



## 2019 Quarter-Two Report

### Advanced Evaluation, Measurement & Verification

**Mission:** Projects, research, and technical assistance to advance understanding and standardization of information and approaches needed to plan, forecast and assess energy resource value and impacts.

#### Advanced EM&V, Forecasting & Planning Solutions

##### Long-Term Market Transformation Goals

- By 2025, all Northeast states adopt resource evaluation practices that reflect the full energy and non-energy impact and value of demand-side resources to meet public policy goals.
- By 2025, all Northeast states adopt program metrics and EM&V for demand-side resource programs that reflect total building energy efficiency performance as well as carbon efficiency.
- By 2025, all Northeast states use M&V 2.0 to assess demand-side resource impacts, and to optimize programs to serve customer as well as grid needs for energy reliability, flexibility and affordability.

The second quarter of 2019 was marked with significant accomplishments for projects that are facilitating dialogue related to NEEP’s long-term goals noted above, including:

- Hosted the [EM&V Annual Public Meeting](#) on May 21, 2019 where discussion focused on cost-effectiveness, tools and resources that can measure total building energy performance, and how new measurement and reporting approaches would enable tracking of states’ progress toward environmental and energy goals.
- Launched the residential M&V 2.0 pilot with the Connecticut Department of Energy and Environmental Protection (CT DEEP) and other project partners.
- Received preliminary approval of a grant proposal to the Massachusetts Clean Energy Center (MassCEC) to fund a loadshape needs assessment.
- Received updates from state partners on their EM&V and M&V 2.0 activities.
- Engaged with state partners on the Forward Capacity Market (FCM) issue and with ISO New England (ISO-NE) on a draft report regarding measurement of energy efficiency performance in all hours.
- Completed the [latest version \(V9\) of the Mid-Atlantic Technical Reference Manual \(TRM\)](#).

Progress Toward 2019 Advanced EM&V Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> Three additional Northeast states include non-energy impacts of energy efficiency in their cost-effectiveness and evaluation frameworks.</p> <p><b>Progress:</b> Regional evaluation activities included measurement of non-energy impacts in New Hampshire, and learning about the National Standard Practice Manual (NSPM) in Maryland and West Virginia – guidance that encourages inclusion of appropriate non-energy impacts along with energy impacts in a state framework.</p>				



<p><b>Outcome:</b> Five Northeast states contribute to NEEP’s development of a regional M&amp;V 2.0 best practices manual to evaluate efficiency programs, optimize efficiency programs and customer service, and support home and building energy benchmarking.</p> <p><b>Progress:</b> Stakeholders from Conn., N.H., Vt., D.C., and the New York State Energy Research and Development Authority (NYSERDA) reviewed a draft outline of NEEP’s regional M&amp;V 2.0 best practice manual. Additionally, stakeholders in R.I. convened a workshop on M&amp;V 2.0 to explore its applicability to current state evaluation practices.</p>				
<p><b>Outcome:</b> Two Northeast states adopt program metrics and EM&amp;V for demand-side resource programs that reflect total building energy efficiency performance as well as carbon efficiency.</p> <p><b>Progress:</b> New legislation in Vermont (H63) established an all-fuels program; Massachusetts included an all-fuels MMBtu metric in their 2019-2021 energy efficiency plan, which was approved by the Massachusetts Department of Public Utilities (MA DPU) in January 2019; New York has a long-term all fuel target for 2025; National Grid in N.Y. and Mass. and the Vermont Energy Investment Corporation (VEIC) discussed the plans, programs, and metrics relating to strategic electrification and/or carbon efficiency at <a href="#">2019 EM&amp;V Annual Public Meeting</a>.</p>				
<p><b>Outcome:</b> Six Northeast states participate in the prioritization of loadshape and planning/forecasting information needs for the region to address strategic electrification and advanced efficiency.</p> <p><b>Progress:</b> NEEP received preliminary approval from MassCEC for a grant to support our work on prioritization of loadshape needs. The national end use loadshape project was presented at the EM&amp;V Annual Public Meeting, which was attended by state or program administrator stakeholders from Mass., R.I., Vt., Maine, Conn., N.Y., and D.C., among others. The national project is included in the ISO-NE report on reporting energy efficiency performance in all hours and is presented as an option that is infeasible for use for that purpose at this time, as it will not be complete for several years.</p>				

### Air Source Heat Pumps and Smart Controls

**Mission:** Accelerating market adoption of high-efficiency residential and commercial air source heat pumps, smart controls and services with thermal efficiency improvements that provide deep energy savings and carbon reduction while enabling real-time load management to support efficient, reliable grid operation.



