



NEEP 2021 Quarterly Report Quarter Two



Equitable Home and Building Decarbonization Leadership Network

Summit Series 2021: Resilient Low-Carbon Community Pathways

Mission: Provide a public program of opportunities and resources that inspire, inform, drive, and support community leadership and collaboration across the region to accelerate resilient, healthy, affordable, low-carbon homes and buildings that serve especially the most vulnerable.

Summit Series 2021: Resilient Low-Carbon Community Pathways Long-Term Market Transformation Goals

By 2030:

- All Northeast states adopt 2050 carbon-neutral mandates for all homes and buildings with zero energy/carbon codes for new and renovated homes and buildings to begin by 2032.
- All Northeast states engage LMI communities to implement equitable economic development programs that improve the efficiency, resiliency, health, safety, and long-term affordability of their homes and community buildings.

Project Narrative:

As NEEP celebrates 25 years of partnerships to accelerate building energy efficiency across the region, our *Summit Sessions 2021: Reimagining & Rebuilding Communities* virtual program focuses on highlighting community-led initiatives that advance healthy, efficient, resilient homes and buildings – particularly for those who have been historically marginalized, including low- and moderate-income communities and households.

During the second quarter, we formed a program committee of external stakeholders to inform Summit design, collaborate on content, and identify speakers. With the committee’s guidance, NEEP staff finalized the format and the program, as well as confirmed speakers for the 12 sessions. In addition, we have secured nearly \$50,000 in sponsorships.

The Summit Sessions webpages and registration are now live at <https://neep.org/event/neep-summit-sessions-2021>. To uphold NEEP’s commitment to promoting diversity, equity, inclusion, and justice (DEIJ) we have added a Pay What You Can (PWYC) option for registration.



Progress Toward Summit Series 2021: Resilient Low-Carbon Community Pathways Outcomes	25%	50%	75%	100%
<p>Seven Northeast and Mid-Atlantic communities develop innovative strategies, such as zoning requirements or strategic electrification plans, to reduce community-wide carbon emissions 60 percent by 2030.</p> <p>Progress Toward Outcome: An ongoing partnership with the Urban Sustainability Directors Network (USDN) and Urban Land Institute (ULI) continued in the second quarter to host a series of workshops for communities interested in sustainable zoning initiatives. NEEP will work with this group to share best practices for working with zoning boards and the community on sustainable zoning measures that can be implemented to address building decarbonization at the local level. Currently, the series is scheduled to kick off in the third quarter.</p> <p>NEEP also launched a project with the town of Jamestown, Rhode Island to develop a zero energy plan for their community. The plan will include recommendations for electrification in buildings, homes, and vehicles.</p>				
<p>At least two more states join NY, MA, DC, and VT with laws that require carbon emission reductions aligned with IPCC climate stabilization goals to reduce carbon emissions by at least 80% by 2050.</p> <p>Progress Toward Outcome: Rhode Island signed its climate bill, The 2021 Act on Climate (SB0078/HB5445). This bill will increase the state’s targets to reduce greenhouse gas (GHG) emissions 80% by 2040 with net-zero emissions by 2050.</p>				
<p>Increased public visibility for exciting community-led initiatives that advance healthy, efficient, resilient homes and buildings – particularly for low- and moderate- income communities and households.</p> <p>Progress Toward Outcome: In the second quarter of 2021, NEEP initiatives have been included in six media stories. In addition, we launched our marketing campaign to support the Summit Series, which further highlights these themes.</p>				



Public Policy Leadership and Best Practices

Mission: Inform state and local public policy adoption, implementation, and evaluation to achieve deep building decarbonization and reduce carbon emissions at least 40 percent by 2030.

Public Policy Leadership and Best Practices Long-Term Market Transformation Goals

By 2025:

- All Northeast States adopt mandates to reduce carbon emissions 40% by 2030 and 80% by 2050, and implement statewide plans to reduce building-sector carbon emissions.
- At least five Northeast States adopt a suite of policies and programs that effectively engage homes and buildings to serve as flexible load and avoid costly transmission and distribution (T&D) additions.
- All Northeast States adopt ratepayer-funded, demand-side resource programs to improve total building energy performance including electrification to displace direct fossil fuel use, and achieve at least 3% of prior year energy sales.

By 2030:

- All Northeast States adopt a suite of policies and programs that effectively engage homes and buildings to serve as flexible load and avoid costly T&D additions.

Project Narrative:

By the end of the second quarter, 70 percent of the NEEP region's regular state legislative sessions were completed. NEEP compiled the status of numerous bills into a [legislative web tracker](#) and continues to track the movement of the regular and special legislative sessions that are ongoing. The tracker is updated weekly, and highlights are shared with NEEP's [Allies network](#) via the Allies newsletter and bi-monthly Allies webinars. NEEP follows new bills closely to identify key target areas and trends. This year, NEEP is focusing on climate goals and roadmaps, workforce development, equity, and building codes and standards. Legislative updates are consolidated and published in bi-monthly policy tracker blog posts (so far this year in [February](#), [April](#), and [June](#)). In April, an additional blog was written on notable energy efficiency policy in [West Virginia](#). In addition to the policy tracker blogs, NEEP publishes bi-monthly blogs on Evaluation, Measurement, and Verification (EM&V), beginning with the [May](#) edition. The next EM&V blog will be published in July.

NEEP provided guidance to Massachusetts and Maine in the form of comment letters. In Massachusetts, NEEP commented on the draft MassSave 2022-2024 [Three Year Energy Efficiency Plan](#). NEEP's comment letter was grounded in our expertise on heat pump market transformation practices, ensuring equitable service and access to energy efficiency programs, and EM&V practices to implement active demand reduction programs. We also sent guidance to Efficiency Maine Trust for its Triennial Plan V. This comment was in response to ten questions



presented by Efficiency Maine Trust to inform the design of Triennial Plan V. NEEP’s comments provided guidance on best practices concerning cost-benefit analysis, building energy codes and labeling, and distributed energy resources. In the third quarter, NEEP will be commenting on the draft Triennial Plan V, which was released in June.

