



EXPANDING HEAT PUMP ADOPTION: A LOOK AT EVOLVING STATE AND LOCAL ACTIVITIES

NEEP REGIONAL CCASHP MARKET TRANSFORMATION WORKSHOP
JUNE 27, 2017



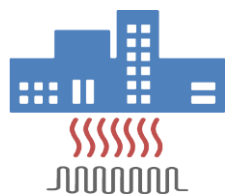
Pathways to a renewable thermal transformation

States and cities are exploring (non-mutually-exclusive) long-term strategies for decarbonizing the thermal sector



» Strategic electrification of heating and cooling

- › Electrify the heating sector by scaling up heat pumps and solar heating/cooling
- › Explore potential to modify retail rates for electric heating
- › Increase load/sales for utilities and/or enable fuel switching
- › Synergize with the transportation sector



» District heating and cooling networks

- › Invest in CHP and especially bioenergy-based CHP systems
- › Build out low temperature heating networks with GSHPs or solar thermal and potentially integrate with electric networks to optimize production
- › Assess business and financing models – as well as regulatory requirements – for widespread deployment of district heating and cooling networks



» Centralized/decentralized bioenergy-based heating networks

- › Focus on biofuel, biogas, or biomass heating systems, especially in rural or agricultural areas.
- › Large-scale biogas may be injected directly into natural gas pipelines
- › Biofuels integrated into traditional heating oil blends
- › Biomass pellet and chip heating systems can be deployed to displace heating oil or propane

Evolution of heat pump policies and programs

Heat pumps are emerging from efficiency programs to become core components of state emission reduction goals

Utility Efficiency Programs

- Rebates and financing
- Emphasis on cooling efficiency/load reduction



Expanding Policy and Program Support

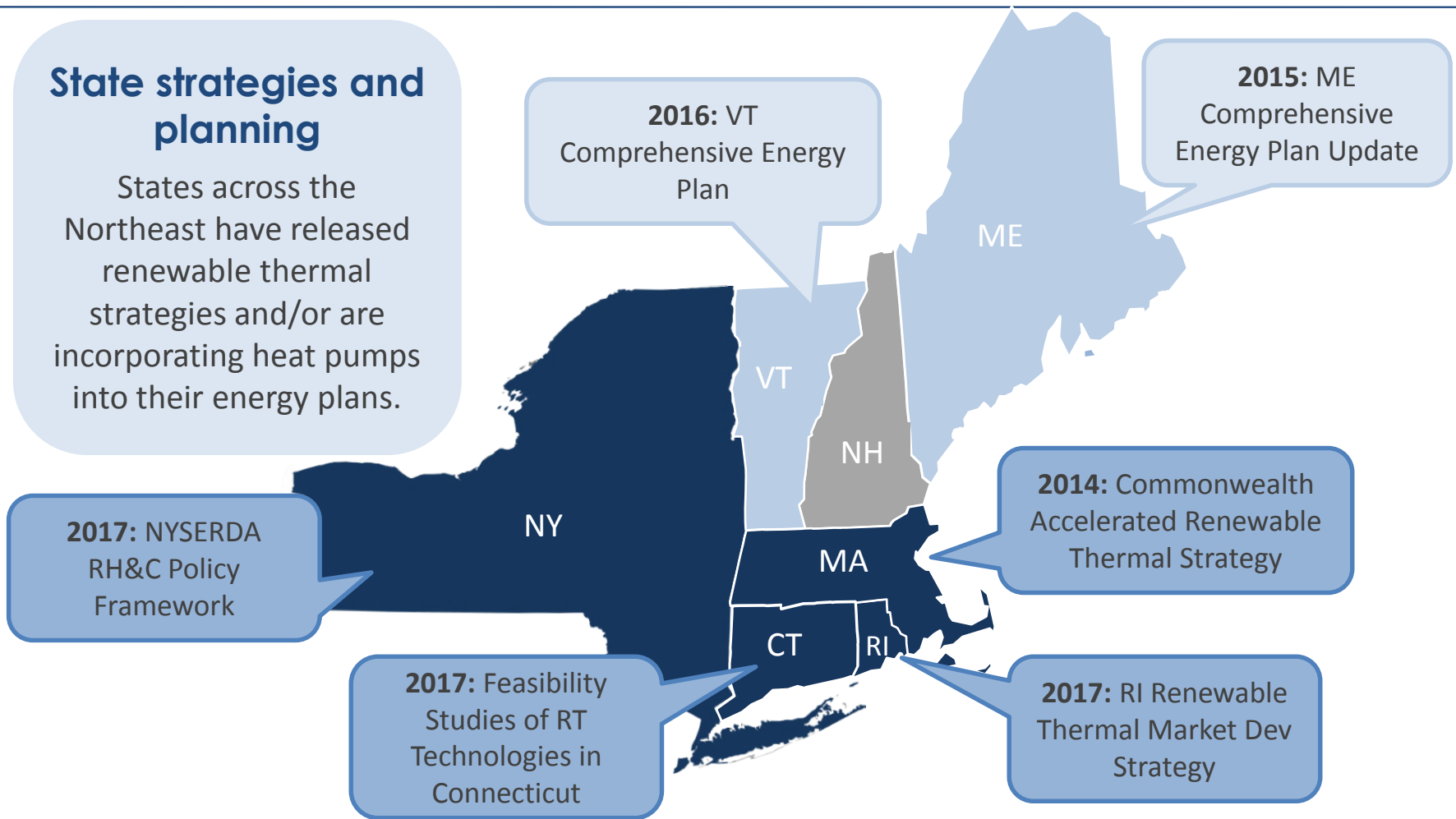
- Expanded incentives (emphasizing heating benefits)
- RPS integration
- Soft cost reduction and supply chain development
- Community purchasing campaigns
- Exploration of innovative financing models

