



# Energy Efficiency Snapshot 2020

Energy Efficiency by the Numbers in the  
Northeast and Mid-Atlantic States

# Northeast Energy Efficiency Partnerships



*“Assist the Northeast and Mid-Atlantic region to reduce building sector energy consumption at least 3% per year and carbon emissions at least 40% by 2030 (relative to 2001)”*

## Mission

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

## Vision

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

## Approach

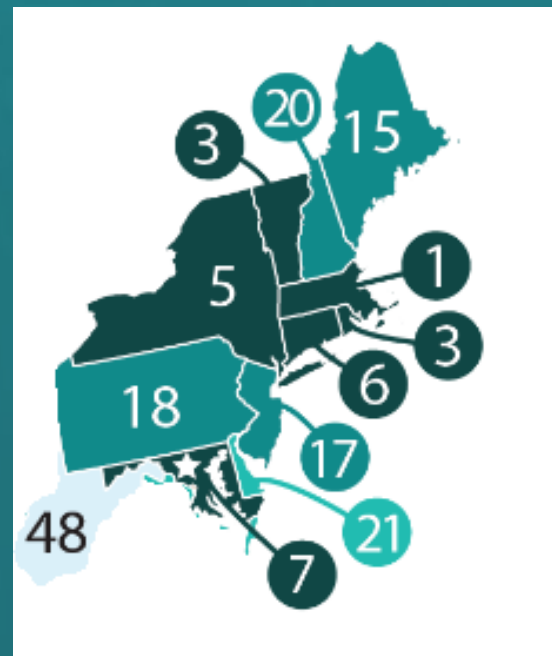
Drive market transformation regionally by fostering collaboration and innovation, developing tools, and disseminating knowledge.



# What is NEEP's Annual Snapshot?

An overview of energy efficiency by the numbers in the Northeast and Mid-Atlantic region. It includes information about:

- State energy efficiency policies and savings goals
- Public policies furthering advanced energy efficiency
- Energy efficiency as an economic driver
- Per capita energy efficiency expenditures
- Energy efficiency as the least-cost energy resource
- Cost of saved energy by state
- Efficiency savings as a percent of retail sales
- Energy savings by sector and program type
- Avoided carbon emissions from energy savings



ACEEE 2019 State Scorecard Rankings

Sources include the [Regional Energy Efficiency Database \(REED\)](#), program administrator plans, annual reports, the U.S. Energy Information Administration, and [ACEEE](#).

# Regional Energy Efficiency Database (REED)



This Snapshot includes data from NEEP's Regional Energy Efficiency Database (REED). REED includes the following energy efficiency program data for program years 2011-2018:

- Annual & Lifetime Electric and Gas Energy Savings
- Peak Demand Savings
- Avoided Air Emissions
- Program Expenditures
- Job Creation Impacts
- Cost of Saved Energy
- Supporting Information



REED jurisdictions include: Connecticut, the District of Columbia, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

# Energy Efficiency Policies and Goals

## New England Region



All six New England states: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont have an **All-Cost Effective Energy Efficiency Policy**. Program Administrators vary from gas and electric utilities to state efficiency agencies.

These policies create **state targets for electric and gas savings** as a percent of retail sales.



For policy links, program administrator information, and state by state targets, see Appendix A.

# Energy Efficiency Policies and Goals

## Mid-Atlantic Region



The Mid-Atlantic region boasts a variety of energy saving policy types, each program administered by state-specific utilities:

STATE	POLICY TYPE
Delaware	<u>All Cost-Effective Energy Efficiency</u>
District of Columbia	<u>Efficiency Utility Goals</u>
Maryland	<u>Energy Efficiency Resource Standard</u>
New Jersey	<u>Efficiency Funding</u>
New York	<u>New Efficiency New York</u> <u>Order Adopting Accelerated EE Targets</u>
Pennsylvania	<u>Energy Efficiency &amp; Conservation (EE&amp;C)</u> <u>Plans</u>

For program administrator information and state by state targets, see Appendix B.

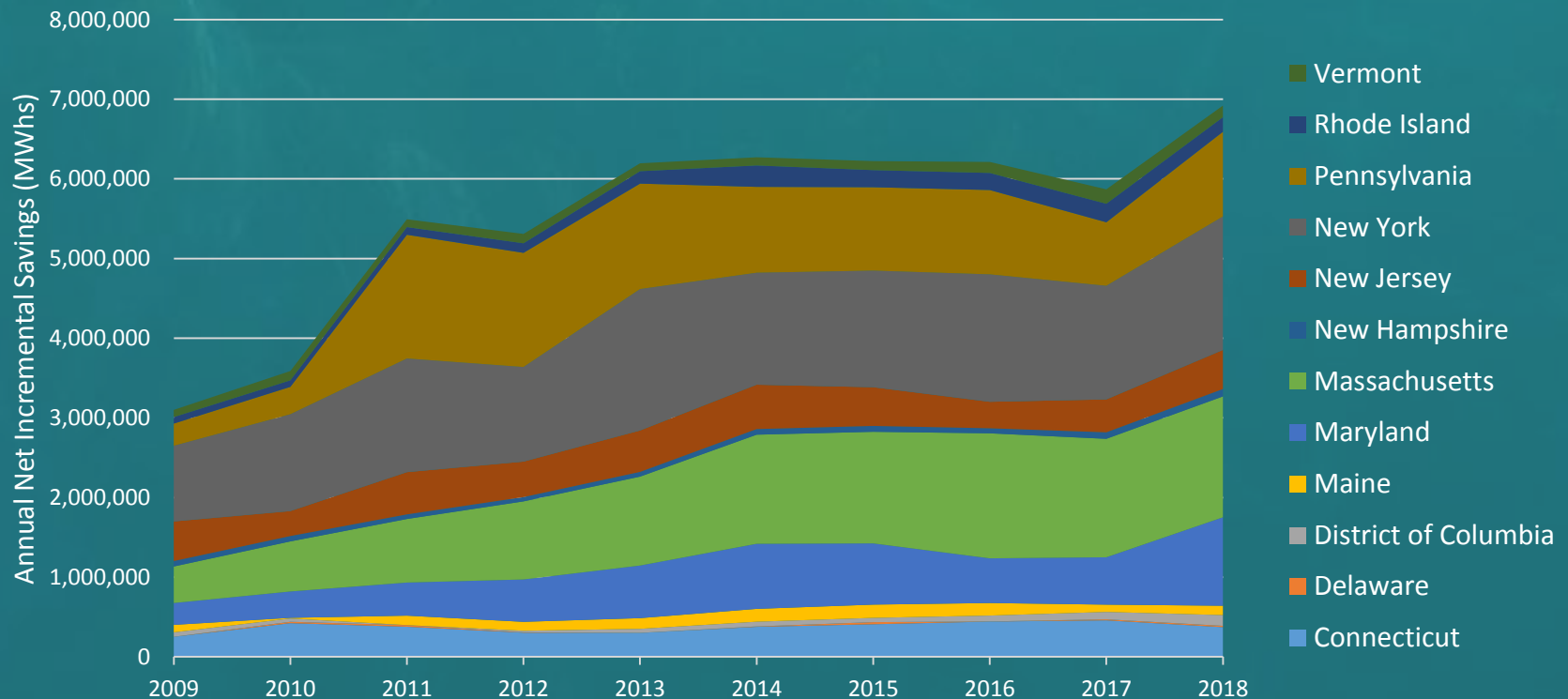


# Energy Efficiency Policies and Goals

## Significant Electric Energy Savings



Annual incremental electric energy savings from energy efficiency programs in the region have increased significantly from ~3.1 million MWh in 2009 to ~6.9 million MWh in 2018.



