



NEEP 2016 QUARTERLY REPORT ANNUAL SUMMARY

Executive Summary

Energy efficiency has often been referred to as the least-cost, first-order resource for achieving reduced energy use. In 2016, we saw a developing conversation about customer and market engagement to create new efficiency solutions. In the midst of this shift, NEEP continued bringing stakeholders together to find solutions for the challenges we face today.

We're proud that through collaboration, NEEP and our network of sponsors, allies, foundations, other funders, and stakeholders from across the region and nation have worked to embrace efficiency as the least-cost, first-order resource to meet economic, environmental, and energy system needs. As we move forward with an eye on Next Generation Energy Efficiency, NEEP shares this report to highlight some of our 2016 achievements.

Advancing Efficiency Innovation

Home Energy Management Systems

- **Published [The Smart Energy Home: Strategies to Transform the Region](#):** This report maps what steps the Northeast - Mid-Atlantic region can take in order to transform the Home Energy Management Systems (HEMS) market. Analyzing opportunities in energy efficiency, demand response, and HEMS integration with distributed energy resources, the report is a tool to help regional actors to succeed in the smart home space. The report includes a market analysis of the latest developments in HEMS, as well as market barriers to the widespread adoption of technology and opportunities to leverage for further success. NEEP developed eight key strategies for prioritization in order to achieve the regional market transformation goal set forward in the report – i.e., that 50% of homes in the region have at least two smart energy systems (HVAC, water heating, plug load) installed by 2030. NEEP convened a Leadership Advisory Committee composed of NEEP Sponsors and trusted experts in the smart home space to guide development of the report, which was completed in early October. NEEP hosted a public webinar on October 28 for 40 attendees, and presented findings from the report, including strategies and regional goals, at eight conferences. Conservative estimates indicate that 500 people were exposed to the report through various media and presentations.

Residential Air Source Heat Pumps

- **Published the [Northeast/Mid-Atlantic Air-Source Heat Pump \(ASHP\) Market Transformation Strategies Report](#) to Provide a Roadmap for Accelerated Adoption of ASHPs in the Region:** NEEP leveraged its extensive working group network and a July ASHP workshop for stakeholder input into the report to characterize the current market as well as identify market barriers/opportunities and develop appropriate market strategies. The report serves as a guiding document for the regional ASHP initiative for 2017 and beyond. The findings project that successful implementation of the recommended regional strategies could achieve a 40% market penetration of ASHPs by 2030. If this is achieved, we can expect \$4 billion in annual cost savings as well as 50 billion metric tons of CO₂ equivalent. That amounts to the emissions of six and half coal-fired power plants.



Residential Lighting

- **Published [State of the Market: A Residential Lighting Brief](#):** This short report provides updates on the state of the regional lighting market, including updates on the penetration of efficient lighting, analysis of smart lighting products, updates on federal standards, updates on efficiency programs, and information on new products certifying to ENERGY STAR. Several ground-shifting events occurred at the end of 2015 and into 2016 which signaled that we are in the late stages of market transformation. NEEP found that the Northeast - Mid-Atlantic region is doing better than expected toward reaching a goal of 80-90% high quality efficient lighting, and is on track to reach that goal one to two years earlier than we reported in 2014. This would put market transformation at 2020 or 2021, though there is still opportunity for the region to advance even further. In conjunction with the release of the brief, NEEP hosted a [public webinar on August 9](#) for 49 stakeholders.

Comprehensive Multifamily Retrofit

- **Facilitated Development of a Regional Energy Efficiency Organization Report on Multifamily Retrofit:** NEEP, in collaboration with four other Regional Energy Efficiency Organizations (REEOs – MEEA, SEEA, SPEER, and SWEEP), released the [Multifamily Energy Efficiency Retrofits: Barriers and Opportunities for Deep Energy Savings](#) report, funded by the MacArthur Foundation. This resource provides a national multifamily housing market characterization, exemplary case studies, and an analysis of the barriers and opportunities for policy and programmatic opportunities for driving deep energy savings through multifamily retrofits. The project team used stakeholder feedback and experience providing technical assistance in their respective regions to develop the report. The national scope of this report aims to inform policymakers, energy efficiency program administrators, and implementers of the strategies that are working across the country to overcome the barriers to achieving deep energy savings in efforts to retrofit these buildings. Additionally, NEEP coordinated with the REEOs to host a national webinar on multifamily energy efficiency program and policy initiatives, outlining findings from the report to a group of 65 multifamily stakeholders. The webinar also included presentations from subject-matter experts including James Collins from Action for Boston Community Development and Katie Kaluzny of the U.S. Green Building Council – Illinois Chapter. These presenters provided lessons learned from their work on advancing energy efficiency retrofits.

Industrial Efficiency

- **Published the [Northeast/Mid-Atlantic Industrial Sector Report: Market Assessment and Recommended Strategies to Accelerate Energy Efficiency](#):** This report provides an industry overview and quantification of industrial energy use. It paints a picture of tools and resources available from the U.S. Department of Energy (DOE) as well as from utility and state programs in the region. It serves as a reference for concepts and terminology in the industry and Industrial Energy Efficiency (IEE), especially Strategic Energy Management (SEM). The report also includes recommended strategies for how to move IEE forward in the region through the expanded adoption of SEM.



Business Leader Recognition Program

- **Northeast Business Leaders for Energy Efficiency Program Highlights Business Leadership:** This program is a unique opportunity for energy efficiency program administrators ([sponsors of NEEP](#)) to profile a customer who demonstrates exceptional leadership and best practices in energy efficiency in the operations and maintenance of their business. These leaders are recognized annually by NEEP and provide important examples of the economic and environmental benefits of energy efficiency. In 2016, NEEP celebrated the tenth year of highlighting business leaders via engaging case studies. This year's strong sample of regional business voices in support of energy efficiency highlighted a variety of specific projects and overall commitments to doing more with less energy. After [honoring six Business Leaders for Energy Efficiency](#) at the 2016 Summit at Mount Washington in New Hampshire, NEEP continued to partner with these awardees throughout the year to showcase their achievements. Their success stories became part of the NEEP [archive](#) of Business Leader case studies. The 2017 Business Leaders program is expected to change in order to reflect NEEP's new business plan. The "new look" will pivot the program to serve as a highlight vehicle for best practices throughout the NEEP region. Three to five case studies will shine the spotlight on success stories from the most pressing topics in energy efficiency, i.e., strategic energy management, EM&V 2.0, home energy management systems, etc.

High Performance and Zero Energy Schools and Public Buildings

- **Advanced the Development of High Performance Schools Throughout the Region:** NEEP hosted three regional high performance school events to raise awareness and knowledge amongst the schools community. The events targeted facility and energy managers, architects, engineers, school decision makers, and others to reach a broad spectrum of stakeholders and create a greater knowledge base on the value of high performance schools. The first event, [CHPS Training: Solutions for Green Schools in Massachusetts](#) at Maynard High School, was a partnership between NEEP, the [Collaborative for High Performance Schools](#) (CHPS), and the [Massachusetts Facilities Administrators Association](#) (MFAA). The need for a CHPS training session in the Commonwealth became evident when the Massachusetts School Building Authority (MSBA) updated its sustainable design guidelines to once again include CHPS as a pathway for green, high performance schools. The event was attended by over 115 stakeholders, and a blog summarizing the training can be found [here](#). Additionally, NEEP partnered with the Rhode Island School Building Authority and the New Hampshire Department of Education to host events in these states. The [R.I. High Performance Schools Summit](#) took place at Rhode Island College and was attended by over 140 people. The goal of the event was to push the envelope even further in a state that has already been a leader in the design of high performance schools. Key takeaways from this event included a greater understanding of the benefits of high performance schools, the future of schools as zero energy buildings, and information on the funding mechanisms available for school projects in the state. Lastly, the [N.H. High Performance Schools Summit](#) focused on reinvigorating the N.H. schools community with an informative, discussion-based event. Over 100 attendees gathered at the Kingswood Regional High School to learn about where the Department of Education is headed, NE-CHPS criteria, and exemplar schools in the state. The day concluded with an educational tour of a NE-CHPS School.



DesignLights Consortium and Advanced Lighting Controls

- **The DesignLights Consortium® Engaged Industry, Implemented Program Developments, and Became an Independent 501(c)(3) by Year End:** In June, the DLC released [Technical Requirements Version 4.0](#). These are the final DLC requirements resulting from the revision proposals and subsequent discussions with DLC members and stakeholder commenters. Most notably, the efficacy changes have been reduced in several key areas. In July, the DLC released specification drafts and revisions for several categories of Solid State Lighting (SSL) products for stakeholder input under Technical Requirements V4.1. This included Very High Output Outdoor Lighting, U-Bend Replacement Lamps, T5 Linear Lamps, Hazardous Environment Lighting, and CFLEDs. In November, the DLC released draft technical requirements for the V4.2 Technical Requirements table. This proposal package includes drafts for the first set of Allowances under the V4.0 efficacy levels, expansions for 4-foot replacement lamps to explicitly cover T5 replacements, as well as separate T5 replacements from T8 replacements, and refined definitions and rules for listing products on the DLC Qualified Products List (QPL) with Hazardous Location specialty descriptors. Additionally, the DLC released its new Networked Lighting Controls (NLC) QPL. The NLC QPL equips lighting designers, specifiers, contractors, building owners, and utility energy efficiency programs with a valuable information resource to understand and evaluate NLC systems in this rapidly evolving sector. For lighting controls manufacturers and their customers, it provides access to efficiency incentives and greater product visibility in markets across North America. Born as a NEEP project in 2010, the DLC began operating as its own non-profit organization in 2017.

Building Efficiency Markets

Home and Building Energy Rating, Labeling and Disclosure

- **Provided Research and Analysis to the Cities of Portland and South Portland, Maine on Building Energy Benchmarking Ordinances:** At the invitation of the City Councils, NEEP provided data and other research on benchmarking ordinances from around the country. We disseminated a number of resources including our [Building Energy Rating and Disclosure Policies: Update and Lessons from the Field](#) guide and our [Public Sector Building Energy Benchmarking: Utility Data Access Options and Opportunities](#) report to help inform the local sustainability committees. Both cities passed benchmarking ordinances, marking the first two in the state of Maine. These ordinances will enable city officials to track building energy performance as they work to accomplish their sustainability goals.

Contractor, Realtor and Design Community Tools and Training

- **Organized Summit to Convene Building Energy Information Stakeholders:** In November, NEEP convened 70 energy and real estate industry leaders for our inaugural [HELIX Summit](#) in Boston to discuss the project team's initial research and plans to develop a regional database capable of automatically populating real estate listings with home energy information. After representatives from U.S. DOE and the Real Estate Standards Organization provided context regarding available home energy rating programs and efforts to standardize the data architecture of Multiple Listing Services (MLS), team members of the [Home Energy Labeling Information Exchange \(HELIX\)](#) project presented findings from their research on HELIX's potential technical scope, value to real estate industry stakeholders, and governance/privacy considerations. This event offered a platform for



many of these stakeholders to meet one another for the first time, and group discussion facilitated by the project team provided an opportunity for attendees to provide feedback and insights to help guide the project as it seeks to solve a major barrier to proper valuation of energy efficiency in property values.

Updating Baselines

Progressive Model Building Energy Codes

- **Led the Pennsylvania Energy Code Collaborative:** [State Energy Code Collaboratives](#) are effective vehicles for convening diverse stakeholders to promote energy code adoption and compliance through organized exchange of information and resources. In 2016, NEEP continued to facilitate the [Pennsylvania Energy Code Collaborative](#), which we have led since 2015. This year, NEEP convened four in-person meetings, during which we guided Collaborative members through discussions of each aspect identified as a 2016 priority in our [roadmap to complete energy code compliance](#). Notably, NEEP led the group's development of an [Energy Code Compliance 101](#) document to fill a need expressed by the Pennsylvania Department of Environmental Protection and other Collaborative members. NEEP also led discussions regarding topics such as launching an Energy Code Ambassador Program, helping to plan the upcoming 2017 National Energy Codes Conference in Pittsburgh, and developing building energy rating efforts to use the market as a mechanism to drive improved energy code compliance. Finally, NEEP presented to Collaborative representatives from other states as a part of BCAP's All Collaboratives webinar in October to exchange best practices across the country.

