



Energy Efficiency Snapshot 2021

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

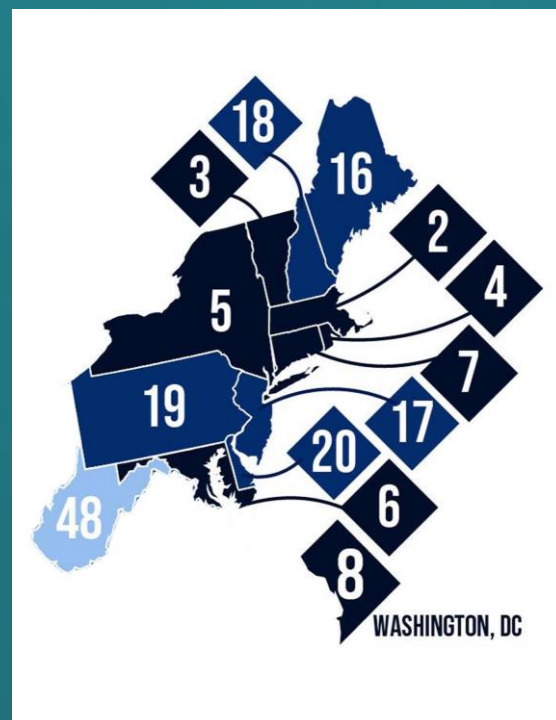
Drive market transformation regionally by fostering collaboration and innovation, developing tools, and disseminating knowledge.



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 2020 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 2011-2019:

- 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 & Conservation (EE&C) Plans</u>

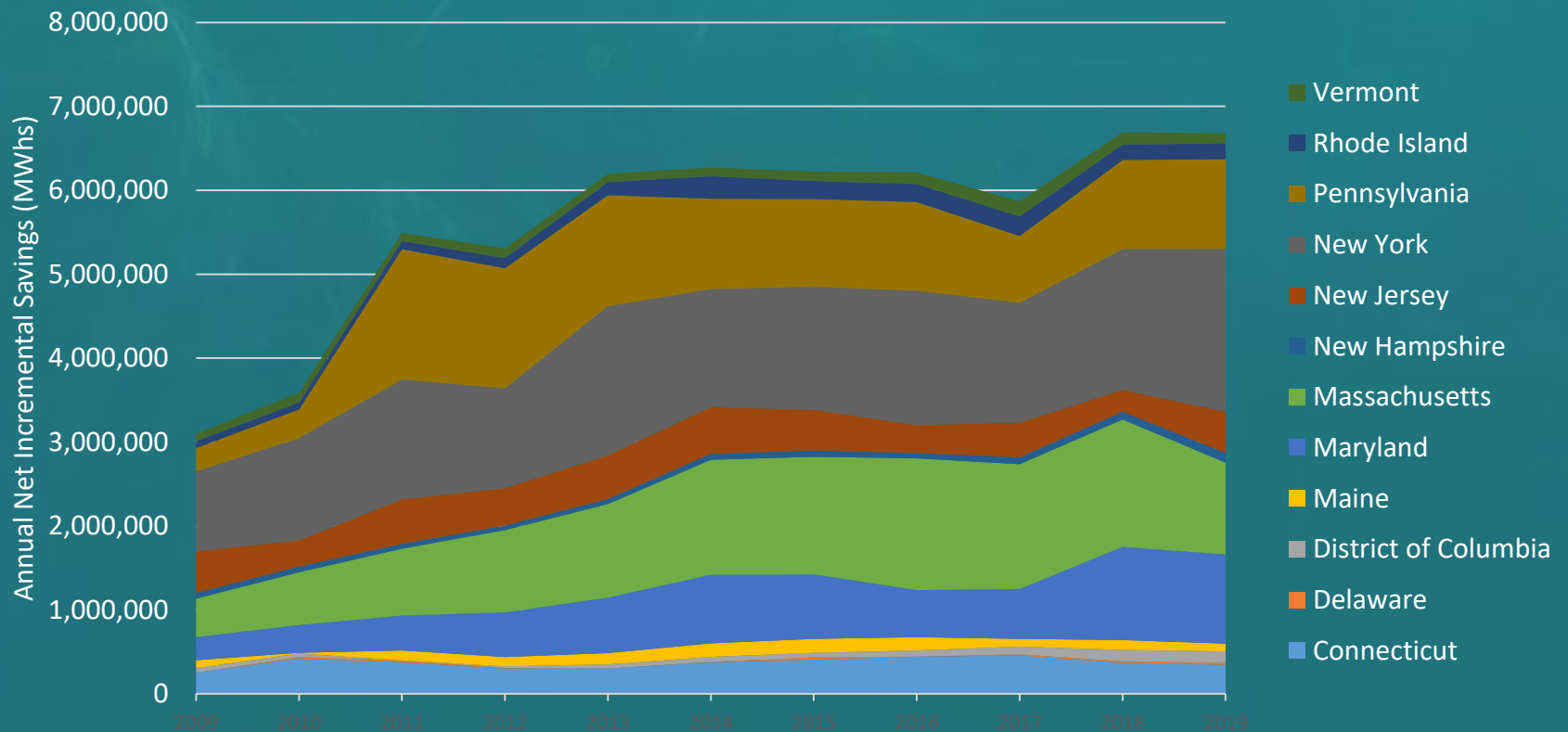
For program administrator information and state by state targets, see Appendix B.

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 2019.



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

Natural Gas & Fuels Energy Savings



Annual incremental energy savings from natural gas and fuels efficiency programs in the region are also substantial. However, Regional total annual savings decreased **8.7%** between 2018 and 2019 from 147.1 million therms to 134.3 million therms.

2018 Annual Savings

93,732 homes'
energy use for
one year

OR

169,277
passenger
vehicles driven
for one year



2019 Annual Savings

85,577 homes'
energy use for
one year

OR

154,549
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



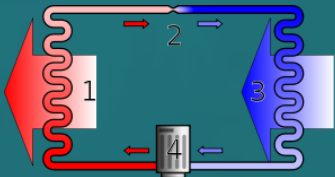
Advanced EM&V



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



“99.8% of counties have energy efficiency workers.” Energy Efficiency jobs exist within the form of construction, manufacturing/trade, and professional services.