**Sources:** A combination of NEEP's [REED](#), Program Administrator reports, and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.

# Energy Efficiency Policies and Goals

## Growing Natural Gas & Fuels Energy Savings



Annual incremental energy savings from natural gas and fuels efficiency programs in the region are also substantial and growing. Regional total annual savings increased **33%** from 2017 to 2018, from 110.7 to 147.1 million therms.

### 2017 Annual Savings

**67,590** homes'  
energy use for  
one year

OR

**126,540**  
passenger  
vehicles driven  
for one year



### 2018 Annual Savings

**89,810** homes'  
energy use for  
one year

OR

**168,150**  
passenger  
vehicles driven  
for one year



# Public Policy Advancements Leading to Advanced Energy Efficiency



## Advanced Efficiency Policy and Program Strategies:

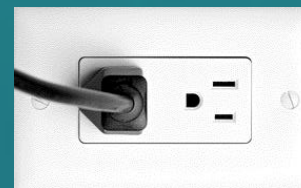
### Grid Modernization



### New Utility Business Models



### Strategic Electrification



### Evolution of Financing Tools



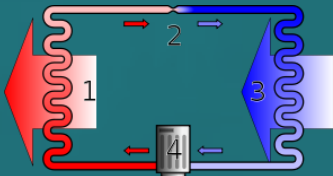
### Advanced EM&V



### Advanced Building Policies



### Innovation in Technology



### Integrating Demand Response



For more detailed information on these strategies and state highlights, see Appendix C.

# Public Policy Advancements

## Fuel Switching in the NEEP Region



*Replacing inefficient fuels with cleaner and economical alternatives*, reducing energy consumption and costs for end-users, and curbing carbon emissions.



### Fuel Neutral Goals: State Highlights

Fuel-neutral savings goals are overall savings goals for energy or GHG emissions that don't specify the resource from which the energy savings must come

**New York:** 185 TBtus total annual site energy savings from 2015–2025, relative to forecast energy consumption in 2025. Plus an electricity sub-target for electric efficiency savings to hit 3% of sales by 2025, and a clean heating target.

**Massachusetts:** The 2018 Act to Advance Clean Energy focuses on reducing overall energy use (i.e. strategic electrification, fuel conversion to renewable energy sources, clean energy technologies). Program administrators will not recommend one fuel over another, but rather provide education about environmental costs and benefits of fuel switching measures.

# Energy Efficiency as an Economic Driver

## Job Creation and Economic Growth



Energy efficiency is the **fastest-growing jobs sector in the energy industry**, accounting for about half (76,000) of the entire energy industry's new jobs (151,700) in 2018.



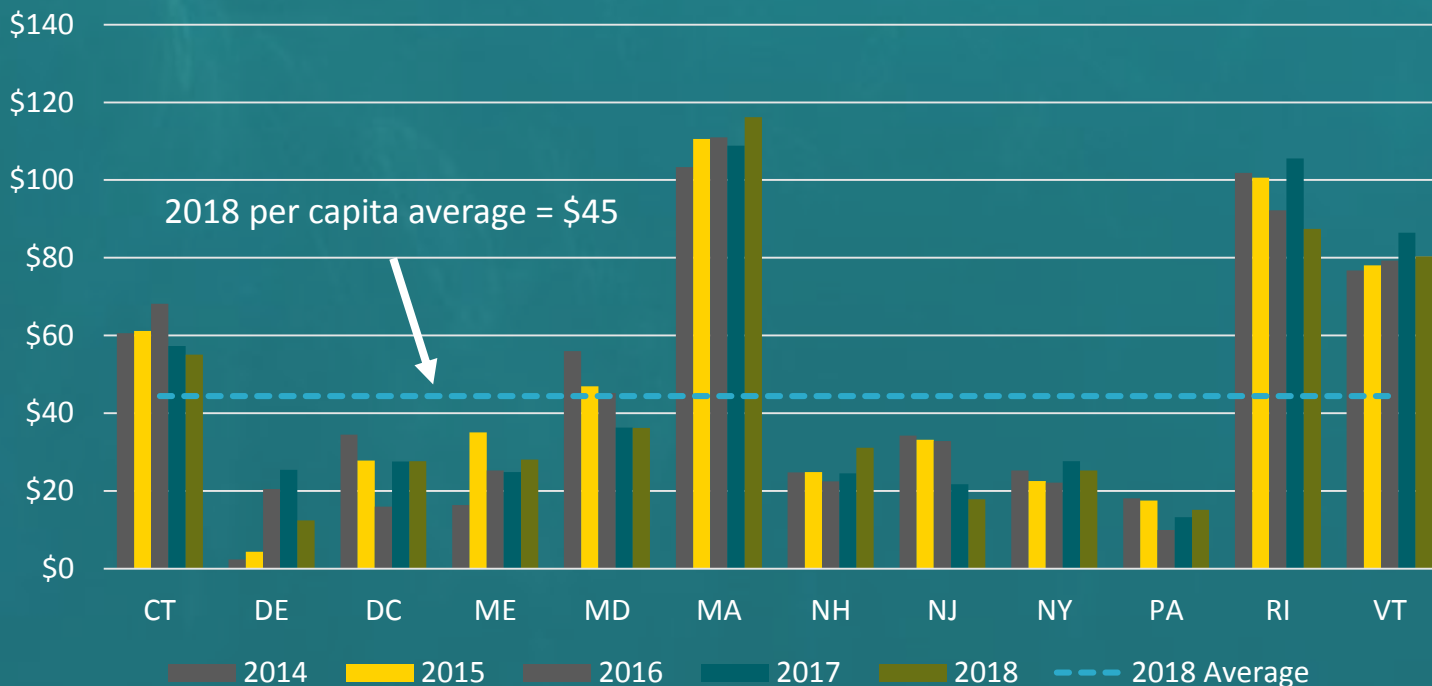
	Percent Total Population Employed By EE	Total Direct Jobs in Energy Efficiency
DC	1.76%	12,807
VT	1.75%	11,035
DE	1.28%	12,514
MA	1.23%	86,473
RI	1.19%	12,773
MD	1.14%	70,530
CT	0.97%	35,597
NH	0.84%	11,733
ME	0.62%	8,647
NY	0.60%	123,292
PA	0.51%	68,820
NJ	0.38%	36,206

# Per Capita Energy Efficiency Investments

## Electric and Natural Gas Programs Combined



Energy efficiency investments are robust across the Northeast and Mid-Atlantic region. In 2018, total energy efficiency program investments averaged \$45 per capita, holding steady with the last several years.



