, N.Y. on June 18-19:** NEEP jointly hosted the [workshop](#) with the Renewable Thermal Alliance to explore how the region can work more collaboratively to accelerate the adoption of renewable heating and cooling technologies that will ultimately transform the way we heat and cool our homes and businesses. The two-day program included keynote speakers from NYSEDRA and CT DEEP, as well as a mix of panels and breakout sessions. The workshop was positively rated by attendees.
- **Convened Home Energy Management Systems (HEMS) Working Group meetings:** Throughout 2018, NEEP convened four meetings of the HEMS Working Group via webinar. These meetings



were well attended by stakeholders from across the region and nation, including representatives from state energy offices, utilities, national labs, technology companies, other REEOs, program implementers, contractors, and others. In post-webinar surveys, 100% of respondents noted that they found their participation in the HEMS Working Group to be valuable, with several participants adding that they could attribute some level of professional success to their participation in the working group.

- **Organized and presented at the Smart Home track at the Home Performance Coalition’s (HPC’s) National Conference:** For the fourth year, NEEP organized a Smart Homes component for the [HPC National Conference](#). This included organizing a nine-session Smart Homes track with an additional Smart Homes Happy Hour. Additionally, NEEP presented in two sessions on our brief on [smart home resources for contractors](#) and on upcoming research into the integration of HEMS with strategic electrification and distributed energy resources.
- **Hosted quarterly meetings of the [Strategic Energy Management \(SEM\) Collaborative](#):** These webinars, which typically drew roughly 25 attendees, provided a platform for collaboration with policy makers, program administrators, and commercial and industrial energy managers. Through this engagement, NEEP hopes to accelerate the adoption of SEM in the commercial and industrial sectors. Representatives from U.S. DOE often participated to present on the latest developments that support the adoption of SEM, and these contributions support one of NEEP’s 2018 intended outcomes to increase the number of C&I companies and municipal water facilities in the region participating in 50001 Ready programs. Another of NEEP’s goals for 2018 was to increase the number of energy efficiency programs that include SEM as a program measure. In 2018, we learned that Cascade was selected by a consortium of Northeast utilities (including National Grid and Eversource) to demonstrate the SEM concept in Massachusetts and Rhode Island. NEEP’s ongoing engagement of the SEM Collaborative supports programs like these by providing a platform for new programs to learn from existing ones, and by providing available resources for all existing programs.
- **Supported development of a new North American SEM Collaborative:** NEEP contributed to a Governance Sub-Committee charged with scoping the governance structure for a new North American Collaborative aimed at driving adoption and improving effectiveness of SEM in the C&I sector. NEEP participated in planning discussions via teleconference, and contributed content to several planning documents. The sub-committee presented its work to a broader group of interested stakeholders and planning in ongoing.
- **Hosted the [SEM Collaborative Workshop on November 6, 2018](#):** This well-attended and highly rated event provided an opportunity for attendees to learn about new strategies that drive adoption of SEM as part of energy efficiency programs. It targeted energy efficiency program administrators, implementation experts, and federal program representatives. Key sessions included the following topics: SEM Successes in the Water/Wastewater Sector; DOE’s 50001 Ready Program; and the SEM Experience from a Customer’s Perspective.
- **Hosted a kick-off webinar for new Variable Refrigerant Flow (VRF) project:** The October 15 webinar was intended to inform gaps associated with current VRF market penetration and ultimately to contribute to NEEP’s 2019 regional market transformation strategy on the topic. The webinar was well attended, primarily by manufacturers, national labs, and state offices.

Many questions arose around refrigerants and field performance, technology solutions, VRF benefits, design, installation, and commissioning. This webinar served as an excellent springboard for an in-person meeting on the topic in December, and the information shared and learned at these gatherings will contribute to one of NEEP’s goals to have at least five (of each) states, utilities, and product/service providers adopt the recommendations that will be outlined in NEEP’s 2019 VRF report.