NEEP also sits on state working groups in Maryland, Connecticut, New York, and New Jersey. NEEP’s unique regional lens allows us to weave best practices and proven, implementable solutions into our recommendations. In Maryland, NEEP is attending meetings to aid the formulation of a cost-benefit test and portfolio design for the state’s 2024 EmPower energy efficiency portfolio. In New Jersey, NEEP has been providing guidance on workforce best practices for the state as it creates its first round of statewide energy efficiency programs. In New Jersey, NEEP is also monitoring proposals for demand response and heat pump programs. NEEP attended a working group held by the Public Service Electric & Gas Company (PSE&G) to discuss the potential in June.

On May 17, 2021 NEEP held the first quarterly meeting of its Building Decarbonization Policy and Evaluation Working Group. Members were updated on policy developments in the region and NEEP’s work on cost-benefit testing, end use load profiles, and the [Regional Energy Efficiency Database \(REED\)](#). The next working group meeting will be held in August.

This year, NEEP is focusing on integrating public policy and EM&V with the goal of providing practical and achievable policy and EM&V guidance in easy-to-digest formats such as short reports and webinars. NEEP has selected three topics, one per quarter from Q2 to Q4, and is developing Policy Implementation Guides (consisting of a short report and companion webinar) focusing on each of these topics. In June, NEEP released the first Policy Implementation Guide, [Establishing a Jurisdiction-Specific Cost-Benefit Test](#), and [webinar](#). These examined best practices and emerging policies for cost-benefit testing and energy efficiency portfolio design. The webinar featured two speakers who discussed recent changes to energy efficiency programs in California: portfolio segmentation and a new metric to measure program performance. The next Policy Implementation Guide, to be released in September, will identify best practices for implementing deep energy efficiency retrofits.

In the first quarter, NEEP unveiled the [EM&V Resource Center](#). This is part of a larger website update including a new policy webpage that will be finalized in August. The EM&V Resource Center highlights key decarbonization trends and policy areas and breaks down important metrics and EM&V processes. The EM&V Resource Center (and forthcoming policy webpage) will provide a framework of EM&V and public policy best practices that work to achieve decarbonization goals. Additionally, these webpages will catalogue NEEP’s expertise on the subject by linking to other relevant NEEP projects, programs, and resources. The EM&V Resource Center and policy webpage will be integrated to demonstrate the connected nature of policy and EM&V.

NEEP completed the [Regional End Use Load Profile \(EULP\) Data Inventory and Needs Assessment](#) report and the [Regional End Use Load Profile \(EULP\) Priority Research and Data Sharing Recommendations](#). In conjunction with its regional EULP project work, NEEP is participates in the [National End Use Load Profiles for the U.S. Building Stock](#)



project conducted by the National Renewable Energy Laboratory (NREL) and Lawrence Berkeley National Laboratory (LBNL). The results of the national project will be finalized and made publicly available in fall 2021.

Progress Toward Public Policy Leadership and Best Practices Outcomes	25%	50%	75%	100%
<p>At least two more states join NY, MA, DC, and VT with laws that require carbon emission reductions aligned with IPCC climate stabilization goals to reduce carbon emissions by at least 80% by 2050.</p> <p>Progress Toward Outcome: Rhode Island signed its climate bill, The 2021 Act on Climate (SB0078/HB5445). This bill will increase the state’s targets to reduce GHG emissions 80% by 2040, with net-zero emissions by 2050.</p>				
<p>Program administrators in three states join MA in developing/delivering EE programs integrated with other DER (e.g. DR, storage).</p> <p>Progress Toward Outcome: No additional states took formal steps in the second quarter to develop/deliver energy efficiency programs integrated with distributed energy resources (DER), but NEEP is monitoring and advising the planning processes for energy efficiency programs in Maryland, Vermont, Maine, New Jersey, and Connecticut.</p>				
<p>At least one other state joins NY in examining the transition from natural gas to efficient electric heating.</p> <p>Progress Toward Outcome: On February 12, 2021, New York issued its Staff Moratorium Management Proposal and the Staff Gas System Planning Proposal. NEEP did not participate in the first round of comments but is monitoring the planning process. We hope to provide input on cost-benefit test practices and other system planning around DER.</p> <p>The Massachusetts Department of Public Utilities (MA DPU) has opened a formal investigation into the role of natural gas in the Commonwealth's transition toward its goal of net-zero GHG emissions by 2050 (Docket DPU 20-80). The local gas distribution companies will file proposals on or before March 1, 2022.</p>				



Efficient and Resilient Buildings & Communities

Efficient and Resilient Communities

Mission: Assist Northeast and Mid-Atlantic communities to equitably advance home and building energy efficiency to achieve local clean energy, climate resiliency, and economic development goals.

Efficient and Resilient Communities Long-Term Market Transformation Goals

By 2025:

- 60% of Northeast communities have reduced municipal building energy consumption by 20% or more.

By 2030:

- All Northeast states adopt 2050 carbon-neutral mandates for all homes and buildings with zero energy/carbon codes for new and renovated homes and buildings to begin by 2032.
- All Northeast states engage low- and moderate-income communities to implement equitable economic development programs that improve the efficiency, resiliency, health, safety, and long-term affordability of their homes and community buildings.

Project Narrative:

Directly assisting communities with energy efficiency initiatives is a key part of moving the region forward to achieve greenhouse gas emission reductions. Throughout the second quarter, NEEP responded to the needs of many communities by providing direct technical assistance (TA) while also cataloguing this information to develop resources within our online resource library. NEEP provides assistance to communities on energy planning, zero energy schools, commercial building benchmarking, and home energy labeling.