<b>Air Source Heat Pumps and Smart Controls Long-Term Market Transformation Goals</b>
<ul style="list-style-type: none"> <li>➤ By 2030, 40% of Northeast homes use high performance ASHPs for heating.</li> <li>➤ By 2030, 50% of Northeast homes are “energy smart” with at least two “energy smart” systems (HVAC, water heating, plug loads).</li> <li>➤ By 2030, 80% of Northeast homes with high performance ASHPs are retrofitted to improve thermal efficiency performance.</li> </ul>

In April, NEEP launched a new [website](#) to house our growing list of cold-climate air source heat pumps (ccASHPs). The [ccASHP specification](#) and product list has become the go-to resource for regional programs to identify and promote high performance heat pumps. In less than three months, nearly 8,000 users have visited the site. The product list is an important tool for promoting the highest performing systems, which we believe will lead to greater consumer satisfaction and confidence, and ultimately assist in growing the ASHP market toward 40% adoption by 2030.

In June, 135 stakeholders gathered in Woburn, Massachusetts to discuss market transformation strategies for ASHPs. NEEP has been hosting this [annual in-person workshop](#) since 2014 and this was our largest event yet. The workshop provides a critical opportunity for regional stakeholders to collaborate toward market transformation, and for the community to make new connections that lead to important progress for ASHPs.

<b>Progress Toward 2019 ASHPs &amp; Smart Controls Outcomes</b>	25%	50%	75%	100%
<p><b>Outcome:</b> Program and/or policies referencing NEEP’s ccASHP specification increases from seven to 10 states and provinces in the Northeast U.S. and Canada.</p> <p><b>Progress:</b> Ten programs inside and outside of the region now reference NEEP’s ccASHP specification/product list – MassCEC, Mass Save, Massachusetts Alternative Energy Portfolio Standard (Mass. APS), Eversource-NH, Efficiency Vermont, NYSERDA, PSEG Long Island, New Jersey Clean Energy Program, Efficiency Nova Scotia, Otter Tail Power Company, and Holy Cross Energy.</p>				
<p><b>Outcome:</b> NEEP’s regional market transformation strategies and resources for ASHPs are referenced or used in at least five new jurisdictions.</p> <p><b>Progress:</b> NEEP hosted a meeting in April to bring together a diverse group of leading ASHP stakeholders to explore key issues and best practice solutions for successful program implementation. At this meeting, NEEP was able to promote strategies and best practices to several new jurisdictions.</p> <p>NEEP is also facilitating an ASHP Advisory Committee to inform an integrated controls demonstration project in New York, which involves several key organizations including NYSERDA, MassCEC, Mass Save, and Efficiency Vermont.</p>				



<p><b>Outcome:</b> At least five Northeast states and 75 percent of manufacturers with products listed on NEEP’s 2019 ccASHP list reference or use NEEP’s best practice 2018 ccASHP installer guidance and/or 2019 consumer guidance to select ccASHP systems.</p> <p><b>Progress:</b> NYSERDA is now using NEEP’s ASHP guides for an in-field monitoring pilot, in addition to MassCEC, Mass Save, and Efficiency Vermont.</p>				
---	--	--	--	--

### Federal & State Appliance Efficiency Standards

**Mission:** Supporting minimum product efficiency standards that lock in long-term energy and carbon emission savings enabled by regional and national market transformation activities.

<p><b>Federal and State Appliance Efficiency Standards</b>  <b>Long-Term Market Transformation Goals</b></p> <ul style="list-style-type: none"> <li>➤ By 2022, at least four Northeast states adopt state appliance standards not covered by the federal program.</li> <li>➤ By 2025, federal appliance standards are updated to secure all cost effective energy and carbon savings and include 2019 Northeast states standards.</li> </ul>
--

State appliance standards efforts were very active in the second quarter, with a number of states considering new standards legislation through committee hearings. NEEP worked with partners to provide information and resources to support passage of these bills in Mass., Maine, R.I., Conn., and D.C. While none of bills have yet passed, several made important progress including those in Mass. and D.C., where they made it through initial committee review. NEEP will continue to work with these states to push them over the finish line in the latter half of 2019. Additionally, conversations continued with interested parties in N.Y., N.J., and Penn. to introduce bills. NEEP is also working in close partnership with the Appliance Standards Assistance Project (ASAP) to provide technical assistance to Northeast and Mid-Atlantic states as they navigate the complex world of state standards.