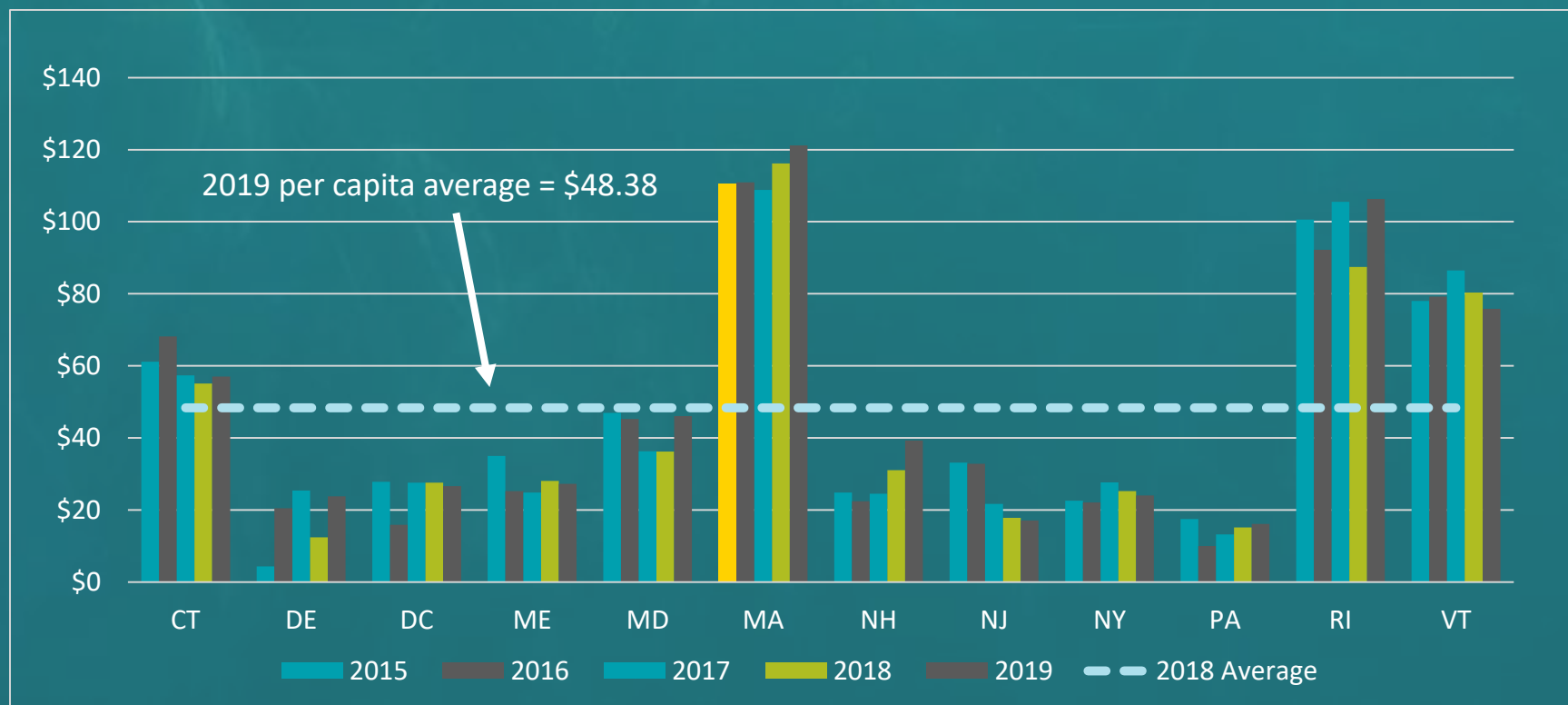
	Percent Total Population Employed By EE	Total Direct Jobs in Energy Efficiency
DC	0.7%	11,214
VT	2.5%	10,100
DE	1.5%	10,660
MA	1.9%	77,468
RI	1.1%	10,679
MD	1.2%	65,493
CT	1.3%	33,797
NH	1.6%	10,855
ME	1.4%	8,043
NY	1.4%	122,083
PA	2.0%	65,687
NJ	1.5%	32,936

Per Capita Energy Efficiency Investments

Electric and Natural Gas Programs Combined



Energy efficiency investments are robust across the Northeast and Mid-Atlantic region. In 2019, total energy efficiency program investments averaged \$48 per capita, the highest they have ever been in REED's history.



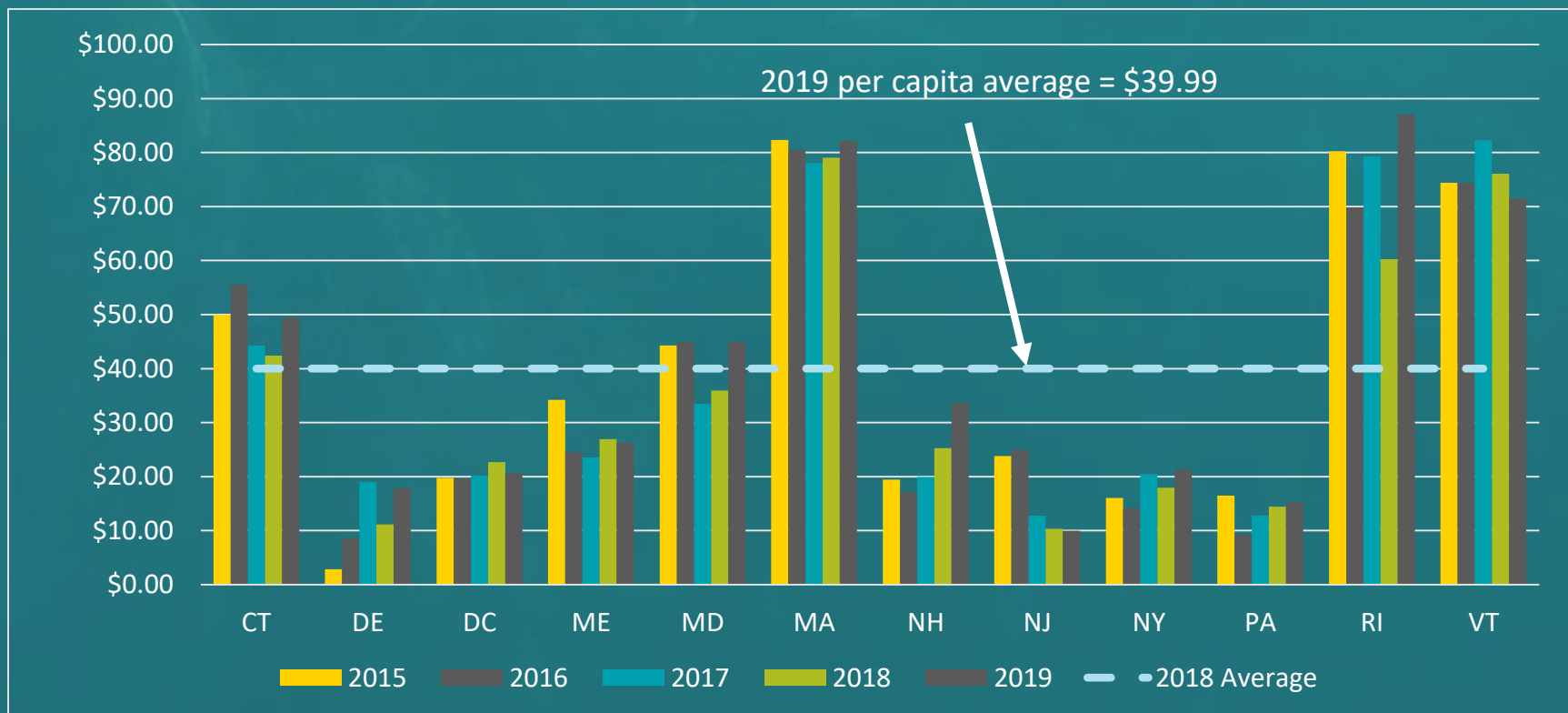
Sources: A combination of NEEP's [REED](#), Program Administrator reports, and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.

