



# 2021 PROGRAM PORTFOLIO

**VISION:** We envision the region's homes, buildings, and communities transformed into efficient, affordable, low-carbon, resilient places to live, work, and play.

**MISSION:** We seek to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities.

**GOAL:** Assist the Northeast and Mid-Atlantic region to reduce building sector energy consumption at least three percent per year and carbon emission at least 40 percent by 2030 (relative to 2001).

Most Northeast and Mid-Atlantic states<sup>1</sup> have aggressive long-term carbon emission reduction mandates or goals aligned with the Intergovernmental Panel on Climate Change (IPCC) recommended 45 percent greenhouse gas emission reductions below 2010 levels by 2030 and net zero by 2050. Meeting these steep targets, including for the building sector which contributes 33% to regional annual carbon emissions, will take more than business as usual. We need accelerated progress on existing efforts, creative thinking, and regional cooperation to catalyze regional-scale impacts that dramatically reduce carbon emissions.

The Northeast and Mid-Atlantic region is well positioned to take on this challenge through regional collaboration. Impactful multi-state efforts are already in place to reduce power plant and transportation carbon emissions<sup>2</sup>. NEEP provides this for the building sector by engaging state and local government, business, efficiency program and clean energy and consumer advocacy leaders across the region to advance scalable, deep energy efficiency solutions that also improve the health, safety, comfort and affordability of homes and buildings while reducing energy burdens and creating valuable, skilled local jobs.

Celebrating 25 years of regional partnerships in 2021, NEEP's Program Portfolio offers eight initiatives to engage regional leaders to collaborate to transform our homes and buildings to be climate-resilient, efficient, and low-carbon through innovative public policy, technology, market and consumer engagement solutions.



**EQUITABLE LOW CARBON HOME AND BUILDING LEADERSHIP NETWORK:** Learning and best practice sharing among thought leaders on policy, programs, and market-based solutions to drive progress towards energy-efficient, resilient, and affordable low-carbon homes, buildings and industry across the region including marginalized low and moderate income communities of color.



**EFFICIENT, RESILIENT HOME, BUILDING, and COMMUNITY SOLUTIONS:** Strategies and initiatives to rapidly scale-up broad public adoption of climate-resilient, low carbon solutions focused on high impact, integrated building sector policies, technologies, and best practices supported by consumer education and engagement, and workforce and economic development. This includes community-led initiatives with leading-edge tools and resources that enable state and local government collaboration with energy efficiency programs and other private sector initiatives.

<sup>1</sup> NEEP serves thirteen Northeast states and jurisdictions including ME, NH, VT, MA, RI, CT, NY, NJ, PA, DE, MD, DC and WV.

<sup>2</sup> See the Regional Greenhouse Gas Initiative (RGGI) and Northeast States for Coordinated Air Use Management (NESCAUM)'s Clean Fuel Standard, ZEV Multi-State Task Force, and the Northeast Diesel Collaborative.



## Equitable Home and Building Decarbonization Leadership Network

1. **NEEP 2021 Summit Series: Resilient, Low-Carbon Community Pathways:** Celebrates NEEP's 25<sup>th</sup> Anniversary with a stakeholder advised public multi-media year-long program of opportunities and resources. Features guest speakers and exemplars to 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.
2. **Public Policy Leadership and Best Practices:** Highlights and tracks best practice state and local public policies for building decarbonization, electrification, and flexibility to support grid reliability. Addresses leading metrics, data, information and the latest approaches to forecast, assess, evaluate, measure and verify the impact and value of such policies and programs policies. Provides best practice resources with outreach, education and technical assistance for state and local government.



## Efficient, Resilient Home, Building, and Community Solutions

1. **Efficient, Resilient Community Pathways and Resources:** Best practice guidance, peer information exchange, and technical assistance to support the rapid growth of community initiatives in Northeast and Mid-Atlantic states to advance resilient, energy efficient, low-carbon public buildings and communities.
2. **Building Energy Codes and Appliance Standards:** Assists 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, and minimum appliance efficiency standards.
3. **Low-Carbon Retrofit Solutions:** Advances resilient, low-carbon retrofit solutions to improve the energy efficiency of the largest building sector contributor to carbon emissions –existing homes and buildings. Includes leading-edge policies and programs for home and building energy rating, benchmarking, labeling and disclosure coupled with streamlined business models and tools for “standardized” low/zero carbon energy retrofits at scale in collaboration with government and ratepayer-funded programs.
4. **Heating Electrification Market Transformation:** Accelerating market adoption of high-efficiency residential and commercial heat pumps for space heating and cooling through public-private sector collaboration. Expanded to provide additional regional high performance product specifications and products lists, best practice guidance for consumer education, quality heat pump installation, smart controls and workforce development, coordinated technology and market research, and a new commercial building opportunity assessment for a broad range of high performance heat pump options for cold climates.
5. **Smart Energy Homes and Buildings:** Research, best practices peer exchange, and technical guidance and resources to harness the power of smart energy homes and buildings to enable an affordable, reliable, resilient, integrated and low carbon energy system and power grid.
6. **Strategic Energy Management:** Regional research, analysis, technical guidance, pilots, and best practices peer exchange to accelerate adoption of high efficiency technologies, practices, and business models that provide integrated commercial and industrial sector solutions that increase efficiency and productivity, reduce costs and carbon emissions, and respond to grid needs.

## NEEP's Approach

**Engage and Empower Stakeholders:** NEEP forges partnerships and brings stakeholders together to learn about, develop, advance, accelerate, and integrate advanced energy efficiency and low carbon building-sector solutions with coordinated efforts, learning exchange, and resource leveraging.

**Advance Regional Market Transformation Opportunities:** NEEP leads, recommends, engages support for, assists, tracks, and reports progress of regional market transformation initiatives that drive innovative advanced building energy efficiency and decarbonization opportunities.

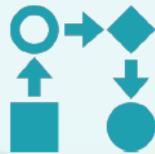
**Independent Analysis and Technical Expertise:** NEEP conducts independent analysis and serves as a technical expert on building energy efficiency and low-carbon opportunities, policies, programs, technologies, best practices and resources including integration with other demand side resources.