State and Federal Appliance Standards

- **Contributed Significantly to the Process of Developing Federal Standards for General Service Lighting (GSL):** In February 2016, the US DOE released their GSL Notice of Proposed Rulemaking (NOPR). This is a particularly impactful appliance standard as it represents the second phase of the Energy Independence and Securities Act (EISA) 2007 law, and impacts most residential lighting products. While the first phase of EISA effectively moved the minimum lightbulb from a traditional incandescent to a halogen bulb and resulted in about a 38% energy savings starting in 2012, the proposed second phase of EISA would effectively bring the minimum bulb for most general lighting applications up to a very efficient LED bulb in 2020. This is a huge and progressive proposal from DOE, and NEEP has been collaborating closely with efficiency stakeholders to ensure a strong standard is finalized. NEEP tracked the NOPR closely, participating in numerous stakeholder calls to unpack and understand the content, and shared this information with members of NEEP's Appliance Standards Working Group as well as with residential lighting and retail products stakeholders. Staff attended an in-person public workshop hosted by DOE in April, and in May submitted [comprehensive comments](#) co-signed by six regional organizations. Additionally, NEEP contributed and co-signed the Appliance Standards Awareness Project's (ASAP) [joint comments](#). In October, DOE released a Notice of Proposed Definition and Data Availability (NOPDDA) that expanded the scope of impact for the standard. NEEP worked with stakeholders to align support for the proposed changes and spoke to those recommendation at the in-person meeting in October. NEEP, along with two stakeholders, [submitted comments to DOE](#) on the NOPDDA in November as well as co-signed [ASAP's joint comments](#).



Tracking Efficiency Policies & Results

Regional Evaluation, Measurement and Verification Forum

- **The EM&V Forum Advanced Knowledge and Understanding of “Next Generation” EM&V with an EM&V 2.0 Workshop in North Haven, Connecticut:** This [event](#) brought together over 60 experts and stakeholders to learn and discuss technical details, opportunities, and challenges of designing a pilot to test the use of advanced analytical software to reliably estimate energy efficiency impacts at the whole building level and compare results and costs with use of traditional tools or evaluation approaches. Attendees contributed feedback on the Lawrence Berkley National Laboratory’s (LBNL) proposed pilot design, and on “acceptance criteria” – uncertainty and confidence targets proposed by LBNL on which to judge results. Additionally, EnergySavvy highlighted two residential program case studies, and an evaluator from Energy & Resource Solutions presented statistical considerations for pilot and program design. The workshop, delivered in coordination with LBNL, focused on both residential and commercial pilot design and provided an opportunity for attendees to discuss what questions a pilot should answer and what acceptance criteria is acceptable for EM&V 2.0. Attendees to the workshop also learned about an upcoming project funded by DOE’s State Energy Program grant process in which the Connecticut Department of Energy and Environmental Protection (DEEP) will oversee commercial and residential pilots and, working with NEEP and other sponsoring states, will provide outreach and guidance on use of advanced analytical tools for EM&V purposes based on lessons learned from the pilots.

Regional Energy Efficiency Database

- **Program Year 2015 Data Was Added to the Regional Energy Efficiency Database (REED):** NEEP finalized data collection for the 10 jurisdictions in REED, conducted quality control, and published the data. Visitors to REED can now view 2015 Program Year data [live](#) on the REED website, along with 2011-2014 data. New this year is the inclusion of Maine’s energy efficiency data, which can now be viewed on REED for the 2011-2015 timeframe.

Public Policy Trends Analyses, Reports and Education

- **Built and Shared our Expertise on the Integration of Energy Efficiency with Demand-Side Resources:** This was a significant focus of our work in 2016, and included topics such as demand response, energy storage, renewable energy, and electric vehicles. Staff continued to position energy efficiency as a Next Generation resource, vital in pairing strategic electrification with onsite renewables and geo-targeting, grid-modernization, and customer behavior and data-based programs — all with a goal of reducing the region’s reliance on carbon inducing fuels. We continued to explore salient issues such as new rate design models and other regulatory structures that can help align public policy goals with utility drivers and customer benefits. NEEP participated in a number of key state efficiency developments, often serving as a trusted technical expert. Throughout the year, staff actively engaged with policymakers and partners to help advance our states’ significant and effective efficiency programs and policies, and to advise and support innovative ideas to capture even more of the efficiency resource. Staff participated in proceedings and processes in states throughout our territory, including efficiency plan oversight through stakeholder boards, regulatory proceedings, and tracking legislative action in all states.



NEEP Events

- **Confirmed NEEP’s Thought Leadership on Energy Efficiency by Hosting over Ten Regional Events:** NEEP’s 2016 [workshops and conferences](#) gathered more than a thousand attendees for engaged discussions on next generation energy efficiency, market transformation, and the future of Evaluation, Measurement & Verification. The events attracted broad stakeholder engagement, including from state officials, program administrators, SaaS vendors, non-profits, manufacturers, and distributors for deep, engaging, and solution-oriented conversations. NEEP kicked off a year of successful events with the [EM&V Forum Annual Public Meeting](#) in March followed by the [2016 Northeast Energy Efficiency Summit](#) in June, where we celebrated NEEP’s 20th Anniversary at the beautiful and historic Omni Mount Washington Resort in Bretton Woods, N.H. NEEP also hosted nine workshops throughout the year, and invited attendees to brainstorm and exchange on topics covered in [NEEP’s scope of work](#).



Advancing Efficiency Innovation

Drive efficiency product, service, and program innovation to increase energy savings on a regional scale through multi-state research, analysis, and market transformation strategies; tools and resources such as qualified product lists, technical guidelines, and case studies; and best practice peer exchange and industry engagement.

Home Energy Management Systems

- **Hosted Two HEMS Workshops:** In 2016, NEEP hosted two in-person HEMS Workshops.
 - The first [HEMS “workshop”](#) was in coordination with the Home Performance Coalition (HPC) and took place as part of [ACI’s National Conference](#) in Austin from April 6-7. The ACI Conference focuses on Home Performance, and this workshop provided a great opportunity to increase visibility of HEMS amongst home performance stakeholders, as well as make progress in the discussion of the opportunities within Home Energy Management Systems. The discussion ranged from new products and home energy labeling integration with HEMS, to program design and auto-M&V. In addition to working with conference organizers to host six HEMS-oriented sessions throughout the two-day event, three of which featured NEEP staff speakers, NEEP and HPC also organized a discussion lunch and an evening HEMS vendor showcase. Fifty-two ACI attendees participated in either the lunch or the evening session, with estimates of over 300 participating in at least one of the six other sessions.
 - Additionally, NEEP hosted the [2016 Home Energy Management Systems \(HEMS\) Workshop](#) at the EnergizeCT Center in North Haven, Conn. In September. Forty-three stakeholders attended the meeting, and the day was spent discussing the HEMS landscape and diving deeply into NEEP’s proposed strategies for success from the forthcoming [regional market transformation strategy report](#). Focusing on the major energy using systems in a home, NEEP presented strategies for smart water heating, smart HVAC through smart thermostats, and smart plug load systems. After a brief discussion of how HEMS intersects with low-income households and programs, the workshop moved on to talk through demand response and distributed energy resource opportunities. Attendees then talked through some HEMS pilot efforts focused beyond the smart thermostat, and discussed the future role for utilities in the HEMS space.
- **The HEMS Working Group Continues to Bring Stakeholders Value:** in 2016, NEEP convened six meetings of the HEMS Working Group via webinar. NEEP leads a HEMS Working Group, along with the Home Performance Coalition; the objective of the group is to set a path for HEMS technology to evolve with efficiency as a major component. The working group continues to gain traction, with a boost in attendance throughout the year, with 24 attending the first meeting and 37 attending the last. In several post-meeting surveys, attendees reported high satisfaction and value from participation in the group.



- **Contributing to the Completion of the ENERGY STAR Connected Thermostat Specification Development:** Throughout 2016, NEEP worked closely with the U.S. Environmental Protection Agency (EPA) and other stakeholders to help develop a new [ENERGY STAR specification for connected thermostats](#). Picking up on [NEEP's late 2015 comments to draft 2](#) of the specification, in October and November, NEEP participated in multiple webinars and targeted discussions with EPA as well as submitted [comments on Draft 3 of the specification](#) and on Draft 2 of the [Savings Methodology](#). After revisions were made to the specification and the final draft was released in December, NEEP sent a [letter in strong support of the final specification](#). This specification will make a significant impact on the ease of program support and greater adoption of connected thermostats, and was strengthened through NEEP's participation in the development process.
- **Updated the [HEMS Technology Assessment](#) and Online Resources:** Originating as part of the [2015 HEMS research report](#), in 2016 NEEP reviewed and updated the HEMS technology assessment inventory several times, adding new and innovative products to the list as well as widely sharing the database with interested stakeholders. The additional products added to the inventory list included costs, availability, and descriptor information. Additionally, NEEP improved the body of online HEMS information through multiple blog posts ([HEMS Can Enable Deep Savings, but Important Work Ahead for Programs & Policymakers](#); [NEEP's listening for new energy efficiency innovations](#); and [What's the big deal with smart \(energy\) homes?](#)) and added the recent [The Smart Energy Home: Strategies to Transform the Region](#) report, webinar, and recording to neep.org.
- **Disseminated Information Through Participation in Regional and National Meetings:** Throughout 2016, NEEP participated and presented at numerous regional and national meetings to build a greater coalition of supporters for HEMS as well as disseminate specific recommendations and information. In February, NEEP staff presented at the [Smart Energy Summit](#) on the role of HEMS in efficiency programs, as well as at the [MEEA Energy Solutions Conference](#) on the opportunities for energy efficiency with HEMS. NEEP staff presented on the residential opportunities of auto-M&V, enabled through HEMS, at the [Workshop preceding the NEEP EM&V Forum Annual Public Meeting](#). In May, NEEP presented virtually as part of [G20 Connected Devices Alliance Meeting](#). At the 2016 NEEP Summit, staff hosted a [roundtable discussion on the efficient homes of the future](#). In October, NEEP presented at the [CLEAResult Energy Forum](#), AESP's Online Conference *Energy Management...is the Boss*, [HPC New England](#), [The Keystone Energy Efficiency Alliance annual conference](#), and the [ENERGY STAR Partner Meeting](#). Lastly, in November, NEEP presented at the AESP-NEEC New England meeting, and in December, NEEP was on two HEMS-related panels at the [ACEEE Intelligent Efficiency Conference](#).
- **Advanced Research and Analysis in the HEMS Space:** NEEP was contracted by the New York State Energy Research and Development Authority (NYSERDA) to develop a market characterization of smart thermostats. This project began in May and concluded in November with delivery of a final presentation and report to NYSERDA. In this report, NEEP developed market indicators to effectively track sales, market share and promotion of smart thermostats, including baseline measurements and changes over time. For this project, NEEP managed a sub-contractor to deploy a survey of New York State residents and perform analysis through smart thermostat stakeholder interviews. NEEP also developed and deployed a survey for New York contractors to collect feedback on their opinions with smart thermostats. Publication is forthcoming.



- **Provided Contractor Training on HEMS:** On September 13, NEEP staff presented to the Residential Energy Performance Association of New Hampshire, a group of home performance contractors. NEEP provided a three-hour [training](#) on smart homes to approximately 20 New Hampshire contractors, educators, and program administrators; discussion included the opportunities for the home performance sector to leverage and promote home energy management systems. Furthermore, on October 18, NEEP presented a similar training at the Home Performance Coalition's [HPC New England](#) conference a session entitled, "A Contractor's Guide to the Smart Home." Attended by approximately 50 stakeholders, this session received very positive feedback.

Residential Air Source Heat Pumps

- **Hosted Regional ASHP Working Group Meetings:** NEEP led an ASHP Working Group, whose objective is to effectively implement the strategies included in the [2014 ASHP Market Strategies Report](#). The ASHP Working Group met via webinar in March and November in which 37 and 57 attendees participated, respectively. Of the 10 survey respondents in March, 100% stated that they would recommend the meeting to a colleague.
- **Hosted the Regional In-Person ASHP Workshop:** NEEP convened 90 regional stakeholders in Southborough, Mass. for the [July 21-22 Northeast/Mid-Atlantic ASHP Workshop](#). The regional workshop brought together a wide variety of stakeholders including energy efficiency program administrators, ASHP contractors, consultants, state energy policy makers, manufacturers, distributors, etc. to discuss effective implementation of regional market strategies. Day one was focused on providing market updates, discussion of market barriers, and small group breakouts to discuss whether the existing strategies needed updating. Day two focused on the issue of sizing, selecting, and installing ASHPs in cold climates. The workshop closed with a manufacturer round-robin which allowed stakeholders to privately discuss with ASHP manufacturers opportunities to partner more effectively. The workshop was successful in providing concrete ideas for NEEP's update of the regional market strategies report.
- **Developed Sizing/Selection and Installation Guidance Document for the Contractor Community:** Accurately sizing, selecting, and installing ASHPs in cold climates has been challenging for the contractor community as technology has evolved faster than industry standards have been able to keep up with. NEEP successfully engaged stakeholders through a number of avenues to inform the development of these guidance resources. Ultimately the resources being developed will directly aid contractors in more successfully getting maximum operation and performance out of the technology and providing that comfort and efficiency to their customers. These resources are expected to be complete in early 2017.
- **Finalized the [ccASHP Specification Version 2.0](#):** NEEP began discussing potential revisions to the Cold Climate Air Source Heat Pump (ccASHP) Specification with the cold climate metrics sub-committee of the ASHP Working Group in the fall of 2015. Based on numerous sub-committee meeting teleconferences, survey results, and additional input received over the past six months, NEEP developed this update to the ccASHP Specification. NEEP worked closely with members of the working group and other interested stakeholders to gather extensive input. The update includes a modest increase in HSPF levels (for multi-zone ductless products) as well as some future opportunities to gather more detailed information about the basis of performance measurements.