Per Capita Energy Efficiency Investments

Electric Programs, 2014-2018



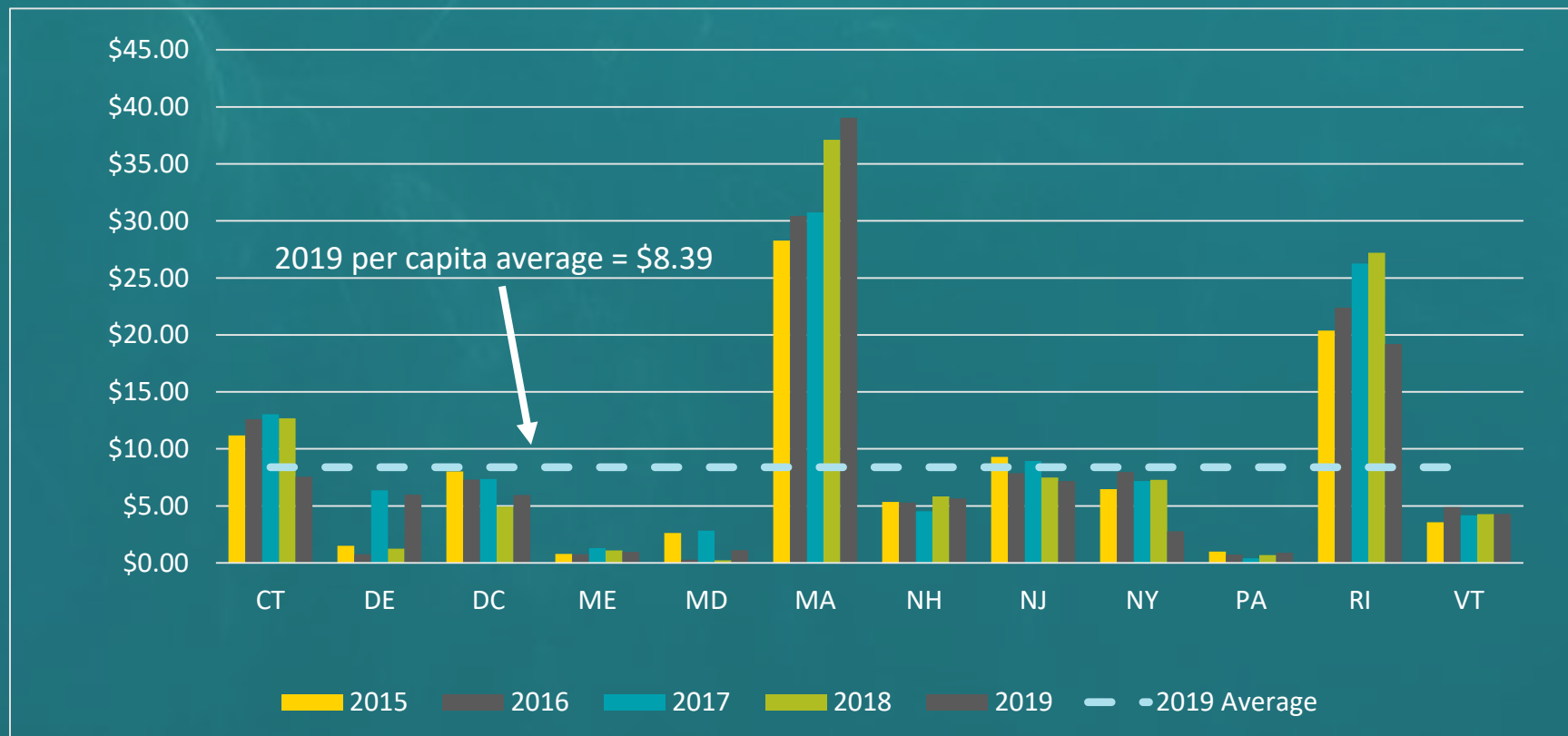
Most per capita energy efficiency investments in the NEEP region are directed towards electric programs, largely because avoided costs for electricity are higher than for natural gas. The average 2019 per capita electric investment was \$40, \$5 higher than 2018.



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.

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 \$8.4, a decrease of about \$1 from 2018.