NEEP, with support from our regional schools stakeholders, completed an update to the [Northeast Collaborative for High Performance Schools \(NE-CHPS\) Criteria](#). This new version aligns the energy section with the 2018 International Energy Conservation Code (IECC) and provides an alternative pathway for communities seeking to achieve zero energy by incorporating the [Energy Zero \(EZ\) Code](#). Additional updates were made to the lighting section, safer schools by design section, and to the resource links throughout the document. The Criteria underwent a peer review process at the end of the second quarter and the update will be published in August 2021. A webinar is being planned for the third quarter to highlight the changes.



NEEP held a webinar for the Regional High Performance Communities Working Group on the topic of building performance standards (BPS). More information about this webinar is covered in the Low-Carbon Retrofit Solutions section of this report.

Progress Toward Efficient and Resilient Communities Outcomes	25%	50%	75%	100%
<p>Two additional states in the region join MA, NY, PA, and CT to support community-focused initiatives with state-level resources to advance clean energy, increase equitable access to energy efficiency programs and projects, and deliver workforce development opportunities.</p> <p>Progress Toward Outcome: Through the Achieving Community Efficiency (ACE) project, NEEP provides two communities in Rhode Island with assistance to develop community energy plans. We facilitate conversations between the Rhode Island Office of Energy Resources (RI OER), the local utility, and community members to collect data and provide recommendations for these plans. Additionally, NEEP facilitates partnerships between a shared energy manager in R.I. and a municipality to help this community create capital improvement plans. These two activities could act as models for other states seeking to improve the support they provide to local-level energy efficiency initiatives.</p> <p>NEEP continues with the research and development of our Regional Schools Report. The report will provide best practices for state agencies as they seek to improve upon their school construction programs to fund local school projects. The team conducted a survey and is preparing to interview stakeholders in the third quarter to ensure the report is developed with input from those that are most involved in these conversations.</p>				
<p>Seven Northeast and Mid-Atlantic communities develop innovative strategies, such as zoning requirements or strategic electrification plans, to reduce community-wide carbon emissions 60 percent by 2030.</p> <p>Progress Toward Outcome: An ongoing partnership with the Urban Sustainability Directors Network (USDN) and Urban Land Institute (ULI) continued in the second quarter to host a series of workshops for communities interested in sustainable zoning initiatives. NEEP will work with this group to share best practices for working with zoning boards and the community on sustainable zoning measures that can be</p>				



Progress Toward Efficient and Resilient Communities Outcomes	25%	50%	75%	100%
<p>implemented to address building decarbonization at the local level. Currently, the series is scheduled to kick off in the third quarter.</p> <p>NEEP also launched a project working with the town of Jamestown, Rhode Island to develop a zero energy plan for their community. The plan will include recommendations for electrification in buildings, homes, and vehicles.</p>				
<p>States and communities lead by example by increasing the number of zero energy public buildings in operation by 10 across at least 5 states.</p> <p>Progress Toward Outcome: Several communities in NEEP’s region are currently involved in projects to building new zero energy public buildings. NEEP participated and presented at an all-day workshop with the Massachusetts School Building Authority (MSBA) on the topic of zero energy schools. Over 150 participants joined this meeting to learn about the basics of zero energy schools, key technologies, funding, and the importance of operations. As a result of this engagement, NEEP is involved with two new districts to advance zero energy school projects.</p>				

Building Energy Codes and Appliance Standards

Mission: Assist states and communities to adopt and implement building energy codes, and support appliance efficiency standards aligned with public policy goals for climate stabilization and resiliency, clean affordable energy, public health and safety, and equitable economic development.

**Building Energy Codes and Appliance Standards
Long-Term Market Transformation Goals**

By 2025:

- All Northeast states have a zero energy/carbon code adoption roadmap with timelines.
- State appliance standards are adopted or updated to obtain all cost effective energy and carbon savings.

By 2030:

- All Northeast and Mid-Atlantic states adopt 2050 carbon-neutral mandates for all homes and buildings.
- All Northeast and Mid-Atlantic states adopt zero energy/carbon codes for new and renovated homes and buildings with an effective date of 2032.

**Project Narrative:*****Building Energy Codes***

NEEP convened codes collaboratives in Maine, New Hampshire, Pennsylvania, and New Jersey, and provided technical assistance and code recommendations to Massachusetts, West Virginia, New York, Rhode Island, Maine, Vermont, New Hampshire, and Pennsylvania.

We are in the process of publishing several resources – a paper on workforce best practices, a one-pager on cannabis and energy codes, a code enforcement mechanism tracker, and a paper on barriers to code adoption are forthcoming.

In Massachusetts, NEEP worked with other energy efficiency organizations and stakeholders to provide energy code information and resources. NEEP has worked with a group of building efficiency experts to draft a residential version of the Energy Zero (EZ) Code and submitted the commercial version of the EZ Code to the Massachusetts Department of Energy Resources (MA DOER) for consideration in the development of the municipal opt-in stretch code being developed by the DOER. NEEP also continued to engage with the state’s Board of Building Regulations and Standards (BBRS) and MA DOER on net-zero stretch code adoption.

In New Jersey, NEEP worked with the Rutgers Center for Green Building and the New Jersey Board of Public Utilities (NJ BPU) to convene a code collaborative comprised of diverse stakeholders from the building and energy efficiency sector. We worked with the collaborative to survey stakeholders about opportunities and barriers to code adoption and building decarbonization. NEEP has used this input to develop a roadmap to support code adoption, building decarbonization, and help put the state on a path to reach a zero-energy base code. The collaborative has also discussed various topics such as stretch codes, electrification, and grid capacity.