**Advance Knowledge and Best Practices:** NEEP develops and distributes regional best practice guidance, tools, information and educational resources, and facilitates regional peer exchange for leading edge building efficiency and low carbon solutions.

## NEEP's Products and Services



Events, Stakeholder Engagement, Learning Exchange



Regional Market Transformation Strategies



Research, Progress Tracking, Analysis, Reports, Case Studies



Best Practice Guidelines, Tools, Technical Assistance and Resource Centers



# 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.*

Most Northeast states<sup>1</sup> have aggressive long-term energy and carbon reduction goals in-line with the United Nation's recommended 45% greenhouse gas emission reduction below 2010 levels by 2030 and net zero by 2050. To meet these steep targets, community leadership must complement state leadership to drive low-carbon, efficient building solutions that meet local needs (e.g., healthy, safe, resilient, affordable housing that supports a thriving, inclusive local economy). This includes partnerships with leaders from public health, affordable housing, and community and economic development to advance equitable opportunities and solutions, particularly for those most vulnerable to rapidly advancing climate change and who suffer high energy cost burdens as well as the brunt of COVID-19 health and economic impacts.

AS NEEP celebrates 25 years of partnerships to accelerate building energy efficiency across the region, our 2021 Summit Series will highlight Resilient, Low-Carbon Community Pathways that effectively address:

**Climate Stabilization and Resiliency** – Prepare homes, buildings, and institutions to reduce carbon emissions and provide public safety, protection, and essential services during and following extreme weather, flooding, and other climate-change related hazards.

**Affordability and Equity** – Engage low-income communities and listen. Support dialogue outcomes that develop and advance affordable low-carbon resilient housing and building solutions with quality local jobs that reduce energy burdens and improve the quality of life for economically disadvantaged populations.

**Economic Opportunity** – Increase workforce capacities, business opportunities, and local employment to build climate ready, sustainable, healthy communities across the region.

**Public Health and Wellbeing** – Provide greater opportunities for all people to lead healthy lives by improving the condition, comfort, energy efficiency, and air quality of homes, schools, workplaces, and communities.

## 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.

<sup>1</sup> Northeast states include fourteen New England states and Mid-Atlantic jurisdictions that NEEP serves including ME, NH, VT, MA, RI, CT, NY, NJ, PA, DE, MD, DC and WV.



## 2021 Project Outcomes

### NEEP's 2021 Project Outcomes:

- Seven Northeast communities develop innovative strategies such as zoning requirements or strategic electrification plans to reduce carbon emissions 60 percent by 2030
- At least two more state joins NY and MA with laws that require carbon emission reductions aligned with IPCC climate stabilization goals and establish carbon neutral by 2050 goals.
- 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.



## 2021 Strategies and Deliverables

**Stakeholder Engagement:** NEEP will engage stakeholders from clean energy, sustainability, public health, community and economic development, affordable housing, energy and environmental justice, resiliency, business, government, utility programs, academia, research, and advocacy through layered virtual events, marketing, and presence. NEEP's multi-purpose advancement tools and resources will focus on Summit Series 2021 themes of climate stabilization and resiliency, affordability and equity, economic opportunity, and public health and wellbeing. Sponsors, including state partners and funders, will be recognized as Summit Series sponsors.

- Summit Series Advisory Committee: Engage and partner with leaders from a variety of important sectors at the cross between energy, economy, and justice to inform and develop the topics and sessions.
- Sessions: A year-long series of four to six live sessions to inspire, educate, engage, connect, and unite energy professionals with state and community leaders via digital experiences – featuring expert-led conversations on exemplars, lessons learned, technologies, and innovation to create low-carbon communities.
- Spotlights: Three recorded, produced videos where experts speak on concepts from the Summit Sessions content- branded, re-purposeable, and highly shareable across all digital platforms and markets. This is a controlled, deep dive into topics and experiences relevant to supporting thriving communities.
- Soundbites: Curated specifically for virtual consumption, this is a digital campaign of at least 15 abbreviated video clips, animated narratives, and visually-enhanced quotes to support strategic initiatives.

**Tracking and Analysis:** Informed by NEEP's regional policy, program, technology and market tracking and trends reports, and stakeholder input, the Summit Series will highlight Resilient, Low-Carbon Community examples, lessons-learned and resources from experience across the region. Using NEEP's website, newsletter, blog, and social media for supplemental visibility, we will develop public-facing exemplars, invite topical blogs, and other collaborations to build public visibility for public and private sector leadership for *Resilient, Low-Carbon Communities*. Outputs include:

- Summit Series 2021 *Resilient, Low-Carbon Community* Resource Center
- Monthly blogs, newsletter and social media coverage
- Three Resilient, Low-Carbon Community exemplars/case studies

**National/Regional Collaboration:** NEEP will develop, contribute to, and participate in relevant regional and national community resilience, energy efficiency, economic development, energy and environmental justice, and public health initiatives. NEEP will also leverage state, federal, national, and philanthropic resources to inform and advance *Resilient, Low-Carbon Communities* roadmaps, technologies, policies, programs and initiatives.

- Invited presentations at relevant local, state and regional meetings and conferences
- Coordination with national, regional, and state communications efforts (Barr Foundation, Rocky Mountain Institute, Building Decarb Coalition, REEOs and others)

### Project Staff



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## 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.*

Northeast states lead the nation in energy efficiency policies and most have adopted aggressive carbon emission reduction goals for 2030 and beyond. Increasingly, states include strategic electrification for “carbon efficiency” in ratepayer-funded energy efficiency programs including thermal efficiency, energy rating, demand response, energy storage, and distributed generation that enable customers to respond to electric grid reliability needs with load flexibility. This integrated approach to efficient building decarbonization addresses a growing range of public policy goals including energy affordability, grid reliability and resilience, peak load management, environmental sustainability, economic development, energy justice, and public health. These broader policy goals change program strategies as well the purpose, audiences, and approaches to program evaluation, measurement, and verification (EM&V).

NEEP assists state and local policy makers in the Northeast to assess, adopt, and implement integrated energy efficiency and demand-side policies and programs. This includes evolving best practices for EM&V and cost-effectiveness analyses, supporting the inclusion of efficiency in regional capacity markets, and making program and policy data available through tools and resources such as NEEP’s Regional Energy Efficiency Database (REED).