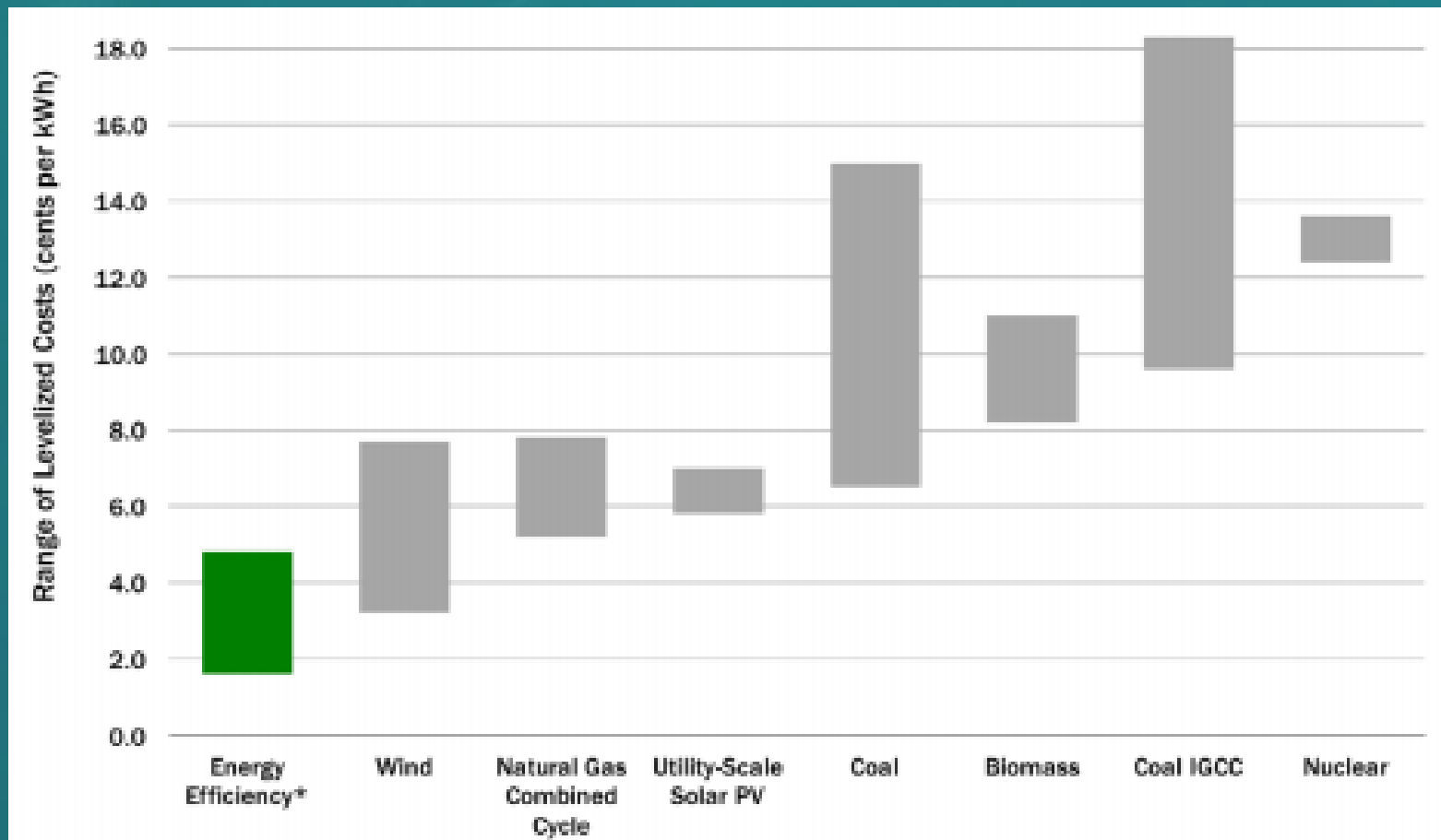


Sources: NEEP's [REED](#), Program Administrator reports, EIA Form 176 and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.

Energy Efficiency

The Least-Cost Energy Resource

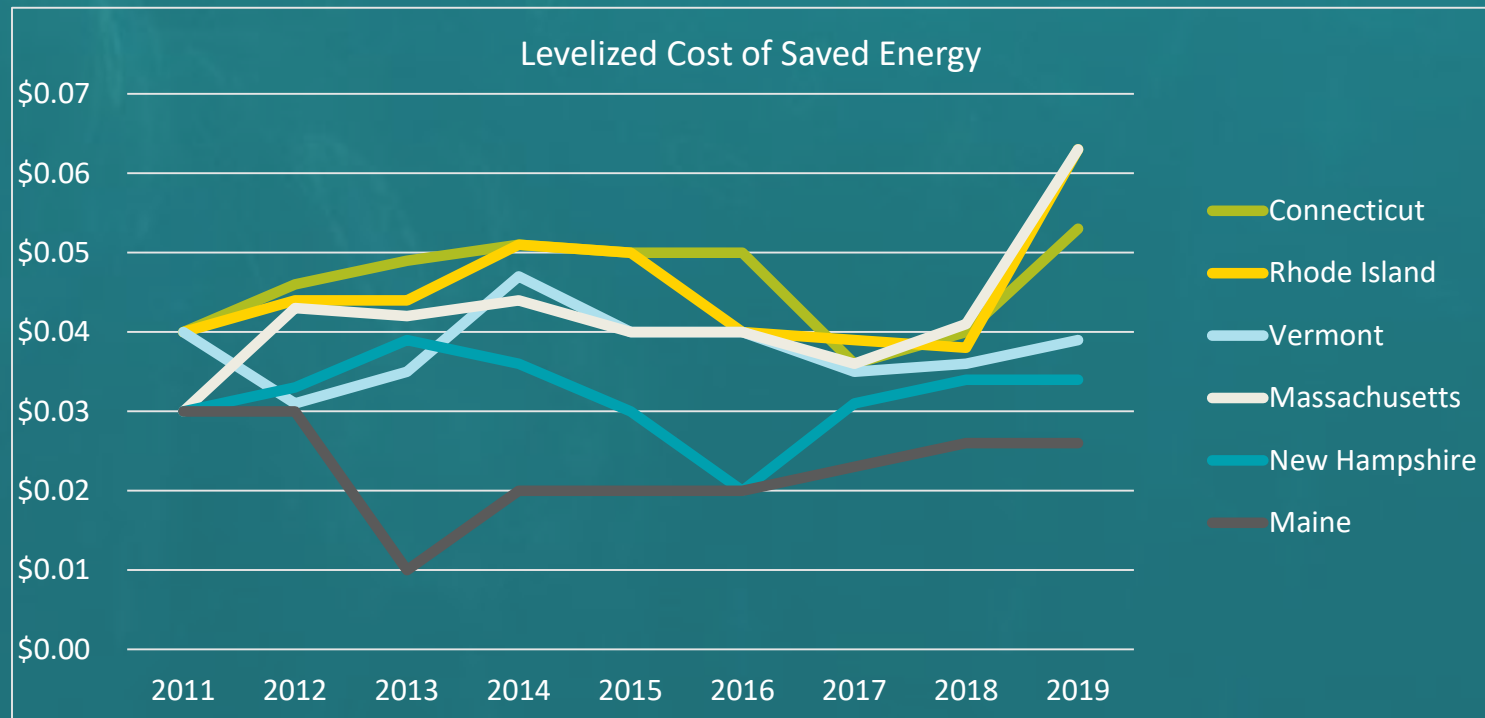
With a levelized cost of **\$0.01-\$0.06/kWh**, investments in energy efficiency are more cost-effective than investments in *any* conventional energy generation resource.