In Maine, NEEP worked with the Maine Uniform Building Energy Code (MUBEC) Board to support its first stretch code adoption, the 2021 IECC, and the adoption of the 2015 IECC. Both the stretch code and the 2015 model code without amendments went into effect on July 1, 2021. NEEP is engaged further in Maine through the state Energy Code Collaborative, working on outreach to communities to support stretch code adoption.

In West Virginia, NEEP was selected to serve on the State Fire Marshal's IECC Development Committee, tasked with reviewing the code and recommending provisions for adoption to the Fire Marshal. West Virginia will adopt the 2015 IECC and include options for municipalities to adopt more stringent measures voluntarily. In partnership with the Responsible Energy Codes Alliance (RECA), NEEP provided written and verbal technical assistance regarding the benefits of adopting the 2018 IECC versus the 2015 IECC. Additionally, NEEP addressed several dozen weakening amendments suggested by the West Virginia home builders association. The final outcome of several code meetings is expected to be issued by the State Fire Marshal this summer.



In Vermont, NEEP participated in working groups facilitated by Efficiency Vermont and other agencies to determine updates for the Residential Building Efficiency Standard (RBES) and Commercial Building Efficiency Standard (CBES). The working groups addressed commercial, residential, multifamily, and cross-cutting code issues such as historic preservation. We provided comments and feedback on the importance of the state continuing a path to zero energy/carbon code and the need for efficiency gains to be considered in the RBES and CBES updates.

In Pennsylvania, NEEP provided written and live technical assistance regarding potential weakening amendments in the state's adoption of the 2018 IECC. The 2018 IECC was adopted statewide with no weakening amendments.

In Connecticut, NEEP provided extensive, detailed technical assistance directly to the Connecticut Department of Energy and Environmental Protection (CT DEEP) toward the state's adoption of its first stretch energy code. Unfortunately, the legislation did not pass; advocates will seek to reintroduce the bill next session.

Darren Port, NEEP’s Senior Manager of Codes and Standards, has been appointed to the International Code Council’s 2024 International Energy Conservation Code consensus committee – a three-year appointment. Mr. Port will provide technical assistance to the ICC to ensure continued and additional energy efficiency is inherent in the 2024 IECC model code.

Appliance Standards

Legislative action on appliance standards bills continued in the second quarter. Maryland’s bill did not pass out of committee and will be reintroduced in the next session. New York’s bills were not enacted but may be taken up via rulemaking or special session later this year. Rhode Island’s bill advanced in committees. And lastly, Maine’s bill passed both houses but was held for appropriations reasons.

Negotiations with Energy Solutions toward a contract for developing the supplemental appliance standards data portal for products that do not meet California efficiency standards continued in the second quarter. NEEP developed a regional appliance standards tracker that will go live on the NEEP website in the third quarter. We also hosted two advisory committee meetings and an Appliance Standards Working Group meeting.

Progress Toward Building Energy Codes and Appliance Standards Outcomes	25%	50%	75%	100%
<p>Three additional Northeast and Mid-Atlantic States adopt zero energy stretch codes (DE, MA, NY).</p> <p>Progress Toward Outcome: Massachusetts is considering multiple zero energy codes – including NEEP’s EZ Code – with expected adoption at the end of 2021. Massachusetts passed bill S.2, which charges the MA DOER to develop an opt-in</p>				



Progress Toward Building Energy Codes and Appliance Standards Outcomes	25%	50%	75%	100%
<p>stretch code with a definition of zero energy and pathway over the next 18 months. NEEP will engage with MA DOER to ensure that the EZ Code and other zero energy pathways are considered for the opt-in stretch code. Maine has resolved to adopt the 2021 IECC with the option to use the zero energy appendices as a compliance path, effective July 1, 2021. In New York, the New York State Energy Research and Development Authority (NYSERDA) released a request for information (RFI) for the 2023 version of its stretch code, likely to be a zero-energy code, to which NEEP submitted the EZ Code for consideration. Delaware is working on updating its base code but does not have plans to adopt a stretch code this year. NEEP is facilitating a code collaborative in New Jersey focused on developing a roadmap to zero energy buildings, including a statewide zero energy stretch code. Washington, D.C. is in the process of updating its Zero Energy Appendix (stretch code).</p>				
<p>Four additional Northeast and Mid-Atlantic States adopt stretch codes (CT, DE, ME, NJ).</p> <p>Progress Toward Outcome: Connecticut legislation to adopt a stretch code in 2021 did not pass through the state legislature. Maine adopted a stretch code – the 2021 IECC, which went into effect on July 1, 2021. This code can be adopted as mandatory in municipalities throughout the state. Delaware has no plans to adopt a stretch code. NEEP convenes a codes collaborative in New Jersey to help provide the state with the next steps for code adoption, including a stretch code.</p>				
<p>Municipalities in four states (MD, WV, NH, CT) adopt zero energy building codes.</p> <p>Progress Toward Outcome: The community of Ranson, West Virginia will adopt a stretch code. In New Hampshire, the city of Keene is considering the adoption of the 2021 IECC, which includes zero energy compliance pathways. And in Maine, the city of Portland adopted the 2021 IECC.</p>				
<p>Five Northeast and Mid-Atlantic States (NH, VT, RI, PA, NJ) establish pathways to quantify statewide code compliance baseline levels to inform code compliance initiatives.</p> <p>Progress Toward Outcome: In New Jersey, NEEP serves on a technical advisory group (TAG) for a code compliance baseline study conducted by the Rutgers Center for Green Building. New Hampshire included support for a code compliance study in its 2021-2023 energy efficiency resource standard (EERS) plan, which has yet to go into</p>				