### Regional Trends and Leaders:

Despite the impacts of the COVID-19 pandemic, state and local policies and plans to dramatically reduce building sector carbon emissions continued to grow in the NEEP region during 2020.

- Four states (MA, ME, RI, and VT) adopted strategic electrification legislation to reduce buildings and/or transportation GHG emissions
- To equitably decarbonize buildings, New York launched a statewide initiative with utilities to deliver clean, energy-efficient solutions to 350,000 energy-burdened households.
- Five cities (Boston, MA, Burlington, VT, New York City, Providence, RI, and Washington D.C.) completed detailed building decarbonization roadmaps with building energy efficiency and heating electrification.
- Maine and Connecticut established a State Climate Council to inform policies and programs to decarbonize.
- New York initiated a proceeding to evaluate the future of the natural gas system including what a transition away from fossil fuels will entail to ensure an equitable transition is equitable.
- Two states (NH and NY) advanced statewide multi-use energy data platforms to facilitate consumer data access.
- New Jersey’s 2019 Energy Master Plan calls for a transition plan to fully electrify the building sector including space and water heating.

## 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 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.



## 2021 Project Outcomes

### NEEP's 2021 Project Outcomes:

- 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.
- Program administrators in 3 states join MA in developing/delivering EE programs integrated with other DERS (e.g. DR, storage).
- At least one other state joins NY in examining the transition from natural gas to efficient electric heating.



## 2021 Strategies and Deliverables

**Stakeholder Engagement:** NEEP convenes and facilitates information sharing among federal, state and local government agencies, efficiency program administrators, industry, researchers and other stakeholders to advance and implement public policies, including advanced EM&V and cost-effectiveness analyses, to accelerate energy efficiency and other demand side resources. 2021 activities and assistance include:

- Weekly public policy tracking updates for NEEP Allies and State Partners
- Six public policy updates included in webinars for NEEP Allies and State Partners
- A three-part webinar series on public policy leadership best practices
- Topical blogs, exemplars, newsletters
- Convene: Building Decarbonization Evaluation Advisory Group

**Tracking and Analysis:** NEEP tracks key policy metrics and state and local policies across the region to identify and report on trends and best practices in advancing efficient demand-side solutions to decarbonize. NEEP maintains an online policy tracker for legislative tracking by state. In 2021 we will revamp and expand our Regional Energy Efficiency Database (REED) to serve as a broader energy data resource.

- **Update!** [Web-based Legislative Policy Tracker](#)
- Bi-monthly regional policy tracker blogs (e.g., [August 2019 Policy Tracker Blog](#)) and quarterly REED Renderings Blog Series (e.g., [REED Rendering #17](#))
- **Re-envisioned!** and expanded Regional Energy Efficiency Database including interactive policy snapshot
- **Update!** NEEP Evaluation, Measurement & Verification Resource Center
- **New!** Regional matrix with links to state carbon reduction goals and implementation roadmaps

**Technical Assistance:** NEEP provides customized technical assistance to respond to state and local government requests for research, analysis and/or comment in regulatory or other public policy proceedings or technical sessions, and /or to conduct research and/or analysis).

- Upon request:
  - Technical assistance via presentations or briefings
  - Response to public comment

**Research and Reports:** NEEP prepares topical analyses and reports that highlight public policy progress and leadership, and identifies policy pathways forward across the region for public policies and energy efficiency program plans that accelerate energy efficiency and building decarbonization including.

- Quarterly trend analysis of reported demand side program impacts
- **New!** Building Decarbonization Public Policy Framework implementation guides (e.g. [Building performance standards](#))
- **New!** Brief: Assessing available data to support building decarbonization policy goals
- **New!** Brief: Equitable and just transition to a decarbonized future

**National/Regional Collaboration:** NEEP leverages and contributes to state, federal and national resources to inform state and local public policy for energy efficiency and building decarbonization development. This includes sharing information with, contributing to, and presenting at regional and national public policy and EM&V conferences and collaborations (e.g., Association of Energy Service Professionals, American Council for an Energy Efficient Economy, International Energy Program Evaluation Conference, National Association of State Energy Officials, Northeast Smart Heat Collaborative, U.S. DOE/U.S. EPA SEE Action, etc.).

### Project Staff



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# 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.*

The Northeast and Mid-Atlantic states include over 4,500 towns and cities, many of which are committed to energy efficiency to achieve clean energy, climate resiliency, economic development, and environmental goals. **Efficient and Resilient Communities** assists these leading communities to undertake effective community initiatives. NEEP's regional High Performance Communities network engages them to exchange best practices, share success stories, and develop and use resources that lead to efficient and resilient homes, businesses, and public buildings. Our regional collaboration also engages state and federal agencies, business and community associations, utilities, service and technology providers, non-profits, and consumer and clean energy advocates to join community leaders to improve the efficiency of homes and buildings with workforce development that creates valuable local jobs and business opportunities with an equity focus. NEEP also provides best practice tools and resources for communities to build, operate and maintain energy efficient, healthy, safe, comfortable, and climate-resilient homes and buildings, including lead-by-example high performance and zero energy/carbon public buildings and schools.

## 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.

## Regional Trends and Leaders:

- K-12 public schools in the NEEP region are national and regional leaders in the development of zero energy and high-performance facilities with over 121 schools built to [Northeast Collaborative for High Performance \(NE-CHPS\) standards](#).
- Northeast and Mid-Atlantic States are national leaders in number of zero energy or zero energy ready public buildings with approximately 103 built in MA, VT, NY, RI, and MD.
- MA, MD, NY, RI and the District of Columbia are developing jurisdiction-wide zero energy plans leading with public buildings. CT and PA support such community initiatives for all building types through grants and recognition.
- Informed by learning exchange with other leading communities, small, medium, and rural communities are increasingly committing to zero energy public buildings, strategic electrification, and 100% renewable energy.



## 2021 Project Outcomes

### NEEP's 2021 Project Outcomes:

1. 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.
2. 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.
3. States and communities lead by example by increasing the number of zero energy public buildings in operation by 10 across at least 5 states.