The updates should encourage increased use of the Specification to drive adoption of high performance ASHPs. This [memo](#) provides more detail.

- **Products on the Cold Climate ASHP Specifications Grow:** The [Specification and associated list](#) included 215 products by year end, and the specification continues to be used in various ways by stakeholders throughout the region including Massachusetts Clean Energy Center, Rhode Island efficiency programs, Efficiency Vermont, and NYSERDA.
- **Provided Technical Assistance to Regional Program Administrators:** NEEP provided direct input to program planners in Massachusetts, Rhode Island, Connecticut, and New York.
- **Provides ASHP Thought Leadership to Several Regional Events and Audiences:** One of the recommended strategies from the ASHP report is to educate a wide range of industry stakeholders on ASHPs and on our cold climate specification. NEEP put this into action at events across the region.
 - On February 9, at the [2016 ACI New York Regional Home Performance Conference](#), NEEP presented at a session covering an overview of the cold-climate systems and the specification.
 - On May 13, NEEP shared its perspectives on ASHPs with the Clean Energy States Alliance’s renewable thermal working group—a group of renewable thermal stakeholders from across the country—via webinar to approximately 20 stakeholders. NEEP provided an update on our ccASHP Specification, its intended use, and potential future directions.
 - On October 19, NEEP led and presented on a panel titled, “Market Transformation: Air-Source Heat Pump Adoption in the Northeast & Mid-Atlantic Region” at the [Home Performance Coalition New England Regional Conference](#). The panel provided NEEP an opportunity to communicate the key regional strategies for which we are coordinating implementation. NEEP brought together representatives from four other organizations (US DOE, Mitsubishi, Massachusetts Clean Energy Center, and Efficiency Maine) to discuss the market strategies they deploy to overcome ASHP market barriers.
 - On November 1, NEEP attended NYSERDA’s Cost/Cost Reduction Advisory Committee meeting to offer perspectives on strategies to reduce the cost of ASHP systems.
 - On November 3, NEEP presented to Connecticut DEEP during their renewable thermal technical meeting on ASHPs.
- **Updated the ASHP Web-Based Resource Center:** The ASHP landing page houses NEEP’s ASHP content, including a recent blog, [“NEEP’s Greatest Heat Pump Hits,”](#) which received 73 page-views.

Residential Lighting

- **Hosted an In-Person Residential Lighting Workshop:** On September 20, NEEP hosted the 2016 Northeast Residential Lighting Workshop at the EnergizeCT Center in North Haven, Conn. This [workshop](#) included four sessions with 12 invited speakers and 47 attendees, starting with a revisit of the 2015 workshop major challenge: the non-ENERGY STAR LED or “ish” bulb. As great progress has been made with the ENERGY STAR Lamps 2.0 specification and low-cost, ENERGY STAR certified products available on the market, the consternation that took place in 2015 was calmed by 2016. The workshop also looked at newer, emerging areas for residential lighting efficiency, including



decorative, directional lighting, and smart lighting. There was also a robust discussion of the future of residential lighting programs and what other opportunities exist for savings if and when residential lighting programs are no longer necessary.

- **Convened Residential Lighting Stakeholder Meetings:** NEEP held several meetings of the 2016 Residential Lighting Leadership Advisory Committee. The Committee’s goals were to guide the development of the [State of the Market Brief](#) and help collect information on changes to the residential lighting market. Four meetings were held in 2016 with one being held in conjunction with the Residential Lighting Workshop in September, where NEEP hosted a casual in-person meeting over lunch where eight program administrators from five states came together to talk about their program needs and challenges.
- **Promoted Residential Lighting Strategies and Resources Through Online and In-Person Engagement:** This included publication of two blogs, [“Changing of the Guards in Residential Lighting”](#) and [“Don’t Panic! LEDs save the day.”](#) with another blog planned for early 2017. Additionally, NEEP staff presented residential lighting strategies at several conferences, including the [ENERGY STAR Partner Meeting](#) on October 27 and the AESP-NEEC New England meeting on November 7.
- **Submitted Public Comments to Support Adoption of Quality Efficient Lighting in States Throughout the Northeast and Mid-Atlantic:** In 2016, several states began to pursue promotion of LED lamps that had not met ENERGY STAR’s criteria, referred to as “ish” bulbs. This is a problematic trend as quality is incredibly important for consumer satisfaction, and going outside of ENERGY STAR opens up opportunities for poor quality products to be promoted through efficiency programs. NEEP has been following the state trends in lighting and submitted comments to provide information regarding the difference between ENERGY STAR certified and “ish” bulbs to [Maryland](#) and [New Jersey](#) proceedings.
- **Sponsors Highly Satisfied with Retail Products Initiative:** In order to help NEEP sponsors’ retail products programs achieve significant energy savings, NEEP held quarterly meetings of the Retail Products Working Group. These meetings provide a platform for stakeholders to discuss regional strategies in efficiency programs. In post-meeting surveys, all sessions received a score of either 4 or 5 out of 5, indicating high value. In addition, NEEP completed program summaries in [Lighting](#), [Electronics](#), and [Appliances](#) to provide program sponsors and interested stakeholders insight into similar program offerings throughout the region.
- **Sponsor Retail Products Programs Achieve Significant Energy Savings:** NEEP sponsors were recognized as winners of the [2016 ENERGY STAR Partner of the Year-Sustained Excellence Award for Qualifying Products Award](#), which NEEP applied for on behalf of the retail product sponsors’ programs. Through the application, NEEP made the case that in aggregate, regional efficiency programs are having a tremendous impact. The award was presented to NEEP on behalf of the sponsors at a ceremony in April. As part of the recognition, NEEP presented each member with a framed certificate to commemorate the honor.
- **Further Engagement with the ENERGY STAR Retail Products Platform (RPP):** Throughout 2016, NEEP engaged with efficiency efforts in retail products including participation in the RPP initiative. This is a national, coordinated effort to align programs around retail products promotions, partnering with retailers for coordinated mid-stream promotion. NEEP’s participation in this effort



includes attending bi-weekly teleconferences for the overarching RPP organizations, monthly teleconferences of the RPP EM&V task force, and in 2016 NEEP took over leadership, alongside NEEA, of the RPP Products task force. Furthermore, NEEP has been involved with several elements of the program, including holding meetings to help develop a cost-effectiveness tool for potential participants, providing comments on EPA's Guidance on Evaluation of the RPP as well as their product selection, and conducting targeted outreach to our sponsors by answering questions and building a connection to the RPP.

Comprehensive Multifamily Retrofit

- **Convened the Northeast Multifamily Leadership Group:** On June 23, NEEP held a meeting for this stakeholder group in Boston at the US EPA's Region 1 Headquarters. This diverse group of market actors working to advance multifamily energy efficiency met to discuss energy retrofit program design best practices, financing, and customer engagement strategies. The meeting included 20 in-person and 11 webinar attendees. The agenda included a visioning session in mapping out a pathway to achieving a 20% energy reduction across the multifamily housing stock in the region within ten years. The areas of greatest concern to group members included the importance of increasing the visibility of energy efficiency through rating and disclosure, streamlining energy data access, integration of energy retrofits with other building improvement market actors, and bundling with other distributed energy resources. The leadership group also convened quarterly webinars with guest speakers and discussions on topics chosen by group members including multifamily codes, bench marking, and energy labeling.
- **Disseminated Comprehensive Information Spreadsheet on Regional Multifamily Energy Efficiency Programs:** The updated [Northeast Regional Multifamily Program Matrix](#) contains detailed program information on multifamily energy efficiency retrofit programs across the region. This publically available resource offers program administrators a snapshot of program designs from other parts of the region to facilitate information and best practice sharing.
- **Updated the Multifamily Retrofit Online Resource Center:** New and updated resources were added to NEEP's Multifamily Resource Center. Materials include a new report and webinar [Multifamily Energy Efficiency Retrofits: Barriers and Opportunities for Deep Energy Savings; and an updated Northeast Regional Multifamily Program Matrix](#) contains detailed program information on multifamily energy efficiency retrofit programs across the region.
- **Contributed to News Articles Detailing the Challenges and Best Practices of Retrofitting Multifamily Buildings:** NEEP staff were interviewed and quoted in two news articles. The first was in [Ensia Magazine](#), an independent, non-profit magazine presenting new perspectives on environmental challenges and solutions to a global audience in an article titled, "[Can Low-Income Housing Be Energy Efficient and Affordable?](#)" in which we addressed myths and realities of energy efficiency within affordable multifamily housing. This article was picked by [Vox](#) magazine with an international readership. A second article titled, "[Is it Time for an Energy Retrofit?](#)" quoted NEEP staff and appeared in [Multi-Housing News](#). Both articles emphasized the importance of affordable energy efficient multifamily buildings both new and retrofit.
- **Co-convened a Stakeholder Group Working to Facilitate Access to Energy Data in Multifamily Buildings:** NEEP brought together a "Chew-Up-a-Challenge" working group through the [Network for](#)



[Energy Water and Health in Affordable Buildings](#) (NEWHAB) that examined strategies to facilitate access to energy data in affordable multifamily housing. This working group consisted of a diverse set of stakeholders and laid out all of the barriers to accessing energy data for the purposes of improving building energy performance. The work of this group aimed to identify the barriers and set the stage for further efforts to streamline energy data access.

- **Presented Best Practices in Program Design and Implementation to Regional Stakeholders:** NEEP presented at the 2016 Better Buildings by Design Conference in Burlington, Vermont to a group of 80 conference attendees. [“The Path Forward for Multifamily Energy Efficiency Programs”](#) panel included two case study presentations from subject matter experts working in Vermont on next generation retrofit programs for low-income multifamily housing. NEEP also presented on best practices from across the region to inform the design of energy efficiency programs targeting this underserved market.
- **Collaborated with Regional and National Organizations on Advancing Multifamily Retrofit Efforts:** NEEP collaborated with various national groups throughout the year including IMT, NRDC, Energy Foundation, and NEWHAB to disseminate information regarding the benefits and opportunities of multifamily retrofit initiatives.
- **Coordinated the Development of Regional Multifamily Market Characterizations:** NEEP managed a group of four other REEOs to create Regional Market Characterizations for multifamily stakeholders. NEEP helped develop the scope and research plans for these market characterizations and coordinated on research plans. Included a resource page in the [multifamily retrofit report](#) to connect stakeholders with these regional market studies.

Industrial Efficiency

- **Began Development of New Report on SEM EM&V Best Practices:** NEEP made significant progress in researching and writing an upcoming report on evaluation, measurement, and verification (EM&V) of Strategic Energy Management offerings within energy efficiency programs. SEM in the industrial sector is an emerging opportunity to achieve significant energy savings through both increased capital projects as well as operations and maintenance (O&M). NEEP conducted interviews with several leading program administrators (Energy Trust of Oregon, Bonneville Power Administration, Northwest Energy Efficiency Alliance, etc.) and evaluators to identify best practices when it comes to measuring savings from SEM programs, evaluating those measured savings, and screening for cost effectiveness. We anticipate the report will be used by states and programs to inform their consideration of launching SEM offerings.
- **Hosted the [Northeast SEM Collaborative In-Person Workshop](#):** On November 15, NEEP convened 30 stakeholders from around the region to discuss the critical barriers regional efficiency programs are facing in assessing the potential incorporation of SEM into their program offerings as pathways forward. The workshop was held at Schneider Electric in Andover, Massachusetts.
- **Co-Led a Regional SEM Working Group:** In partnership with Greg Baker at Efficiency Vermont, NEEP helped organize and host a regional working group focused on program implementation of Strategic Energy Management. The working group met on February 8, April 13, and August 23. The group offers a structured information exchange between industrial program administrators in the region either implementing or exploring SEM as a program measure.