Progress Toward Building Energy Codes and Appliance Standards Outcomes	25%	50%	75%	100%
effect due to political obstacles. Pennsylvania and Rhode Island have expressed interest in conducting a new code compliance baseline study.				
<p>At least seven Northeast and Mid-Atlantic States (NY, MA, RI, CT, DC, ME, PA) adopt new state appliance standards in 2021.</p> <p>Progress Toward Outcome:</p> <ul style="list-style-type: none"> • Rhode Island - Introduced a standards bill in March to be enacted in the third quarter. • Pennsylvania - Draft bill is circulating and is expected to be introduced in the third quarter. • New Jersey - Both the Senate and Assembly passed the standards bill out of committee review; it will be taken up in the fall in a lame-duck session. • New York - Introduced a standards bill March, which failed to pass in the legislature and will be taken up in a special session or rulemaking. • Connecticut - Bill did not get voted out of committee and no further action is expected in 2021. • Maryland - Bill passed out of Senate committee but did not pass legislative action and will be reintroduced in 2022. • Washington, D.C. - Passed a standards bill in January, which became effective in March. • Massachusetts - Passed a standards bill in March. • Maine - Bill passed and will be signed by the Governor in the third quarter. 				



Low-Carbon Retrofit Solutions

Mission: Ensuring equitable access to low-carbon retrofit solutions to improve the energy efficiency of homes and buildings.

Low-Carbon Retrofit Solutions Long-Term Market Transformation Goals

By 2025:

- Building energy labels or ratings are populated in all real estate listings across the Northeast.

By 2030:

- 30 percent of existing homes and building are retrofitted to reduce carbon emissions 50 percent.

Project Narrative:

NEEP's Low-Carbon Retrofit Solutions initiative includes four building energy rating and retrofit programs: [Home Energy Labeling Information eXchange \(HELIX\)](#), [Energy Estimator](#), [Building Energy Analysis Manager \(BEAM\)](#), and [Total Energy Pathways \(TEP\)](#). These tools target specific barriers to energy efficiency and offer flexible solutions for city planners, policy makers, and building owners. Throughout the second quarter, NEEP continued to make great strides across the region in supporting state and community building energy rating and retrofit policies and programs.

HELIX/Energy Estimator

NEEP hosted the HELIX PVAP Advisory Committee in May to demo integration of data in HELIX with the Garden State multiple listing service (MLS). We also continued to provide technical assistance to states and local communities interested in using HELIX for residential energy program and disclosure ordinance tracking. In May, the Montpelier, Vermont City Council voted unanimously to approve a home energy disclosure ordinance using the Energy Estimator tool – the Vermont Home Energy Profile (VHEP). And in June, in collaboration with the Vermont utilities and Efficiency Vermont, VHEP was made available as a voluntary tool statewide. NEEP currently provides technical support to communities in Vermont, New Hampshire, Maine, Massachusetts, Connecticut, Maryland, and New Jersey.

BEAM

NEEP continues to be a leading expert on building performance standard policy development and implementation. We provide technical support to a number of communities, both large and small, who are interested in pursuing benchmarking and building performance standard policies – including in Charleston, W.V., South Portland, Maine,



and Providence, R.I., among others. Technical assistance is also provided to the Massachusetts Better Buildings Coalition on the benefits of a statewide building performance standards (BPS) policy.

Significant progress was made on the BEAM implementation platform in the second quarter, expanding the functionality and streamlining the user experience. NEEP and ClearlyEnergy initiated the onboarding process with Washington D.C. – the first community to use BEAM – and created a draft user and implementation guide to introduce new users to the tool. At least two more communities will be onboarded in the third quarter. NEEP hosted an Advisory Committee meeting with cities and states from around the country representing stakeholders with a wide range of BPS experience. We also hosted a public webinar on BPS implementation and metrics that featured two members of the Advisory Committee.

TEP

Total Energy Pathways continued to build off the successful [Zero Energy Now](#) (ZEN) program in Vermont and made progress to increase awareness and visibility in the region by hosting a regional stakeholder kick-off meeting. In this meeting, NEEP presented the project status in Vermont and provided an overview of the program elements that comprise the TEP/ZEN program model, followed by a discussion around needs and opportunities to adopt the retrofit model elsewhere in the region. Additionally, the project team concluded preliminary research on the status of residential retrofit programs in the Northeast and Mid-Atlantic region and the [Residential Retrofit Program Matrix](#) was posted the NEEP TEP webpage. NEEP provides technical assistance to New York, Delaware, Massachusetts, and Philadelphia, Penn. who are interested in following the TEP model.

Meanwhile, the Vermont Zero Energy Now Committee revisited the program policies and procedures in order to make participation in the Vermont program more accessible, as anecdotal evidence noted that some customers were burdened by the qualifications needed to participate in the program. A streamlined program pathway with prescriptive requirements was developed to be offered alongside the custom, modeled approach to facilitate more participation. Language around the two distinct pathways, particularly around incentives and procedures, will be implemented into the current ZEN website early in the third quarter. NEEP presented an overview of both program pathways (custom and prescriptive) to regional stakeholders at the kick-off meeting.

Progress Toward Low-Carbon Retrofit Solutions Outcomes	25%	50%	75	100%
<p>Thirty Vermont homes enroll in the Zero Energy Now/Total Energy Pathways program and undergo comprehensive energy retrofits to reduce energy use by >60 percent.</p> <p>Progress Toward Outcome: The Vermont Zero Energy Now Advisory Committee developed a supplemental prescriptive pathway for homes to participate in the TEP/ZEN program. With this new, more streamlined checklist approach, we anticipate</p>				



