NEEP 2020 Quarterly Report
Quarter Three

Advanced Efficiency & Decarbonization Leadership Network

Building Decarbonization Leadership Forum

Mission: Bringing together a diverse cross-section of leaders from business, government, academic, community, and advocacy to inspire, learn, and catalyze regional-scale efforts to accelerate efficient, grid-smart low-carbon homes and buildings.

Building Decarbonization Leadership Forum Long-Term Market Transformation Goals

- By 2025 all Northeast states adopt mandates to reduce carbon emissions 40 percent by 2030 and 80 percent by 2050, and implement statewide plans to reduce building sector carbon emissions.
- By 2030 30 percent of existing homes and building are retrofitted to reduce carbon emissions 50 percent.

Project Narrative:

Since the 2020 NEEP Summit on Decarbonizing Our Communities was cancelled due to COVID-19, NEEP shifted the purpose of its Leadership Forum to focus on engaging and supporting regional leadership to address key issues around the COVID-19 crisis and energy efficiency impacts, and to examine solutions to restore and regain energy efficiency policy and program momentum. This work will identify, highlight, and help advance key solutions to restore policy and market capacities across the Northeast region to accelerate building energy efficiency and decarbonization as key strategies to meet climate stabilization goals as soon as possible.

Some of the resources and tools NEEP developed to assist stakeholders during the first phases of the COVID-19 interruption include:

- Brief: Electronic Permitting Raising Efficiency
- Webinar (as part of U.S. DOE's Building Energy Codes Seminar Series): Electronic Construction Permitting – Best Practices and Implementation
- Blog: Codes, COVID-19, Climate Change, and Catastrophe

By the end of the year, we will also have additional resources to address codes, schools, and virtual audits. This includes further development of Energy Estimator (a tool that can be used for remote labeling of homes), fact sheets and guidance for the operation of school buildings, policy guidance for states, and resources/best practices for contractors installing air source heat pumps during COVID.

NEEP has continued to track, assess, and report key COVID-19 trends, engage stakeholders around actions, recommend and build support for regional solutions, and deploy resources to respond to the disruption. For a more complete list of resources, visit our COVID-19 Resources page.

Progress Toward Building Decarbonization Leadership Forum Outcomes	25%	50%	75%	100%
At least four Northeast and Mid-Atlantic states join leading cities to adopt roadmaps to accelerate home and building decarbonization to meet state carbon emission reduction goals. **Progress Toward Outcome:** New York and Massachusetts both signed legislation establishing net-zero carbon targets by 2050 using a combination of decarbonization and carbon capture and sequestration. New York, Massachusetts, and Maine are working on decarbonization roadmaps that are set to be released within the next few years. Rhode Island and Connecticut have developed roadmaps with recommendations and strategies to achieve their states goals. Connecticut's roadmap is for their 45% by 2030 interim goal. Vermont developed an analysis of decarbonization methods to inform policymakers. These roadmaps they have yet to be formally adopted.				
At least eight Northeast and Mid-Atlantic states (CT, DC, MA, NJ, NY, PA, RI) and 10 communities implement strategic electrification policies or programs to improve efficiency and decarbonize energy use in existing public buildings. **Progress Toward Outcome:** NEEP is collaborating with a number of communities – primarily from Massachusetts, Vermont, Rhode Island, and New York – on initiatives related to strategic electrification. Most recently, work began with the Town of Barrington, Rhode Island to update their strategic energy plan. NEEP will be engaging with the town's Resilience and Energy Committee over the course of the next couple of months to ensure strategic electrification is a focal point of their new energy plan. We will launch a strategic electrification module for communities when our new CAPEE website launches in the fourth quarter. This new module will highlight actions that communities can take and provide exemplars of leading communities in strategic electrification. NEEP also has been working with communities in Massachusetts looking to use zoning as a tool for electrification. We have offered technical assistance to Belmont, Massachusetts as they consider sustainability and electrification language within a prospective overlay district in the town. In conjunction with the Rocky Mountain Institute (RMI), NEEP is also offering technical zoning assistance for communities taking part in RMI's Building Electrification Accelerator.				

Progress Toward Building Decarbonization Leadership Forum Outcomes	25%	50%	75%	100%
Twenty media stories cover NEEP's work in efficient, building decarbonization. **Progress Toward Outcome:** There were four stories related to NEEP's work in efficient, building decarbonization in the third quarter, for a total of 13 throughout 2020.				

State & Local Public Policy Tracking, Analysis, and Technical Assistance

Mission: Tracking, analyses, reports, and technical assistance to inform state and local public policy adoption, implementation, tracking, and evaluation to reduce building sector energy consumption and carbon emissions to reach carbon neutrality by 2050.

State & Local Public Policy Tracking, Analysis, and Technical Assistance
Long-Term Market Transformation Goals

- By 2025, all Northeast states adopt mandates to reduce carbon emissions 40 percent by 2030 and 80 percent by 2050, and implement statewide plans to reduce building sector carbon emissions.
- By 2025, 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 T&D additions.
- By 2025, 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 three percent 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:

The impacts of COVID-19 continue to be felt across the region. NEEP adapted its policy work in response to the pandemic to track the impacts and solutions available across the region and provide assistance to states and utilities where possible. In the third quarter, states begin to consider how to handle arrearages and how and when to remove moratoriums on utility shutoffs. Massachusetts and Maryland made headway in developing arrearage forgiveness programs.