## 2021 Strategies and Deliverables Continued

**Stakeholder Engagement:** NEEP engage key stakeholders, and provide best practice resources, and analyses in 2020 to assist communities to set and achieve efficiency and carbon reduction goals through:

- **New!** Online Q&A discussion forum for local level energy champions
- Regional High Performance Communities Working Group
  - Three topical webinars and one in-person/virtual meeting to address stakeholder needs
- State-specific High Performance Schools Working Groups in Massachusetts, New Hampshire, and Rhode Island (*Pending state funding*)
- Regional and national presentations and briefings as requested
- One high performance or zero energy school video exemplar in conjunction with Healthy School Day 2021

**Tracking and Analysis:** NEEP will track and analyze community initiative progress at the regional, state and local levels and highlight leading regional trends.

- **Update!** Web-based Regional Dashboard of state and communities zero energy and carbon policies
- **New!** [Interactive Regional Map of high performance schools by state](#)
- Maintain and disseminate NEEP's [Northeast Collaborative for High Performance Schools Criteria](#) (NE-CHPS V3.2 2019) for school construction and design

**Tools and Guidelines:** NEEP advances the development of strategies, tools and best practices to move communities forward with their efficiency planning by providing best practice tools and resources developed by NEEP and others (e.g., U.S. DOE, U.S. EPA, Collaborative for High Performance Schools (CHPS), Institute for Market Transformation (IMT), New Buildings Institute (NBI), and others).

- Maintain and update [CAPEE](#) with at least one new module and resources based on stakeholder needs
- Maintain [Online Resource center](#)
- **Update!** [Regional Operations and Maintenance Guide](#) to include COVID-19 safe practices and other new best practice guidance
- **New!** Develop state-specific zero energy school toolkits by request
- Provide direct technical assistance for communities on various topics, as requested

**Research and Reports:** NEEP will develop new best practice reports while maintaining access to existing reports with support for their use across the region:

- **New!** Develop two exemplars highlighting innovative pathways to develop zero carbon schools, public buildings, multifamily, or other building type with a focus on small or rural community. Develop one exemplar highlighting a community’s progress related to health and energy, equity, or workforce development.
- **New!** Brief analyzing best practices and exemplary zero energy and strategic electrification plans in communities
- **New!** Trends, Opportunities, and Challenges with Zero Energy Schools in the Region

**National/Regional Collaboration:** NEEP will contribute to and leverage state and national resources to inform community resources and planning.

- Monitor, communicate, present, and coordinate with national and regional organizations (e.g., Massachusetts Facilities Administrators Association (MFAA), State Specific ZE Working Groups, NH Local Energy Solutions, Metropolitan Area Planning Council (MAPC), Delaware Valley Regional Planning Commission (DVRPC), Energy Economic and Environmental Justice Groups, etc.)
- Disseminate U.S. DOE best practices and link states to federal programs and resources
- Engage with stakeholders to contribute to the development of national programs such as SEE Action Network and U.S. DOE’s Zero Energy Schools Accelerator and the new Better Buildings Workforce Accelerator
- Participate as members of the CHPS Board of Directors

## Project Staff



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# 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, Zero Energy Codes, and Appliance Standards offer Northeast and Mid-Atlantic States and communities major opportunities to achieve long-term, cost-effective energy savings in new, retrofitted, and existing homes and buildings and appliance purchases. NEEP's initiative provides collaboration and technical assistance to states and other stakeholders to adopt and benefits from these two foundational cost-effective energy and carbon savings strategies.

In the NEEP region, the energy savings potential from the adoption of model energy codes policies exceeds \$7 billion dollars in energy cost savings and would prevent 47.63 MMT of CO<sub>2</sub> from being emitted by NEEP states between 2020-2030, the equivalent of what over 1 million passenger cars would emit over 10 years.<sup>1</sup> Adoption of advanced zero energy/carbon codes provides even greater energy, carbon and cost savings. Pathways to achieve these benefits are described in NEEP's 2017 strategy report "[Building Energy Codes for a Carbon-Constrained Era](#)."

Federal standards have the annual potential to curb 200 million metric tons of CO<sub>2</sub> that would otherwise be emitted nationally (ASAP 2016). That is the equivalent of the annual electricity use of nearly 30 million homes.

## Regional Trends and Leaders:

The NEEP region is a national leader in advancing building energy code adoption, stretch code implementation, zero energy code development, home and building energy benchmarking and labeling, and state appliance standards:

- Nearly all Northeast and Mid-Atlantic states use one of the two most recent national model building energy codes (2015 or 2018 IECC),
- Within the next two building code adoption cycles, five Northeast or Mid-Atlantic States will adopt zero energy codes and eight will adopt zero energy stretch codes.
- Seven Northeast or Mid-Atlantic states have state appliance standards and eight are preparing to update or add additional product appliance standards in 2021.
- State energy and climate stabilization plans in CT, DC, MA, MD, NY, RI and VT include tightening appliance efficiency standards to provide affordable and reliable energy while reducing CO<sub>2</sub> emissions.

## 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.

<sup>1</sup> [US DOE Impacts of Model Building Energy Codes Report](#)



## 2021 Project Outcomes

### NEEP's 2021 Project Outcomes:

1. Three additional Northeast and Mid-Atlantic States adopt zero energy stretch codes (DE, MA, NY)
2. Four additional Northeast and Mid-Atlantic States adopt stretch codes (CT, DE, ME, NJ)
3. Municipalities in four states (MD, WV, NH, CT) adopt zero energy building codes
4. 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.
5. At least seven Northeast and Mid-Atlantic States (NY, MA, RI, CT, DC, ME, PA) adopt new state appliance standards in 2021



## 2021 Strategies and Deliverables

**Stakeholder Engagement:** NEEP brings together key stakeholders, resources, and data to build knowledge and understanding to advance the adoption and implementation of building energy codes, zero energy codes, and appliance efficiency standard policies and programs.

- Convene and facilitate NEEP's Regional Building Energy Codes and Northeast/Mid-Atlantic Appliance Standards Working Groups to address participant needs and interests:
  - Topical webinars
  - Working Group meetings
  - Regular email updates on energy code news and appliance standards developments and opportunities
- Convene and facilitate a Massachusetts Achieving Zero Energy (MAZE) Initiative Building Energy Codes Stakeholder Group

**Tracking and Analysis:** NEEP will track and analyze leading efforts and progress across the region and facilitate peer exchange to inspire and transfer learning.