At the federal level, the U.S. Department of Energy’s (US DOE’s) appliance standards programs continued to see increased activity. US DOE sought comment on several potentially impactful rules, and NEEP provided comment on several dockets and worked with regional partners to provide technical support for their own letters. For details, see NEEP’s tracker for US DOE and ENERGY STAR activities online [here](#).

Progress Toward 2019 Appliance Standards Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> At least six Northeast states propose new state appliance standards in 2019.</p> <p><b>Progress:</b> Five states (Maine, Mass., R.I., Conn., and D.C.) have already proposed new state appliance standards, with several others (N.Y., N.J., Md., and/or Penn.) expected to do so later this year.</p>				



<p><b>Outcome:</b> At least two Northeast states adopt new state appliance standards in 2019.</p> <p><b>Progress:</b> No states have adopted new standards yet in 2019, though significant progress has been made as reported above.</p>				
<p><b>Outcome:</b> At least 10 Northeast states and associated stakeholders actively engage to encourage the US DOE Appliance Standards and US EPA ENERGY STAR programs to keep pace and remain active to increase product energy efficiency.</p> <p><b>Progress:</b> Several stakeholders have joined NEEP in submitting comments to US DOE and the U.S. Environmental Protection Agency (US EPA) ENERGY STAR program, as reported above.</p>				
<p><b>Outcome:</b> The general service lighting (EISA 2020) standard moves forward as intended with a 45 lumen-per-watt minimum efficiency standard in 2020.</p> <p><b>Progress:</b> NEEP is working with partners via our Appliance Standards Working Group to ensure that the EISA 2020 standard is implemented. US DOE is expected to issue a final rule on the matter, though it may not be for several more months as they received thousands of comment letters for consideration as part of their February proposal.</p>				

### Building Energy Codes, Benchmarking, and Home Energy Labeling

**Mission:** Assisting states and communities to save energy, reduce costs, decrease emissions, improve resiliency, and strengthen workforce development through best practices in building energy code adoption, enforcement, compliance benchmarking, and home energy labeling.

<p style="text-align: center;"><b>Building Energy Codes, Benchmarking, and Home Energy Labeling</b> <b>Long-Term Market Transformation Goals</b></p> <ul style="list-style-type: none"> <li>➤ By 2022, all Northeast states adopt the latest model energy code that increases energy savings.</li> <li>➤ By 2030, at least six Northeast states require zero energy for building energy codes for new and renovated homes and buildings.</li> <li>➤ By 2030, 30% of existing homes and buildings are benchmarked and retrofitted to reduce carbon emissions 50%.</li> </ul>
---

Not since 2010, and the American Reinvestment and Recovery Act (ARRA) requirement for states to adopt the 2009 building energy code, have we seen all the states in the NEEP region undertaking code adoption. Five states have adopted updated codes to date this year, and six others have proposed adoption with effective dates by year-end. The advent of eleven states in the region adopting the latest codes permits NEEP to focus on above-code and compliance initiatives, further accelerating energy and carbon reductions throughout the region. One such initiative is the [Massachusetts Achieving Zero Energy \(MAZE\) project](#), on which NEEP and partners are working to create a pathway forward for the



state to adopt zero energy building codes. This will first take the form of a zero energy stretch code and then become base code before 2025. Five states are currently in the process of adopting stretch codes that will become effective in late 2019 or early 2020.

NEEP is also providing technical assistance to Montpelier, Vermont as the city begins the stakeholder process to develop language for their residential energy efficiency ordinance. This ordinance will include a time-of-listing label that will be provided to potential homebuyers. NEEP has also provided technical assistance in Massachusetts on the residential scorecard, benchmarking, and building energy performance standards legislation by providing context on best practices and examples from other jurisdictions. Identifying opportunities for technical assistance for states and communities enables NEEP to ensure that best practices are implemented across the region and that stakeholders can learn from each other. NEEP provides opportunities for states, program administrators, and cities to share their experiences and best practices through a number of stakeholder forums. For instance, in June, the residential labeling stakeholder group was convened for an in-person meeting to advance programs and policies for voluntary and mandatory labeling programs.