Maryland, New Hampshire, New Jersey, Rhode Island, and Vermont are in the process of developing their next three-year energy plans in the midst of uncertainty due to COVID-19. The New Hampshire utilities submitted their 2021-2023 energy efficiency plans with increased savings targets over previous years. It is clear that states are not losing sight of climate and energy efficiency goals as critical tools in recovering from the pandemic.

NEEP provided input on the Energy Foundation's New Jersey 2021 strategy and goals, and we are engaging in similar planning processes in Pennsylvania and Maryland. We also helped write a chapter on the electricity sector in Connecticut's mitigation strategy progress report, and are in the process of submitting public comments on the buildings chapter for this report. NEEP has tracked policy developments in our legislative tracker and will produce a policy tracker blog in the next quarter. Discussions continued within the New England Power Pool (NEPOOL) relating to energy efficiency as a Forward Capacity Market resource.

NEEP concluded the Building Decarbonization Policy Framework webinar series that began in quarter two with a webinar on Evaluation, Measurement and Verification (EM&V), and are developing policy guideline documents to help communities and states implement the framework's strategies. In the third quarter, a benchmarking guide was released to highlight important considerations when developing benchmarking policies.

NEEP hosted a webinar to share perspectives about how Advanced M&V can meet multiple needs in an evolving energy industry, and to publicize final products resulting from the Advanced M&V research project in partnership with the Connecticut Department of Energy and Environmental Protection (CT DEEP). We released two blogs – The Future of Measurement and Verification with Advanced M&V and Advanced M&V Is Advancing. To wrap up this multiyear project, partners convened for a final meeting in which some shared that the project was an invaluable opportunity to enable access to data and analytics that they would not have been able to undertake on their own. Advanced M&V can help enable rapid feedback about building performance, and thus supports policies and programs on building energy use.

A paper by the National Renewable Energy Laboratory (NREL) and others, including NEEP, was presented at the 2020 ACEEE Summer Study. The paper chronicles data collection and data sharing efforts in the development of national end use load profiles, and echoes and underscores the findings and recommendations in NEEP's report on data sharing best practices. Making loadshape and other building energy data secure but accessible can help enable ISOs, states, and other entities plan for and deliver flexible demand strategies, as well as support future evaluations of building decarbonization programs.

In addition to ongoing tracking of Northeast states' plans for cost-effectiveness, and assisting in updating the database of Screening Practices (DESP), NEEP helped facilitate delivery of a public webinar by IEPEC on cost-effectiveness and distributed energy resources (DERs). This webinar shared information about the National Standard Practice Manual (NSPM) for DERs recently released by the National Energy Screening Project. This manual provides a comprehensive resource to support single and multiple DER cost-benefit analyses, and could be helpful to states preparing to update multiyear plans.

NEEP also began to collect program year 2018 energy efficiency data from states across the region for our annual update of the Regional Energy Efficiency Database (REED). The data and supporting state information will be publicly available by request on the NEEP website next quarter. We also released a REED Rendering blog on

Efficiency Program Results and Goals in the COVID-19 Era which discusses how COVID-19 is affecting energy efficiency programs' ability to meet savings targets, as well as impacting goal setting and planning processes across the region.

Progress Toward State & Local Public Policy Tracking, Analysis, and Technical Assistance Outcomes	25%	50%	75%	100%
At least one more state joins NY with laws that require carbon emission reductions aligned with IPCC climate stabilization goals. **Progress Toward Outcome:** Massachusetts released a net zero determination that requires at least 85% greenhouse gas (GHG) reduction with the remaining reductions achieved by carbon sink, including carbon capture and land use planning. Legislation to codify this into law is still waiting to go through conference committee. Maryland and Rhode Island have also introduced bills, and Vermont passed legislation that brings the GHG reduction target up to 80% by 2050.				
At least two states join MA and NY in adopting all-fuel savings targets (MMBTU) for ratepayer-funded energy efficiency programs including electrification. **Progress Toward Outcome:** Rhode Island adopted the maximum savings scenario identified in its EE market potential study, which includes an MMBtu target for delivered fuels. New Hampshire will use its 2021-2023 energy efficiency plan to evaluate energy optimization, which could lead to an MMBtu target in the future.				
Two more states join NH and RI to adopt cost-effectiveness analyses that value of all energy efficiency program benefits that align with state policy goals. **Progress Toward Outcome:** New Jersey adopted the New Jersey Cost Test, which aligns the cost effectiveness test with public policy goals and include various non-energy benefits. This test has been used in the current filing for 2021-2023 EE programs. CT DEEP continues to consider whether to adopt the state's cost test developed in 2019, which has been recommended by the GC3 Working Group.				
All states in the NEEP region require demand-side resources, including efficiency, demand response and electrification, as a first strategy to defer more costly electric and gas transmission or distribution additions. **Progress Toward Outcome:** New Hampshire has included an energy optimization pilot in its 2021-2023 energy efficiency plan that will include air source heat pumps and active demand management. Massachusetts is starting the 2022-2024 planning				

Progress Toward State & Local Public Policy Tracking, Analysis, and Technical Assistance Outcomes	25%	50%	75%	100%
process and there is an opportunity to build upon current efforts in in the state targeted at strategic electrification and demand response. Per the draft Maryland EmPOWER plan, Maryland utilities intend to establish a workshop to address next cycle goals and framing metrics to reflect carbon reduction. New Hampshire, Rhode Island, Vermont, Connecticut, and New Jersey have implemented fuel optimization and heating electrification studies that will impact planning for future three-year cycles.				