- **Developed a [Strategic Energy Management for Energy Efficiency Program Primer](#):** NEEP developed a two-page document that leverages existing materials to communicate a clearer definition of SEM (targeted to general marketplace, including energy efficiency programs). Marketplace stakeholders continue to lack basic understanding of what constitutes SEM, especially energy efficiency programs who are confused about the difference between SEM offerings and what Industrial programs have traditionally offered.
- **Attended the Better Buildings Summit to Coordinate Activities with US DOE and Fellow REEOs:** NEEP joined DOE staff and representatives from a number of the other REEOs to discuss 2016 activities to promote energy efficiency in the industrial sector. Discussions led to new opportunities for cross collaboration and identified activities that need adjustment.
- **Attended [Northwest SEM Collaborative Workshop](#) in Portland, OR.** On October 11, David Lis, NEEP's Director of Technology & Market Solutions, attended the day-long workshop to discuss key challenges and successes of SEM efforts in the Northwest. NEEP drew from the region's mature SEM market to inform development of our November 15 workshop agenda.
- **Joined NEEA to Learn About Their Suite of Online SEM Tools:** Warren Fish from NEEA hosted NEEP and SWEEP on April 6 to present an overview of the online SEM training/assessment tools NEEA has developed. NEEP is working collaboratively with the US DOE to develop online tools that train interested industrial stakeholders on SEM and reported back to DOE the opportunities for leveraging of existing resources.
- **Attended ENERGY STAR's Energy Management Best Practices Network Meeting:** ENERGY STAR hosted their quarterly meeting on May 12 at the Smuttynose Brewery in Hampton, New Hampshire. David Lis and NEEP's former Director of Public Policy Jim O'Reilly attended to both provide insight based on NEEP's experience with energy management best practices but to also learn from other businesses about how they are developing and incorporating best practices into their own operations. NEEP also highlighted opportunities for further discussion and learning by calling out our Annual Business Leaders Awards Ceremony that was taking place in June at our annual Summit.
- **Demonstrated Thought Leadership Through Participation in Regional Meetings:** As part of the 2016 NEEP Summit, NEEP staff put together a roundtable discussion on the emerging solutions in the commercial and industrial sectors. Over 50 Summit Attendees joined the session which highlighted a number of business solutions, including SEM. Cascade Energy presented on their approach to driving adoption of SEM in Industrial customers.
- **Attended the Massachusetts Advanced Manufacturing Conference:** This [September event](#) gathered information on energy management practices in the local manufacturing sector. It is clear that the concept is still emerging as continuous improvements have not made significant inroads into how manufacturers manage energy use.

Business Leader Recognition Program

- **Northeast Business Leaders for Energy Efficiency Shared Their Story:** 2016's six Northeast Business Leaders for Energy Efficiency were featured in video case studies to highlight their commitment to accelerating energy efficiency. These case studies were disseminated via NEEP's social media



channels as well as through a tool kit for business leaders and sponsors. Take some time to watch the inspiring videos and read the case studies for each of our Business Leaders [here](#).

- **Northeast Business Leaders for Energy Efficiency Honored at NEEP’s Summit:** In conjunction with NEEP’s Northeast Energy Efficiency Summit at the Omni Mt. Washington Hotel, the 2016 Northeast Business Leaders for Energy Efficiency were honored at a recognition reception and dinner. This special ceremony recognized our 2016 Business Leader honorees and their program administrator sponsors, and also featured a 20-minute video highlighting Business Leaders and integrating their efforts into the workshop topics and themes. For photos from the event, visit this [page](#).
- **Success Stories of Northeast Business Leaders for Energy Efficiency Gained Momentum in Media:** Several Business Leaders were the topic of conversation in media coverage throughout the year. The lion’s share of coverage came during the second quarter, but trickled in throughout 2016. These articles and blogs show the value that strategic partnerships between businesses and ratepayer-funded efficiency programs bring to accelerating all cost-effective energy efficiency in businesses across the Northeast and Mid-Atlantic. They communicate the importance of efficiency programs to help businesses thrive, succeed, and grow while contributing to state clean energy goals. Here is a sampling of stories that appeared on some Business Leaders:
 - 5.24.16 – [MFRTech](#): NEEP Recognizes Monadnock Paper Mills as 2016 Northeast Business Leader for Energy Efficiency
 - 5.24.16 – [WN.com](#): NEEP Recognizes US Office of Personnel Management as 2016 Northeast Business Leader for Energy Efficiency
 - 5.24.16 – [DCSEU news portal](#): NEEP Recognizes US Office of Personnel Management as 2016 Northeast Business Leader for Energy Efficiency
 - 5.24.16 – [TF Green Airport website](#): NEEP Recognizes Rhode Island Airport Corporation as 2016 Northeast Business Leader for Energy Efficiency
 - 6.2.16 – [VT Digger](#): Hannaford Supermarkets Named 2016 Northeast Business Leader for Energy Efficiency
 - 6.3.16 – [Progressive Grocer](#): Hannaford Garners Energy Efficiency Honor
 - 12.9.16 – [Solar Novus Today](#): Energy-Diverse School System Installs 346kW Solar Array

High Performance and Zero Energy Schools and Public Buildings

- **Analyzed the Development of Zero Energy Public Buildings in the Region:** In order to understand the progress of the region in relation to policies and actual construction of zero energy public buildings, NEEP developed the [Roadmap to Zero Energy Public Buildings: Progress Report](#) (The Progress Report). In 2012, when NEEP released the original [Roadmap to Zero Net Energy Public Buildings](#), the market for zero energy buildings was considered niche and had a lot of room for growth. Since that time, national awareness of zero energy policies, definitions, and actual construction has grown significantly. The Progress Report is a valuable resource for stakeholders to help assess the current status of zero energy buildings and to plot a path forward. Upon publication, NEEP hosted a [webinar](#) for the regional public buildings working groups to give stakeholders an overview of zero energy initiatives throughout the region. Additionally, NEEP presented the resource at the [Getting to Zero National Forum](#) hosted by NBI. An accompanying blog can be found [here](#).



- **Released and Disseminated a Resource on Streamlining Energy Data Access for Public Building Energy Benchmarking:** NEEP released the US DOE supported resource [Public Sector Building Energy Benchmarking: Utility Data Access Options and Opportunities](#). The report documents the current landscape of building energy benchmarking policies and programs and details the public sector efforts to facilitate the benchmarking process by streamlining access to energy data. The exemplary efforts outlined in the paper can serve to inform public-sector entities who are engaging in energy benchmarking. The sample letter in the report is a resource to help communicate the value of streamlined access to energy data to regulators and utilities. These efforts to streamline energy data access aim to help building managers better measure and manage the energy performance of their buildings and reduce consumption across large portfolios in the region.
- **Educated States and Local Jurisdictions About the Latest Strategies in Operations and Maintenance of Public Buildings:** Fundamental to the effectiveness of a well-designed, high performance school or public building, is the ongoing operations and maintenance of that facility. In 2013, NEEP cataloged best practices, resources, checklists, and case studies into the [Regional Operations & Maintenance Guide for High Performance Schools and Public Buildings in the Northeast and Mid-Atlantic](#). With the constantly evolving nature of these buildings, NEEP set out to update this resource in 2016 to contain the latest and greatest in operations and maintenance. The update contains new guidance in various sections including lighting, energy policy planning at the local level, financing, resiliency, recycling, electric vehicle charging, and more. Over the course of this project, NEEP collaborated with a group of regional stakeholders to understand the areas of need. Ultimately, the updated guide aims to help communities reduce operating costs, improve indoor environmental quality, and increase the lifespan of public buildings.
- **Facilitated Local and Regional Dialogue for High Performance Schools and Public Buildings:** Throughout 2016, NEEP continued to engage regional and state-specific High Performance Buildings Working Groups. The groups met three times via webinar over the course of the year, culminating with an in-person meeting at the Wilbur-McMahon School in Little Compton, R.I. In total, 35 attendees participated in the in-person meeting representing seven states, private firms, utilities, state and local governments, and others. Bringing together regional stakeholders in a smaller, more interactive setting lends itself to productive dialogues allowing attendees to learn about best practices and resources related to energy efficiency and operational savings. An informative tour of a historically renovated CHPS school concluded the meeting that featured presentations from the DOE, EPA, state representatives, and NEEP staff.
- **Provided Technical Assistance to Municipal Stakeholders throughout the Region to Improve Energy Efficiency:**
 - NEEP collaborated with municipalities throughout the region to provide technical assistance on various topics. Early in 2016, NEEP, at the request of EPA Region 3, began a collaborative effort with the Delaware Valley School Facilities Managers Association regarding the need for preventative maintenance programs. Initial discussions led to the sharing of NEEP's Regional Operations and Maintenance Guide, which was then shared with the 100-plus members of the Delaware Valley School Facilities Managers Association.
 - Engaged in discussions with the Sustainability Office of Newark, New Jersey to assist with their efforts to retrofit streetlights in the city to LED technology. NEEP staff highlighted important parts of the LED Streetlighting Assessment and additional resources for Newark



to utilize during the process of engaging their utilities and ultimately retrofitting their streetlights.

- The Town of Lexington, Mass. approached NEEP to learn more about using NE-CHPS for a school project. NEEP provided technical assistance and data to municipal personnel to help them make the case for using NE-CHPS for their upcoming school projects.
 - Provided technical support to the [NH Local Energy Solutions](#) group regarding schools and public buildings projects.
- **Presented and Disseminated Resources at Conferences and Events Throughout the Region:** Throughout the year, NEEP staff disseminated best practice strategies and resources including NE-CHPS, Roadmap to Zero Energy Public Buildings: Progress Report, The Regional Operations and Maintenance Guide for Public Buildings, Streetlighting Assessment and Strategies for the Northeast at local and regional conferences, meetings, and events as described below:

NEEP Buildings 2016 Best Practice and Resource Dissemination	
Venue	Attendees
Getting to Zero National Forum	45
Northern New England Facilities Masters Conference	40
Regional High Performance Schools In-Person Meeting	35
CHPS Training: Solutions for Green Schools in Massachusetts	115
Massachusetts Facilities Administrators Association Annual Conference	180
Regional High Performance Schools & Public Buildings Exchange Webinars	70
Green Schools Conference and Expo	30
Rhode Island High Performance Schools Summit	140
New Hampshire High Performance Schools Summit	100
Total:	655

- **Developed Exemplars for High Performance Schools and One City in the Region:** The ongoing development of exemplars demonstrates the public building sector is leading by example in the advancement of high performance schools and public buildings. NEEP developed four new high performance school exemplars and one new exemplar highlighting the City of Providence, R.I. and their ongoing sustainability initiative focused on improving energy in all city-owned facilities. The exemplars are linked below:
 - [Howe-Manning Elementary School](#), Middleton, Mass.
 - [Maynard High School](#), Maynard, Mass.
 - [Kingswood Regional Schools](#), Wolfeboro, N.H.
 - [Wilbur-McMahon School](#), Little Compton, R.I.
 - [City of Providence Exemplar](#)
- **Planned and Participated in the Municipal Energy Roundtable at the NEEP Summit:** Staff organized a session at the 2016 NEEP Summit entitled “Traversing the Municipal Energy Landscape: Solutions and Strategies for Success.” This session focused on providing cutting edge solutions and highlighting real-world initiatives that help communities improve municipal energy use, enhance community resiliency, and reduce the overall impacts of climate change. More than 65 attendees gathered to hear from presenters at the local, state, federal, and grassroots levels about their experiences with these types of projects. The broad range of presenters made the session a

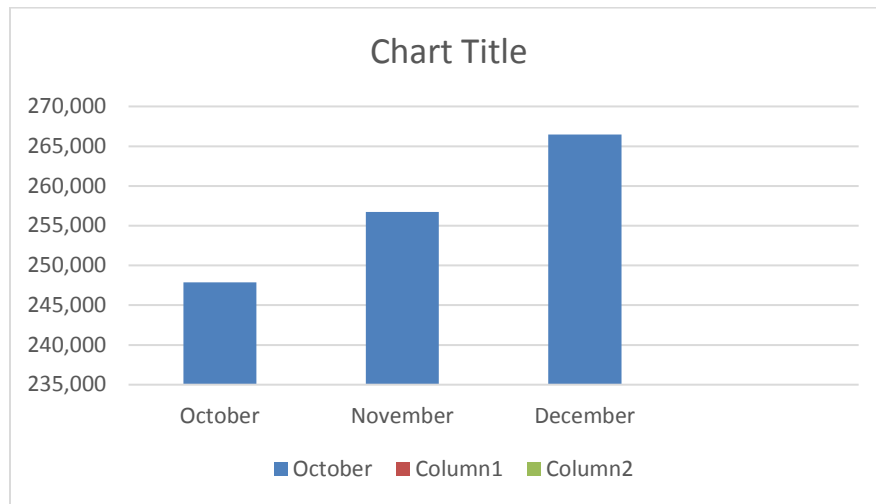


worthwhile experience for all attendees, regardless of what type of community they represented. Additionally, dialogue between presenters and attendees allowed for the sharing of best practices and lessons learned regarding municipal energy use. Lastly, NEEP staff in the session left with a deeper understanding of the barriers that communities face and how NEEP can better assist them to reach their goals.