Progress Toward 2019 Codes & Benchmarking Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> Six Northeast states (D.C., Del., Md., N.J., N.Y., Vt.) adopt a recent model energy code (2018 IECC).</p> <p><b>Progress:</b> Maryland has adopted the 2018 IECC, and D.C., Del., N.J., N.Y., and Vt. have proposed its adoption before year-end.</p>				
<p><b>Outcome:</b> Three Northeast states implement zero energy stretch codes (D.C., N.Y., Vt.) and three additional Northeast states adopt stretch codes (Del., Mass., N.J.).</p> <p><b>Progress:</b> In Massachusetts, the Board of Building Regulations and Standards (BBRS) has tasked its Energy Advisory Committee (EAC) with drafting a zero energy stretch code. NEEP will be providing technical assistance for that process. Additionally, D.C., N.Y., and Vt. will have new or updated stretch codes by year-end, with effective dates in late 2019 or early 2020.</p>				
<p><b>Outcome:</b> Five Northeast states invest in initiatives to achieve 90+ percent code compliance statewide (Conn., Del., Md., N.J., Penn.).</p> <p><b>Progress:</b> To date, only Connecticut and Delaware are pursuing statewide code compliance initiatives.</p>				
<p><b>Outcome:</b> Two Northeast states and cities commit to create and implement a benchmarking and labeling (e.g., ENERGY STAR for Existing Homes) policy roadmap as a building decarbonization strategy.</p> <p><b>Progress:</b> Montpelier, Vt. passed a charter change, which then passed the state legislature, allowing the city to establish a residential energy efficiency labeling ordinance to help meet its carbon reduction goals. The state of Vermont is also developing a voluntary automated energy model to create</p>				



<p>transparency in the market for residential homes. In Massachusetts, legislation has been introduced for residential labeling, benchmarking, and building energy performance standards. These bills made it out of the joint committee and continue to move through the legislative process. The state is also rolling out a home energy scorecard as part of the Mass Save energy audit. Burlington, Vt. and Philadelphia, Penn. are also considering residential labeling policies.</p>				
---	--	--	--	--

### Efficient, Resilient Community Pathways and Resources

**Mission:** Best practice guidance, peer information exchange, and technical assistance to advance resilient, energy efficient, low-carbon public buildings and communities.

<p><b>Efficient, Resilient Community Pathways and Resources</b>  <b>Long-Term Market Transformation Goals</b></p> <ul style="list-style-type: none"> <li>➤ By 2022, All Northeast states adopt policies to assist in reaching their goal to reduce building sector energy consumption 3% per year and carbon emissions 40% by 2030.</li> <li>➤ By 2025, 60% of Northeast communities reduce municipal building energy consumption by 20% or more.</li> <li>➤ By 2030, 60% of Northeast communities have programs to reduce carbon emissions 50% across their residential and commercial sectors.</li> </ul>
---

Significant community-level interest in high performance and zero energy school projects continued into the second quarter of 2019. Activities around this topic included a tour of the [Lunenburg Middle-High School](#) as part of National Healthy Schools Day, presentations to stakeholders in Connecticut and Maine, and benchmarking efforts in New Hampshire. These engagements with communities lead to resource and best practice sharing to equip decision makers with key information about high performance projects. NEEP continued advancing zero energy schools and codes through [the MAZE project](#), as well as energy efficiency efforts in small, medium, and rural communities through [the Achieving Community Efficiency \(ACE\) project](#).