Efficient and Resilient Buildings & Communities

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

Efficient, Resilient Community Pathways and Resources Long-Term Market Transformation Goals

- By 2025, all Northeast states adopt mandates to reduce carbon emissions 40 percent by 2030 and 80 percent by 2050, and implement statewide plans to reduce building sector carbon emissions.
- By 2025, 60 percent of Northeast communities have reduced municipal building energy consumption by 20 percent or more.
- By 2030, 60 percent of Northeast communities have programs to reduce residential and commercial building carbon emissions 50 percent.
- By 2030, all Northeast states adopt utility regulatory policies and ratepayer funded demand-side resource programs that support the building sector to be carbon neutral by 2050.

Project Narrative:

Opportunities for community energy efficiency projects are as abundant as they are diverse throughout the region. NEEP has been engaged with multiple communities on topics ranging from strategic energy planning initiatives, benchmarking and labeling programs, LED streetlighting, operations and maintenance, and high performance schools and public buildings. NEEP is also engaged with state partners to ensure state governments

are leading by example and providing pathways for communities. Two key areas of focus for NEEP are on building energy performance standards and strategic electrification, as interest in these areas continues to grow. We are prioritizing efforts in these areas and improving our tools, such as CAPEE, to ensure that communities are not left behind.

Progress Toward Efficient, Resilient Community Pathways and Resources Outcomes	25%	50%	75%	100%
Forty five Northeast communities develop or advance energy plans and projects that lead to the reduction of energy consumption in public buildings by 20 percent. **Progress Toward Outcome:** NEEP is engaged with several communities on a variety of topics, underscoring the need to provide flexible guidance based on stakeholder needs. In Charleston, West Virginia, NEEP engaged stakeholders and provided model language to help create a city-wide green team. Throughout West Virginia, there is a significant lack of green teams and energy committees at the local level. This leadership by the capital city should help spur additional local "energy champions," or groups committed to energy initiatives. NEEP is partnering with the W.V. Office of Energy for a presentation in October to further engage communities on this topic. In addition to the developments in W.V., NEEP is finalizing an update to our CAPEE tool to enhance its functionality and provide new features such as a discussion forum where users can post questions to challenges they are facing.				
Five Northeast communities develop innovative strategies such as zoning requirements or strategic electrification plans to reduce carbon emissions 60 percent by 2030. **Progress Toward Outcome:** In Massachusetts, NEEP is engaged with the Rocky Mountain institute (RMI) on the Mass. Building Electrification Accelerator to provide zoning technical assistance (TA) to communities in the accelerator. We will partner with RMI to hold a zoning webinar in the fourth quarter, and will provide ongoing TA through a zoning working group and/or individualized TA to specific communities. On the resource development side, NEEP finalized a new module for CAPEE on strategic electrification to provide users with specific steps that they can take to electrify buildings in their communities. The resource also documents two leading cities that have adopted plans to improve strategic electrification to serve as models for others going forward.				

Progress Toward Efficient, Resilient Community Pathways and Resources Outcomes	25%	50%	75%	100%
At least one new state utilizes NE-CHPS as a pathway for high performance and/or zero energy schools. **Progress Toward Outcome:** As the new school year approached, there was significant interest in schools reopening in light of COVID-19. NEEP engaged with the New Hampshire High Performance Schools Working Group as well as stakeholders in Rhode Island to identify needs and opportunities for schools during this challenging time. We also conducted research, collaborated with stakeholders, and began development of fact sheets to provide schools with tangible operational strategies to improve the health and energy efficiency in their school operations. The first NE-CHPS school in New York City was completed in 2019, and NEEP worked with the project architect to develop an exemplar on the Friends Seminary School. In New Hampshire, July 1 was the deadline for the first round of school building aid applications. Schools were ranked and given priority based, in part, on their ability to meet NE-CHPS standards.				

Building Energy Codes and Benchmarking

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

Building Energy Codes and Benchmarking Long-Term Market Transformation Goals

- By 2025, at least six states adopt and support implementation of voluntary zero energy codes and require this of all state funded new construction and renovation.
- By 2030, most Northeast states adopt mandates for all buildings to be carbon neutral by 2050.
- By 2030, At least six Northeast states require zero energy for building energy codes for new and renovated homes and buildings, and have programs to make all state funded homes and buildings carbon neutral by 2050.