Adapting best practices and successful policies/programs from the renewable electricity sector

(But of course, it's not always that simple...)

Growing strategic interest across region

Cities and states (and utilities) are seeing a crucial role for heat pumps in meeting deep decarbonization goals

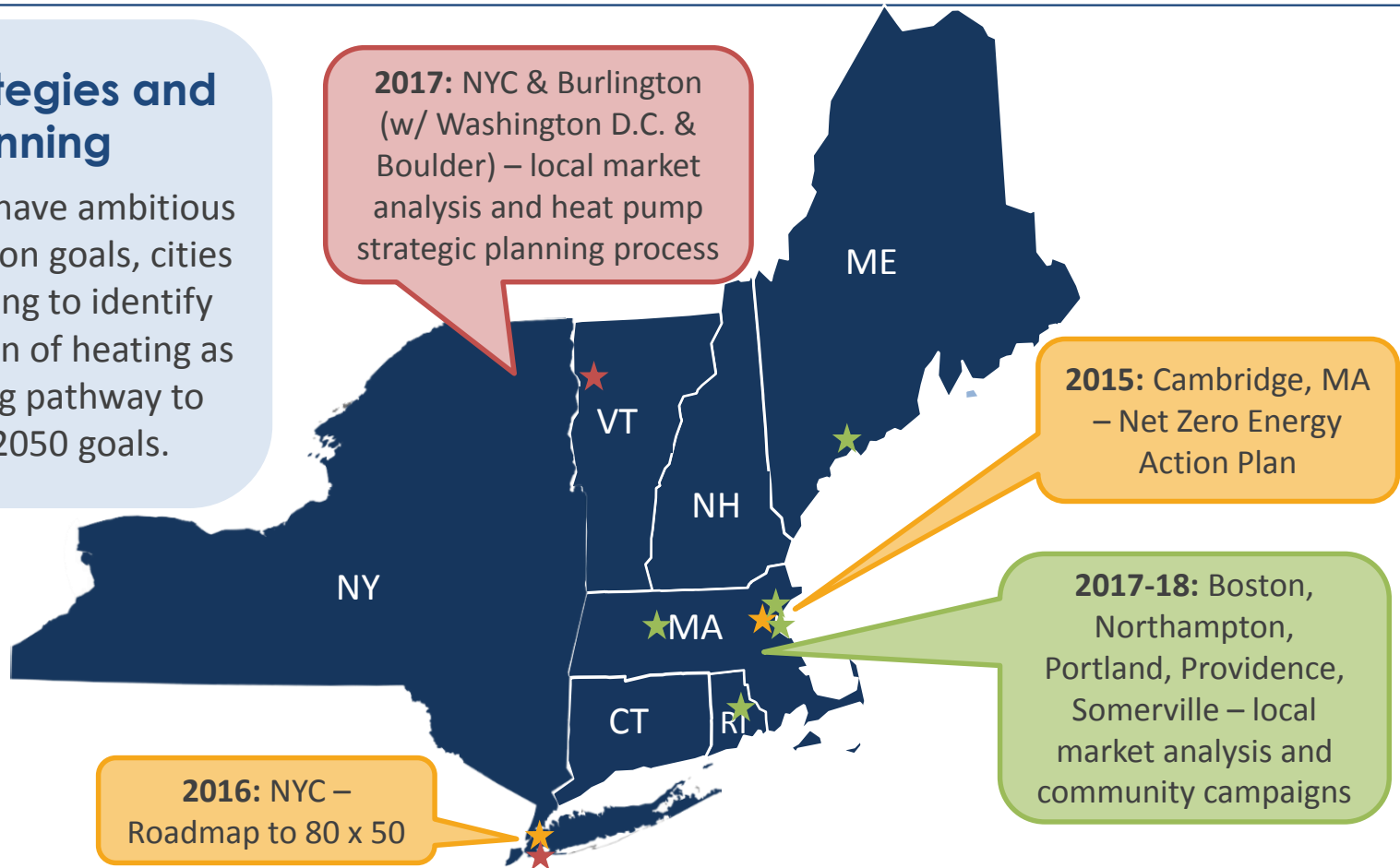


Growing strategic interest across region

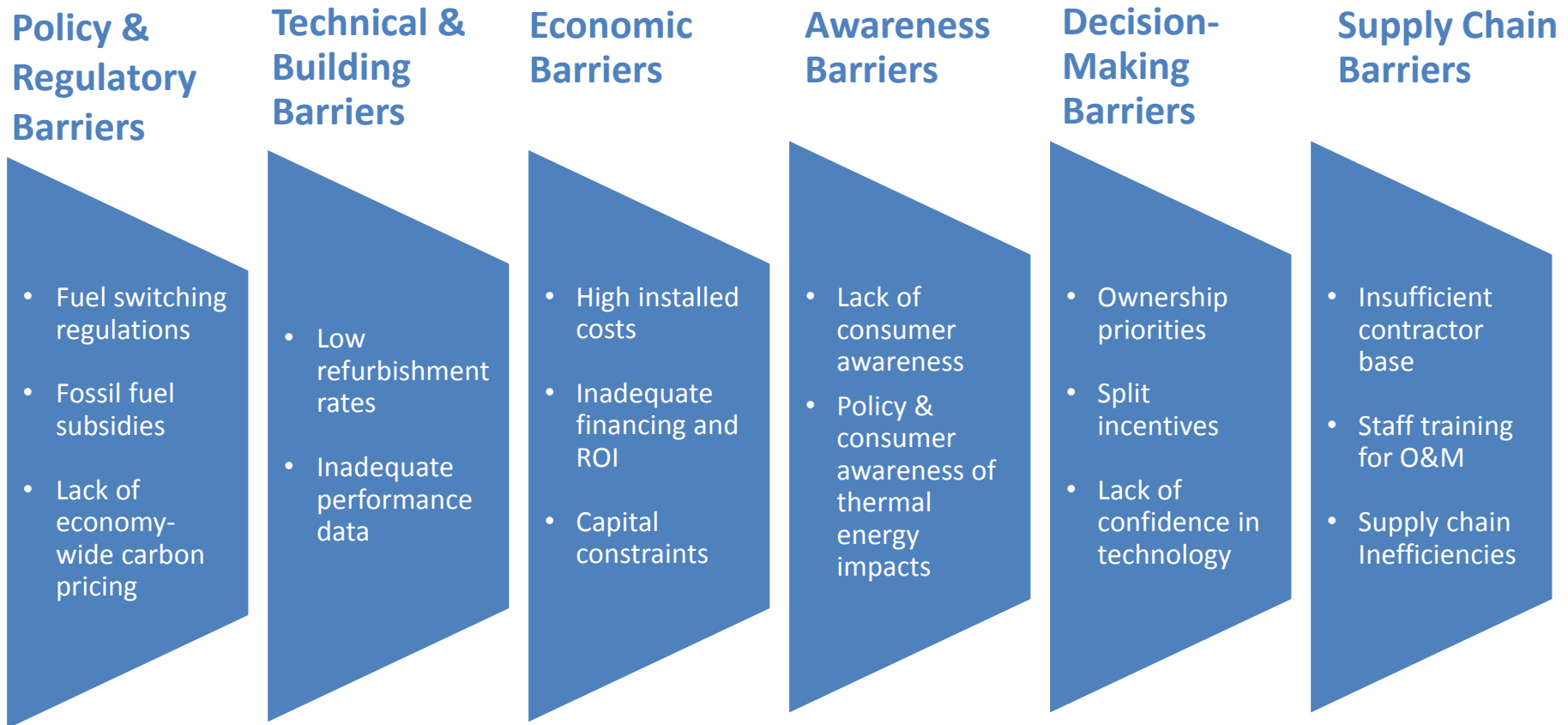
Cities seek to develop policies and programs that complement state programs