Progress Toward 2019 Communities Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> Twenty-two new Northeast communities commit to energy- and carbon-reduction goals.</p> <p><b>Progress:</b> Through the ACE and MAZE projects, NEEP is involved with many communities throughout the region on policies and other initiatives related to energy- and carbon-reduction goals. Engagements are ongoing directly with small, medium, and rural communities in Maine, Connecticut, New Hampshire, Massachusetts, Rhode Island, and West Virginia. NEEP’s <a href="#">Community Action Planning for Energy Efficiency (CAPEE) tool</a> provides another opportunity for communities to engage with NEEP, US DOE, and other partners on topics related to schools, benchmarking, and zero energy.</p>				



<p><b>Outcome:</b> At least nine Northeast states have policies, plans, or programs that encourage the development of high performance and/or zero energy buildings at the local level.</p> <p><b>Progress:</b> Through the <a href="#">ACE project</a>, several state energy offices have been engaged in community-level programs that support energy efficiency efforts in municipalities in individual states. Further, NEEP is assessing exemplary statewide programs to ensure knowledge and existing resources are shared through these engagements.</p>				
<p><b>Outcome:</b> At least three Northeast states (Conn, Mass., N.Y., and/or R.I.) and ten communities implement strategic electrification policies or programs to improve efficiency and decarbonize energy use in public existing buildings.</p> <p><b>Progress:</b> Strategic electrification remains a topic of high interest at both the state and community level. NEEP is organizing a session on this topic for the annual in-person meeting of the High Performance Communities Working Group. This meeting provides a forum to share perspectives to address challenging questions related to “how” states and communities can implement successful plans and policies. Additionally, using feedback gained through this meeting, NEEP will develop a CAPEE module on strategic electrification in communities in the third quarter of 2019.</p>				

**Home Energy Labeling Information eXchange (HELIX)**

**Mission:** Making the energy efficiency of homes visible and understood at time-of-sale or rental.

<p><b>Home Energy Labeling Information eXchange (HELIX)</b>  <b>Long-Term Market Transformation Goals</b></p> <ul style="list-style-type: none"> <li>➤ By 2025, home energy information is populated in all residential real estate listings across the Northeast.</li> <li>➤ By 2025, lenders, realtors, appraisers in all Northeast states use home energy information to value residential real estate and to support investments to improve energy performance.</li> </ul>
--

In the second quarter of 2019, the [Home Energy Labeling Information eXchange \(HELIX\) project](#) team began winding down the pilot phase of the US DOE-funded project, and NEEP finalized a HELIX business to ensure a sustainable revenue model beyond this grant funding. Working with stakeholders in Vermont, HELIX is being used to develop an automated energy model based profile for Montpelier, Vt., which has passed a residential energy disclosure ordinance to use the profile at time of sale for homes. The HELIX project is also being funded by Lawrence Berkeley National Laboratory (LBNL) and US DOE to incorporate state solar photovoltaic (PV) information into HELIX and auto-populate Multiple Lister Service (MLS) databases. HELIX holds PV data from three states (Mass., Vt., and Conn.) and has successfully linked with the New England Real Estate Network (NEREN) to auto-populate that data in Vermont. NEEP has also incorporated Residential Energy Services Network (RESNET) Home Energy Rating System (HERS) data into HELIX for all states in the NEEP region. The HELIX Advisory Committee





has been engaged to share progress with the Vermont profile, the finalized business plan, and the winding down of the pilot stage of the project. Committee members were also informed of the Photovoltaic Auto-pop (PVAP) project to identify which members would like to stay engaged for that phase of HELIX. NEEP also held two HELIX trainings for states and utilities that are paying to use the HELIX database. Moving forward, NEEP will continue with PVAP and connecting with state MLS databases, as well as ongoing assistance in Montpelier, Vt. with their profile and disclosure ordinance. NEEP will also continue to engage real estate professionals on in the importance of HELIX, connect with states outside of the pilot region, and incorporate more data sources into HELIX.