Project Narrative:

NEEP's technical assistance, working group meetings, and events led to state adoption of new policies and initiatives across the region. In New Hampshire, workshops, technical guidance, and input from the NEEP-facilitated N.H. Code Collaborative led the state to include a plan to develop a code attribution savings program in its next three-year energy efficiency policy plan. The attribution program is the first time New Hampshire has

included any energy code-related initiatives in its three year plan. The plan also included support for developing the state's first statewide stretch code to be completed within the next three years. In Maine, the Maine Uniform Building Energy Code (MUBEC) Board approved the adoption of the 2015 IECC, the first code update in the state since 2009. Technical guidance related to cost-effectiveness and energy savings benefits of the code presented to the MUBEC Board by NEEP aided in the adoption of the code. NEEP also provided technical assistance to Maine in developing the state's first stretch code, which may be a zero energy code and is expected by year's end. NEEP is an active contributor in the MUBEC Board meetings developing the stretch code's scope and parameters. Additionally, NEEP facilitates the Maine Energy Code Collaborative (MECC), which has provided valuable insight into the state's priorities for a stretch code. We created a zero energy code roadmap for the Code Collaborative, MUBEC Board, and Technical Advisory Group (TAG) to aid in creating the stretch code development.

NEEP launched efforts to convene code collaborative groups in Pennsylvania and New Jersey, which will meet in the fourth quarter to assist the states with code compliance initiatives. In New Jersey, NEEP met with the Board of Public Utilities (BPU) and the Rutgers Center for Green Building to convene and facilitate a statewide code collaborative to create zero energy code roadmap for the state. The collaborative will kick off in the fourth quarter, and operate into the first half of 2021.

NEEP facilitated its Regional Codes and Benchmarking Working Group quarterly meeting, which focused on energy code compliance and the intersection between energy codes and occupant health. We also published two new briefs: *Online Electronic Permitting Raising Energy Efficiency* and *Pathways to Decarbonize Existing Homes and Buildings*. Additionally, we conducted extensive research and circulated a survey on energy code compliance practices in the region, informing an upcoming brief and associated tracker on tracking code compliance trends, pathways, and infrastructure in the NEEP region to inform best practice guidance on how to measure code compliance baselines.

Vermont's 2018 IECC went into effect on September 1, 2020; six of the 13 states in the NEEP region now require the most recently published energy code, while five require the 2015 IECC – the second most recent energy code.

Massachusetts continues to consider two zero energy stretch code proposals that have been submitted to the Board of Building Regulations and Standards (BBRS). NEEP provided information and resources to the Energy Advisory Committee as they consider zero energy stretch code proposals, and we plan to resubmit updated Energy Zero Stretch Code proposals to the BBRS for consideration.

Progress Toward Building Energy Codes and Benchmarking Outcomes	25%	50%	75%	100%
The most recent energy code (2018 IECC) becomes effective or is adopted in six Northeast states (CT, D.C., ME, NH, RI, WV); three Northeast states implement zero energy stretch codes (DC, MA, NY), and four additional Northeast states adopt stretch codes (CT, DE, ME, NJ, RI). **Progress Toward Outcome:** The 2018 IECC became effective in Delaware, Maryland, Massachusetts, New Jersey, New York, and Vermont. Rhode Island is undergoing a cost-effectiveness study for its 2018 IECC adoption. Washington, D.C. adopted a zero energy appendix with its 2015 IECC adoption, which serves as a stretch code for commercial buildings. Massachusetts is considering two, soon to be three, stretch code proposals, though the state will not adopt one until the base code is adopted in the fall of 2022. Maine is strongly considering a zero energy or zero energy ready stretch code, which will be promulgated by January 1, 2021. New York and Vermont are on a path to zero energy buildings in two to three code cycles but do not yet have zero energy code proposals. State legislature suspension in Connecticut due to COVID-19 delayed work on the Connecticut base code initiative until the summer of 2021, including adoption of the 2018 IECC. Despite delays due to COVID-19, there was movement regarding stretch code development throughout the NEEP region. New Hampshire has included stretch code development support in its next three-year policy plan – the first time it has included intent to develop a statewide stretch code. Rhode Island has a stretch code and must complete updates this year, for which NEEP has provided technical assistance. A New Jersey Building Energy Code Collaborative will convene for the first time this fall as the state aims to become an energy efficiency leader with its new 2019 New Jersey Energy Master Plan commitment to building decarbonization, leading to a statewide stretch code initiative in 2021. Delaware adopted a strong 2018 IECC, making stretch code adoption unlikely. And in Connecticut, the state's stretch code initiative was delayed until the summer of 2021.				
Six Northeast states implement initiatives to achieve 100% code compliance statewide (CT, DE, ME, NH, NJ, PA). **Progress Toward Outcome:** NEEP technical assistance spurred CT DEEP to commit to developing an energy code savings attribution program in 2021. In partnership with other organizations, NEEP conducted a workshop for New Hampshire's Energy Efficiency and Sustainable Energy (EESE) Board to implement the state's first energy code compliance and attribution program, the design of which has officially been incorporated in its next three-year energy efficiency plan. Delaware is releasing RFPs				