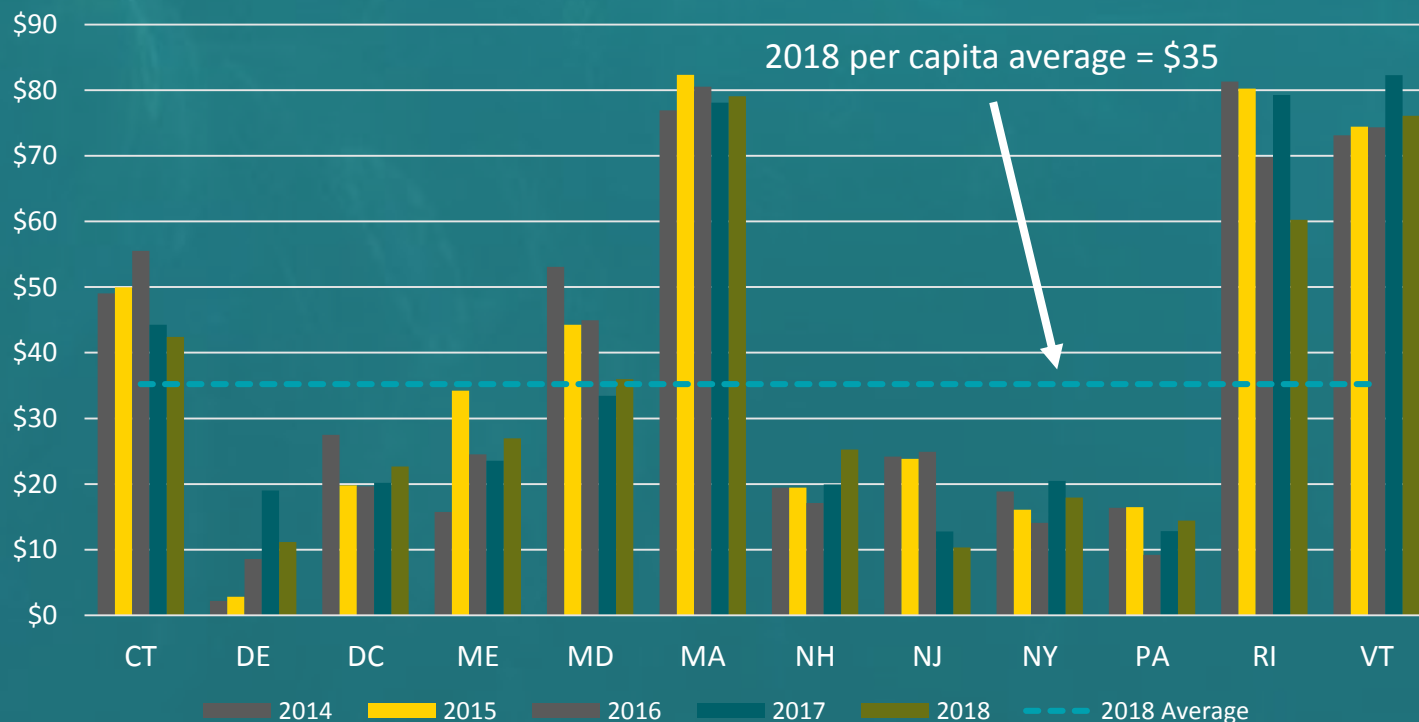
**Sources:** A combination of NEEP's [REED](#), Program Administrator reports, and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.



# Per Capita Energy Efficiency Investments Electric Programs, 2014-2018



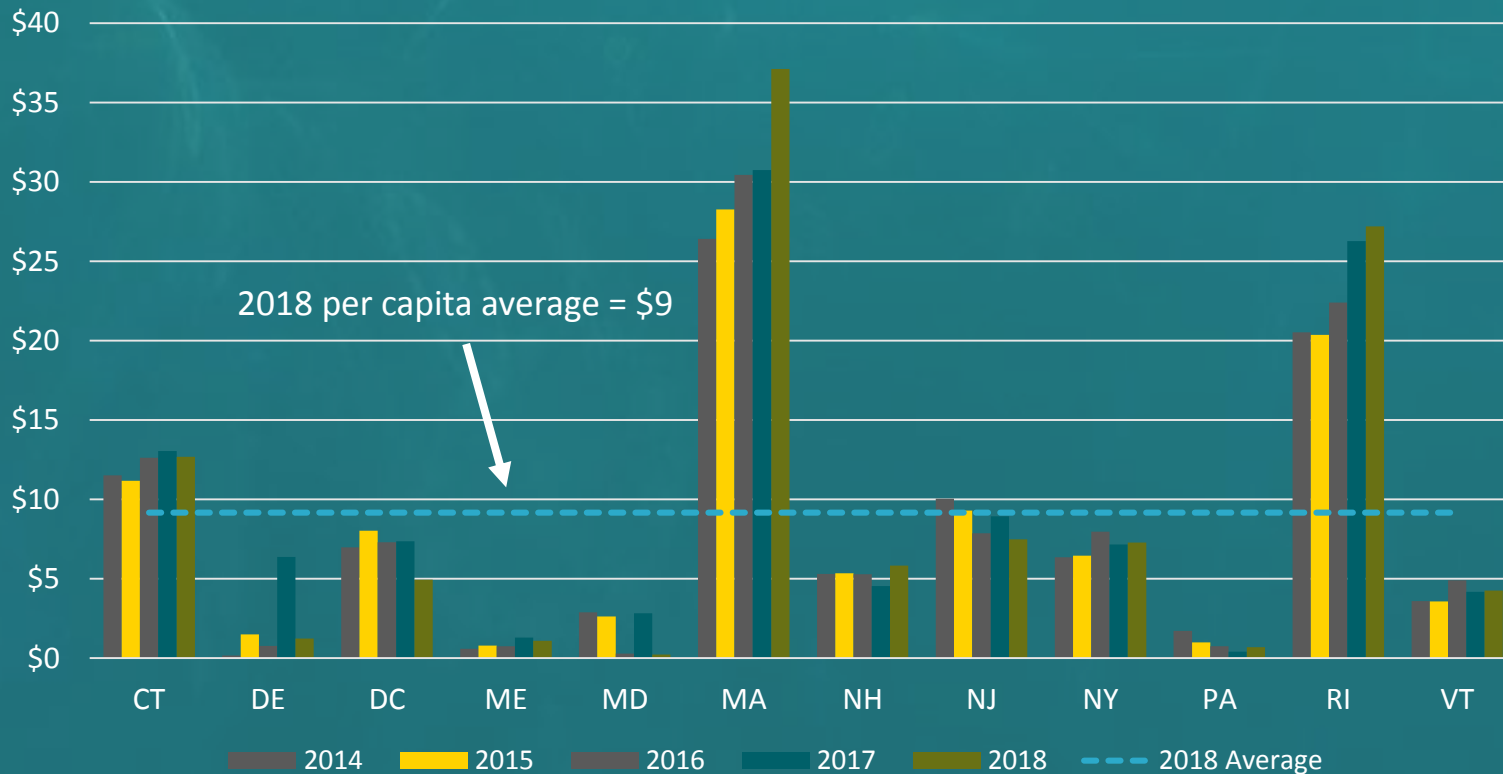
Most per capita energy efficiency investments in the NEEP region are directed towards electric programs, largely because avoided costs for electricity are higher than for natural gas. The average 2018 per capita electric investment was \$35, on par with 2017.



**Sources:** A combination of NEEP's [REED](#), Program Administrator reports, and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.

# Per Capita Investment Natural Gas Programs, 2014-2018

On a per capita basis, investments in natural gas efficiency programs in the region are generally lower than investments in electric programs. The average 2019 per capita gas investment was \$9, holding steady with 2017.