Progress Toward 2019 HELIX Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> By year end, HELIX populates home energy information in 20 percent of residential real estate listings in New England and New York State.</p> <p><b>Progress:</b> HELIX now populates solar PV information in NEREN in Vermont and Massachusetts and will be rolling out certifications in September, as well as New Hampshire PV. In addition, HELIX is being used in the development of an automated energy model in Vermont to be used for Montpelier’s energy efficiency disclosure ordinance. We also continue to work with Cape Cod and Nantucket, Berkshire, Mass., the MLS Property Information Network (MLS PIN), New York State MLS, and others to integrate HELIX.</p>				
<p><b>Outcome:</b> Home energy labels in New England and New York property listings increase by 20 percent.</p> <p><b>Progress:</b> HELIX now incorporates RESNET HERS data for all states in the NEEP region. The Vermont profile being developed with HELIX will also increase labels in property listings. As MLSs integrate HELIX, this information will be auto-populated.</p>				
<p><b>Outcome:</b> HELIX has a viable, self-sustaining revenue model ready to begin in 2020.</p> <p><b>Progress:</b> The HELIX business plan was finalized, and the new revenue model is being implemented with users in Conn., Vt., R.I., and N.Y.</p>				
<p><b>Outcome:</b> HELIX is modified to accept and maintain solar data in at least four Northeast states.</p> <p><b>Progress:</b> The New Hampshire Public Utilities Commission (NH PUC) has authorized HELIX to submit a data request for solar PV data. We also began conversations in Maine about accessing solar PV data, continue to work with Vt., Mass., and Conn. on this effort, and are working with National Grid in Rhode Island.</p>				



## R&D Connector - Buildings as Grid Assets

**Mission:** Supporting the advancement of smart, energy efficient homes and buildings as flexible grid assets through shared learning and coordinated research and development.

**R&D Connector - Buildings as Grid Assets  
Long-Term Market Transformation Goal**

- By 2030, 50% of Northeast homes and buildings are “energy smart” with either two “energy smart” systems (HVAC, water heating, plug loads) or smart building management systems able to respond to grid service needs.

NEEP’s 2019 [R&D Connector](#) project aims to increase the visibility of Northeast and US DOE research and development initiatives to test, assess, and advance smart energy home and building systems to optimize grid reliability, flexibility, and resilience; catalyze new regional collaborations to develop, test, and advance smart energy home and building technologies and system integration; and to effectively align US DOE-funded research and technology development to meet regional needs. The project kicked off in April 2019 with development of a plan to capture information related to the status, drivers, challenges, and opportunities for grid-interactive efficient buildings (GEBs) in Northeast states. NEEP then identified key stakeholders that would help us to capture – as comprehensively as possible – the extent to which buildings currently serve as assets to the grid.

Progress Toward 2019 R&D Connector Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> Increase the visibility of Northeast and US DOE research and development initiatives to test, assess, and advance smart energy home and building systems to optimize grid reliability, flexibility, and resilience.</p> <p><b>Progress:</b> NEEP developed a plan to capture the current grid-interactive efficient buildings (GEBs) landscape in the Northeast. As this plan is rolled out, NEEP will learn about related technologies that are currently being developed and/or deployed. These findings will be published in a report later in the year.</p>				
<p><b>Outcome:</b> Catalyze new regional collaborations to develop, test, and advance smart energy home and building technologies and system integration.</p> <p><b>Progress:</b> NEEP identified stakeholders who will provide information on the development, testing, and advancement of smart energy home and building technologies and system integration. Understanding the current landscape of these technologies will be a first step toward creating collaborations to further their application, development, and deployment.</p>				
<p><b>Outcome:</b> Effectively align US DOE-funded research and technology development to meet regional needs.</p> <p><b>Progress:</b> This step has not yet been initiated.</p>				



## Smart Energy Homes

**Mission:** Enabling residential decarbonization by transforming homes to be efficient and flexible grid assets.

Smart Energy Homes Long-Term Market Transformation Goals
<ul style="list-style-type: none"> <li>➤ By 2022, virtually all smart products are DER-ready and can work as part of an integrated Smart Energy Home system.</li> <li>➤ By 2030, 50% of Northeast homes are “energy smart” (i.e., have at least two “energy smart” systems - HVAC, water heating, plug loads/appliances).</li> <li>➤ By 2030, 30% of existing homes and buildings are benchmarked and retrofitted to reduce carbon emissions 50%.</li> </ul>

In April, NEEP co-led a track at the 2019 [HPC National Conference](#) on smart homes and contractor training, where programs from across the region including Mass., R.I., N.Y., and Md. were featured. At the conference, NEEP also presented guidance on decarbonizing the residential sector through the smart energy home. This “Smart on Smart” series targeted the home performance contractor sector as a key stakeholder group to promote and deploy smart energy products. A motivated and informed contractor workforce should lead to much greater adoption of smart products in homes.