Progress Toward Building Energy Codes and Benchmarking Outcomes	25%	50%	75%	100%
for training organizations to effectively build workforce capabilities to implement the 2018 IECC state energy code effectively. Maine is considering training initiatives to support the implementation of the 2015 IECC and the accompanying stretch code. The training includes the possible option to distribute best-practice diagrams and other useful tools, and conduct a new energy code compliance study. Collaboratives dedicated to advancing building energy codes convening for the first time in Pennsylvania and New Jersey this year will support code compliance initiatives to help them achieve 100% compliance with their respective codes.				
Two Northeast states and two cities commit to create and implement a building benchmarking a policy as a strategy to decarbonize the built environment (e.g., Providence, RI) **Progress Toward Outcome:** NEEP has collaborated closely with the City of Keene, N.H. in their strategic energy planning process. The city is acutely interested in building energy benchmarking and home energy labeling – NEEP will participate in an October event to facilitate a session on these topics. It is unlikely that either the benchmarking or labeling policies will be fully adopted this year, and although significant progress is being made these types of policies can take months or even years to fully implement. NEEP also provided assistance and resources to the state of West Virginia on their statewide benchmarking initiative as they seek to develop a comprehensive database for benchmarking data. This signals great progress in the state, where benchmarking remains a top priority. Additional engagements are ongoing with cities such as Providence, R.I., and Hartford, Conn. on benchmarking programs.				
One Northeast state and two cities implement building energy performance standards for existing buildings. **Progress Toward Outcome:** Through our recently launched Building Energy Analysis Manager (BEAM) project, NEEP is closely engaged in conversations with multiple cities and states related to building performance standards. While there are many cities nearing the adoption of a performance standard, Boston is most likely to do so this year. Through these engagements, NEEP closely monitors and captures all policy considerations that go into a performance standard to institutionalize and develop resources for future cases. These new standards for existing buildings continue to be of the utmost interest to communities across the region to reduce greenhouse gas emissions from building stocks.				

Progress Toward Building Energy Codes and Benchmarking Outcomes	25%	50%	75%	100%
Three states (MA, NY, RI) design a policy pathway to retrofit existing buildings to become 50% more efficient. **Progress Toward Outcome:** NEEP communicated the connection between COVID-19 relief and energy efficiency, noting that goals for both can be achieved via energy efficiency initiatives. We published a brief focused on existing buildings and retrofit programs to inform state efforts, as well as a brief on automated energy models for home energy assessment programs. NEEP also hosted our quarterly regional codes working group meeting, which focused on the intersection between energy codes and occupant health. The state of New York is investigating Energiesprong as a retrofit option and piloting different home energy labels to examine how they drive retrofits in existing homes. Rhode Island suspended state office activity and focused on adopting its new base code and updating its stretch code. Massachusetts is developing a roadmap this year to achieve the state's Global Warming Solutions Act goals – including policy pathways for existing homes and buildings. The Connecticut Governor's Council on Climate Change (GC3) is drafting recommendations to achieve the state's GHG reduction goals, including policy pathways to decarbonize existing buildings. NEEP began embarked on a new Total Energy Pathways project to prepare a replicable zero- or near-zero energy home retrofit solution for statewide deployment.				

HELIX and Residential Labeling

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

HELIX and Residential Labeling 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 continued to pave the way for states and communities looking to adopt or implement residential labeling programs and disclosure ordinances. We reconvened the Regional Residential Labeling Working Group to gain insights on regional labeling efforts and help working group members by making connections, discussing initiatives and updates, addressing key barriers, and promoting best practices. NEEP support states and communities by engaging with key stakeholders about effective policies and programs, conducting research and analyses of key

trends, and providing access to tools, training, and other implementation resources – including Home Energy Labeling Information eXchange (HELIX) and Energy Estimator – Powered by HELIX & ClearlyEnergy.

Six states continue to use HELIX to support state, utility, and local home energy labeling policies. The New England Real Estate Network (NEREN) multiple listing service (MLS) continues to auto-populate solar photovoltaic (PV) information for Massachusetts, New Hampshire, and Vermont. NEEP updated datasets for all Northeast and Mid-Atlantic states that include U.S. DOE Home Energy Score, LEED for Homes, National Green Building Standard, U.S. DOE Zero Energy Ready Homes, ENERGY STAR homes, RESNET HERS, EarthCraft, and local efficiency programs and labels, providing a robust starting point for states to sign on and use HELIX. We have been in discussion with RESNET to grant access to their API to provide ongoing manual sharing of requested data.

NEEP published a new report, Automated and Virtual: The Role of Energy Models in Home Energy Assessments, focused on three types of energy models and their roles in home energy assessments. States and program administrators, along with energy professionals and the real estate industry, have begun exploring new ways to understand a home's energy use. This includes creating an easy, accessible way to analyze a home's performance while considering time and costs for the homeowner, contractors, and program administrators. By utilizing Energy Estimator as a policy management tool that supports virtual audits, this will engage customers in a low-cost manner while also connecting with HELIX to collect data and create a customizable home energy label. In turn, this will increase transparency and education for homeowners and encourage efficiency improvements.

NEEP will submit a proposal for NYSERDA's Remote/Virtual Energy Audit Challenge, which is seeking to partner with developers of software tools and service providers to assist in developing viable approaches for remote and virtual residential energy audits. NEEP and ClearlyEnergy will offer a two-staged approach utilizing the Energy Estimator tool that will achieve a virtual audit, produce a home energy label, and consequently transfer this information to HELIX's repository to track trends.

Lastly, NEEP was awarded a grant from the Barr Foundation for COVID-19-related work in Massachusetts. With COVID-19 changing the dynamics of the energy efficiency industry and affecting many aspects of in-home audits, we will now be able to provide technical assistance in Massachusetts around the virtualization of home energy audits with Energy Estimator. By providing a cost-effective and more efficient way to understand home energy use, Energy Estimator can increase participation in efficiency programs and further drive emissions reductions.