- **New Tracker!** Compilation of State Energy Code Enforcement Mechanisms: How states enforce/comply with/inspect energy codes, barriers and challenges, and how to improve compliance mechanisms
- **Update:** NEEP Web-based [State by State Energy Code Tracker](#)
- **Update:** NEEP Web-based [Energy Code Policy Resource Center](#)
- **Update:** Tracking of federal appliance standards program activity and ENERGY STAR product specifications
- Survey Industry Professionals in the Region on Prefabricated Construction and Virtual Inspection Market Barriers and Opportunities

**Tools and Guidelines:** NEEP's work will advance the development of strategies, tools, and best practices for state and local government leaders to adopt and effectively implement building energy codes and appliance standards.

- Maintain [Online Resource center](#)
- **Update!** NEEP Building Energy Code [Adoption Toolkit](#) and [Compliance Toolkit](#)
- **New!** Appliance Standards Toolkit
- **New!** 2021 IECC Adoption: Changes and Considerations one-pager (with accompanying webinar)

## *Tools and Guidelines:* Continued

- **New Best Practice Guidance!** Building an Equitable Energy-Efficiency Workforce in Preparation for Next-Generation Code Adoption (COVID-19, Virtual Inspections, Climate Change)
- **New Brief + Vlog!** Addressing Systemic Barriers to Code Adoption
- Topical blogs and exemplars
- Technical assistance for stakeholders

**Research and Reports:** NEEP will track and analyze state needs, trends, and progress to facilitate the adoption and enforcement of building codes, and beyond-base-code initiatives for new buildings.

- **New!** Codes Addressing Energy Burden and Equity for New and Existing Homes and Buildings: Patterns and Pathways Report
- **New!** Future of Anticipatory Energy Codes one-pager
- **New!** Building Energy Codes and Appliance Efficiency Standards: Embodied Carbon and Water Report
- **New!** Prefabricated Construction: Market Findings and Opportunities Brief
- **New!** Virtual Building Inspections: Market Findings and Opportunities Brief
- Coordinated comments to U.S. DOE and U.S. EPA respectively to encourage strong and timely federal standards and ENERGY STAR Specification revisions

**National/Regional Collaboration:** NEEP will leverage state, federal, and national resources to inform state plans and policies.

- Monitor, communicate, collaborate, present, and coordinate with national and regional organizations (e.g., Regional Energy Efficiency Organizations (REEOs), National Association of State Energy Officials (NASEO), Building Codes Assistance Project (BCAP), Appliance Standards Awareness Project (ASAP), Responsible Energy Codes Alliance (RECA), International Code Council, Inc. (ICC)), US Climate Alliance)
- Disseminate U.S. DOE and U.S. EPA best practices and link states to federal programs and resources (e.g. [DOE Zero Energy Ready Homes Program](#))
- Coordinated comments to U.S. DOE and U.S. EPA respectively to encourage strong and timely federal standards and ENERGY STAR Specification revisions
- Contribute to the development of national building energy code initiatives (e.g., zero energy code technical workgroup; regional/national stretch code and zero energy code)

## Project Staff



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# Low-Carbon Retrofit Solutions

## MISSION

*Ensuring equitable access to low carbon retrofit solutions to improve the energy efficiency of homes and buildings*

In order to achieve our decarbonization goals by 2030 and beyond, flexible and cost-effective solutions are needed to retrofit the existing building stock. Benchmarking and residential labeling provide solutions to track progress toward decarbonization goals and provide transparency to homeowners, renters, and building owners and managers. Building performance standards (BPS) actively reduces emissions from large existing buildings and are an important strategy in city and state carbon reduction goals. Policy solutions, market strategies, and programs can be developed with efficiency in mind to ensure that all homes and buildings are comfortable and healthy places to live, work and play. Increasing energy efficiency in existing buildings is a key strategy that states and local governments use to improve housing affordability, health and comfort, reduce energy use and associated air pollution, and create local job and business opportunities.

NEEP assists states, communities, and utilities in adopting and implementing low carbon retrofit solutions by engaging key stakeholders in a learning exchange about effective policies and programs, by conducting research and analyses of key trends, and by providing access to tools, training and other implementation resources. These tools include Home Energy Labeling Information eXchange (HELIX), Energy Estimator - powered by HELIX and ClearlyEnergy, Total Energy Pathways (TEP), and Building Energy Analysis Manager (BEAM). NEEP continues to support the states who use these tools by actively gathering more data and increasing their functionality.

## Regional Trends and Leaders:

Northeast states and communities are implementing residential labeling, commercial benchmarking policies, and building performance standards to help achieve climate goals. In order to successfully implement labeling and benchmarking, low carbon retrofit solutions, such as HELIX, BEAM, and Energy Estimator are needed. Six states (CT, D.C., MA, NY, RI, and VT) use HELIX to support state, utility, and local home energy labeling policies. HELIX also integrates home energy information into local real estate listings in Massachusetts, New Hampshire, Maine, and Vermont. Vermont is developing a voluntary labeling program that will be offered statewide in 2021 and piloting Total Energy Pathways, a retrofit program incorporating strategies of weatherization, solar PV, and efficient HVAC technologies. Montpelier, Vermont will launch its home energy information ordinance starting in 2021. Massachusetts and Connecticut have statewide residential labeling programs offered via utility programs. In the commercial sector, a growing number of cities are exploring building performance standards. Washington D.C. and New York City passed BPS ordinances that will drastically reduce GHG emissions and will go into effect by 2021 and 2024 respectively. Boston, Pittsburgh, Denver, CO, and Reno, NV will use BEAM in a phase one pilot project to support the implementation of benchmarking and BPS in their cities.

## 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.



### NEEP's 2021 Project Outcomes:

- 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
- 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.
- Three additional states (e.g. NJ, MD, ME) use HELIX to support home energy labeling policies and programs at the state and local level.
- Two cities adopt building performance standards as a strategy to improve energy efficiency of existing homes and buildings.
- Three states (MA, NY, RI) enact existing building retrofit initiatives to drive ongoing decarbonization of all existing homes and buildings towards growing an equitable retrofit economy.