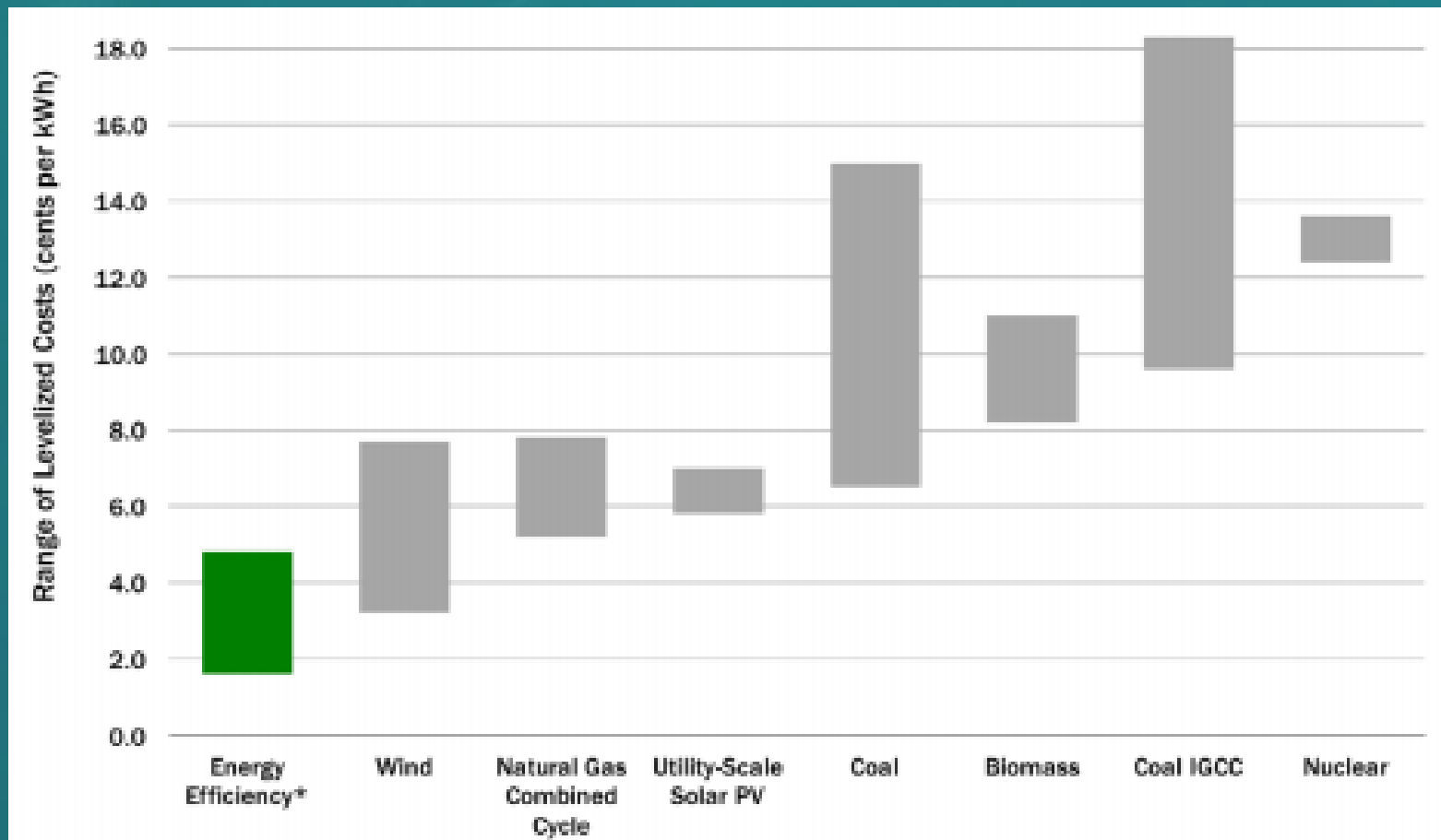
**Sources:** NEEP's [REED](#), Program Administrator reports, EIA Form 176 and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.



# Energy Efficiency

## The Least-Cost Energy Resource

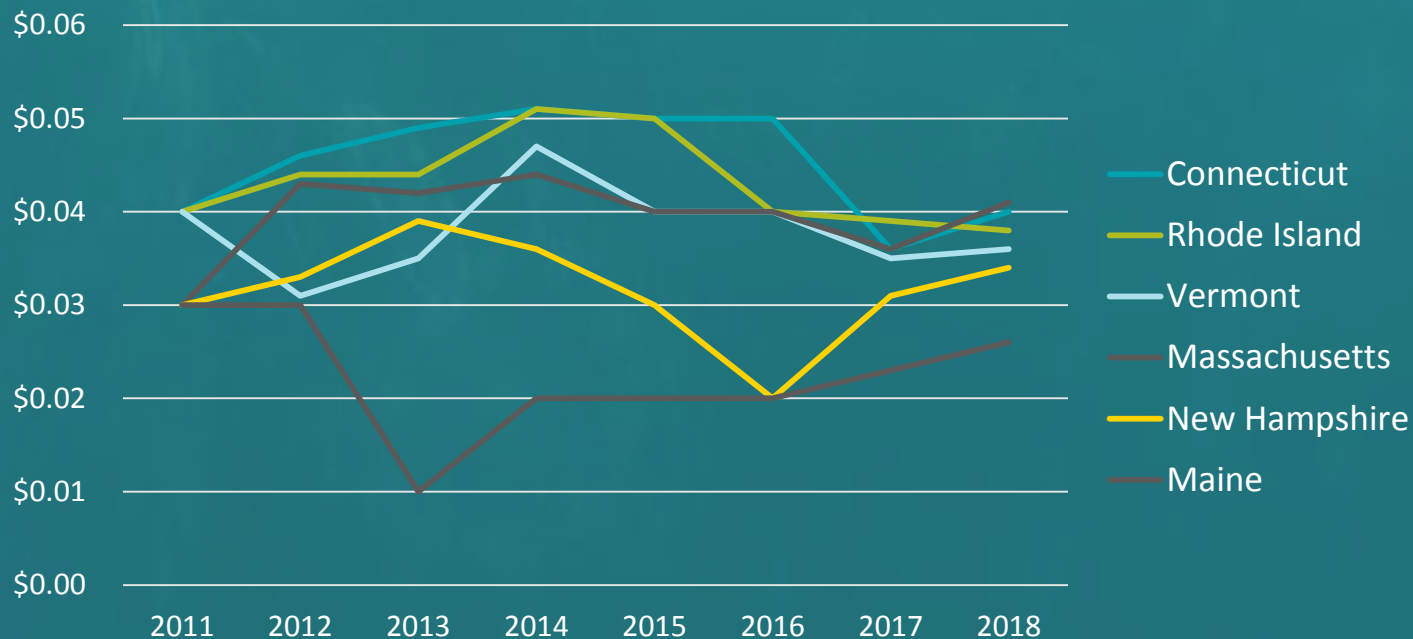
With a levelized cost of **\$0.01-\$0.05/kWh**, investments in energy efficiency are more cost-effective than investments in *any* conventional energy generation resource.



# Levelized Cost of Saved Electricity: New England States



The cost of saved energy for 2018 electric energy efficiency programs in the New England states ranged from **\$0.02 - \$0.04/kWh**, confirming on a regional level the findings of the study referenced in the previous slide. These figures continue to cement energy efficiency's role as the least-cost energy resource.



**Source:** NEEP's [REED](#). For additional information about state energy efficiency programs and practices that affect the cost of saved energy, please see the REED Supporting Information report.