Progress Toward HELIX and Residential Labeling Outcomes	25%	50%	75%	100%
Six additional Multiple Listing Services (MLS) populate home energy information in 20 percent of their monthly residential real estate listings. **Progress Toward Outcome:** NEEP and FBS – a leader in MLS technology innovation including the mobile MLS platform Flexmls – are close to finalizing a data sharing				

Progress Toward HELIX and Residential Labeling Outcomes	25%	50%	75%	100%
agreement to integrate HELIX. Installations will first be made available to Cape Cod & the Islands MLS, Nantucket MLS, Martha's Vineyard MLS, Berkshire County MLS, Maine Listings, and Monmouth Ocean Regional REALTORS. To support this, Flexmls has begun to pull over 200,000 records to examine both the API and deep linking route option for HELIX integration. CoreLogic and the statewide MLS in Rhode Island are also in the final stages of a data sharing agreement for HELIX integration. Once finalized and integrated, NEEP will begin conversations with CoreLogic to integrate the next group of interested MLSs. The MLS Property Information Network (MLS PIN) has successfully implemented PowerProduction fields into their system for solar PV, and the NEEP-ClearlyEnergy team will provide resources and support to MLS PIN's Technology Taskforce at a meeting in November to discuss HELIX integration.				
Two Northeast states (e.g., MA and VT) and two cities (e.g., Newton, MA; Philadelphia, PA; Burlington, VT) adopt and implement policies to use home energy labeling as a strategy to improve existing home energy efficiency. **Progress Toward Outcome:** NEEP provided support and technical assistance for Vermont's statewide residential labeling initiative and the city of Montpelier's Home Energy Information Ordinance. The city of Montpelier plans to introduce the ordinance in the fourth quarter, and it is slated to go into effect in January 2021. NEEP hosted a webinar for the Regional Residential Labeling Working Group to share updates from across the region. Connecticut is interested in utilizing Home Energy Score well into the future, as well as continue labeling efforts and use of HELIX. The state currently has a bill in the original 2020 legislative section focused on energy labeling and cost disclosure in the real estate transaction market. NEEP will provide comments to Connecticut's GC3 on residential labeling and HELIX/Energy Estimator use. NEEP also began conversations with Berkeley, California and Montgomery County, Maryland to engage with their labeling and benchmarking efforts.				
Eight Northeast States provide and use solar PV data for properties listed in the HELIX database. **Progress Toward Outcome:** NEEP continued to retrieve and update solar PV data for HELIX from Massachusetts, Connecticut, New Hampshire, Vermont, Washington, D.C., and will soon begin this process in Rhode Island after finalization of a data sharing				

Progress Toward HELIX and Residential Labeling Outcomes	25%	50%	75%	100%
agreement with National Grid. We are also looking at opportunities to collect data in the Mid-Atlantic region and beyond, e.g., in California, Colorado, and Georgia.				

Smart, Efficient Low Carbon Building Energy Solutions

High Performance Air Source Heat Pumps

Mission: Accelerating market adoption of high-efficiency residential and commercial air source heat pumps, smart controls and services that provide deep energy savings and carbon reduction.

High Performance Air Source Heat Pumps Long-Term Market Transformation Goals

- By 2025, 10 percent of Northeast homes use high performance ASHPs for heating and 33 percent of installed roof top units are advanced or VRF systems.
- By 2030, 40 percent of Northeast homes use high performance ASHPs for heating.

Project Narrative:

NEEP convened 62 members of our High Performance Air Source Heat Pumps (ASHP) Working Group convened in July. At this gathering, NEEP staff presented results from the ASHP Market Transformation Progress Report, which outlines progress made toward seven key market strategies from Q1 2019 – Q1 2020. Several program administrators provided remarks regarding the impact of COVID-19, and expressed plans to stay on track to meeting 2020 targets despite anticipated challenges. While this turn in perceived impact is optimistic, a more holistic assessment of COVID-19's impact on heat pump adoption still needs to be completed. Managers or variable refrigerant flow (VRF) programs reported that COVID-19 presented many challenges as well as opportunities; they have seen increased potential for incentives on existing equipment and expansion of eligible equipment, and have found that market actors have been able to focus more effort on leveraging programs.

One of NEEP's most utilized resources is the cold-climate air source heat pump (ccASHP) product list, which now houses over 8,200 cold-climate systems. Throughout the third quarter and summer months, NEEP's ccASHP product list and specification received consistent attention and use, particularly by programs seeking to create

new incentives around cold-climate heat pumps for residential customers. Wabash Power Valley Alliance's EE program, Power Moves, and efficiencyPEI (Prince Edward Island) became new subscribers of the initiative, in part to support rollout of their rebate programs.

Lastly, NEEP's online repository of ASHP/VRF resources, which includes various resources and reports covering cost and performance of ASHP and VRFs, went live. A number of reports covering ASHP and VRF's role in the larger context of strategic electrification are included in the repository.