**Stakeholder Engagement:** NEEP will continue to engage stakeholders (state agencies, real estate professionals and appraisers, gas and electric utilities, efficiency programs, building code officials) in a facilitated learning exchange to guide development of retrofit solutions for existing homes and buildings.

- NEEP's Regional Home Energy Labeling Stakeholder group to share best practices with mandatory or voluntary labeling pilots, programs, and policies
- NEEP's HELIX Solar PV Advisory Committee
- Commercial Retrofit Working Group to share best practices with mandatory or voluntary benchmarking pilots, programs, and policies
- Building Energy Analysis Manager (BEAM) advisory group
- Total Energy Pathway (TEP) Advisory Committee
- **New!** Three-part webinar series to address retrofit solutions with accompanying vlog

**Tracking and Analysis:** NEEP will track the growth and use of home energy labels across the Northeast

- **New!** Residential Labeling Interactive Dashboard
- **Update!** Interactive Benchmarking Dashboard
- **New!** Regional Snapshot of Data and Impacts of Benchmarking and Retrofit Trends
- **New!** Regional Retrofit Program Matrix

**Tools and Guidelines:** NEEP will provide tools and technical assistance to advance and support state, utility and municipal low carbon retrofit policy and program adoption and implementation including:

- Home Energy Labeling Information eXchange ( HELIX\*)
  - Energy Estimator – Powered by HELIX and ClearlyEnergy
- Building Energy Analysis Manager (BEAM)\*
- Technical assistance for communities and states
- **Update!** HELIX Online Resource Platform (Subscribers Only)
- **Update!** [Green Real Estate Resources web resource center](#)
- **New!** Total Energy Pathways Resource Center
- **New!** Total Energy Pathways Implementation Guide

**Research and Reports:** NEEP will use its data inventory to provide data analysis to partner with key stakeholders to support successful low carbon retrofit deployment throughout the Northeast. Products include:

- **New!** Two Exemplars
- **New!** Equitable Access to Low Carbon Retrofit Solutions Report

**National/Regional Collaboration:** NEEP will help grow market demand for low carbon retrofit solutions through regional/national presentations and conversations and educational outreach to real estate professionals and appraisers. NEEP will:

- Monitor, communicate, present, and coordinate with national and regional organizations (e.g., NASEO and Building Performance Association)
- Disseminate U.S. DOE best practice and link states to federal programs and resources
- Engage with stakeholders to contribute to the development of national and regional programs
- Participate in DOE Workforce Development Accelerator

*\* Additional information about NEEP’s HELIX and BEAM Subscription Program Services is available upon request.*

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# Heating Electrification Market Transformation

## MISSION

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

NEEP's Heating Electrification initiative continues implementation of [our regional market transformation strategies](#) to accelerate market adoption of high performance, cold climate Air source Heat Pumps (ccASHPs) and Variable Refrigerant Flow (VRF) systems, while expanding to include a broader range of heat pump technologies. Heating electrification is essential to meet state and local climate stabilization goals by 2030 and 2050. This initiative supports that by building regional-scale momentum to adopt this innovative technology through a public-private collaboration of industry, state, community, and ratepayer-funded energy efficiency, and carbon reduction policies and programs. A variety of high-performance heat pump products provide reliable space heating and cooling, including air source, water source, ground source, reverse cycle chillers, packaged terminal heat pumps (PTHP), and rooftop units (RTU) even in states with cold winter weather. They offer households and businesses super-efficient comfort heating and cooling, and water heating solutions that replace or displace the use of less efficient, carbon-intensive space and water heating systems. The Initiative brings key market actors together with efficiency programs, state and local agencies, and consumer and clean energy advocates to develop and implement strategies to drive broad market adoption of this new generation of super-efficient heat pumps for all consumer groups and building types. Key strategy areas of focus in 2021 will be around specifications and product lists, consumer and installer education, program design best practices and in-field performance research.

## 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.*

## Regional Trends and Leaders:

- Heating electrification is a priority for most Northeast States with growing interest in Mid-Atlantic States and beyond. MA, RI, NY, ME and CT have, or are developing, strategies to scale-up business and consumer adoption of high performance heat pumps.
- Heat pump adoption is quickly increasing in New York and New England. ASHP sales increased from ~ 50,000 units in 2013 to approximately 75,000 in 2016; a 50% percent increase in just three years.
- NEEP's [Cold-Climate ASHP Product List](#) has grown to include 8,000 products from over 90 different brands. Twenty energy efficiency programs in Northeast and Mid-Atlantic states, and beyond, use the list for their incentive programs. For 2021, NEEP is preparing a similar list for high performance VRF and PTHP products.



## 2021 Project Outcomes

### NEEP's 2021 Project Outcomes:

1. Twenty percent increase in annual sales of high performance heat pump systems across the NEEP region.
2. Five new programs join the twenty others already using NEEP's ccASHP product list.
3. NEEP's heat pump consumer and installer guides are used or referenced by ten programs in the region.
4. Initiative participants report significant progress in implementing the Regional ASHP Market Transformation Strategy and Regional VRF Market Transformation Strategy



## 2021 Strategies and Deliverables

**Stakeholder Engagement:** NEEP will engage a diverse group of stakeholders - industry, efficiency programs, state and local government, national labs, U.S. DOE, and advocates - to develop and advance long-term regional market transformation strategies to speed the market introduction and adoption of ccASHPs and smart controls.

- ASHP Working Group\*
- VRF Working Group\*
- Sub-Committees\*
- ccASHP Specification
- Installer Best Practices
- Program Best Practices
- Industry Advisory Committee
- Annual Heating Electrification Workshop
- Two topical webinars
- Invited presentations and briefings for initiative participants

### Heating Electrification Initiative Subscription\*

NEEP's [Heating Electrification initiative](#) is made possible through the engagement and support of key actors across the heat pump market. Current participants include regional, national, and Canadian interests spanning government, manufacturers, distributors and installers, service providers, program designers, national labs and research institutes, consultants, consumers, advocates, and other interested stakeholders.