Progress Toward Low-Carbon Retrofit Solutions Outcomes	25%	50%	75	100%
<p>increased participation in the program without sacrificing the total energy savings that accompanied the custom approach. Program and incentive requirements for the two distinct pathways will be fully implemented in the third quarter.</p>				
<p>Two Northeast states and two cities adopt and implement policies to use home energy labeling and/or benchmarking as a strategy to improve energy efficiency of existing homes and buildings.</p> <p>Progress Toward Outcome: Montpelier, Vermont passed its Home Energy Information Ordinance with voluntary compliance until July 2022, at which point it will become mandatory within the city. Additionally, the state of Vermont approved a voluntary statewide labeling program. NEEP developed and delivered a training for Vermont Energy Investment Corporation (VEIC) customer support representatives to understand how to use the state’s personalized energy label, known as the Vermont Home Energy Profile, and field questions. We are working with the Vermont Association of Realtors to deliver educational sessions for realtors. HELIX was modified to allow for integration of the Massachusetts Home Energy Scorecard.</p> <p>West Virginia passed HB2667, which establishes a benchmarking and energy reduction program for state-owned buildings. The goal is to reduce energy usage by 25 percent of 2018 levels by 2030 through low-cost and no-cost efficiency measures. The City of Charleston, W.V., developed a benchmarking policy for all public buildings in the city. NEEP worked with the city’s Green Team to develop the policy language and will remain engaged as the policy moves through the City Council approval process. The first hearing for the benchmarking ordinance is likely to occur in August. This policy has the opportunity to be the first of its kind in West Virginia and will serve as a model for other communities going forward.</p> <p>NEEP continues to stay engaged with communities who are pursuing their own residential labeling initiatives including communities in New Hampshire, Connecticut, New Jersey, Massachusetts, Maine, and Vermont.</p>				
<p>Three additional states (e.g. NJ, MD, ME) use HELIX to support home energy labeling policies and programs at the state and local level.</p> <p>Progress Toward Outcome: NEEP is currently in discussions with the Southeast Energy Efficiency Alliance (SEEA) regarding HELIX offerings and how NEEP can support South Carolina’s Energy Office, who is interested in using HELIX to track and store energy</p>				



Progress Toward Low-Carbon Retrofit Solutions Outcomes	25%	50%	75	100%
<p>efficiency and renewable energy data, as well as using Energy Estimator to support a residential labeling program.</p> <p>NEEP delivered a webinar featuring a demonstration of photovoltaic data auto-populating (PVAP) in Garden State MLS using the deep-link integration pathway. The scope for NEEP’s NYSERDA Remote/Virtual Audit Challenge, a project that will use the Energy Estimator to support a virtual audit and generate a home energy profile and HELIX to store the label, was finalized.</p> <p>The HELIX team is also developing a plan for the regional energy efficiency organizations (REEOs) to collaborate and expand HELIX outreach and training efforts beyond the NEEP region. NEEP also submitted an application to be a CAP project for Harvard’s Business School, who will work with us to identify funding and marketing pathways for HELIX.</p>				
<p>Two cities adopt building performance standards as a strategy to improve energy efficiency of existing homes and buildings.</p> <p>Progress Toward Outcome: Two jurisdictions in the NEEP region made progress toward the implementation of a building performance standards. In Boston, the program was introduced to the City Council in early June as an update to its previous Building Energy Rating and Disclosure Policy. Boston provides a flexible approach for building owners that are covered by the program, but all must achieve the city’s goal of zero emissions by 2050. Montgomery County, Maryland also made strides on BPS, and their program is set for a public hearing in July after it was introduced to the council in May. If passed, county officials would then kick off a process to establish the parameters of the program – including emissions targets and considerations for underserved stakeholders.</p> <p>Progress is happening all across the country on this topic, but cities in the NEEP region are taking a leadership role when it comes to BPS. It is very encouraging to see policymakers secure input from underserved stakeholders in order to develop equitable decarbonization strategies for all.</p>				



<p>Three states (MA, NY, RI) enact existing building retrofit initiatives to drive ongoing decarbonization of all existing homes and buildings toward growing an equitable retrofit economy.</p>				
<p>Progress Toward Outcome: Massachusetts companion bills H3366/S2232 were introduced to the state legislature to establish a statewide building performance standard. NEEP provided technical assistance to the state’s Better Buildings Coalition to support this effort. In Connecticut, bill SB365 was passed, which establishes a retrofit grant program to provide funding for both energy efficiency upgrades and health and safety measures; heat pumps, electric vehicles (EVs), and solar PV are all eligible for funding through this grant.</p>				

Heating Electrification Market Transformation

Mission: Accelerating market adoption of high performance heat pumps for residential and commercial space heating and cooling.

**Heating Electrification Market Transformation
Long-Term Market Transformation Goals**

By 2025:

- 10 percent of Northeast homes and buildings use high performance heat pumps for space and water heating.

By 2030:

- 40 percent of Northeast homes and buildings use high performance heat pumps for space and water heating.

Project Narrative:

NEEP’s Heating Electrification initiative serves as a key platform for regional stakeholders to collaborate on market development activities for air source heat pumps (ASHPs) and variable refrigerant flow (VRF) systems. Both the ASHP and VRF Working Groups met in the second quarter to discuss market development strategies and progress. The meetings drew dozens of regional stakeholders.

Building off a revitalized effort early in 2021 to ensure quality installation of ASHP and VRF systems, NEEP launched a project to develop and implement a new Sizing Visualization Tool to be built into the current [NEEP ccASHP Product List](#) website platform. With support from NYSERDA, NEEP contracted with two firms to develop this tool



to assist installers and end-users to more appropriately size and select heat pump systems. This new tool is set to be implemented by the end of the third quarter.

NEEP also convened the ASHP installer best practices sub-committee in late April, with 55 participants in attendance. Following this meeting, NEEP offered to convene program administrators outside New York to discuss adoption of this training curriculum to increase the number of quality heat pump installations in cold-climate applications.

Promotion of high performance systems able to deliver efficiency in cold climates like the Northeast is crucial to building consumer confidence in ASHP technology. NEEP’s cold climate ASHP specification and product list are maintained to identify the highest performing systems. New programs inside and outside the region have adopted the NEEP [ccASHP specification](#) and [product list](#), which has increased substantially to now house over 25,000 cold-climate systems from over 90 industry-leading brands. In the second quarter, the Government of Yukon in Canada became a new program subscriber to the Heating Electrification initiative. NEEP also made significant strides to develop new specifications for VRF systems as well as packaged terminal heat pumps (PTHPs).