Levelized Cost of Saved Electricity: New England States



The cost of saved energy for 2019 electric energy efficiency programs in the New England states ranged from **\$0.01 - \$0.06/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.



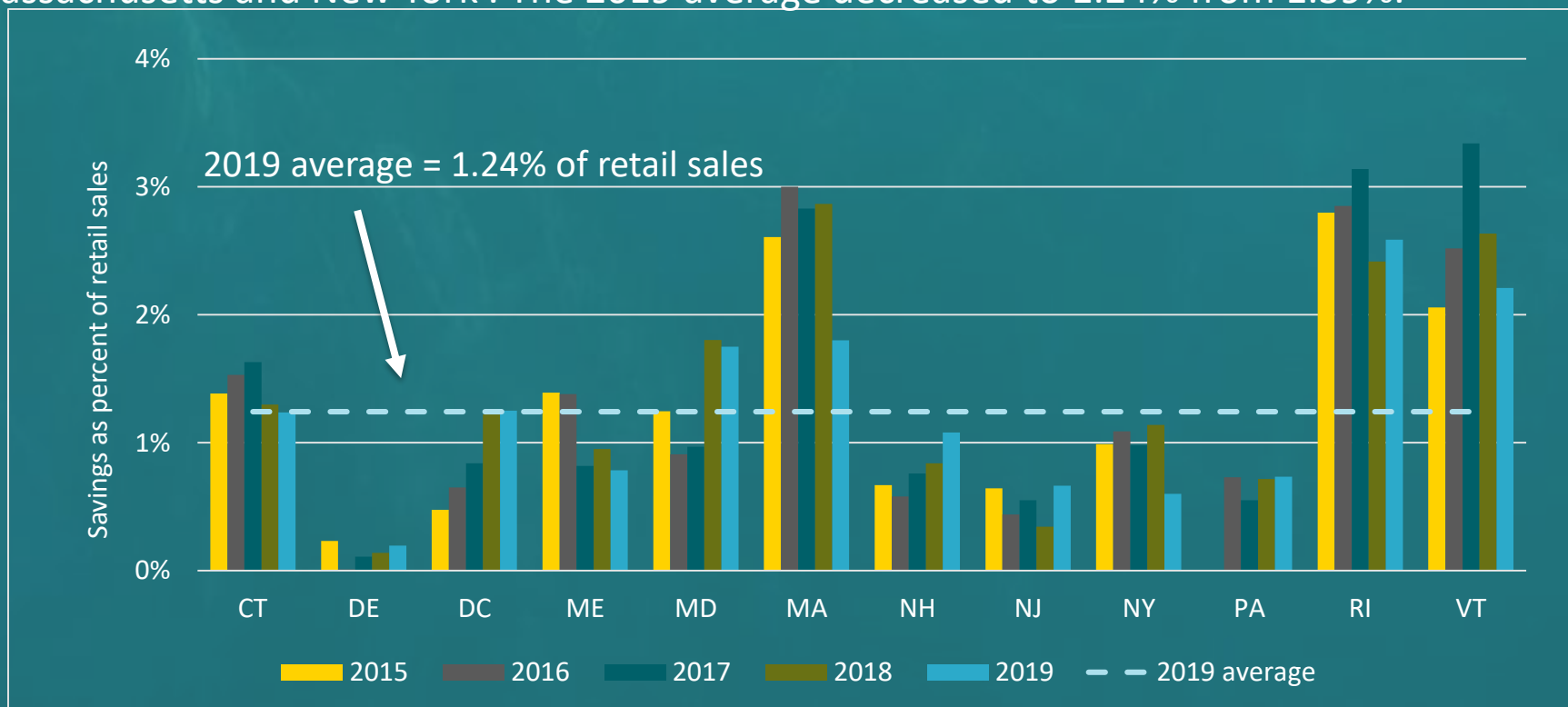
Source: NEEP's [REED](#). For additional information about state energy efficiency programs and practices that affect the cost of saved energy, please see the REED Supporting Information report.

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 2019, jurisdictions in the Mid-Atlantic improved in this metric. New England states saw some surprising declines particularly in Massachusetts and New York. The 2019 average decreased to 1.24% from 1.39%.