- **Advanced Zero Energy Buildings and Homes in Rhode Island:** Throughout the year NEEP was an active member of the [R.I. Zero Net Energy Council](#) whose mission is to foster the growth of the residential and commercial zero energy market in the state. The group worked to create a set of recommendations via a white paper which was presented to the Governor's Office in December.
- **Served in Leadership Roles on National Boards and Working Groups to Advance Energy Efficiency:** Carolyn Sarno Goldthwaite, NEEP's Director of Buildings & Community Solutions, continues to serve in leadership roles in two national groups as:
 - Chair of the [Collaborative for High Performance Schools'](#) Board of Directors; and
 - Co-Chair of the [SEE Action](#) Existing Commercial Buildings Working Group, a joint initiative of US DOE and US EPA. As part of this effort, she co-led the development of the [2020 Leadership Agenda](#) which defines the baseline actions states and communities can take to demonstrate national energy efficiency leadership.
- **Working to Make Zero Energy Schools the Norm:** In November, [NEEP became a partner](#) in the US DOE [Better Buildings Zero Energy Schools Accelerator](#). The goal of the effort is to create a framework for states and school districts for zero energy buildings.

DesignLights Consortium and Advanced Lighting Controls

- **Vetted Products for Inclusion in Incentive Programs and Product Performance Data to Inform Program Design Strategies:** The DesignLights Consortium® (DLC) served its members by maintaining the DLC Solid State Lighting Products List (SSL QPL) via a publicly available, searchable, and comprehensive web-based listing of qualifying SSL products. The QPL and its technical requirements are the backbone of the DLC SSL project that members rely on to promote high efficiency lighting products and achieve energy efficiency program savings goals.
- **QPL Growth:** During the last quarter of 2016, the DLC QPL grew by 15%, leaving the product count at 266,476 by the end of December.



- **Revised the Technical Requirements and Released New Policies:**
 - **SSL Specifications:** On November 1, the DLC released revisions to the SSL Technical Requirements, as [Technical Requirements Table V4.1](#). V4.1 includes the following changes:
 - New Category: [Four Pin-Base Replacement Lamps for CFLs](#)
 - New General Application: [U-Bend Replacement Lamps](#)
 - New General Application: [Very High Output Outdoor Lighting](#)
 - **Policy Development:** The DLC also released three policy updates. [Revisions to the Private Labeling/Multiple Listing Policy](#), clarifications on Rated Data for [Single Product Applications](#) and [Family Grouping Applications](#), and [Adoption of ANSI C78.377-2015](#).
 - **Surveillance Testing Final Policy Released:** In November, the DLC released an RFP for a primary and secondary test lab and made selections in December. Later in December, the final version of the [Surveillance Testing Policy](#) was released. It is designed to preserve the value of the SSL QPL for all stakeholders by ensuring that product data on the QPL is accurate. The DLC has circulated two previous iterations of this policy, titled Product Verification Performance Testing and Surveillance Testing, through the Stakeholder Input Process and received many comments, which informed and guided the final policy.
- **DLC Networked Lighting Controls Qualified Products List Grew:** The DLC continued to review and add systems to its new [Qualified Products List for Networked Lighting Control \(NLC\) Systems](#). As of December 16, 2016 15 systems have been listed and qualified from Acuity Brands, Cree, Daintree, Digital Lumens, Eaton, Enlighted, Ideal Industries, Lutron, Nedap, Osram Sylvania, Philips Lighting, and RAB Lighting. [The NLC Qualified Products List](#) equips lighting designers, specifiers, contractors, building owners, and utility energy efficiency programs with a valuable information resource to understand and evaluate NLC systems in this rapidly evolving sector. For lighting control manufacturers and their customers, it provides access to efficiency incentives and greater product visibility in markets across North America.
- **Advanced Lighting Controls Demonstration Projects Were Installed:** This effort began in 2015, when the DLC began work to select 10 Advanced Lighting Control (ALC) technologies and sites for



demonstrations in partnership with US DOE. These demonstration projects, installed in 2016, will be used as deployment tools for DLC member utilities and provide valuable experience and content to inform the ALC project training programs and other activities.

- **Networked Lighting Control Data Analysis Project Phase I Moved Forward:** In late 2016, Phase I of the project was kicked off and participants were contacted to provide data. This project will collect data and build a large database of advanced lighting control savings results. The goal of the project is to use the database to develop Advanced Lighting Control savings and cost assumptions to support members in developing program offerings. Secondary goals include refining savings assumptions of the ALCS Energy Estimator under development and to analyze the savings of luminaire level controls.
- **Draft Installer Training Curriculum Completed:** Increasing awareness of new types of Advanced Lighting Controls, especially those that reduce complexity and cost of installation, is an important strategy to address adoption barriers. In September, DLC completed the draft training curriculum for contractor and held a webinar to review the training with manufacturers, members, and other stakeholders. We expect to finalize the curriculum and begin piloting the training in early 2017.
- **Launched New DLC Website:** The [new website](#), launched in December, features an accessible information resource, added security, and API access to product data. The website includes a new look and feel, a faster and more user-friendly database search tool, and improved access to information.
- **Held Regular Member Meetings:** Throughout the year, the DLC held meetings to inform members about ongoing developments and to collect feedback on timelines, use of specs, the Premium tier, CALC, and the annual Stakeholder Meeting.
- **The 2016 DLC Stakeholder Meeting Attracted 250+ Attendees:** The 2016 DLC Stakeholder Meeting was the biggest one yet, with the number of sponsors and attendees including industry stakeholders and utility members both hitting record highs. Evaluations show that the agenda was well received and content was perceived to be elevated and improved from previous years.
- **The DLC Became an Independent 501(c)(3) Organization in 2017:** Born as a NEEP project in 2010, The DesignLights Consortium began operating as its own non-profit organization in 2017. The DLC QPL became a leading resource that distinguishes quality, high efficiency LED products for the commercial sector. Within a few months, programs from beyond the NEEP region asked to participate in the effort as DLC members and to use the resource. Today, the QPL sets the bar for efficiency program incentives across the U.S. and Canada while informing manufacturer product development internationally. The DLC has grown into an organization that accelerates the widespread adoption of high-performing commercial lighting solutions in collaboration with utilities, energy efficiency program members, manufacturers, lighting designers, and federal, state, and local entities. Through these partnerships, the DLC establishes product quality specifications, facilitates through leadership, and provides information, education, tools, and technical expertise.



Building Efficiency Markets

Develop regional market capacities to value and deliver energy efficiency through outreach, guidance, and tools that provide common specifications, training, and frameworks to scale-up efficiency across states.

Home and Building Energy Rating, Labeling and Disclosure

- **Provided Technical Guidance on Rhode Island Building Energy Labeling Efforts:** NEEP continued to play a major role in propelling Rhode Island’s efforts to implement building energy rating across its entire building stock:
 - NEEP collaborates with other members of the state’s Residential Building Rating working group in order to clear the remaining barriers to a statewide labeling program. This year, NEEP provided updates on synergistic efforts like HELIX and provided miscellaneous technical assistance to the state Office of Energy Resources (OER) to resolve final outstanding issues as the team prepares to incorporate US DOE’s Home Energy Score and a uniform Rhode Island label into National Grid’s home performance program in 2017.
 - NEEP also conducted research and provided analysis for the Rhode Island Commercial Building Energy Labeling working group. Staff participated in all working group meetings, providing updates on other building rating and labeling efforts across the region, and supported the OER in their goal to increase the number of energy ratings in the state’s commercial building stock.
- **Supported Innovative Building Energy Projects in New York:**
 - NEEP continued to assist the NYSERDA-supported [Tompkins County Home Energy Rating Disclosure pilot](#). After providing technical guidance to the project team earlier in the year, NEEP’s HELIX project and real estate resources were cited in the project’s final [program implementation plan](#) in the spring. NEEP provided additional guidance to the City and Town of Ithaca on how to proceed in their project and another regarding a new project investigating policy options for advancing green building policies.
 - NEEP served on the technical committee of the NYSERDA-convened National Labeling Group. This group includes stakeholders from across the country working to create a ubiquitous building energy label for multifamily and commercial buildings. These labels aim to provide more transparency in the real estate market and drive the market for energy efficiency retrofits. NEEP consolidated and provided specific metrics that are collected in the [NEEP Renter’s checklist](#) and the [Massachusetts Building Asset Rating \(BAR\) Pilot](#).
- **Guided Connecticut Toward Residential Market Transformation:** NEEP provided direct support to the Connecticut Department of Energy and Environmental Protection (DEEP) in their efforts to achieve greater engagement of the real estate community. After discussing strategies for aligning



the state's [nation-leading work in deploying DOE's Home Energy Score](#) through its utility programs with regional and national home energy labeling efforts, NEEP presented alongside DEEP to approximately 25 building performance stakeholders as part of a panel on this topic at an October workshop convened by the Connecticut Green Bank.

- **Provided Technical Guidance in the Development of a New Hampshire Home Energy Labeling Program:** NEEP continued to support the Recognizing Efficiency Value through Energy Asset Labeling (REVEAL) project, an effort which launched at the end of 2015 to promote the advancement of alignment of energy rating programs in New Hampshire and Vermont. In 2016, NEEP continued to serve as a member of REVEAL's New Hampshire stakeholder group by providing guidance and resources to help scale up the use of US DOE's Home Energy Score statewide and introduce a state home energy label.
- **Supported Implementation and Improvement of US DOE's Asset Rating Tools:** NEEP continued to act as conduit between stakeholders throughout the region and DOE in order to ensure its Home Energy Score and Commercial Asset Score tools remain appropriate for use in our quickly-shifting building energy environment. For example, we provided feedback to DOE on the need to improve modeling assumptions for cold climate heat pumps and streamline the rescoring of homes post-retrofit in order to help justify utility investment in home energy labeling programs and encourage the region to launch home energy rating programs.
- **Supported US DOE's National Collaboration Efforts Regarding Home Energy Information:** NEEP continued to participate in DOE's [Home Energy Information Accelerator](#), representing the Northeast region as one of six hotbeds across the country which are actively expanding the use of this information in real estate transactions. NEEP exchanged best practices on regular teleconferences with national partners and began assembling information quantifying the current level of penetration of home energy information in real estate listings in different multiple listing services (MLSs) across our region. In addition, we participated in an initiative with Lawrence Berkeley National Laboratory to automatically populate solar PV information on existing homes into real estate listings.
- **Presented Leading Building Energy Rating Strategies to Several Key Market Actors:**
 - In February, NEEP presented to 30 stakeholders on home energy labeling programs and policies and the HELIX project at the Home Performance Council's (HPC) New York Regional Home Performance Conference in Saratoga.
 - In March, NEEP presentation at the Northeast Sustainable Energy Association's 2016 Building Energy Conference in Boston on methods for educating the real estate market to effectively value building energy efficiency to approximately 30 attendees.
 - In April, NEEP presented to approximately 20 stakeholders on home energy labeling programs and policies as well as the HELIX project at HPC's National Conference in Austin, Tex. This presentation was a first-of-its-kind look at the potentially symbiotic relationship of coupling home energy rating programs with Home Energy Management Systems to provide user feedback, verify energy savings, and spur further retrofit activity. NEEP also presented a session to 40 attendees on building home energy information pipelines.
 - In May, NEEP made a presentation to some 50 attendees at US DOE's Better Buildings Summit on making home energy data accessible in the real estate market.



- In June, NEEP presented to 25 real estate professionals at the Women’s Council of REALTORS® Northern Mass. Region chapter meeting in Reading.
- In October, several NEEP staff presented to approximately 20 select stakeholders at a workshop at HPC’s New England Regional Home Performance Conference in Springfield, Mass., covering policy trends and their anticipated effects on the current state of home performance in order to help grow home energy rating capacity in the region. NEEP also presented to 40 attendees during a presentation on residential valuation.
- **Maintained Regional and National Network of Energy Rating Allies:** In 2016, NEEP included updated information on regional building energy rating activities through its Building Energy Codes and Public Buildings Leadership Groups. Staff continued to engage with our national and regional counterparts, most notably by providing updates on our region through coordination with allies such as the National Association of State Energy Officials (NASEO).
- **Provided Timely Updates to the Online Resource Center:** NEEP updated its [Building Energy Rating webpage](#) to feature the latest publications, events, and other resources relevant to stakeholders working in building energy rating and labeling. Additions this year included a [blog on the growth of the home energy rating industry in the region](#), information from which was used one month later by the Town of Medfield, Massachusetts’ Energy Committee to adopt a stretch code after two previous unsuccessful attempts, and an update to our [Building Energy Rating & Disclosure benchmarking policies handout](#).
- **Worked to Mobilize Building Energy Benchmarking Data for Outcomes:** As part of the [SEE Action Network Existing Commercial Buildings Working Group](#), who is building on its [2020 Leadership Agenda for Existing Commercial and Multifamily Buildings](#), the group plans to assess how policymakers are using benchmarking datasets to create clean energy outcomes, and identify how these datasets may be applied in the future to drive greater outcomes. The report is due to be finalized early next year.