Progress Toward 2019 Smart Homes Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> Six more efficiency programs in the Northeast U.S. and Canada offer incentives for smart homes or smart home energy management products joining Conn., Mass., Md., N.H., N.J., N.Y., R.I., and Vt.</p> <p><b>Progress:</b> To encourage efficiency programs to offer incentives for smart home products, for the past five years NEEP has supported the smart thermostat market, convened a <a href="#">home energy management systems (HEMS)</a> working group, participated in the smart thermostat specification development process with ENERGY STAR, and shared information about opportunities in regional and national venues. Pennsylvania, Washington, D.C., Nova Scotia, New Brunswick, and Ontario have all added smart product offerings to their customers.</p>				
<p><b>Outcome:</b> Programs in five more Northeast states join Mass., Md., N.Y., R.I., and Vt. in NEEP’s regional effort to advance smart energy homes by conducting pilots, hosting innovative programs, and/or conducting research.</p> <p><b>Progress:</b> Several new states including Maine, Connecticut, Washington D.C., and New Hampshire have launched new smart energy homes pilot programs.</p>				



<p><b>Outcome:</b> Most major manufacturers of smart energy home products serving the Northeast U.S. offer DER-ready products by the end of 2019.</p>			
<p><b>Progress:</b> ENERGY STAR is working on a new specification – Smart Home Energy Management Systems (SHEMS) – and NEEP has been weighing in on the framework and draft documents to encourage support for integration with distributed energy resources (DERs), including electric vehicles (EVs) and connected water heaters. If these are included in the ENERGY STAR specification, manufacturers who want to earn ENERGY STAR will have to comply, which would go a long way toward making them DER-ready. This need was articulated in NEEP’s report, <a href="#">The Smart Energy Home: Driving Residential Building Decarbonization</a>, which provides a roadmap for manufacturers.</p>			

### Smart, Low Carbon Commercial and Industrial Solutions

**Mission:** Accelerating adoption of high efficiency technologies, practices and business models that provide integrated commercial and industrial sector solutions that increase efficiency and productivity, reduce costs and carbon emissions, and respond to grid needs.

<p><b>Smart, Low Carbon Commercial and Industrial Solutions</b> <b>Long-Term Market Transformation Goals</b></p>
<ul style="list-style-type: none"> <li>➤ By 2025, Strategic Energy Management becomes a standard business practice and is adopted by 40% of the 69,000 manufacturing plants across the region.</li> <li>➤ By 2025, Advanced Roof-top Units and VRF systems grow to 33% of the installed RTU base in all Northeast states (from 1% in 2018).</li> </ul>

NEEP continues to host the Strategic Energy Management (SEM) Collaborative, launched in early 2018, which offers stakeholders in the Northeast a pathway to achieving significant energy and carbon savings by accelerating the adoption of SEM in the industrial, commercial, and municipal sectors. Through this collaborative, SEM programs in Vt., N.Y., Mass., R.I., and Conn. have reported progress with their program offerings. While Pennsylvania does not currently have any SEM programs, the state does support SEM adoption by offering training and coaching. All of the aforementioned represents progress toward the goal of SEM becoming a standard business practice by 2025 and 40% of the 69,000 manufacturing plants across the region adopting SEM by 2025.

To support increased adoption of variable refrigerant flow (VRF) systems, NEEP hosted a webinar and in-person meetings with VEIC and the VRF Working Group. As a result of these discussion, NEEP then developed a draft report to highlight the barriers that impede adoption of VRF systems in the region, and strategies for overcoming these barriers. The report, currently under final review, will chart a clear set of strategies that NEEP will move forward with regional support to drive accelerated adoption of VRF systems in the region.



Progress Toward 2019 C&I Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> Energy efficiency programs in seven Northeast states (Conn., Mass., N.H., N.Y., Penn., R.I., Vt.) support SEM as a program measure (an increase of 50 percent).</p> <p><b>Progress:</b> Currently, energy efficiency programs is most of the targeted states noted above recognize SEM. Having received funding to revamp their SEM program, Connecticut is currently planning for their program offerings for the year ahead. Pennsylvania does not have any SEM programs, but provides guidance and training on SEM.</p>				
<p><b>Outcome:</b> Five end-users (companies/municipalities) in the region receive 50001 Ready recognition.</p> <p><b>Progress:</b> NEEP worked with contractor Cascade Energy to identify end-users who have expressed interest in becoming 50001 Ready Certified. By the end of the second quarter, three of these end-users had committed to receive 50001 Ready training and guidance from Cascade Energy and NEEP. This training will take place on August 6, 2019.</p>				
<p><b>Outcome:</b> Programs in four states fund and participate in NEEP’s R-22 Phase-out Commercial HVAC market assessment and strategy development.</p> <p><b>Progress:</b> This project is not moving forward.</p>				