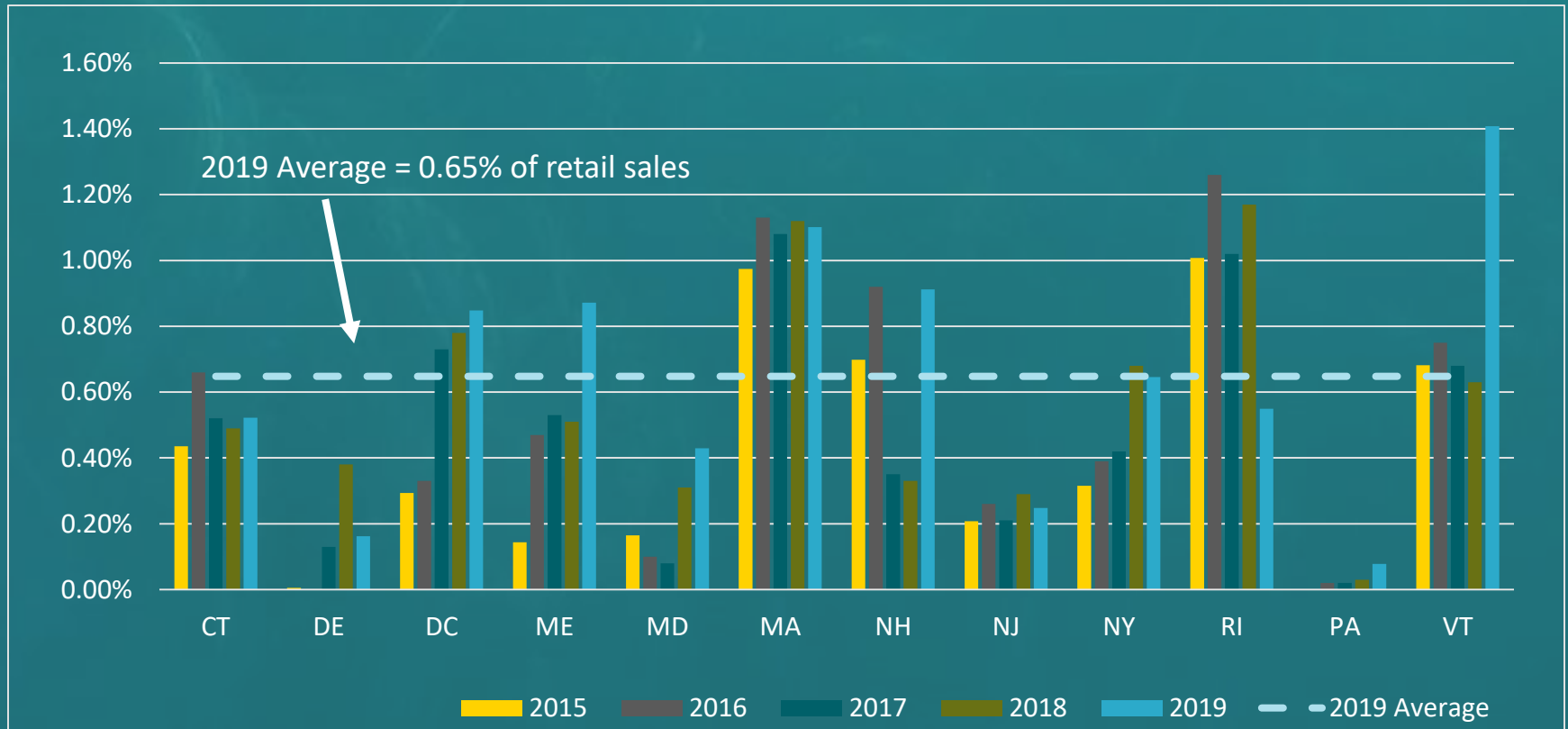


Sources: A combination of NEEP's REED, Program Administrator reports, EIA Form 861, and ACEEE's [State Energy Efficiency Scorecard](#). For information on which program administrators are included in REED, please see the REED Supporting Information report.

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 VT exceeding that mark in 2019. In 2019, the region averaged 0.65% of retail sales, an increase from 2018.



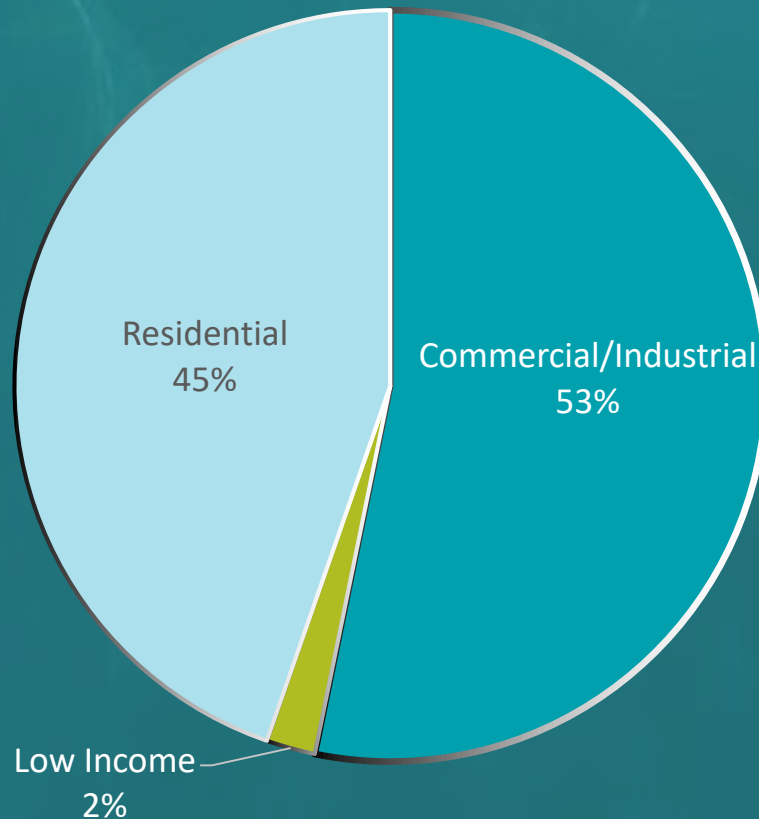
Source: ACEEE's State Energy Efficiency Scorecard, [EIA's Annual Natural Gas Report](#)

Note: REED data is not used here because it does not include consistent data across states from fuels programs.

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.



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**.

Source: NEEP's REED. For information on which program administrators are included in REED, please see the REED Supporting Information report.

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	36%
Retrofit Large – C&I	15%
Behavior	10%
Retrofit Small – C&I	10%

Gas

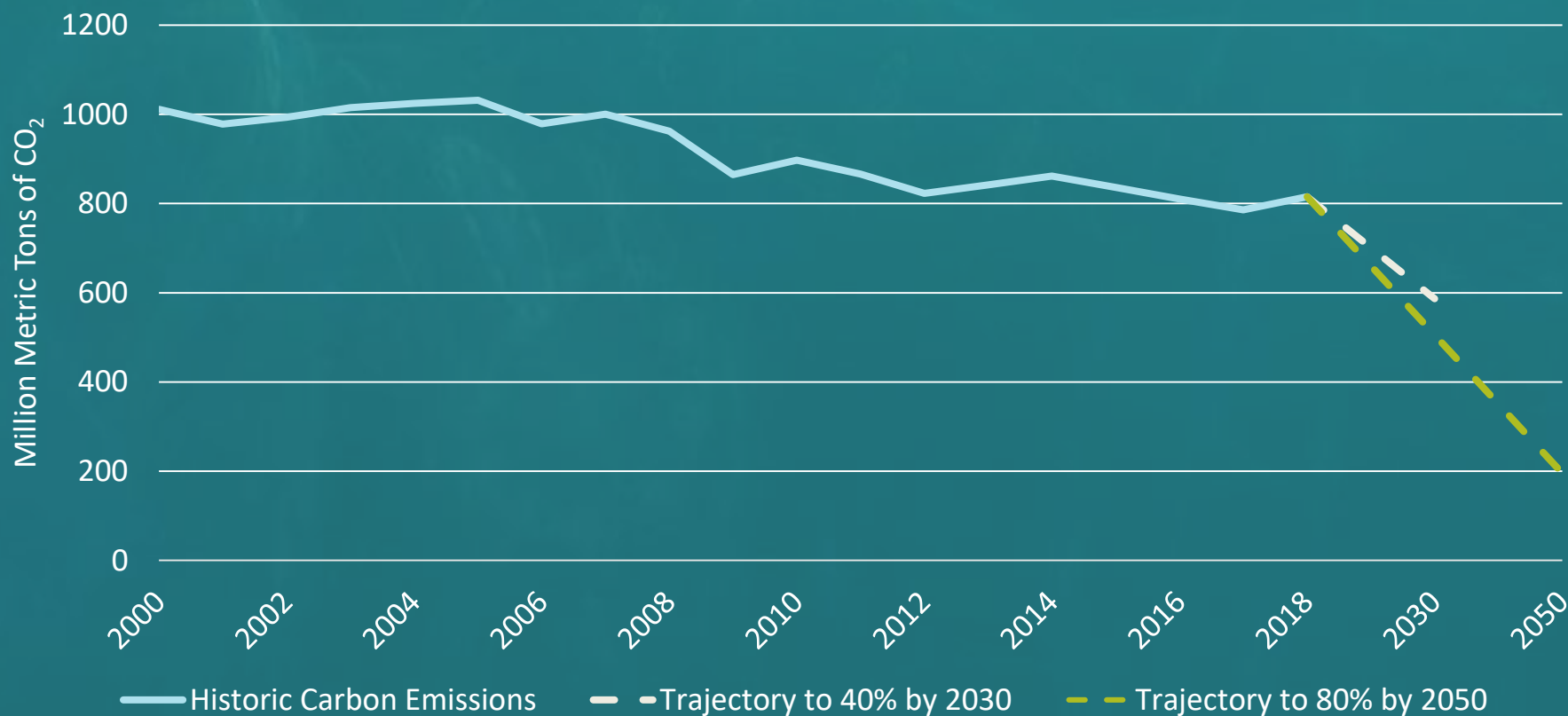
Program Type	% of Total Savings
Retrofit Large – C&I	22%
Retrofit – Residential	18%
Lighting/Appliances	15%
Behavior	15%