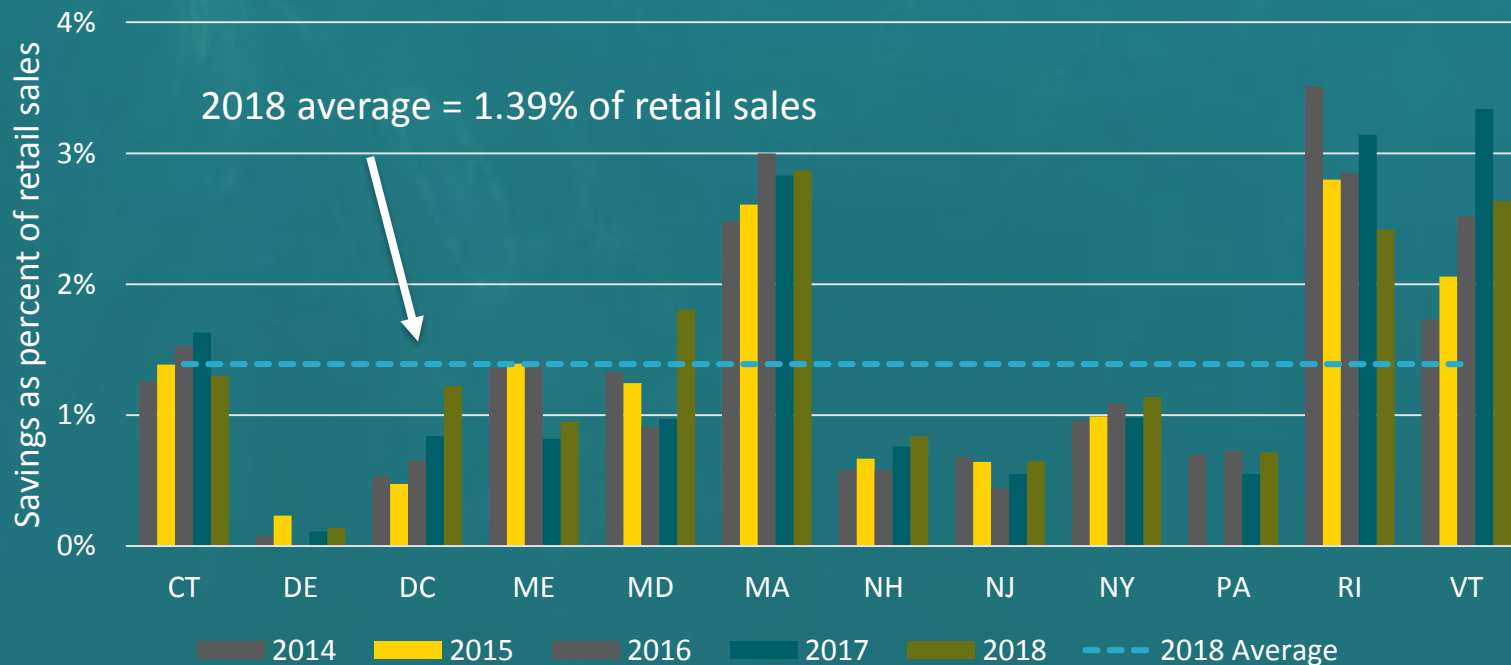
**Note:** Cost of saved energy figures are based on a consistent discount rate across states, derived from the long-term U.S. treasury bond.

# Savings as a Percent of Retail Sales

## Electric Programs, 2014-2018



States in the REED region are national leaders in electric energy savings as a percent of sales, helped by aggressive state energy policies. In 2018, jurisdictions in the Mid-Atlantic improved in this metric, particularly Maryland and DC. New England states also maintained strong results. The 2018 average of 1.39% of retail sales kept pace with 2017.

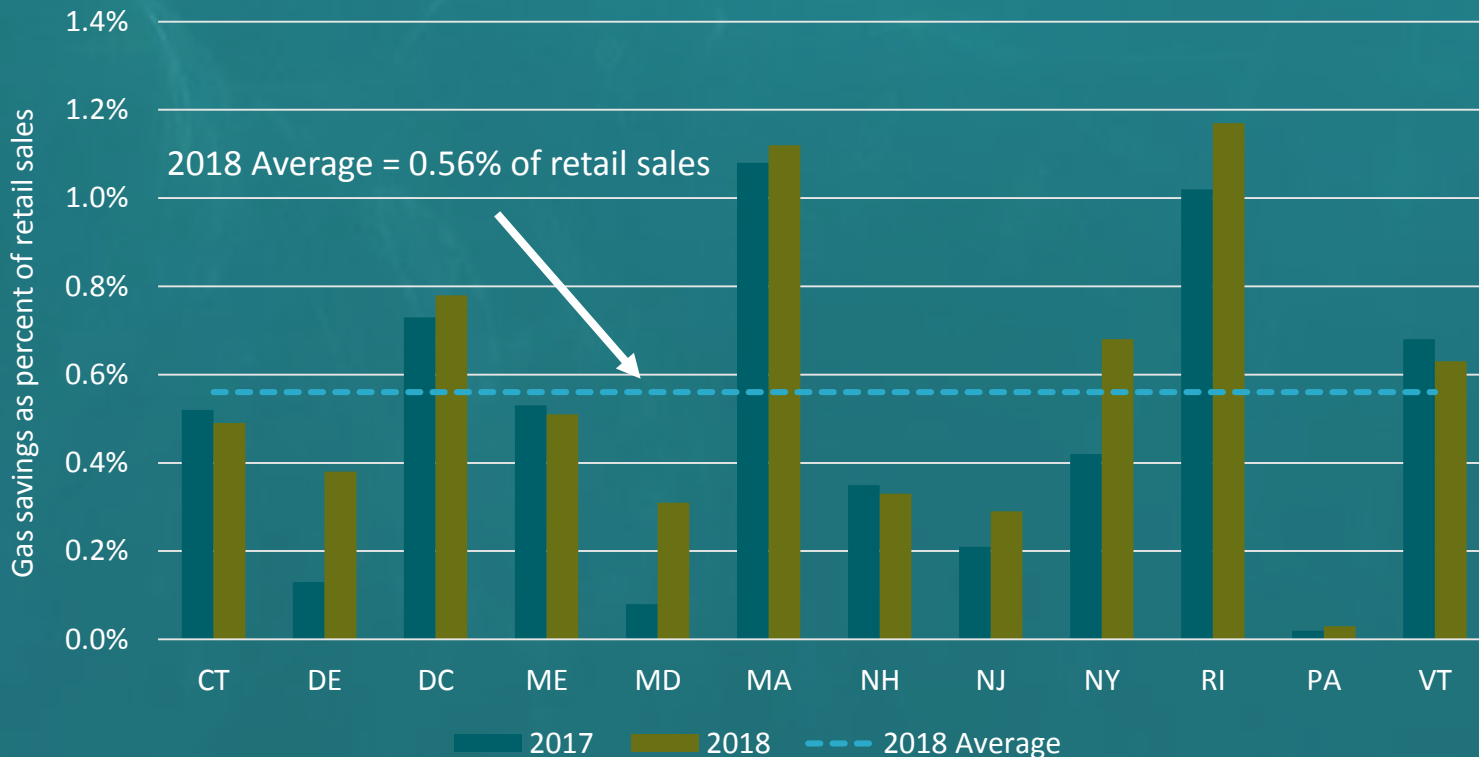


**Sources:** A combination of NEEP's [REED](#), Program Administrator reports, EIA Form 861, and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.