NEEP invites interested stakeholders to join the Initiative through an annual subscription program for 2021. For more information about benefits and costs visit [NEEP's website](#).

**Tracking and Analysis:** NEEP will continue to expand its collaboration with states, program administrators, U.S. DOE, U.S. EPA, national labs, REEOs, and others to track, assess, and provide initiative members reported heat pump performance data and associated analyses. NEEP will also track and contribute to projects that drive the development of home heating system controls that integrate ccASHPs with other building heating systems.

- ASHP market tracking analyses in quarterly working group reports, including innovation tracking
- Progress Report: ASHP Market Transformation Strategy Implementation and Results
- Online repository of ASHP, VRF, and smart controls reports/analysis/resources
- Participation on core team conducting an Integrated Controls Demonstration project in New York, including managing technical advisory committee

**Tools and Guidelines:** NEEP introduced in 2019, a new format and user interface for the ccASHP Product List including user-friendly technical information. NEEP will continue to develop market and program facing tools to support the broad use of ccASHPs.

- Maintain/update NEEP's ccASHP Specifications and Product List
- **New!** Introduce NEEP's Cold climate VRF Specifications and Product List
- **New!** Introduce NEEP's Cold climate Packaged Terminal Heat Pump Specification and Product List
- **Update!** ASHP Sizing/selection and installation guides
- **New!** VRF Sizing/selection and installation guides
- **New!** Heat pump case studies (Commercial/Government/Multi-family applications)

**Research and Reports:** NEEP will support initiative expansion to include additional high performance heat pump technologies for space and water heating, whole house retrofit strategies and research to support updating the ccASHP specification based on latest test procedures through the following 2021 initiative participant advised research efforts:

- **New!** Needs/Opportunities Assessment Brief for Commercial heat pump systems (i.e. RTU Heat pumps, packaged heat pumps, water source heat pumps, ground source, etc.) including cold climate specifications and program design
- **New!** Multi-partner VRF in- field performance Validation Project
- **New!** Program Guidance: Best practices for ASHP Whole House Applications

**National/Regional Collaboration:** NEEP will track, contribute to, and help disseminate relevant research, policies, programs and initiatives, and attend related conferences and events regionally and nationally to build market momentum to overcome identified market, technology, and policy barriers to ASHP and VRF market adoption. NEEP will actively seek to collaborate with organizations serving underrepresented communities to ensure our progress benefits a broad range of consumers.

- Collaborate with other regional organizations advancing heating electrification (i.e. Heat Pump Coalition, US EPA, US DOE, National labs, Regional Energy Efficiency Organizations, Natural Resources Canada, Rocky Mountain Institute, Green Urban council, Building electrification League, Building electrification Initiative, NY-GEO, Geo Exchange, Renewable Thermal Alliance , advocacy organizations, etc.)
- Monitor, communicate, present, and coordinate with national and regional organizations advancing high performance heat pumps.

**Additional Activities Pending More Funding:**

- Regional Building electrification marketing campaign: in support of building decarbonization/electrification adoption (would build off of Mass CEC's Clean Energy Lives Here Campaign)
- Strategy Development: Regional Heating Electrification workforce development strategy
- Report: Examine use cases for serving multi-family buildings with heat pumps
- Multi-party EXP07 Test Procedure and Rating method Research- Investigating representativeness

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# Smart Energy Homes and Buildings

## MISSION

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

For nearly three decades demand-response policy and programs in Northeast and Mid-Atlantic states have successfully engaged home and building end-uses to reduce electricity demand during peak use periods. Since the 1990's many states and utilities have deferred costly transmission and distribution system upgrades through demand-side resource programs that reduce peak electric demand. In addition, the inclusion of energy efficiency and demand response in ISO-New England, NYISO and PJM forward capacity market solicitations has helped to maintain electric grid system reliability at the lowest cost.

Today, the evolving practice of "smart energy" homes and buildings as flexible electric grid assets is poised for growth across the region to meet new needs. The evolution of smart sensors, smart grid technology, grid-connected home and building power generation (e.g., rooftop PV), and battery and thermal energy storage systems coupled with deep energy efficiency and smart controls enable "smart energy" homes and buildings to respond individually and collectively to electric grid needs while meeting customer needs. At the same time, the need for load flexibility to meet evolving grid needs (e.g., energy, capacity, contingency reserves, ramping, frequency regulation, voltage support) is increasingly urgent as the rapid growth of renewable energy, electric vehicles, and space heating electrification to reduce greenhouse gas emissions present multiple challenges for affordable, reliable, high-quality electric service. NEEP's [The Smart Energy Home: Driving Residential Building Decarbonization](#) report, and [Grid-Interactive Efficient Buildings \(GEBs\) Tri-Region Status Report](#) lay out several opportunities to accelerate smart energy homes and buildings across the region to meet these challenges.

In 2021 NEEP's Smart Homes and Buildings Initiative will continue to assist Northeast and Mid-Atlantic states to advance smart energy homes and buildings as a component of state building decarbonization strategies with a focus on policy and program initiatives that speed smart energy home and building technology adoption and benefits.

## Regional Trends and Leaders:

- Since 2018 U.S. DOE has been managing the Grid-Interactive Efficient Buildings (GEBs) Initiative. The initiative focuses on enabling a future where buildings continuously manage loads and DERs to better serve the needs of building owners and occupants, electric utility systems, and regional grids. NEEP, and many other organizations, contributed to [a series of research reports](#) to support the initiative.
- Many Home Energy Management System (HEMS), as well as major home appliance manufacturers, now equip new products (HVAC, water heaters, and plug loads/appliances) with smart controls to serve customer needs while responding to a variety of potential grid load management signals.
- Utilities are increasingly offering a range of programs focused on reducing peak electric demand. Programs like National Grid's [Connected Solutions](#) program engages residential and commercial customers with opportunities to provide peak demand management services.

## 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).



## Regional Trends and Leaders Continued

- In 2020, Massachusetts implemented the first-in-the-nation Clean Peak Standard (CPS), designed to provide incentives to clean energy technologies that can supply electricity or reduce demand during seasonal peak demand periods. The CPS creates a requirement for all electricity suppliers to purchase a certain amount of Clean Peak Energy Certificates (CPECs) each year based on a specified percentage of the amount of electricity that they supply.