Regional Carbon Emissions

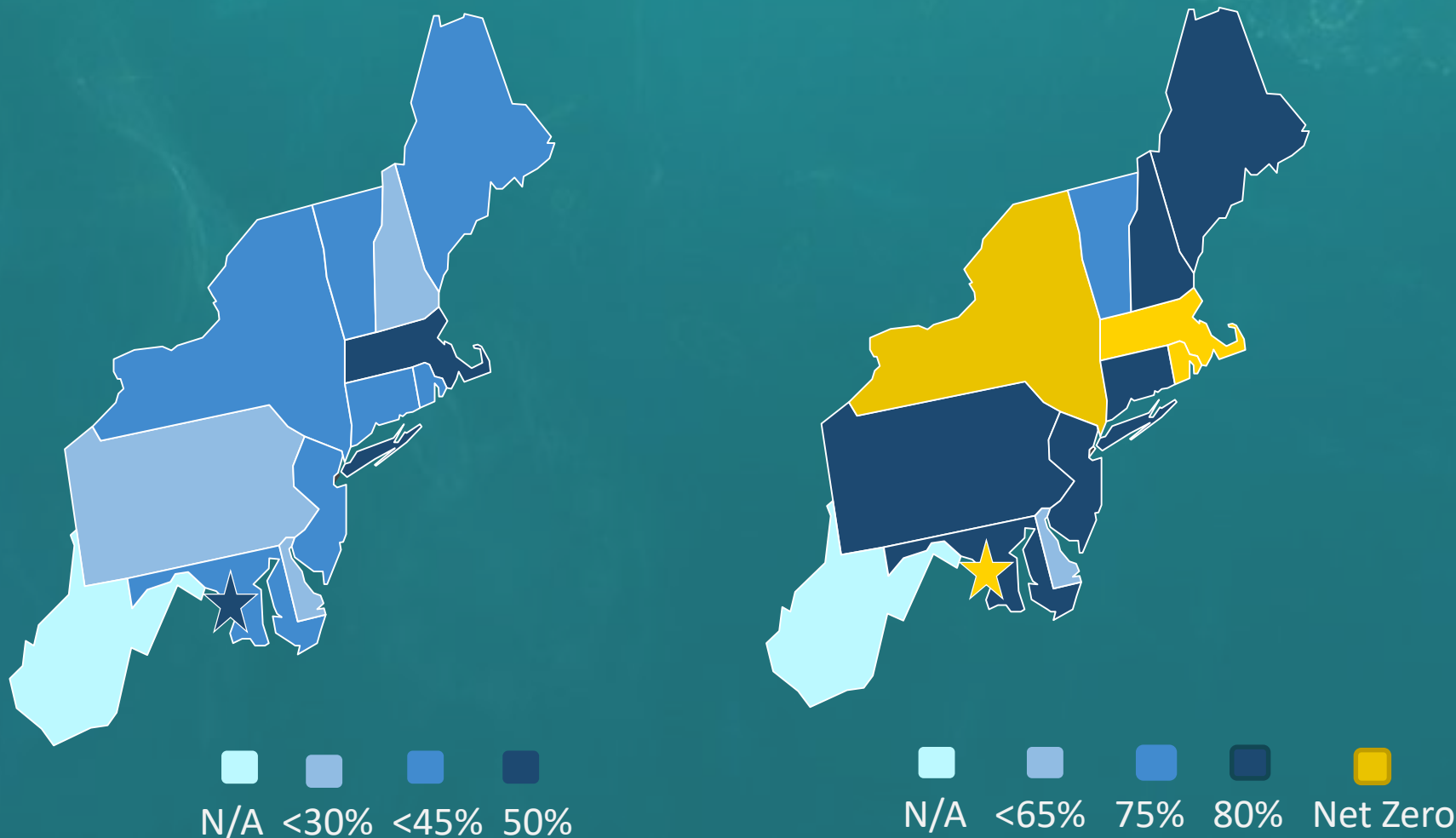
Getting to 40% by 2030 and 80% by 2050



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

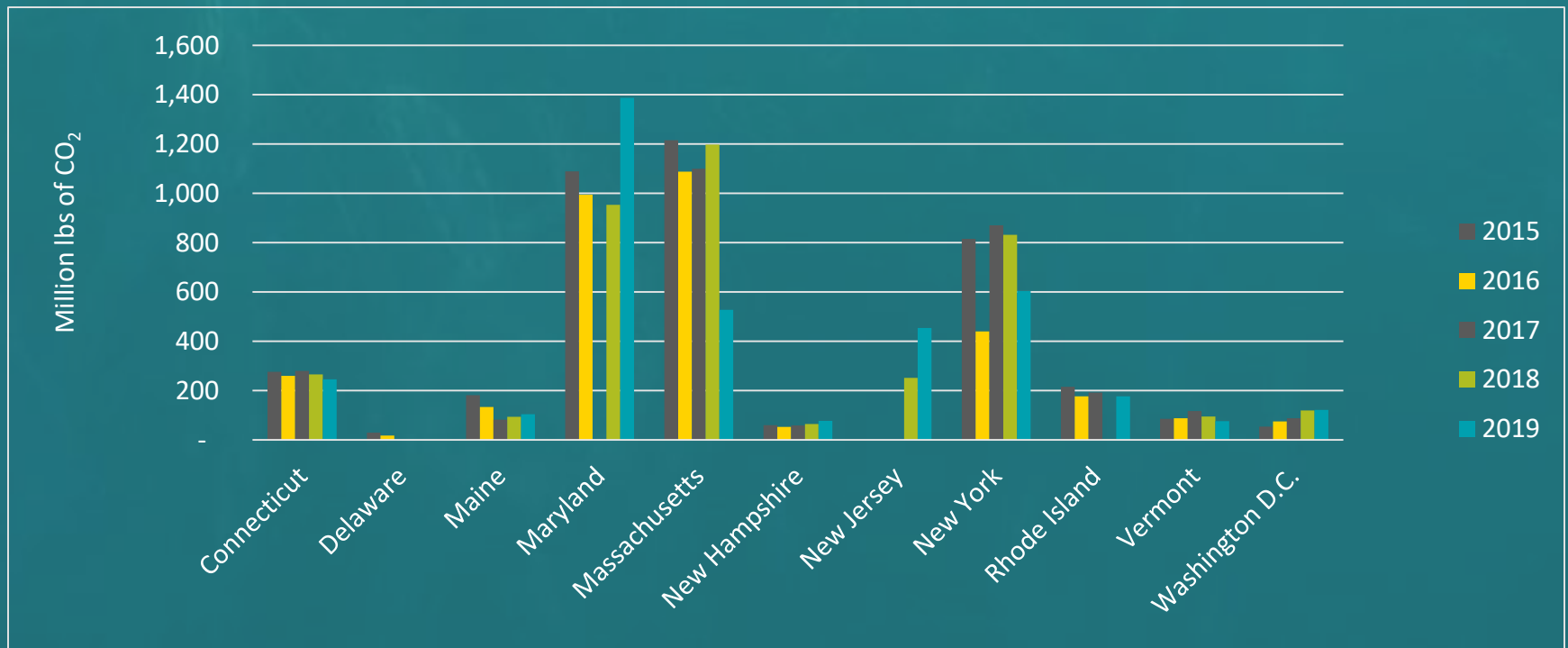


Energy Efficiency Leads to Avoided Carbon

Avoided CO2 Emissions: 2014-2019



Avoided carbon emissions from 2015-2019 are shown below. These states' 2019 efficiency programs in REED resulted in **4.11 billion pounds of avoided carbon emissions**. This is equivalent to CO2 emissions from **225,000 homes'** energy use for one year.



More from NEEP: A Sample of Reports

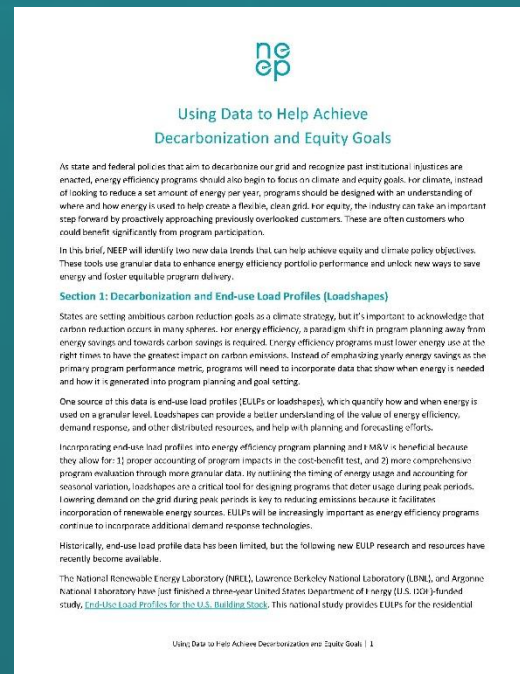
Six Strategies to Accelerate the Adoption of Strategic Energy Management 2021



Building Decarbonization Public Policy Framework 2019



Using Data to Help Achieve Decarbonization and Equity Goals 2021



Please find the latest news and insights at neep.org

Questions?



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Appendices

Appendix A

Energy Efficiency Policies and Goals *New England*



STATE	POLICY TYPE	PROGRAM ADMINISTRATOR	ENERGY SAVINGS GOALS
Connecticut	<u>All Cost-Effective Energy Efficiency</u>	Electric & Gas Utilities <u>2022-2024 Plan</u>	Electric: 1.13% retail sales for 2019-2021 Gas: 0.60% retail sales for 2019-2021 (forecasted retail sales)
Maine	<u>All Cost-Effective Energy Efficiency</u>	Efficiency Maine Trust <u>FY 2023-2025 Plan</u> <u>Budgets and Metrics</u>	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