# Savings as a Percent of Retail Sales

## Natural Gas & Fuels Programs, 2017-2018

For natural gas and fuels programs, leading states are achieving energy savings of 1% of retail sales, with MA and RI exceeding that mark in 2017 and 2018. In 2018, the region averaged 0.56% of retail sales, an increase from 2017.



**Source:** ACEEE's [State Energy Efficiency Scorecard](#).

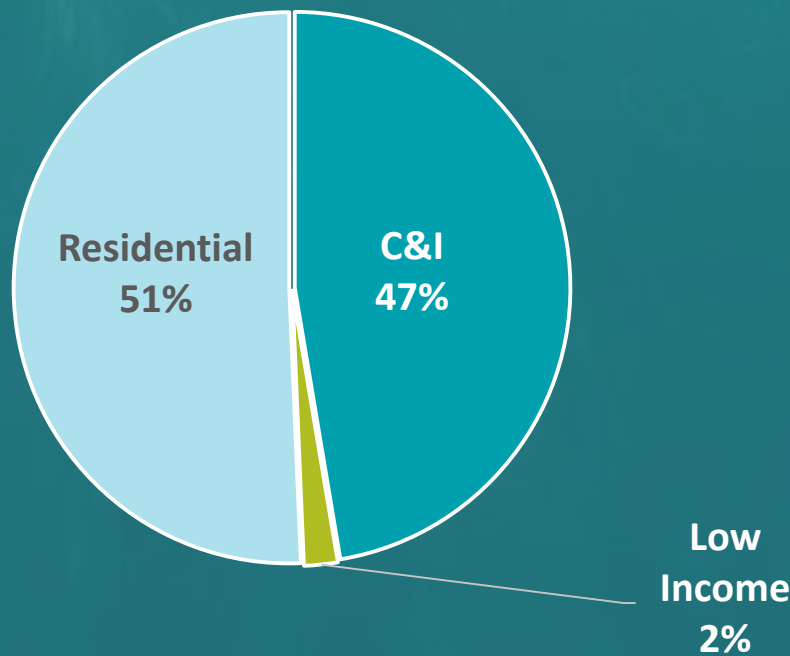
Note: REED data is not used here because it does not include consistent data across states from fuels programs. NEEP plans to collect this information as part of its program year 2019 data collection process.

# Energy Savings (MWh) by Sector 2018



On a regional level, electric energy efficiency programs achieved nearly an equal amount of savings in 2018 from the Commercial & Industrial and Residential sectors, with limited savings coming from the Low-Income sector.

## Annual Electric Energy Savings



Energy savings from the Low-Income sector as percent of total savings is likely to increase in future years as states address **equity issues** and direct program administrators to target programs to **Low and Moderate Income communities**.

# Energy Savings by Program Type 2018



The tables below highlight the top energy saving program types for 2018 electric and gas energy savings.

## Electric

Program Type	% of Total Savings
Lighting/Appliances	39%
Retrofit Large – C&I	19%
Retrofit Small – C&I	11%
Behavior	10%

## Gas

Program Type	% of Total Savings
Retrofit Large – C&I	21%
Residential Retrofit	20%
Behavior	20%