City strategies and planning

While cities have ambitious GHG reduction goals, cities are beginning to identify electrification of heating as a promising pathway to 80% by 2050 goals.



What are the barriers to RH&C in the Northeast?



For a more detailed look at market barriers, consult the 2016 update of the NEEP ASHP Market Strategies report or any of the state renewable heating & cooling policy reports (MA, RI, NY, CT)

Policy and program approaches across stakeholder groups

States seek to drive market development and cities are exploring local actions that complement state/utility actions

State Policies & Programs

Mandates & Regulations



- Utility mandates
- Building codes

Incentives & Financing



- Expanded rebates
- Low-cost financing and innovative business models

Workforce Development



- Contractor engagement and supply chain development

Marketing & Outreach



- Raise awareness among vendors, installers, and consumers

QA/QC



- Establish standards and best practices
- Verify system performance

Cost Reductions



- Reduce hard and soft costs of heat pumps



City Policies & Programs

Mandates & Regulations



- Permitting, building codes, other local regulations

Incentives & Financing



- Providing access to LMI populations

Workforce Development



- Local economic development programs
- Local market analyses

Marketing & Outreach



- Outreach and purchasing campaigns

QA/QC



- Qualification of contractors for city programs
- City inspection



Case Study #1:

NYSERDA RH&C Policy Framework & Cost Reductions Study (NY)



Released Feb. 2017

<https://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/NYSERDA/RHC-Framework.pdf>

- » Comprehensive market segmentation study to evaluate RH&C potential across 2000+ market segments

Scenario		% of cost-effective thermal load that could be met by ASHP & GSHP
2017		4%
2021	no cost reductions	8%
	w/ cost reduction interventions	12%
	w/ cost reduction interventions + carbon/grid value incentives	26%

- » Focus on policies and programs that can encourage cost reductions to unlock technical potential
 - › Developed through engagement of industry stakeholders



Case Study #1:

NYSERDA RH&C Policy Framework & Cost Reductions Study (NY) (cont.)



Released Feb. 2017

<https://www.nyserdera.ny.gov/-/media/Files/Publications/PPSER/NYSERDA/RHC-Framework.pdf>

» Cost reduction opportunities

- › Implement community procurement programs
- › Integrate RH&C into existing trade channels
- › Develop customer targeting and engagement tool
- › Provide technical/engineering assistance and project development support
- › Pilot third-party ownership and other innovative business models
- › Expand access to cheaper financing options
- › Facilitate standardized equipment and design approaches
- › Develop unified, streamlined permitting process for RH&C



Case Study #2:

National Grid Delivered Fuels to Energy Project (NY)



Spring 2017

- » National Grid exploring opportunities to deploy ASHP in Niagara-Mohawk electric territory
 - › Targeting electric customers in upstate NY
 - › Exploring under the REV initiative
- » Conducted utility BCA for converting delivered fuel customers to ASHP
- » Exploring outreach and education programs to drive deployment



Case Study #3:

Oil Heat Dealer Workforce Development (RI)



(ongoing)

- » In 2016, RI OER worked with OHI to convene delivered fuel dealers to develop an action plan to support fuel dealers in participating in RT and energy efficiency markets
 - › Engaged 26 RI delivered fuel companies + broader stakeholders
 - › Identified actions that could facilitate fuel dealer expansion into heat pump and efficiency markets
- » OER and OHI, with support from Real Jobs Rhode Island, are broadening engagement to identify training needs to enable fuel dealers to become whole-home energy providers