Massachusetts	<u>All Cost-Effective Energy Efficiency</u>	Electric & Gas Utilities + CLC <u>2022-2024 Three-Year Plans</u> <u>Term Sheet</u>	Electric: 2.70% retail sales for 2019-2021 Gas: 1.25% retail sales for 2019-2021 (forecasted retail sales)
New Hampshire	<u>All Cost-Effective Energy Efficiency</u>	Electric & Gas Utilities <u>2021-2023 Plan</u>	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
Rhode Island	<u>All Cost-Effective Energy Efficiency</u>	Electric & Gas Utilities <u>2021-2023 Plan</u>	Electric: 2.6% retail sales Gas: 1.03% retail sales (2015 retail sales)
Vermont	<u>All Cost-Effective Energy Efficiency</u>	Efficiency Vermont, BED, VGS <u>2021-2023 Plan</u>	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	All Cost-Effective Energy Efficiency	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	Efficiency Utility Goals	Sustainable Energy Utility Benchmark Reports	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	Energy Efficiency Resource Standard	Electric and Gas Utilities	Electric: 2.0% retail sales (2020)
New Jersey	Efficiency Funding	NJCEP OCE+ Utilities Strategic Plan	No mandated savings goals
New York	New Efficiency New York Order Adopting Accelerated EE Targets	NYSERDA + Utilities NYSERDA Clean Energy Fund Utility ETIPs	Incremental targets vary by utility (0.4% to 0.9% for 2016–2018). 185 Tbtu site energy savings by 2025
Pennsylvania	Energy Efficiency & Conservation (EE&C) Plans	Electric Utilities Act 129 Phase IV	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&V.</p> <p>While still emerging, Advanced M&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,