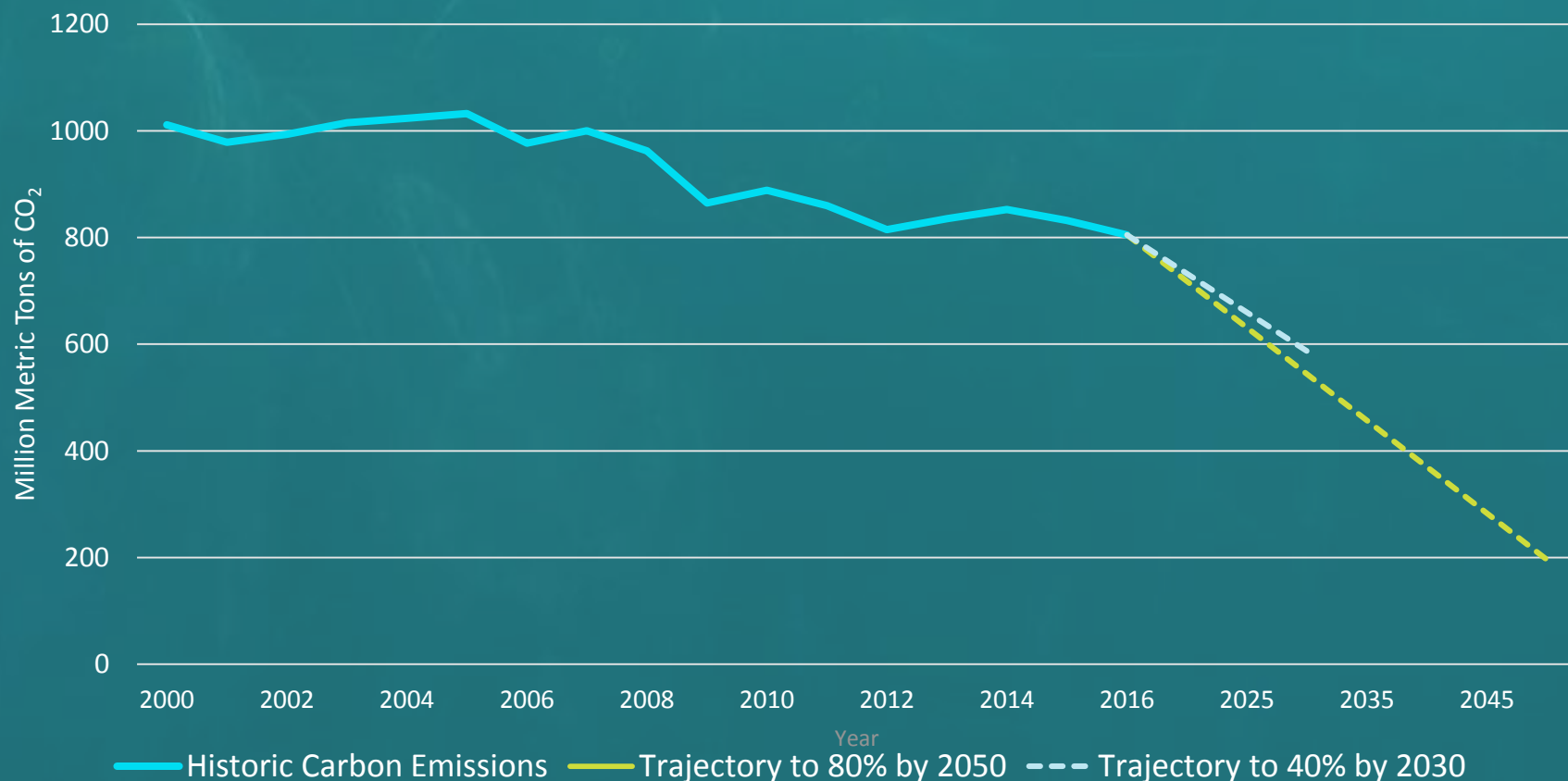


# Regional Carbon Emissions

## *Getting to 40% by 2030 and 80% by 2050*



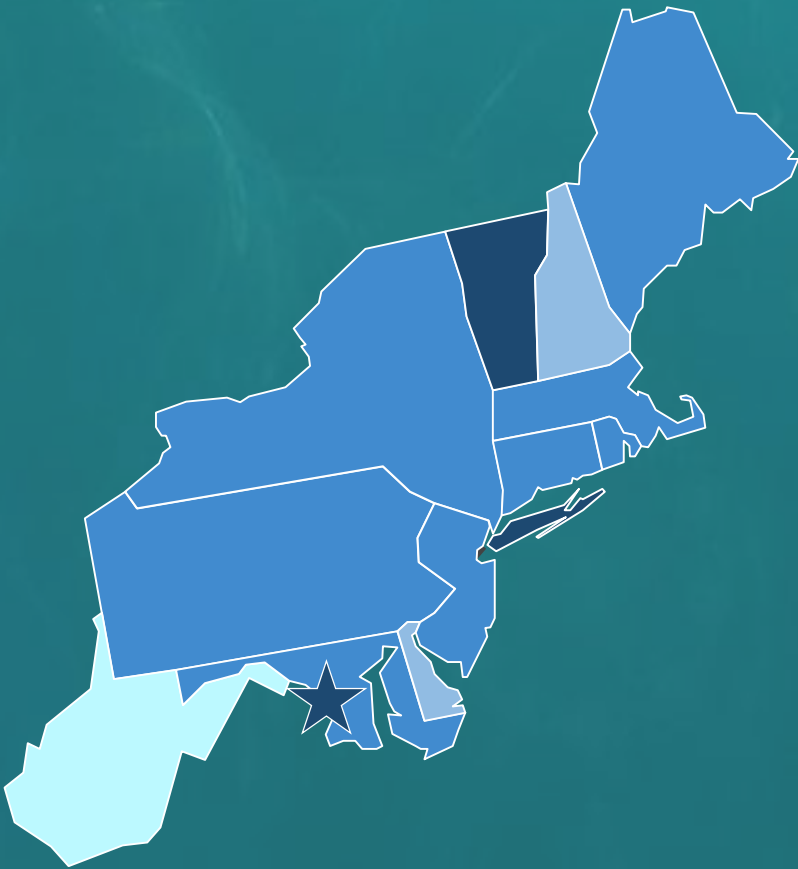
For an 80 percent reduction by 2050 from all sectors, states need to **invest** further in energy efficiency, **strategically electrify** end-uses (building HVAC and transportation) and power the grid with **renewable energy**.



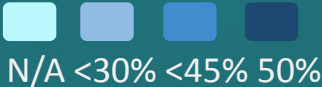
# NEEP Region's Aggressive Carbon Reduction Targets



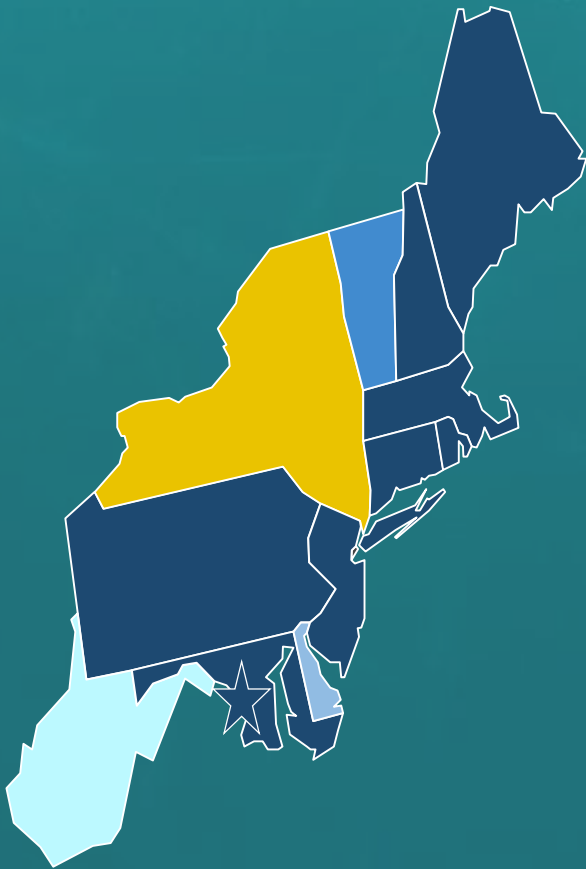
Carbon Reductions Goals by 2030



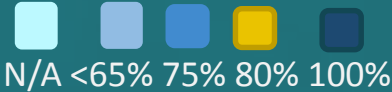
Carbon Reduction 2030  
\*By predetermined baseline



Carbon Reductions Goals by 2050



Carbon Reduction 2050  
\*By predetermined baseline

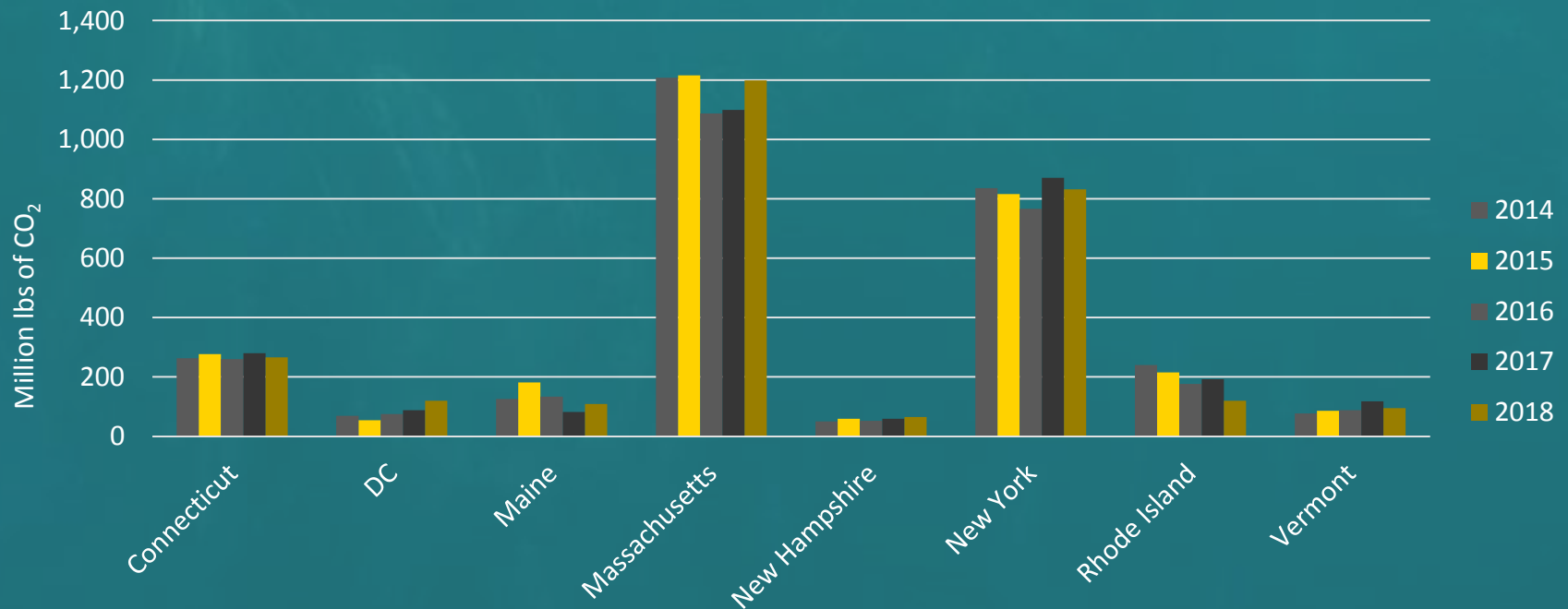


# Energy Efficiency Leads to Avoided Carbon

## Avoided CO2 Emissions: 2014-2018



Avoided carbon emissions are shown below for the eight states that provided energy efficiency program data to REED consistently from 2014-2018. These states' 2018 efficiency programs in REED resulted in **2.8 billion pounds of avoided carbon emissions**. This is equivalent to CO2 emissions from **146,800 homes'** energy use for one year.