Case Study #4:

CNCA New England Cities project



(ongoing: Sep 2016-Mar 2018)

- » Carbon Neutral Cities Alliance-supported project with Boston, Northampton, Portland, Providence, and Somerville
- » **Part 1:** Local market analyses
 - › Completed market segmentation analysis of 1-4 family residential buildings in all 5 cities
 - › Conducted customer insights analysis of high-potential customers in each city

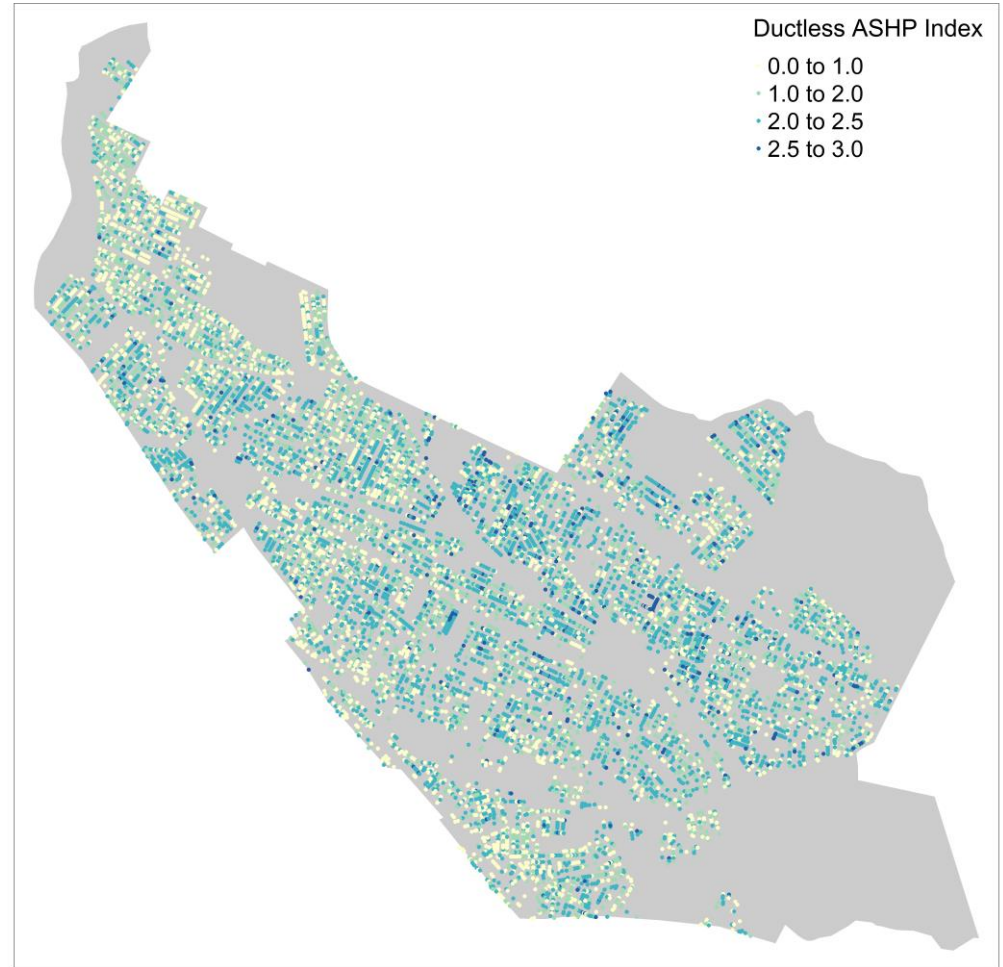


Case Study #4:

CNCA New England Cities project (cont.)



(ongoing: Sep 2016-Mar 2018)





Case Study #4:

CNCA New England Cities project (cont.)



(ongoing: Sep 2016-Mar 2018)

- » **Part 2:** Community group purchasing and outreach campaigns
- » Each city approaching local market in different ways
 - › Casco Bay Heat Pump Challenge
 - › HeatSmart/CoolSmart Somerville
 - › HeatSmart Northampton
 - › Renew Boston Heat Pump Program (TBD)
 - › Providence Energy Fair

Evolution of heat pump policies and programs

Where do we go next?



Thank you!

Any questions?



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