Lastly, NEEP disseminated the ASHP/VRF Market Transformation Progress Survey to stakeholders following the ASHP and VRF Working Group meetings. The updated survey contains sections related to COVID-19 recovery and DEIJ initiatives, as well as more streamlined methods to collect information on regional heat pump activities from 2020. This stakeholder survey is informing the ASHP and VRF Market Transformation Strategy Report, which will be published early in the third quarter.

Progress Toward Heating Electrification Market Transformation Outcomes	25%	50%	75%	100%
<p>Twenty percent increase in annual sales of high performance heat pump systems across the NEEP region.</p> <p>Progress Toward Outcome: Public policy developments reflect an increase in frequency of ambitious heat pump installation targets in the region. Massachusetts and Maine, in particular, have near-term targets for deployment of heat pump systems in buildings. When available, NEEP intends to have a final determination of 2020 sales through New York data to use in tracking 2021 adoption metrics. Final determination will not be made until the end of 2021.</p>				
<p>Five new programs join the twenty others already using NEEP’s ccASHP product list.</p> <p>Progress Toward Outcome: Twenty-three programs inside and outside of the NEEP region now reference the ccASHP specification/product list – Mass. Clean Energy Center (MassCEC), Mass. Alternative Energy Portfolio Standard, Efficiency Vermont,</p>				



Progress Toward Heating Electrification Market Transformation Outcomes	25%	50%	75%	100%
<p>National Grid – Rhode Island, PSEG Long Island, Con Edison, Central Hudson, Orange & Rockland, NYSEG, Rochester G&E, National Grid – New York, the Minnesota ASHP Collaborative, Holy Cross Energy, Northwest Energy Efficiency Alliance, Efficiency Nova Scotia, Energy Transition Québec, efficiencyPEI, Wabash Valley Power Alliance (Power Moves), Central Iowa Power Cooperative, ENERGY STAR, Xcel Energy Colorado, Natural Resources Canada, and the Government of Yukon – with the latter being a new addition in the second quarter.</p>				
<p>NEEP’s heat pump consumer and installer guides are used or referenced by ten programs in the region.</p> <p>Progress Toward Outcome: Content from NEEP’s ASHP Buying Guide is being leveraged by MassCEC’s Clean Energy Lives Here campaign, the CT Green Bank’s Smart-E Loan heat pump webpage, PSEG Long Island’s heat pump marketing materials, NYSEDA, and the Rocky Mountain Institute. The breadth of heat pump information in the consumer buying guide has proved relevant to groups in different regions.</p> <p>NYSEDA uses NEEP’s installer guides for their in-field monitoring pilot, in addition to MassCEC, Mass Save, Efficiency Vermont, and Xcel Energy, who link to the guides on their websites. Furthermore, the Northwest Energy Efficiency Alliance and the Minnesota Air Source Heat Pump Collaborative have leveraged content from NEEP’s installer guides to produce training modules and guides tailored to their own jurisdictions. Xcel Energy Colorado has also utilized content from NEEP’s installer guides for their program brochures.</p>				
<p>Initiative participants report significant progress in implementing the Regional ASHP Market Transformation Strategy and Regional VRF Market Transformation Strategy.</p> <p>Progress Toward Outcome: The 2021 ASHP Market Transformation Progress Survey was updated to facilitate more participation by stakeholders and to collect information on initiatives related to DEIJ, COVID-19 impacts, and needs/opportunities around heat pump technologies.</p> <p>Fifty-one stakeholders in the Heating Electrification Initiative responded to the survey, and the 2021 ASHP Market Transformation Progress Report will be published early in the third quarter.</p>				



Smart Energy Homes and Buildings

Mission: Enabling building-sector decarbonization by transforming homes and buildings to be efficient and flexible grid assets.

Smart Energy Homes and Buildings Long-Term Market Transformation Goals

By 2025:

- 50 percent of Northeast homes and buildings are “energy smart” with either two “energy smart” systems or smart building management systems able to respond to grid service needs.

By 2030:

- 90 percent of Northeast homes and buildings are “energy smart” (as defined above).

Project Narrative:

NEEP facilitates the regional conversation around the needs and opportunities associated with smart energy homes and buildings through its Home Energy Management Systems (HEMS) and Smart Energy Buildings Working Groups. We recently published a [Smart Energy Homes and Buildings Policy Tracker](#) that highlights a wide range of considerations important to research, develop, and deploy smart energy homes and buildings technologies. This includes legislation, regulation, and climate plans that guide and enable grid modernization, demand response, advanced metering infrastructure (AMI), rate design, and decarbonization and electrification programs and activity. NEEP also recently developed [Smart Energy Homes and Buildings Residential and Commercial Program Trackers](#) to track and report on relevant smart energy homes and buildings programs across the Northeast and Mid-Atlantic region. The residential tracker highlights demand response, smart thermostats, battery control, and water heater control residential programs in the Northeast and Mid-Atlantic region, and the commercial tracker highlights demand response, smart thermostats, battery control, water heater control, advanced metering infrastructure, microgrid, variable refrigerant flow, and building management systems commercial programs in the Northeast and Mid-Atlantic region. We are currently developing a Regional Trends Brief that will highlight policy, program, and technology trends that are expected to significantly impact the trajectory of smart energy homes and buildings in the years to come. Lastly, NEEP regularly conducts research that is relevant to this initiative, develops new strategies and tools, and provides technical assistance to programs and industry to advance the market adoption of smart energy homes and buildings technologies and programs.