# More from NEEP: A Sample of Reports

Mid-Atlantic Technical  
Reference Manual (TRM)  
Version 10  
March 2020

Building Decarbonization  
Public Policy Framework  
2019

Grid-Interactive Efficient  
Buildings (GEBs) Tri-Region  
Status Report  
January 2020



*Please find the latest news and insights at [neep.org](http://neep.org)*

# Questions?



## For More Information on State Policies or REED:

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# Appendices



# Appendix A

## Energy Efficiency Policies and Goals *New England*



STATE	POLICY TYPE	PROGRAM ADMINISTRATOR	ENERGY SAVINGS GOALS
<b>Connecticut</b>	<a href="#"><u>All Cost-Effective Energy Efficiency</u></a>	Electric & Gas Utilities <a href="#"><u>2019-2021 Plan</u></a>	Electric: 1.13% retail sales for 2019-2021 Gas: 0.60% retail sales for 2019-2021 (forecasted retail sales)
<b>Maine</b>	<a href="#"><u>All Cost-Effective Energy Efficiency</u></a>	Efficiency Maine Trust <a href="#"><u>FY 2020-2022 Plan</u></a> <a href="#"><u>Budgets and Metrics</u></a>	Electric and Gas: Savings of at least 20% by 2020. Incremental savings targets of ~2.4%/year for electric and ~0.2%/year for gas for 2017-2019
<b>Massachusetts</b>	<a href="#"><u>All Cost-Effective Energy Efficiency</u></a>	Electric & Gas Utilities + CLC <a href="#"><u>2019-2021 Three-Year Plans</u></a> <a href="#"><u>Term Sheet</u></a>	Electric: 2.70% retail sales for 2019-2021 Gas: 1.25% retail sales for 2019-2021 (forecasted retail sales)
<b>New Hampshire</b>	<a href="#"><u>All Cost-Effective Energy Efficiency</u></a>	Electric & Gas Utilities <a href="#"><u>2018-2020 Plan</u></a>	Electric: 0.8% retail sales in 2018, 1% in 2019 and 1.3% in 2020 Gas: 0.7% retail sales in 2018, 0.75% in 2019, and 0.8% in 2020
<b>Rhode Island</b>	<a href="#"><u>All Cost-Effective Energy Efficiency</u></a>	Electric & Gas Utilities <a href="#"><u>2018-2020 Plan</u></a>	Electric: 2.6% retail sales Gas: 1.03% retail sales (2015 retail sales)
<b>Vermont</b>	<a href="#"><u>All Cost-Effective Energy Efficiency</u></a>	Efficiency Vermont, BED, VGS <a href="#"><u>2018-2020 Plan</u></a>	Electric: 2.3% retail sales Gas: 0.9% retail sales (forecasted retail sales)

# Appendix B

## Energy Efficiency Policies and Goals *Mid-Atlantic*



STATE	POLICY TYPE	PROGRAM ADMINISTRATOR	ENERGY SAVINGS GOALS
Delaware	<a href="#">All Cost-Effective Energy Efficiency</a>	Utilities + Sustainable Energy Utility	Voluntary energy savings targets Electric: 2018 = 0.7%, 2019 = 1.0% Gas: 2018 = 0.3%, 2019 = 0.5%
District of Columbia	<a href="#">Efficiency Utility Goals</a>	Sustainable Energy Utility  <a href="#">2018 Performance Benchmark Report</a>	Electric: 1.06% (min target) to 1.5% (max target) retail sales for 2017-2018 Gas: 0.66% (min target) to 1.0% (max target) retail sales for 2017-2018 (2014 retail sales)
Maryland	<a href="#">Energy Efficiency Resource Standard</a>	Electric and Gas Utilities	Electric: 2.0% retail sales ( <a href="#">2020</a> )
New Jersey	<a href="#">Efficiency Funding</a>	NJCEP OCE+ Utilities Strategic Plan	No mandated savings goals
New York	<a href="#">New Efficiency New York Order Adopting Accelerated EE Targets</a>	NYSERDA + Utilities <a href="#">NYSERDA Clean Energy Fund Utility ETIPs</a>	Incremental targets vary by utility (0.4% to 0.9% for 2016–2018). 185 Tbtu site energy savings by 2025
Pennsylvania	<a href="#">Energy Efficiency &amp; Conservation (EE&amp;C) Plans</a>	Electric Utilities <a href="#">Act 129 Phase III</a>	Average electric savings of ~ 3.7% (range of 2.6% - 5.0%) from EE between 2016-2021; No Gas

# Appendix C

## Public Policy Advancements *Leading to Advanced EE*



STRATEGIES	ADVANCED EFFICIENCY POLICY AND PROGRAMS	HIGHLIGHTED STATES
New Utility Business Models	Developing in order to ensure utilities remain profitable and remain in accordance with new state policies aimed at achieving carbon reduction and a cleaner, cheaper, and more reliable energy system.	NY, RI
Grid Modernization	Examining new utility frameworks responsive to emerging technologies/societal challenges and anticipating proliferation of multi-directional power flows, while also emphasizing greater customer engagement.	CT, MA, NH, NY, PA
Strategic Electrification	Powering end-uses with electricity instead of fossil fuels in a way that increases energy efficiency and reduces pollution, while lowering costs to customers and society, as part of an integrated approach to deep decarbonization.	CT, MA, ME, NY, RI, VT
Innovations in Technology and Tools	Harnessing new technology and policy innovations to enhance customer understanding about energy usage through expanded energy data access, information communication technologies, and strategic energy management strategies.	CT, MA, NY, RI, VT
Integrating Energy Efficiency and Demand Response	Pairing energy efficiency program planning with opportunities for demand response in a manner that enhances cost-effectiveness and reduces peak load growth.	ME, PA, RI
Advanced Measurement and Verification	<p>“Smart” meters and devices provide rapid feedback on energy usage data of at least hourly time resolution. These technologies paired with the availability of inexpensive computing power and software capable of learning are referred to as Advanced M&amp;V.</p> <p>While still emerging, Advanced M&amp;V tools hold great promise in automating or streamlining processes, reducing the time and cost involved and delivering comparable if not greater accuracy.</p>	CT, MD, NY
Evolution of Financing Tools and New Funding Mechanisms	<p>Leveraging private capital investments to increase funding available for energy efficiency programs through the use of Green Banks and related credit facilities.</p> <p>Exploring new funding mechanisms for energy efficiency strategies that expand beyond ratepayer funded programs, such as carbon pricing.</p>	CT, MA, RI
Advanced Building Policies	Shifting toward a whole-building approach to efficiency emphasizing advanced building energy codes, code compliance mechanisms, and building energy rating and labeling practices that drive toward “zero energy.”	MA, MD, ME, RI, NY, VT,