Contractor, Realtor and Design Community Tools and Training

- **Launched Ground-Breaking HELIX Project:** In April 2016, NEEP formally kicked off its [Home Energy Labeling Information Exchange \(HELIX\)](#) project, a three-year project whose main objective is the creation of a highly accessible database for DOE Home Energy Score (HES) information for the Northeast states which will enable automatic transfer of this information into local Multiple Listing Services (MLSs). NEEP compiled a list of contacts spanning the key stakeholders across the seven states involved in the project (New England plus New York) and beyond, and with the HELIX team we engaged these stakeholders to ensure participation in the [HELIX Summit](#) as well as forthcoming activities in 2017.
- **Engaged the Regional Real Estate Community to Develop Resources for HELIX Project:** NEEP worked with two Real Estate professionals from the region to conduct outreach and briefings to Real Estate professionals and MLS providers on the value of home energy ratings and the HELIX project. The team assembled a heat map of regional home energy certifications to help illustrate the growing number of homes that are being constructed and renovated to high performance standards in order to get more real estate professionals committed to learning about home energy information and communicating it to their clients.



- **Developed HELIX’s Draft Technical Scope:** After surveying state energy offices and utility program administrators on what home energy information they currently collect and what information would be the most useful for them to have access to in the future, the HELIX team began developing a technical scope to satisfy these priorities as well as allowing for additional improvements. This process culminated in the development of a [Request for Information](#) (RFI), which was finalized at the end of the year and posted in the first week of 2017. This RFI will provide information allowing NEEP to finalize the technical scope and solicit an entity capable of building such a database in 2017.
- **Researched HELIX Governance Frameworks, Privacy Considerations, and Funding Structures:** The HELIX team investigated these issues and began to develop recommendations related to how the components of any future HELIX database should be owned and operated. These recommendations will guide the development path of HELIX toward one that: 1) allows for fair decision making considering stakeholders across the Northeast; 2) maintains all privacy restrictions associated with the stored data; and 3) is configured to operate as a long-term asset with an adequate funding stream.
- **Presented NEEP Thought Leadership to New Audiences:** NEEP convened a panel at our [annual 2016 Summit](#) in New Hampshire regarding making energy efficiency visible in real estate transactions. This panel engaged 28 stakeholders and included presentations and a discussion from a NEEP staffer, realtor, appraiser representatives from northern New England, and a utility energy efficiency program administrator. NEEP also presented to 200 stakeholders at the Association for Energy Services Professionals’ (AESP) Northeast conference on the HELIX project along with three utility program administrators from the region. The panel, “Making the Invisible Visible,” highlighted efforts across the Northeast region to make energy efficiency more visible to ensure it is properly valued and in-demand in the real estate market.
- **Disseminated Educational Resources for Real Estate Professionals:** NEEP continued to disseminate the [Checklist for Real Estate Professionals](#) and the [Renter’s Checklist for an Energy Efficient Home](#). These resources provide guidance for real estate professionals and prospective tenants looking for information on the attributes of homes that affect energy performance. This year, these resources were directly disseminated to HELIX Summit attendees, representatives of Ithaca, N.Y. (where 70% of housing is rental), the New Hampshire Home Energy Score working group, and several others. These resources were also posted to the [DOE’s Home Energy Score Resources page](#) and the [Connecticut Department of Energy and Environmental Protection’s Energy Efficiency page](#).
- **NEEP Resources Provided Value to Regional Efforts:** NEEP was cited in the Instructor’s Manual for the National Association of Realtors’ Resource-Efficient Green Home course as a resource to learn more about the energy efficiency characteristics of homes that can be incorporated in the sales process. This course is included in the required material to receive NAR’s “[Green Designation](#)” which seeks to keep realtors educated on energy features in housing which ensures the market more accurately values energy efficiency. In addition, the HELIX project has been cited formally in plans such as the [Tompkins County Home Energy Rating and Disclosure program implementation plan](#), the [District of Columbia’s Climate and Energy Plan](#), as well as informally in meetings, presentations, and other conversations as an important component in the effort to transform the real estate market and leverage its actors and actions to drive energy efficiency retrofits.



Updating Baselines

Increase energy savings by aligning efficiency programs with advanced building energy code initiatives and appliance standards to lock-in the positive market impacts of successful efficiency programs.

Progressive Model Building Energy Codes

- **Provided Support to Energy Code Collaboratives in Delaware, New Hampshire, and Vermont:** NEEP has played an active role in Delaware and New Hampshire’s Energy Code Collaboratives since their inceptions in 2011 and 2012, respectively, and helped to guide the establishment of the Vermont Code Collaborative.
 - NEEP continued to provide technical support to the Delaware Energy Code Coalition. Staff participated in both of the group’s 2016 meetings, during which we provided technical guidance pertaining to the 2015 International Energy Conservation Code (IECC) and the ERI/HERS rating path as the state considers adoption of this code in 2017.
 - NEEP continued to provide technical guidance to the New Hampshire Building Energy Code Compliance Collaborative, which convenes to advance strategies set in the state’s [Code Compliance Roadmap](#). In 2016, NEEP assisted in the design of a survey and provided technical guidance regarding strategies for conducting a future code compliance study to help the state to begin assessing its code compliance rate.
 - NEEP continued to provide support to the [Vermont Code Collaborative](#), through in-person and web-based meetings to begin planning toward meeting the state’s adoption and compliance goals. The Collaborative is currently on hold pending the state obtaining a Vermont-based convener which will work in collaboration with NEEP to administer the group.
- **Supported Cutting-Edge Code Compliance Enhancement Efforts in Rhode Island:** National Grid administers an innovative, robust energy code training program in partnership with the state Building Code Commission and NEEP through its [Code Compliance Enhancement Initiative](#). Rhode Island is one of the first states in the country that has allowed utilities to claim energy code program savings as part of its regulatory proceedings.
 - NEEP provided regional insights and directed the program to new resources at each of the implementation team’s quarterly meetings in order to help to assess and improve the training and outreach activities it delivers, including classroom training (12 trainings and 322 total attendees in 2016), special focus/in field sessions (146 total attendees), and a circuit rider service for energy code inquiries (32 call responses and 10 site visits).
 - NEEP also supported the evaluation of the program to ensure National Grid is adequately compensated for their efforts by helping to provide recommendations on how results from



- the state's new code compliance assessment should be used to make adjustments to the energy savings attribution methodology and enable this code support program to continue.
- NEEP's continued to support the implementation of such programs throughout the region, and our 2013 report detailing how states can develop such a program was [cited in this year's District of Columbia Climate and Energy Plan](#).
 - **Assisted Code Compliance Assessments in Connecticut, Maryland, and Pennsylvania:**
 - NEEP through contractual agreement has been retained by the State of Connecticut to implement a residential energy saving best practices field study. NEEP will utilize [US Department of Energy Residential Field Study](#) methodology to conduct the study and collect data to determine energy savings through energy code compliance. Data collection will be supervised by NEEP and collected in the field by current and former students of Tunxis Community College. The collaboration with the college will foster green job growth within the state.
 - NEEP also continued to support the two federally funded [residential code compliance field studies](#) awarded last year in Maryland and Pennsylvania. For Maryland, we attended the second annual stakeholder meeting in Fulton and directed attendees to resources to address identified code compliance gaps. In Pennsylvania, we helped to disseminate project resources and expand outreach efforts as part of our leadership of the Pennsylvania Energy Code Collaborative.
 - **Extended Knowledge and Resources Through NEEP's Codes Leadership Group:** NEEP continued to facilitate its Regional Building Energy Codes Leadership Group, a forum for information dissemination and exchange between building energy code stakeholders throughout the region, to accelerate adoption of and compliance with increasingly efficient energy codes. In 2016, NEEP held two webinars and one full-day meeting in New York City, which drew 36, 32, and 40 participants, respectively. During these meetings, NEEP facilitated discussions of topics including issues states are facing in adopting the 2015 IECC, opportunities to support the development of the 2018 IECC, methods for determining code compliance cost effectively, and best practices for developing and advancing on a path to zero energy codes. Between meetings, NEEP provided the group with relevant and timely state, regional, and national updates.
 - **Assisted New York, Massachusetts, and Connecticut to Adopt More Efficient Energy Codes:** NEEP's region continues to lead the country in the adoption of progressive building energy codes. In 2016, two of NEEP's states adopted and implemented the 2015 IECC, the nation's newest, most efficient model energy code, and one state adopted the slightly less efficient 2012 IECC:
 - NEEP provided guidance as New York [completed its 2015 IECC adoption process](#), which will provide a roughly ten-percent boost in efficiency from the state's previous code.
 - NEEP provided comments supporting adoption of the 2015 IECC in Massachusetts, which became the first state in the country to amend this code to provide additional efficiency.
 - NEEP provided comments supporting [Connecticut's 2012 IECC adoption](#), which constitutes a roughly 15-percent increase in efficiency over the previous energy code. NEEP also provided guidance for the subsequent adoption of the 2015 IECC, which the state's Code Adoption Subcommittee now plans to pursue in 2017.



- **Assisted Efforts to Update Energy Codes in Maine, New Hampshire, and Rhode Island:**
 - NEEP continued to serve on Maine’s Energy Technical Advisory Group (TAG). Staff provided resources to support the proposed adoption of the 2015 IECC at several Energy TAG meetings throughout the year and provided considerable technical support in reviewing materials used to substantiate the value of such an energy code update to the state Department of Public Safety, for which a [public hearing is scheduled to be held early in 2017](#).
 - NEEP helped to organize support from New Hampshire energy code stakeholders for the state’s proposed 2015 IECC adoption and assisted in the successful counter of two major proposed weakening amendments thereto. NEEP will continue to provide such services as New Hampshire [considers updating its code in 2017](#).
 - Finally, NEEP continued to support Rhode Island’s [efforts to adopt the 2015 IECC](#) as part of our work with the Code Compliance Enhancement Initiative detailed above.

- **Supported Stretch Energy Codes in Massachusetts, Vermont, Rhode Island, and New York:**
 - Massachusetts’ stretch energy code was designed in 2009 as an overlay code which yields additional building energy savings, but it remained without an update until two code adoption cycles later. NEEP supplied technical guidance to a coalition of stakeholders desiring a more efficient stretch energy code than the one which was ultimately adopted, though the Stretch Code [could be further updated in 2017](#).
 - Vermont [finalized its commercial stretch code](#) after NEEP’s assistance with its development.
 - NEEP continued to provide technical guidance to the [Rhode Island Building Code Commission’s](#) initiative to update the state’s commercial stretch code. NEEP participated in monthly working group meetings, notably contributing as subject matter experts on stretch codes and the International Green Construction Code which is being a customized to serve as the basis for Rhode Island’s stretch code. The updated code will be linked to various incentives from National Grid and will advance the state’s 2035 goal of all new construction being zero energy.
 - NEEP also supported the development of NYStretch, a voluntary stretch code that aims to provide 10-percent savings beyond New York’s base energy code for residential and commercial buildings. NEEP provided technical assistance to the NYStretch stakeholder team and helped to promote a webinar on the subject.

- **Provided Direct Code Compliance and Enforcement Support to Maryland, Delaware, and the District of Columbia:**
 - NEEP continued to serve as a technical resource to the Maryland Department of Housing and Community Development, answering several questions regarding interpreting code language in exceptional cases.
 - NEEP provided introductory information to new staff at the state Department of Natural Resources and Environmental Control and provided further assistance in incorporating HERS rating code training and methods for assessing code compliance.
 - NEEP provided the District’s Department of Consumer and Regulatory Affairs with resources to aid their development of a library of code compliant digital building assembly diagrams



and a pamphlet of common residential code compliance errors in order to streamline permitting and improve energy code compliance.