Progress Toward Smart Energy Homes and Buildings Outcomes	25%	50%	75%	100%
<p>Utilities in five states in the region design or launch demonstration pilots that explore the abilities of homes and buildings to serve as flexible grid resources.</p> <p>Progress Toward Outcome: A couple of states in the NEEP region have launched demonstration pilots. In New York, NYPA announced the signing of an agreement for their new battery storage pilot, which will allow for the demonstration of a 100kW/1MWh Zinc-Air Battery Energy Storage System in Buffalo to facilitate the wider use of renewable resources. And in Maine, a 15MW pilot program to put storage into critical care facilities was announced.</p>				
<p>Six states in the region enact policies or programs that support the deployment, or engagement, of smart energy homes to provide grid services.</p> <p>Progress Toward Outcome: A couple of states enacted policies that support the deployment of smart energy homes and buildings grid service. Rhode Island’s 2021 Act on Climate Bill (signed into law in April 2021) requires the state’s Climate Change Coordinating Council to create a Climate Action Plan by 2025 and every five years thereafter. The plan must include strategies to create quality and family-sustaining clean energy jobs, as well as develop workforce programs that recruit, train, and retrain underrepresented workers. In March 2021, Massachusetts signed An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy. The Act amends the state’s Global Warming Solutions Act (GWSA) and directs state agencies to set interim economy-wide greenhouse gas emissions limits, as well as sector-based emissions sub-limits for certain sectors, every five years. The Act increases Renewable Portfolio Standard (RPS) requirements, directs the creation of a municipal opt-in energy building code, addresses environmental justice protections, and directs the procurement of an additional 2,400 megawatts of offshore wind by 2027.</p>				
<p>Six utilities/energy efficiency programs in the region identify the highest priority grid services to be enabled by smart energy homes and buildings (i.e., demand response, responsiveness to time-of-use signals, load shifting, off peak usage, frequency regulation, etc.).</p> <p>Progress Toward Outcome: All utilities and energy efficiency programs in the region have deployed grid interactive services. Based on information collected in NEEP’s Smart Energy Homes and Buildings Program Tracker, services such as demand response, rate design, and smart thermostats seem to be high priority. NEEP will look</p>				



Progress Toward Smart Energy Homes and Buildings Outcomes	25%	50%	75%	100%
more closely at this data and conduct direct stakeholder outreach to confirm which grid services individual states consider high priority.				

Strategic Energy Management

Mission: Accelerating adoption of Strategic Energy Management to continuously improve building and industrial facility energy efficiency, productivity, health, comfort and safety, while reducing costs and carbon emissions.

Strategic Energy Management Long-Term Market Transformation Goals
<p>By 2025:</p> <ul style="list-style-type: none"> ➤ All Northeast states have policies and programs to support adoption of SEM in the commercial and industrial sectors. <p>By 2030:</p> <ul style="list-style-type: none"> ➤ All Northeast states adopt 2050 carbon neutral mandates for all homes and buildings with zero energy/carbon codes for new and renovated homes and buildings to begin by 2032.

Project Narrative:

NEEP encourages strategic energy management (SEM) program adoption by the industrial, commercial, and municipal sectors in the Northeast and Mid-Atlantic. The SEM Collaborative convenes regional stakeholders on a quarterly basis to provide updates and share best practices and lessons learned regarding SEM programs. NEEP’s [SEM Program Tracker](#) was launched in early 2021 to provide information about each state’s SEM program sector, models, best practices, lessons learned, successes, and challenges. NEEP is developing a report, Strategies to Scale Adoption of SEM: Complementing Energy Efficiency Programs, due to be published in September 2021. Additionally, we keep up-to-date with new SEM strategies, tools, and technical assistance programs that advance the market adoption of SEM, and share related resources on our [SEM webpage](#).

Progress Toward Strategic Energy Management Outcomes	25%	50%	75%	100%
<p>All active SEM programs report increased customer participation in their SEM offerings compared to 2020.</p> <p>Progress Toward Outcome: SEM programs have been reporting increased customer participation since many have pivoted to online SEM offerings (which many term SEM</p>				



Progress Toward Strategic Energy Management Outcomes	25%	50%	75%	100%
<p>Lite), while others have been returning to business-as-usual following the COVID-19 pandemic. In the second quarter of 2021, Massachusetts and Rhode Island – two states that are still pursuing the SEM cohort approach – reported a return to in-person activities. Between these two states, four more workshops were facilitated to leverage lessons learned during COVID-19. Connecticut reported that they were able to claim significant savings from a large manufacturer who is now considering ISO certification. A program evaluator from the state recently completed a best practices study and an SEM evaluation, with many of the recommendations being incorporated into Connecticut’s SEM programs. Vermont reported that they are developing an SEM "Direct" service for direct engagement with individual customers who are uninterested or unable to participate in a cohort model. They are looking for ways to help prepare customers for 50001 Ready energy management systems. In New York, the SEM On Demand program has seen increased program activity; eight applications have been received and more are expected. Connecticut recently secured a U.S DOE grant to conduct an ISO 50001 Ready Navigator Cohort, and are currently in the process of prospecting manufacturers to participate.</p>				
<p>At least two additional energy efficiency program administrators offer Strategic Energy Management in their program offerings.</p> <p>Progress Toward Outcome: After the great news early in 2021 that District of Columbia Sustainable Energy Utility (DC SEU) started two SEM cohorts, NEEP was pleased to hear that in the second quarter of 2021, Pennsylvania had secured a U.S. DOE grant to conduct an ISO 50001 Ready Navigator cohort. The state is currently in the process of prospecting manufacturers to participate.</p>				
<p>A state or utility adopts one of the recommendations in the Regional Market Transformation Strategy for SEM.</p> <p>Progress Toward Outcome: Key strategies for NEEP’s Regional Market Transformation Strategy Report have been identified, and we expect to publish the in September 2021.</p>				