Progress Toward High Performance Air Source Heat Pumps Outcomes	25%	50%	75%	100%
Twenty percent increase in the adoption of program-rebated ASHP and VRF systems across the Northeast. **Progress Toward Outcome:** ASHP program administrators reported an apparent comeback in heat pump installations in the third quarter, despite the anticipated impact from COVID-19. Final determination on the number of adoptions will not be complete until the end of the year.				
NEEP's ccASHP product list is used by five new programs joining fifteen others using the list in 2019. **Progress Toward Outcome:** Eighteen 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, National Grid-RI, PSEG Long Island, Con Edison, Central Hudson, Orange & Rockland, NYSEG, Rochester G&E, National Grid-NY, the Minnesota ASHP Collaborative, Holy Cross Energy, Northwest Energy Efficiency Alliance, Efficiency Nova Scotia, Energy Transition Québec, efficiencyPEI, and Wabash Valley Power Alliance (Power Moves), with the latter two being new additions.				
NEEP's consumer and installer guides are used or referenced by six programs in the region. **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, planned PSEG Long Island's heat pump marketing materials, and planned Corn Belt Power Cooperative's newsletters. NYSERDA uses NEEP's installer guides for their in-field monitoring pilot, in addition to MassCEC, Mass Save, and Efficiency Vermont, who link to the guides on their websites. Furthermore, Northwest Energy Efficiency Alliance and the Minnesota Center for				

Progress Toward High Performance Air Source Heat Pumps Outcomes	25%	50%	75%	100%
Energy and Environment have leveraged content from NEEP's installer guides to produce training modules and guides tailored to their own jurisdictions.				
ASHP Initiative participants report significant progress in implementing the 2016 ASHP Market Transformation Strategy. **Progress Toward Outcome:** NEEP published an ASHP Market Transformation Progress Report using survey data collected from 24 members of the High Performance ASHP Working Group. Respondents reported "noticeable progress" or greater across all market strategy areas, while also noting the need for further attention in each of the strategy areas. NEEP will use these findings to guide our 2021 ASHP/VRF activities, and seeks to report "significant progress" upon redistribution of this survey before refining the strategic direction of the initiative going forward.				

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."
- By 2030, 30 percent of existing homes and building are retrofitted to reduce carbon emissions 50 percent.

Project Narrative:

NEEP worked toward our smart energy homes and buildings market transformation goals by encouraging and supporting the realization of smart energy homes and buildings across the region. This work is done primarily through our Home Energy Management Systems (HEMS) Working Group and Smart Energy Buildings Working Group. NEEP hosted a Smart Energy Homes and Buildings Virtual Workshop in August focused on two key areas: the current state of smart energy homes and buildings, and advancing smart energy homes and buildings in the Northeast. The workshop covered technologies, policies, and regional coordination necessary to accelerate the realization of smart energy homes and buildings across the region, and mapped out current and future opportunities that will get us there.

Progress Toward Smart Energy Homes and Buildings Outcomes	25%	50%	75%	100%
All Northeast States offer smart energy home and building programs that optimize building energy performance and enable buildings to serve as flexible grid resources. **Progress Toward Outcome:** NEEP's HEMS Working Group and Northeast Smart Energy Buildings Working Group support efforts to encourage and capture home and building programs that optimize building energy performance and enable buildings to serve as flexible grid resources. Although we have seen an increasing focus on interoperability and expansion of integrated systems for resiliency, smart thermostat programs (on the residential side) and demand response programs continue to be the most popular across the region. NEEP seeks to broaden smart energy homes and building offerings to capture additional end uses and capabilities.				
Six regional utilities/energy efficiency programs 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.). **Progress Toward Outcome:** All Northeast states currently have programs that offer grid services that can be enabled by smart energy homes and/or buildings. Much of this was captured in NEEP's Grid Interactive Efficient Buildings (GEBs) Tri-Region Report. Steps are currently being taken toward comprehensively capturing the prioritized grid services through research and surveys that solicit information from the HEMS and Northeast Smart Energy Buildings Working Groups.				
A multi-state project in the Northeast advances to assess the in-field performance of smart energy homes and buildings (with a focus on HVAC and water heating). **Progress Toward Outcome:** Subsequent to the issuing of both an NOI and RFI for a "Connected Communities" GEBs-related project, NEEP has been actively working to ensuring that a regional project is selected by U.S. DOE to advance this work.				

Strategic Energy Management

Mission: Accelerating adoption of strategic energy management as a means of providing integrated commercial and industrial sector solutions that increase efficiency and productivity, reduce costs and carbon emissions, and respond to grid needs.

Strategic Energy Management Long-Term Market Transformation Goals

- By 2025, Strategic Energy Management is adopted by 40 percent of the 69,000 manufacturing plants across the region.
- By 2030, Strategic Energy Management is adopted by 80 percent of the 69,000 manufacturing plants across the region.
- By 2030, 90 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.

Project Narrative:

Adoption of Strategic Energy Management (SEM) programs by Northeast states in the industrial, commercial, and municipal sectors is encouraged through NEEP's SEM Collaborative. Many states, including New York, Connecticut, and Vermont, noted that restrictions due to COVID-19 continue to impact their SEM recruitment, cohort workshops, and treasure hunts. Most states have shifted to virtual cohort delivery, but several have been temporarily put on hold pending resolution of issues related to COVID-19. New York is currently working toward including 50001 Ready as part of their virtual cohort delivery.