- **Maintained National Network of Energy Code Allies:** NEEP continued to engage with its national and regional codes counterparts, providing updates on our region through teleconferences with the Responsible Energy Codes Alliance (RECA), National Association of State Energy Officials (NASEO), Building Codes Awareness Project (BCAP), and the Northeast HERS Alliance. NEEP also participated in meetings with the National Energy Codes Collaborative, a joint partnership of the US DOE, PNNL, BCAP, NASEO, and the other regional energy efficiency organizations (REEOs), and provided feedback on energy code reports by PNNL and MEEA, NEEP's Midwest counterpart. In addition, NEEP educated many of these stakeholders at the 2016 National Energy Codes Conference. NEEP staff assisted the US DOE in planning and promoting this event as well as serving as conference session organizers and presenters.
- **Maintained and Updated Online Codes Resource Center:** NEEP maintained and regularly updated its [Building Energy Codes Homepage](#), [News Bulletin Board](#), [Codes Tracker](#), and [Resources](#) pages to feature the latest news, events, and resources on code adoption and compliance throughout the region. Notably, NEEP continued to promote its [2015 IECC residential field guides](#), which were developed in 2015 anticipation of several states in the region working to quickly adopt this code. In 2016, NEEP demonstrated and distributed this resource directly to individuals representing several New England states at the International Code Council's Northeast Regional Coalition meeting in Lowell, Mass. as well as to attendees at the Maryland energy code stakeholder meeting. We also updated our [code adoption](#) and [code compliance](#) toolkits in order to make them more user friendly, and in August posted a blog providing an [update on status and projected course of state energy code adoptions throughout the region](#).

State and Federal Appliance Standards

- **Deeper Engagement on State-Level Standards:** State-level standards have long been a component of NEEP's appliance standards work, though typically addressed in a one-off manner or through the NEEP-led Standards Working Group. In August 2016, NEEP launched an effort to regularly convene regional stakeholders interested in learning about and promoting state-level appliance standards. NEEP gathered stakeholders from Rhode Island, Connecticut, New York, Massachusetts, and Vermont for an initial discussion about the practical logistics of getting standards adopted as well as the strategic benefit of bringing multiple states together to leverage knowledge and learning across state lines. NEEP reconvened the group monthly through December to present a more comprehensive suite of resources available to state stakeholders. The goal is for multiple states to propose new state appliance standards for products not currently covered by federal standards, which will inform NEEP's 2017 priorities.
- **Convened Quarterly Appliance Standards Working Group via Webinar:** To facilitate regional stakeholder input and share information and best practices, NEEP convened the Appliance Standards Working Group via webinar in March, June, October, and December. Stakeholders from across the region working in state energy offices, utilities, advisory boards, and non-profit efficiency organizations joined the quarterly webinars to discuss timely appliance standards activities. At the December meeting, much of the discussion focused on what could potentially be expected from a



new presidential administration regarding federal standards as well as emerging opportunities and a need for further engagement on state standards.

- **Participated in Federal Rulemakings and Co-Signed Comment Letters to US DOE:**
 - NEEP participated in a Technical Advocacy Group (TAG) for uninterruptible power supplies, led by ASAP, and contributed and signed onto [joint comment letters](#) submitted October 4. Projections suggest that the new standards would save 1.18 quads.
 - NEEP engaged with the portable air conditioners standards process; this product category is of interest for the Northeast as the rates for central air conditioning are lower than in hotter climates, through the summer temperatures continue to increase. As such, many households in the Northeast that had not needed air conditioning will start looking to options, including portable air conditioners that are currently relatively inefficient. NEEP reviewed the Notice of Proposed Rulemaking (NPR) in August and signed onto a [joint letter of support](#) with ASAP.
 - NEEP joined fellow national advocates in coordination meetings to develop supporting documentation/positions in preparation for the residential central air-conditioners/heat pumps standards Appliance Standards and Rulemaking Federal Advisory Committee ([ASRAC](#)) Working Group meetings. NEEP's contribution included providing analysis of the financial value of increased energy efficient ratio (EER) ratings to the Northeast and Mid-Atlantic region, demonstrating a strong case for a higher standard.
 - NEEP reviewed the NPR for compressors and participated in an ASAP-led process related to this standard. NEEP signed onto a [joint comment letter to DOE](#), submitted on August 17.
 - NEEP participated in the ASAP-led TAG for commercial water heaters and provided analysis for inclusion in a [joint comment letter](#). In general, we were supportive of DOE's proposed rulemaking, through the comments raised some potential loopholes for DOE's consideration.
- **Provided Comments to California's Computer and Monitors Standard:** The California Energy Commission (CEC) has a unique ability to pass and enforce state standards. Often standards set by the CEC for California are used to inform federal or other state standards, so it can be very important to follow the CEC process to help ensure the standards passed are appropriate for the Northeast and Mid-Atlantic region. Specifically, this standard, which was adopted in late 2016, represents a very significant savings opportunity for states in our region to adopt as quickly as 2017 or 2018. Throughout 2016, NEEP tracked the standard for computers, computer monitors, and signage displays and participated in ASAP teleconferences and efforts focused on this rule. Additionally, NEEP submitted public comments in [May](#) and again in [October](#) expressing support for the proposed standards and highlighting the potential for loopholes, which were tightened in the final rule.
- **Engaged in the Residential Gas Furnace Standards Process:** US DOE released their long awaited Supplemental Notice of Proposed Rulemaking (SNOPR) for furnaces. Furnace efficiency is a major energy efficiency opportunity, especially for the Northeast and Mid-Atlantic. NEEP staff reviewed the SNOPR, participated in several ASAP-led TAG teleconferences, and participated remotely in the October 20 DOE Public Meeting. The proposed gas furnace standards present a larger challenge for southern climates than for those in the North; as such, NEEP reached out to southern REEOs SPEER,



SEEA, and SWEEP to help mobilize widespread support of the standard. In the end, NEEP was able to encourage seven organization to sign onto a [letter of support](#) for the standard, which NEEP submitted to DOE on November 22. NEEP also [co-signed a letter of support](#) with ASAP.

- **Provided Technical Support for State Appliance Standards Activities:** In Rhode Island, NEEP engaged deeply with several key stakeholders to inform efforts to adopt minimum efficiency standards. During the first half of 2016, NEEP coordinated communication between Representative Arthur Handy, National Grid staff involved in their codes and standards initiative, and Rhode Island’s Office of Energy Resources. Staff provided guidance on the mechanics of state administration of state standards and [written comment](#) to House Bill 7700 that included an energy savings impact analysis. During the second half of the year, NEEP provided direct technical assistance to the Rhode Island OER, who is considering further prospects for appliance standards in 2017.



Tracking Efficiency Policies & Results

Keep stakeholders abreast of best practices in public policy to drive energy efficiency by tracking, comparing, and making accessible state efficiency policies, their implementation, and results, and by highlighting key trends and issues.

Regional Evaluation, Measurement and Verification Forum

- **US DOE Awarded a State Energy Program Grant to CT DEEP, NEEP, LBNL, and State Partners for Cutting-Edge Three-Year Research Project on Advanced Analytics as an EM&V Resource:** This project involves pilot projects and development of regulatory guidance and draft protocols. It builds on ongoing research by NEEP and on the information shared in the September workshop, annual public meeting, and June 23 webinar discussed below.
- **Hosted the 2016 EM&V Forum Annual Public Meeting (APM):** Nearly 100 evaluators, regulators, program administrators, and other interested stakeholders from across the NEEP region gathered for the [Regional EM&V Forum Annual Public Meeting](#) in North Haven, Conn. NEEP, along with Forum leadership, brought together stakeholders to discuss implications of an emerging world of integrated distributed energy resources, how utilities can prepare for and incorporate M&V 2.0 into their EM&V practices, and developments in national EM&V standards. Prior to the APM, in coordination with US DOE and LBNL, a group of around 50 industry experts gathered for a [workshop on EM&V 2.0](#). This group discussed and reviewed the technical details, opportunities, and challenges of using advanced data collection tools and data analytics to support EM&V for energy efficiency programs.
- **Led Joint Stakeholder [Comments](#) on US EPA’s Draft Clean Power Plan 111(d) Model Rule and EM&V Guidance:** NEEP, with ACEEE, led the effort to draft comments for broad stakeholder review, and NEEP convened and facilitated several webinars to review draft comments and build consensus on key issues. NEEP also convened EM&V Forum member teleconferences in which staff provided an overview of the EPA’s Final CPP, the proposed Federal Plan (and Model Trading Rule), draft EM&V guidance, as well as the draft/final joint EM&V comments. Involved groups included ACEEE, NRDC, NASEO, other REEOs, NWPCC, Regulatory Assistance Project, and others.
- **Successfully Completed Several Research Projects to Promote Regional Collaboration and Information Sharing on a Variety of Topics:**
 - [Net Savings research report](#): This report is actually three separate documents that cover the topic of what constitutes appropriate and consistent use of gross and net savings in an energy efficiency policy framework. This is the culmination of a multi-year effort that was preceded by two scoping papers and coordination with the development of US DOE’s Uniform Methods Project Net Savings Methods chapter. The three documents delivered include Guidance on Net and Gross Savings, a report on current and evolving trends that



- provides snapshots of cases where net and gross savings issues have recently been explored, and a synopsis of Net Savings methods and associated pros and cons.
- [Incremental Cost study](#): This report looked at 10 diverse categories of technologies – including residential, commercial, HVAC, lighting controls, water heating, refrigeration, and plug load – and is useful to a diverse audience of planners, program designers, policymakers, and evaluators. The report is also accompanied by various spreadsheets containing detailed data on the categories. The [webinar](#) on this topic walked through the background, results, and how to use the deliverables.
 - [Mid-Atlantic Technical Reference Manual Version 6.0](#): This Technical Reference Manual (TRM) is the outcome of a project conducted for the EMV Forum that was sponsored by Maryland, Delaware, and the District of Columbia. NEEP coordinated directly with the evaluation teams of sponsoring jurisdictions to ensure that the most up-to-date evaluation results were included in the resource, and that the resource was made available in time for evaluation plans. This iteration of the Mid-Atlantic TRM contains over eighty prescriptive residential and commercial/industrial electric and gas energy efficiency measures.
 - [Loadshape Catalogue and Brief Report](#): This study, produced by DNV GL, can reduce the overall cost of impact evaluation and encourage consistency and credibility of results, by making results from interval data more available. The catalog is a user-friendly spreadsheet compilation of key energy and peak demand savings parameters (e.g., hours of use and coincidence factors) from recent metering-based studies in the region. The report recommends future research based on critical review of data gaps, as well as research to address implications from new (“big data”-related) industry developments.
 - [Scoping the Certification of Energy Program Impact Evaluators](#): The purpose of this project was to assess feasibility of and identify options for the development of a certification process for energy program evaluators. The report and accompanying [Roadmap spreadsheet](#) identify key decision criteria and decision points for US DOE and related stakeholders to address if and when a certification is implemented. The study (Phase 1 of a multistage effort by DOE) was informed by background research on organizations with related certification offerings and on core skills and competencies required for energy program evaluation. The report was conducted by a team of evaluators who are leaders of the International Energy Program Evaluation Conference (IEPEC) at the request of and with support from DOE. NEEP acted as the project administrator and facilitator.
- **Successfully Hosted the Following Webinars:**
 - [Early Replacement Measure Research January 21 Webinar](#): NEEP hosted a webinar delivered by Evergreen Economics to present findings on [the Early Replacement and Persistence Findings and Recommendations study](#). The research project compared customer, installer, and utility assumptions about the remaining life of operating household furnaces, boilers, and central air conditioners. Evergreen Economics found that many utilities deem the remaining useful life (RUL) or estimate it as the difference between a deemed EUL and estimated age of the existing equipment; both approaches inaccurately reflect the actual RUL. More accurate methods for estimating RUL and cost-effectiveness of early replacements were presented.



- [*EM&V 2.0 June 23 Webinar*](#): Participants learned about how the use of more data (interval or volume), analytics, and computation at scale can help to streamline the M&V process through semi/automation ('M&V 2.0'), and how this integrates with program evaluation ('EM&V 2.0'). The webinar brought together EnergySavvy and LBNL to share their insights on the residential and commercial aspects of EM&V 2.0. Participants also benefited from learning from a case study from PSEG-Long Island.
- [*EM&V Methods June 30 Webinar*](#): Participants listened to a walkthrough on the EM&V Forum's standardized reporting forms, learned about the relevance of EM&V documentation to the National EE Registry (NEER) project, and received an update on the US DOE's Uniform Methods Project.
- [*Geotargeting and Demand Response September 8 Webinar*](#): This webinar described activities in the region on these timely topics. During the demand response portion of the webinar, the 75 attendees heard results of a review of utility- and program administrator-delivered demand response programs in the region, including policy drivers, program strategies, benefit/cost results, and the challenges and opportunities for demand response. The geotargeting portion presented findings from research by Dunsky Energy Consulting in which benefits of geotargeting to defer T&D investment were identified and described, based on a project for National Grid pertaining to meeting capacity needs on Nantucket Island. The study described a variety of types of benefits that could also be relevant beyond geotargeted projects.
- [*Net Savings May 26 Webinar*](#): The webinar summarized the regulatory guidance and information resources contained in the Net Savings research project (described above) and the results, including an in-depth explanation of the decision framework.