- **Hosted a VRF in-person meeting on December 19, 2018:** Following the October kick-off webinar, NEEP hosted approximately 40 attendees – primarily manufacturers and state offices – for an in-person gathering. The discussion focused on two key barriers regarding VRF adoption in the Northeast – refrigerants and field testing – and solicited discussion and recommendations from the audience on other key barriers and potential strategies for eliminating these barriers. NEEP will next work with the Vermont Energy Investment Corporation (VEIC) to incorporate learnings from this meeting into the a regional market transformation strategy on the topic.
- **Hosted the [Northeast Regional R&D Connector Workshop](#) on March 1, 2018:** The Northeast Regional Research and Development (R&D) Connector explored opportunities for collaboration among R&D organizations in the Northeast region that aim to bring advanced energy efficiency technologies to market. Several recommendations for an effective ongoing framework for the advancement of promising energy efficiency technologies in the Northeast came out of the workshop, and NEEP will continue this work in 2019.
- **Discussed federal and state standards at quarterly Appliance Standards Working Group meetings:** Throughout 2018, NEEP hosted quarterly meetings of the [Appliance Standards Working Group](#) focused on keeping the region informed of and engaged in relevant activities related to state and federal appliance standards. Each meeting included a presentation of ongoing efforts, which was distributed widely to partners at state energy offices, utilities, and advocacy organizations to support the advancement of important appliance standards across the regional and nation.

Research, Analysis, Reports, and Case Studies

- **Drafted a new report on integrating the smart home with strategic electrification and distributed energy resources:** In 2018, NEEP completed research, interviews, and a draft of a forthcoming whitepaper focused on how the smart energy home can drive residential building decarbonization. This whitepaper incorporates interviews, research, and new analysis and features several case studies. The report underwent extensive stakeholder review and is expected to be published in early 2019.
- **Finalized the [Northeast and Mid-Atlantic R&D Connector Report](#):** The report takes the reader through NEEP’s journey toward achieving the objectives of the Regional R&D Connector project. It represents the groundwork for a deeper dive into what can be done to bridge the energy efficiency commercialization gaps in Northeast and Mid-Atlantic states, with the ultimate goal of accelerating the R&D commercialization pipeline.
- **Hosted a [public webinar on EISA 2020](#) to educate the region on the new lighting standard:** The webinar provided background on and explored the 2020 implementation of the general service lighting (GSL) efficiency standard, commonly referred to as EISA 2020. This incredibly



important appliance standard has the potential to save 140 billion kwh/year by 2025. NEEP and ASAP presented the possible scenarios for the rollout of EISA 2020, especially given uncertainty coming from U.S. DOE and the lighting industry.

- **Developed a resource on EISA 2020 and the lightbulb standard:** In September 2018, NEEP presented at the [annual E Source Forum](#) on the EISA 2020 rule and its implications for utilities. Following the Forum, NEEP partnered with E Source to develop a [resource](#) focused on the outcomes from this important and impactful general service lighting standard, set to take effect in 2020.

Technical Assistance and Resource Centers

- **Completed new resources for ASHP installers and customers:** Throughout 2018, NEEP updated several of our existing resources [to help improve successful ASHP market adoption](#). With two new videos targeted at installer best practices, updates to the comprehensive ASHP installer guides on installation and sizing/selecting, and a new customer-facing resource on best use of ASHPs, NEEP aims to reach stakeholders throughout the region and nation to advance market uptake of ASHPs.
- **Informed the development of next generation rating methods for ASHPs:** NEEP contributed insights into the benefits of a new test/rating method developed by CSA. The test procedure takes an alternative approach to measuring performance of ASHPs than the current procedure, one that stakeholders believe will be a more representative approach. NEEP also brought perspective gained through management of [our cold-climate ASHP specification](#), and contributed to a multi-stakeholder process to develop a new rating method for ASHPs. The group is facilitated by the American Council for and Energy-Efficiency Economy (ACEEE) and includes efficiency advocates and manufacturers.
- **States advance appliance standards:** NEEP has been working with stakeholders throughout the region to advance the collective understanding of and commitment to state-level appliance standards. In 2018, NEEP hosted – or coordinated with ASAP to host – state-specific discussions for appliance standards efforts in R.I., Mass., Me., Conn., N.J., Md., D.C., and N.Y. to work through 2018 standards efforts and plan for 2019. Vermont was the first state in the region to pass new standards in 2018, but many states are close behind with goals for 2019. NEEP also published a [blog](#) summarizing the status of the region’s activities.