Progress Toward Strategic Energy Management Outcomes	25%	50%	75%	100%
NEEP's SEM Working Group engages stakeholders from all 13 NEEP states and all major stakeholder groups are represented (EE programs, state/local policymakers, SEM service providers, advocates). **Progress Toward Outcome:** All states in the NEEP region and major stakeholder groups are invited to participate in our SEM Collaborative meetings. While there was good stakeholder participation in the Collaborative's third-quarter meeting, we would like to see greater attendance and are exploring how to encourage individual stakeholder participation in these meetings.				
Energy efficiency programs in seven Northeast states (CT, MA, NH, NY, PA, RI, VT) support SEM as a program measure. **Progress Toward Outcome:** Energy efficiency programs in Connecticut, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont continued to recognize SEM. New York reported that they had started recruiting for their fourth industrial cohort ahead of COVID-19 but have paused recruitment for new cohorts for the time being; the state is also developing their "self-serve" option to deliver SEM virtually to new participants. Vermont reported that participation in their water/wastewater and college SEM cohorts continue to be high; they are also				

Progress Toward Strategic Energy Management Outcomes	25%	50%	75%	100%
considering the implementation of independent SEM models. Massachusetts and Rhode Island reported that despite COVID-19 challenges, their industrial and water/wastewater cohorts continue to be quite engaged. In Connecticut, Eversource has started to evaluate the potential for virtual treasure hunts as standalone offerings, and United Illuminating (UI) is close to awarding a purchase order to a vendor to assist with SEM in UI service territory. And in Pennsylvania, although they still do not have any SEM programs they continue to provide guidance and training on SEM through their webinars and toolkits.				
NEEP provides support to five regional programs around inclusion of 50001 Ready program as a tool in their SEM offering. **Progress Toward Outcome:** Through NEEP's SEM Collaborative, SEM Subcommittee, and online SEM resources, NEEP provides support to regional SEM programs in Connecticut, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont around inclusion of 50001 Ready. U.S. DOE is invited to speak at every quarterly SEM Collaborative meeting to provide updates on the latest 50001 Ready tools and resources. We encourage Collaborative members to attend U.S. DOE's 50001 Ready Network Series webinars, and also offer all programs the opportunity to discuss and provide general information on current 50001 Ready activities and updates.				

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

Federal & State Appliance Efficiency Standards Long-Term Market Transformation Goals

- By 2025, federal appliance standards are updated to secure all cost effective energy and carbon savings and include 2019-2020 Northeast states standards.

Project Narrative:

Legislation related to appliance standards in Rhode Island, Connecticut, New York, Vermont, and Washington, D.C. has not progressed beyond review committees or one legislative branch of the state government due to COVID-19-related state shutdowns and delays. In Massachusetts, a standards bill passed both houses of the state legislature, and is currently in conference committee. The conference committee will finalize the bill's language, which is expected to be passed into law by year's end. In New Jersey, appliance standards advocates obtained sponsors for a bill from both political parties and anticipate that a bill will be introduced this year.

In coordination with the Appliance Standards Awareness Project (ASAP), Environment America, and US Climate Alliance, NEEP hosted two national appliance standards stakeholder workshops on September 30 and October 1. The first day provided an introduction to appliance standards, and the second day provided a more in-depth discussion of topics including the ASAP 2021 model appliance stands bill, emerging standards trends, standards implementation and compliance, and standards promotion.

NEEP has been engaged in conversations with states and national appliance standards advocacy organizations regarding establishment of a national standards and standards-compliant products database. NEEP will host the web-based database and be responsible for its build-out. Planning for the project's kickoff will continue throughout the year, and we expect to issue an RFP for software development in early 2021. NEEP also provided regional technical assistance in New Jersey, New York, Massachusetts, and Rhode Island, as well as nationally toward the promulgation of appliance standards and appliance standard policy.

Progress Toward Federal & State Appliance Efficiency Standards Outcomes	25%	50%	75%	100%
At least six Northeast states propose new state appliance standards in 2020 (NY, MA, RI, CT, DC, ME, PA). **Progress Toward Outcome:** States that introduced standards bills in early 2020 (Rhode Island, Connecticut, New York, Vermont, and Washington, D.C.) did not progress past review committees or one legislative branch of the state government due to COVID-19-related state shutdowns and delays.				
At least three Northeast states adopt new state appliance standards in 2020. **Progress Toward Outcome:** Two states (Massachusetts and New Jersey) advanced standards bills. In Massachusetts, a standards bill passed both houses of the state legislature, and is currently in conference committee. The conference committee will finalize the bill's language, which is expected to be passed into law by year's end. In New Jersey, appliance standards advocates obtained sponsors for a bill from both political parties and anticipate that a bill will be introduced in 2020. NEEP provided technical assistance to New Jersey advocates toward this effort.				
At least 10 Northeast states and associated stakeholders actively engage (via co-signing comment letters) the U.S. DOE Appliance Standards and EPA Energy Star programs to increase product energy efficiency standards and criteria. **Progress Toward Outcome:** NEEP continues to track and communicate the various opportunities to weigh in on federal appliance standards rulemakings and ENERGY				

Progress Toward Federal & State Appliance Efficiency Standards Outcomes	25%	50%	75%	100%
STAR criteria revisions. State Attorneys General in Connecticut, Maine, Massachusetts, New Jersey, New York, Vermont, and the District of Columbia have collaborated to file joint lawsuits against a number of U.S. DOE actions in 2020, including the agency's revised process for setting appliance efficiency standards.				