### State & Local Policy Tracking and Technical Assistance

**Mission:** Tracking, analyses, reports and technical assistance to help state and local government adopt public policies that reduce building sector energy consumption 3% per year and carbon emissions 40% by 2030.

**State & Local Policy Tracking and Technical Assistance**  
**Long-Term Market Transformation Goals**

- By 2020, the Northeast region continues to lead the nation in efficient demand-side resources and carbon emission reduction and provides an inspiring model for others to follow.
- By 2020, all Northeast states have statewide programs supporting communities to achieve state carbon reduction goals.
- By 2030, all Northeast states adopt policies to reduce building sector energy consumption 3% per year and carbon emissions 40%.

NEEP released the draft Building Decarbonization Public Policy Framework for external comment and peer review. The purpose of this framework is to identify policy pathways for states and communities to achieve deep decarbonization of buildings and bring them together for a cohesive view. This resource, to be released in the third quarter, will provide a platform for technical assistance by bringing together



NEEP’s core strategy areas that set the basis for decarbonization. NEEP also provided technical assistance on various bills in Massachusetts on building energy labeling and performance standards. This information was used to inform the legislative process. NEEP continues to participate in state policy groups to identify best practices and trends, while providing technical assistance. We also publish resources such as the Policy Tracker ([May](#) and [July](#)) and [REED Rendering](#) blogs, and regularly update our online [policy tracker](#) to provide current statuses on various types of legislation throughout the region.

The strategic vision for the [Regional Energy Efficiency Database \(REED\)](#) was completed to inform future efforts with REED and what types of metrics should be considered to ensure that it remains a valuable resource and tools for users.

Progress Toward 2019 Policy Outcomes	25%	50%	75%	100%
<p><b>Outcome:</b> At least two Northeast states join leading cities to adopt roadmaps to accelerate home and building decarbonization to meet state carbon emission reduction goals (e.g., with efficient electrification of fossil heating, thermal efficiency, smart controls, demand response, building energy labeling and performance standards, and zero energy building codes).</p> <p><b>Progress:</b> Maine passed various bills including energy independence, building energy codes, an electrification study, greenhouse gas (GHG) targets for 2030 and 2050, and a Green New deal. New York passed a comprehensive climate action bill.</p>				
<p><b>Outcome:</b> At least three additional Northeast states adopt energy efficiency program metrics to reduce total energy consumption in homes and buildings.</p> <p><b>Progress:</b> New legislation in Vermont (H63) established an all-fuels program; Massachusetts included an all-fuels MMBtu metric in their 2019-2021 energy efficiency plan, which was approved by the MA DPU in January 2019; New York has a long-term all fuel target for 2025</p>				
<p><b>Outcome:</b> Ratepayer-funded efficiency programs in five Northeast states provide “all fuels” energy efficiency services to accelerate high performance, low-carbon homes and buildings aligned with state carbon emission reduction goals.</p> <p><b>Progress:</b> Ratepayer-funded efficiency programs provide all-fuels services in several states, including in Vt. (Burlington Electric 2018-2020 plan), Mass. (Joint EE plan 2019-2021), N.Y. (Joint utilities EE plan for 2021-2025), Conn. (C&amp;LM plan 2019-2021), and Maine (Triennial plan IV). Additionally, Vermont legislation H63 established an all-fuels program and Rhode Island has included an all-fuels program in their 2020 EE plan update.</p>				



<p><b>Outcome:</b> At least three Northeast states (Conn., Mass., N.Y., and/or R.I.) and ten communities implement strategic electrification policies or programs to improve efficiency and decarbonize energy use in public existing building.</p> <p><b>Progress:</b> The target of 10 communities implementing strategic electrification policies or programs was met in the first quarter of 2019. In the second quarter, Maine and New York passed legislation during the 2019 session.</p>				
--	--	--	--	--