Regional Market Transformation Strategies

- **Drove market transformation through partnership with ENERGY STAR’s SHEMS program:** NEEP participated actively in the U.S. EPA ENERGY STAR Smart Home Energy Management Systems (SHEMS) program as they enacted a new [ENERGY STAR specification on SHEMS](#). NEEP co-chaired a work group focused on integration with DER and demand response. In addition to this work group being directly relevant to a report that NEEP will complete in 2019, the initiative’s prioritization of engagement with service providers such as home security is also identified as a strategy in NEEP’s [2016 Smart Energy Home Market Transformation Report](#).
- **Began a market assessment of VRF technology:** A product of this assessment, NEEP’s Regional VRF Market Transformation Strategy Report, will gather key VRF market information and

regional strategies. After weighing in on NYSEDA’s VRF Market and Technical Analysis report, NEEP contracted with VEIC and are working to fill in important VRF market gaps, identify key barriers/opportunities to leverage for greater VRF adoption, identify strategies to overcome barriers, and ultimately produce the Regional VRF Market Transformation Strategy Report. The knowledge gained from this process will contribute to one of NEEP’s goals to have at least five (of each) states, utilities, and product/service providers adopt the recommendations that will be outlined in NEEP’s 2019 VRF report.

- **Tracked federal standards activity and engaged regional stakeholders to weigh in on rulemakings when appropriate:** Though the U.S. DOE did not have any major rulemakings in 2018, there were still opportunities to weigh in on DOE appliance standards activities and work with regional partners to provide comment to DOE as well as the California Energy Commission. NEEP contributed directly to the nominations for the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC), a smart appliances RFI, the dedicated-purpose pool pump replacement motor rule, updates to [DOE’s Process Rules](#) for the appliance standards program, and [DOE’s approach for setting standards levels](#). NEEP also partnered with ASAP to develop [joint comments](#) on the Notification of Petition for Rulemaking for dishwashers as well as contributed to [joint comments](#) to the California Energy Commission on closing the loophole for federally exempt linear fluorescent lamps.
- **Weighed in on value of the ENERGY STAR Program:** NEEP continued to engage with the U.S. EPA’s ENERGY STAR program to push voluntary specifications forward and pave the way for future appliance standards. We coordinated with efficiency stakeholders on the [ENERGY STAR Retail Products Platform program](#), and weighed in on several influential ENERGY STAR specifications including the [2019 Most Efficient Criteria](#), [ENERGY STAR’s request for information](#) on potential process improvements, the [Residential Air Source Heat Pump/Central AC](#) specification, [Smart Home Energy Management Systems \(SHEMS\)](#) efforts, the [Air Purifiers](#) specification update, the [dehumidifier](#) specification update, and participating in discussions on [Electric Vehicle Service Equipment \(EVSE\)](#).



Strategic Electrification

Events & Stakeholder Engagement

- **Participated in or presented at numerous events on the topic of strategic electrification:** This attention suggests a growing interest in strategic electrification as a core element of an increasing number of state/local decarbonization efforts. Events included:
 - The Environmental Business Council of New England’s Energy Resources Program: [Renewable Thermal Meeting](#), where NEEP presented on our [Northeastern Regional Assessment of Strategic Electrification report](#).



- The Climate & Energy Funders Network, where we presented on key aspects from our [Strategic Electrification Action Plan](#), stressing the opportunity and need for foundation funding to support the implementation of key aspects of the plan
- An invitation-only panel, Driving Decarbonization in the Northeast, hosted by National Grid in Boston, as part of their [80x50 Pathway report](#) introduction.
- The Massachusetts Clean Energy Caucus on Building Electrification.
- An invite-only group of stakeholders on the issues and opportunities related to building electrification at the [Rocky Mountain Institute's eLab Summit](#).
- At NRECA's "Beneficial" Electrification Workshop, to the EPRI [Electrification Summit](#), and at an event hosted by the Energy Foundation, the Heising-Simons Foundation, and ClimateWorks Foundation, to discuss issues related to electrification of heating fuels in buildings.
- The [Beneficial Electrification League](#), where NEEP presented on the Strategic Electrification Action Plan.

Technical Assistance and Resource Centers

- **Maintained a [Strategic Electrification Project Resource Catalogue](#):** The Resource Catalogue compiles a number of resources and proceedings relevant to strategic electrification into a single resource for stakeholders to track the latest research, analysis, and policy venues.