## 2021 Project Outcomes

1. 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.
2. Six states in the region enact policies or programs that support the deployment, or engagement, of smart energy homes to provide grid services.
3. 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.).



## 2021 Strategies and Deliverables

**Stakeholder Engagement:** NEEP will engage diverse stakeholders - industry, efficiency programs, state and local government, national labs, U.S. DOE, U.S EPA and advocates - to develop and advance long-term regional market transformation strategies to speed the market introduction and adoption of smart energy home and building technologies that facilitate building decarbonization.

- Quarterly Smart Energy Homes Working Group (in partnership with the Building Performance Association)
- Quarterly Smart Energy Buildings Working Group
- Regional Workshop: Smart Energy Homes and Buildings
- Invited presentations and briefings on decarbonization and the role of smart energy homes and buildings

**Tracking and Analysis:** NEEP will continue to track and report on relevant smart energy homes and buildings technologies trends and policy and program activity, pilots and technology demonstrations across the region, including the role of such devices to optimize energy performance, enable grid services and support efficiency program evaluation, measurement and verification.

- **New!** Smart Energy Homes and Buildings Program and Policy Matrix

**Tools and Guidelines:** NEEP will provide and develop new strategies and tools as well as provide technical assistance to programs and industry to advance the market adoption of smart energy homes and buildings technologies and programs.

- Regional Smart Homes and Buildings Website Resource Center
- **New!** Smart Home and Buildings Policy, Program and Technology Exemplars

**Research and Reports:** NEEP will develop a new best practice brief while maintaining access to existing reports with support for their use across the region:

- **New!** Smart Energy Homes and Buildings Regional Trends Brief

**National/Regional Collaboration:** NEEP will track, contribute to, and help disseminate relevant research, policies, programs and initiatives, and attend related conferences and events regionally and nationally to build market momentum to overcome identified market, technology and policy barriers.

- Monitor, communicate, present, and coordinate with national and regional organizations (e.g., Regional Energy Efficiency Organizations, U.S. DOE, U.S. EPA, Building Performance Association, NBI, SEPA, ACEEE, CEE, E-Source, advocacy organizations, etc.)

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# 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.*

Combined, the commercial and industrial sectors, account for roughly 45 percent of energy use and carbon emissions in the Northeast region. Opportunities abound for energy efficiency, load management, increased electrification and productivity, but persistent barriers impede progress. Over the past several years, Strategic Energy Management (SEM) has emerged in the region as a key pathway to realizing these opportunities. Several energy efficiency programs in the region now provide direct support to their C&I customers to adopt SEM practices. These programs have helped a growing number of business owners and facility managers prioritize facility and operational improvements that reduce costs, energy use and carbon emissions while improving productivity, health and safety. While progress has been made in the growth of SEM programs, customer adoption across the region is still limited in scale. To accelerate further adoption and achieve scale in the market, NEEP's 2021 regional Strategic Energy Management Initiative will engage stakeholders to support the continued practice and expansion of program-driven SEM, as well as examine potential additional strategies to drive significantly more adoption. This will include looking at new policy and program mechanisms as well as engaging additional stakeholder groups such as the sustainable business community.

## LONG-TERM MARKET TRANSFORMATION GOALS

### By 2025:

- All Northeast states have policies and programs to support adoption of SEM in the commercial and industrial sectors

### 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.

## Regional Trends and Leaders:

- While a growing number of energy efficiency programs (CT, MA, NY, RI, and VT) offer Strategic Energy Management, actual customer participation in programs is growing slowly.
- U.S. DOE's 50001 Ready Program continues to successfully assist C&I companies to implement SEM in their facilities, including manufacturing facilities, water/waste water facilities, etc. Energy efficiency programs in MA, NY, RI, and VT currently offer the tool as part of their SEM assistance.



## 2021 Project Outcomes

### NEEP's 2021 Project Outcomes:

1. All active SEM programs report increased customer participation in their SEM offerings compared to 2020.
2. At least two additional energy efficiency program administrators offer Strategic Energy Management in their program offerings.
3. A state or utility adopts one of the recommendations in the Regional Market Transformation Strategy for SEM.



## 2021 Strategies and Deliverables

**Stakeholder Engagement:** NEEP will engage a diverse stakeholder group – business, industry, efficiency programs, state and local government, national labs, U.S. DOE, U.S. EPA and advocates - to develop and advance long-term regional market transformation strategies to speed the market adoption of SEM to increase commercial and industrial facility energy efficiency and/or reduce carbon emissions.

- Convene and facilitate NEEP's Regional Strategic Energy Management (SEM) Collaborative Working Group
  - Working group meetings
  - Email updates on regional/national SEM activity
- Regional SEM Market Transformation Research and Strategy Advisory Committee

**Tracking and Analysis:** NEEP will track and analyze leading efforts and progress across the region and facilitate peer exchange to inspire and transfer learning.

- Regional and national SEM policy and program tracker blogs and activity summaries
- **New!** SEM Matrix highlighting regional utility programs

**Tools and Guidelines:** NEEP will provide and develop new strategies and tools as well as provide technical assistance to programs and industry to advance the market adoption of Strategic Energy Management.

- **New!** Two Exemplars of Commercial and Industrial customers who adopted and now successfully practice SEM
- Technical support for regional programs and end-users in their adoption and pursuit of 50001 Ready recognition
- Maintain web-based SEM Resource Center

**Research and Reports:** NEEP will conduct a comprehensive process that includes robust stakeholder engagement to develop a Regional market transformation strategy for SEM as a key pathway to reduce C&I Sector emissions.

- **New!** Report “Strategies to scale adoption of Strategic Energy Management: Going beyond EE Programs”

**National/Regional Collaboration:** NEEP will leverage and support state, federal, and national resources to inform state plans and policies.

- Monitor, communicate, present, and coordinate with national and regional organizations (e.g., U.S. DOE, U.S. EPA, National/Regional SEM collaboratives, national labs, Ceres, Environmental Business Council of New England, AIM, American Sustainable Business Association, NJ Sustainable Business Association, etc.)
- Disseminate U.S. DOE and U.S. EPA best practices and link states to federal programs and resources

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