Regional Energy Efficiency Database

- **Conducted a Survey of Regional Energy Efficiency Database (REED) Users**: The purpose of this survey was to help NEEP better understand the scope of its users, how REED is used, and to solicit feedback on how to improve the database and supporting information. The information collected will be used to guide REED's development going forward.
- **REED Included in a Presentation at the Energy Information Administration's Annual Conference**: REED was featured in a session on Measuring Energy Efficiency: Opportunities from Standardization and Common Metrics. In this session, Elizabeth Titus, NEEP's Director of Research & Evaluation, [discussed](#) how REED uses standardized metrics to compare energy efficiency program results across the Northeast and Mid-Atlantic states.
- **2017 Funding Expected from EIA Will Enable Future Development of REED**: Plans for continued development of REED to support regional and national information needs have been drafted.
- **New REED Resource Developed**: [REED Renderings](#), a series of blogs, were developed to bring attention to interesting trends seen in REED data and the stories behind those trends. The issues focus on current events within the energy efficiency landscape. To date, there have been three issues published on the following topics: [peak demand](#), [PJM Auction results](#), and [program year 2015 sneak peek](#).



- **Leveraged REED Data in Development of the [Energy Efficiency Snapshot](#):** The Energy Efficiency Snapshot is intended provide policymakers, regulators, efficiency proponents, program administrators, and other stakeholders an easily accessible comparative snapshot of energy efficiency policies and programs across the Northeast and Mid-Atlantic region.
- **Peregrine Energy Group Completed Several Upgrades to REED:** These updates included minor data collection form corrections, a server upgrade, adding a ‘Reports’ tab to the drop-down menu, cosmetic updates, and corrected units on a graph.
- **A User ID Function Was Established:** With over 10,000 user sessions in REED since its launch, NEEP has only been able to identify users by state using Google Analytics. In order to better understand the range of users and respective interests in REED, NEEP added an identification wall on the REED landing page, whereby prior to gaining access to the database, users must enter their name, e-mail, organization, and title. Gathering this information will help inform future REED functional developments.

Public Policy Trends Analyses, Reports and Education

- Tracking trends in state energy efficiency investment and savings remains a mainstay of our work, as do our electronic communication resources including the [NEEP blog](#), [The Policy Tracker](#), and [Highlights](#). Among our popular blog entries in 2016 were:

Top Ten NEEP Policy Blogs by Page Views in 2016	Views in 2016	Date Published
A “Yuge” Deal in NY: Con Edison Settlement Agreement Signals Move Toward Funding EE in the Rates	548	10/26/16
Ten Important Details You May Not Know About the New York REV Proceeding	526	8/3/16
Vermont Embarks on Landmark Strategic Electrification Program	453	12/13/15
Striving for a Zero Net Energy Home: The Results are In!	450	7/21/16
What Con Edison’s BQDM Project Reveals About Geo-Targeting	277	7/09/15
Reading the Tea Leaves in Rhode Island’s 2017 Energy Efficiency Plan	271	12/7/16
Scaling the Peak: How EE Programs Can Leverage the Growing Value of Peak Demand	191	5/19/16
Next Generation Energy Efficiency: What Can Policymakers Do to Keep States at the Forefront?	178	3/16/16
A Look Inside the Region’s Latest Non-Wires Alternative Projects and Policies	164	12/7/16
Can Maryland Hold the Line on its Commitments to Energy Efficiency?	158	5/26/16

- **Promoted Next Generation Energy Efficiency:** 2016 marked the sixth annual edition of the [Regional Roundup of Energy Efficiency Policy](#), a report that captured the important regional trends in Next Generation Energy Efficiency, and served as a roadmap for NEEP’s policy and program work throughout the year. NEEP continued its dissemination during personal meetings, through public comments, in web links and related blog entries, and by mailing hard copies to key individuals in the



states. The 2016 [Regional Roundup's landing page](#) has received more than 1,070 views since publication.

- **Tracked Trends in State Energy Efficiency Investment and Savings:** We published our semi-annual [Energy Efficiency Snapshot](#), which includes trends in efficiency program savings and spending at the state, portfolio, and program level. Tracking and analysis have been a mainstay of our work, and include our electronic communication resources including the [NEEP blog](#), [Twitter](#), [Highlights](#), and the [Policy Snapshot](#). NEEP has been proud to please valuable insights to [our Allies](#) through periodic briefing calls and email correspondence.
- **Provided Technical Assistance and Shared Best Practices:** Throughout the year, NEEP prepared Issues Briefs on and provided assistance to states, including [NY REV Track II Order](#), [Policies Driving Air Source Heat Pump Expansion](#), [VT PSB Docket 8550](#), and [Best Practices in Designing Industrial Energy Efficiency Programs for Delaware](#). NEEP provided input in the following state & regional proceedings:
 - [R.I. Changing Distribution System](#)
 - [Pa. PUC Alternative Ratemaking](#)
 - [ISO-NE 2016 EE Forecast](#)
 - [Maryland EmPOWER Programs Semi-Annual Hearing](#)
 - [New York Clean Energy Standard](#)
 - [Delaware's Draft EM&V Regulations](#)
 - [Connecticut 2017 Update to Conservation & Load Management Plan](#)
 - [Connecticut Comprehensive Energy Strategy](#)
 - [New Jersey Comprehensive Resource Analysis Straw Proposal](#)

All of these comments and other resources can be found on the [State Pages](#) of our website.

- **Served as a Resource to Policymakers:** NEEP was called upon many times by state officials looking for briefings and technical assistance. In 2016, these included: a [presentation](#) to the Delaware Energy Efficiency Advisory Council, a legislative briefing in Massachusetts, educating the newly-appointed New Hampshire Consumer Advocate, and assisting the Rhode Island Office of Energy Resources with options to advance policy priorities.
- **Provided Thought Leadership in and Beyond the Energy Efficiency Community:** NEEP staff spoke at numerous national conferences and online workshops including the following:
 - Brian Buckley, NEEP's Public Policy Manager, presented at the Better Buildings by Design conference in Vermont on February 4, where he convened a [panel](#) on complementary financing programs.
 - Natalie Treat, NEEP's Interim Development Manager and former Public Policy Senior Manager, spoke on Next Generation Energy Efficiency at the State Government Network of the [American Institute of Architects on July 12](#).
 - Brian Buckley presented on the topic of Integrating Energy Efficiency and Demand Response at the [ACEEE Summer Study on August 18](#); to the Connecticut [Department of Energy and Environmental Protection on October 27](#); on a webinar presented by the [National](#)



- [Governor’s Association on September 15](#); and to NEEP’s Home Energy Management System working group on September 21.
- Jim O’Reilly, NEEP’s former Director of Public Policy, and Brian Buckley moderated and presented (respectively) at a national [webinar](#) presented on September 8 by NEEP’s EM&V Forum on “Advancing the Northeast’s Energy System with Geotargeting and Demand Response: Policy, Program and EM&V Perspectives.”
 - Brian Buckley also [presented](#) to the online “Utility Roundtable,” hosted by The Climate Group, on the topic of LED streetlighting on September 22.
 - Jim O’Reilly [presented](#) on energy efficiency policy in the Northeast and Mid-Atlantic region as part of the AESP’s national online virtual conference on “The 411 on Policy: Energy Efficiency Policy Today” on September 27.
 - Jim O’Reilly also participated in the Energy Foundation Advocates Conference in Atlanta, September 28-30, [presenting](#) on a panel on “Balancing Defense and Offense – Lessons Learned from Recent Policy Setbacks and Successes.”
 - Natalie Treat [presented](#) a Regional Review of Cost-Effectiveness Testing at the Home Performance Conference in Springfield, Mass. on October 20.
 - Brian Buckley [presented](#) on Next Generation Efficiency and opportunities for municipal power providers at a conference of the Northeast Public Power Association in Holyoke, Mass. on November 18.
- **Provided In-Person Working Group Technical Assistance in New Hampshire:** NEEP has played an integral role in New Hampshire’s [Grid Modernization Working Group](#), participating in monthly meetings and stakeholder education and consensus building. Per Order IR-15-296 of the state’s Public Utilities Commission, the group is charged with exploring options and developing recommendations on the policies and investments necessary to help New Hampshire modernize the electric grid. Recommendations are expected in early 2017.
 - **Participated in Stakeholder Advisory Meetings:** Throughout the year, staff participated in monthly stakeholder advisory meetings where such frameworks have been established, including the Mass. Energy Efficiency Advisory Council (EEAC), the Delaware Energy Efficiency Advisory Council (EEAC), the Connecticut Energy Efficiency Board (EEB), the Rhode Island Energy Efficiency and Resource Management Council (EERMC), Maryland EmPOWER Planning Group, and New York proceedings via the Clean Energy Advisory Council (CEAC).
 - **Collaborated with Partners:** NEEP collaborated with numerous allies, including the Acadia Center, Conservation Law Foundation, Natural Resources Defense Council, the Pace Energy and Climate Center, E4TheFuture, National Consumer Law Center, Interfaith Power and Light, Massachusetts Climate Action Network, Chesapeake Climate Action Network, Sierra Club, New York Clean Energy Organizations Coalition (CEOC), and many others on policy developments in states across the region. NEEP sits on the policy committee of the Northeast Clean Energy Council, NECEC’s Grid Modernization Working Group, and the Massachusetts Global Warming Solutions Project.

NEEP Events

- **NEEP’s Annual Summit and 20th Anniversary Celebration Hosted at an Historic Venue:** On June 13-14, 250 people attended the [2016 Northeast Energy Efficiency Summit](#), chaired by NH Public Utility



Commissioner Bob Scott, at the Omni Mount Washington Resort in Bretton Woods, N.H. The Summit theme – Next Generation Energy Efficiency – was explored during the two days through roundtables on June 13 and [Power Talks on June 14](#). The Summit also included a celebration of NEEP’s 20th Anniversary in addition to recognition of the 2016 Business Leaders for Energy Efficiency, and offered a special scholarship and mentoring program to introduce higher education students to the growing professional field of energy efficiency. [All presentations](#) are available on our website, and we would like to particularly [thank our 35 sponsors](#) that made this event possible.

- **Successful EM&V Forum Annual Public Meeting on EM&V 2.0 and the Changing EM&V Paradigm:**
On March 30, NEEP’s EM&V Forum, in collaboration with the US DOE, LBNL, and CT DEEP, hosted 67 attendees for a [workshop](#) to facilitate discussion among interested stakeholders on key barriers to M&V 2.0 tools to inform energy efficiency program savings estimation, and possible solutions and needs. The next day, 85 stakeholders continued the exchange on the Changing EM&V Paradigm for the [Annual Public Meeting](#).
- **Hosted Discussions on Market Transformation to Advance Next Generation Energy Efficiency:**
 - On July 21-22, [the Air Source Heat Pump Workshop](#) convened 90 stakeholders for a market assessment and discussion on barriers and opportunities in this market.
 - On September 20, the [Residential Lighting Workshop](#) hosted a series of focused discussions amongst 52 attendees on some of the most pressing issues in efficient residential lighting.
 - On September 21, the [Home Energy Management Systems Workshop](#) hosted a series of focused discussions amongst 46 attendees on some of the most pressing issues in Home Energy Management and efficiency.
 - On November 15, the [Northeast Strategic Energy Management Collaborative Workshop](#), co-organized with Efficiency Vermont, brought together 30 stakeholders to discuss the new energy savings opportunities for energy efficiency programs in the commercial and industrial sectors.
- **Hosted a Series of Trainings and Workshops to Advance High Efficiency Buildings in Our Region:**
 - On April 21, NEEP, together with the Collaborative for High Performance Schools (CHPS) and Massachusetts Facilities Administrators Association (MFAA), hosted a [high performance schools training workshop](#) with 135 attendees at Maynard High School in Maynard, Mass. to learn about NE-CHPS Version 3.1.
 - On October 21, at Rhode Island College, superintendents, school business officials, architects, engineers, facility and energy managers, and other educational stakeholders shared lessons learned and best practices for successful school improvement projects during a [High Performance School Summit](#) with almost 130 attendees.
 - NEEP and the New Hampshire Department of Education hosted a [High Performance Schools Summit](#) on November 9 at Kingswood Regional High School in Wolfeboro, N.H. One hundred attendees took the opportunity of this interactive summit to focus on exploring the multiple benefits of high performance schools.
 - On November 10, [HELIX hosted its inaugural full-day event](#) where 80 attendees learned about and helped shape the first-of-its-kind effort to automate the transfer of home energy data to Multiple Listing Services across the Northeast region.



2016 NEEP SUPPORTERS

NEEP would like to recognize and thank our 2016 funders, including our [Sponsors](#), [Allies](#), [Regional EM&V Forum funders](#), [DesignLights Consortium Members](#), and [federal and foundation funders](#). We are grateful for their support, which makes this work possible.

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