Energy Efficiency Snapshot

Spring 2017

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

Northeast Energy Efficiency Partnerships

"Assisting the Northeast & Mid-Atlantic Region in Reducing Total Carbon Emissions 80% by 2050"

Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

Vision

That the region embraces next generation energy efficiency as a core strategy to meet energy needs in a carbon-constrained world

Approach

Overcome barriers and transform markets through *Collaboration, Education, and Enterprise*

NEEP's Seasonal Snapshot

An Overview

The Snapshot provides an overview of energy efficiency policy by the numbers in New England, New York, and the Mid-Atlantic regions. Updated twice annually, we include charts and tables on the following:

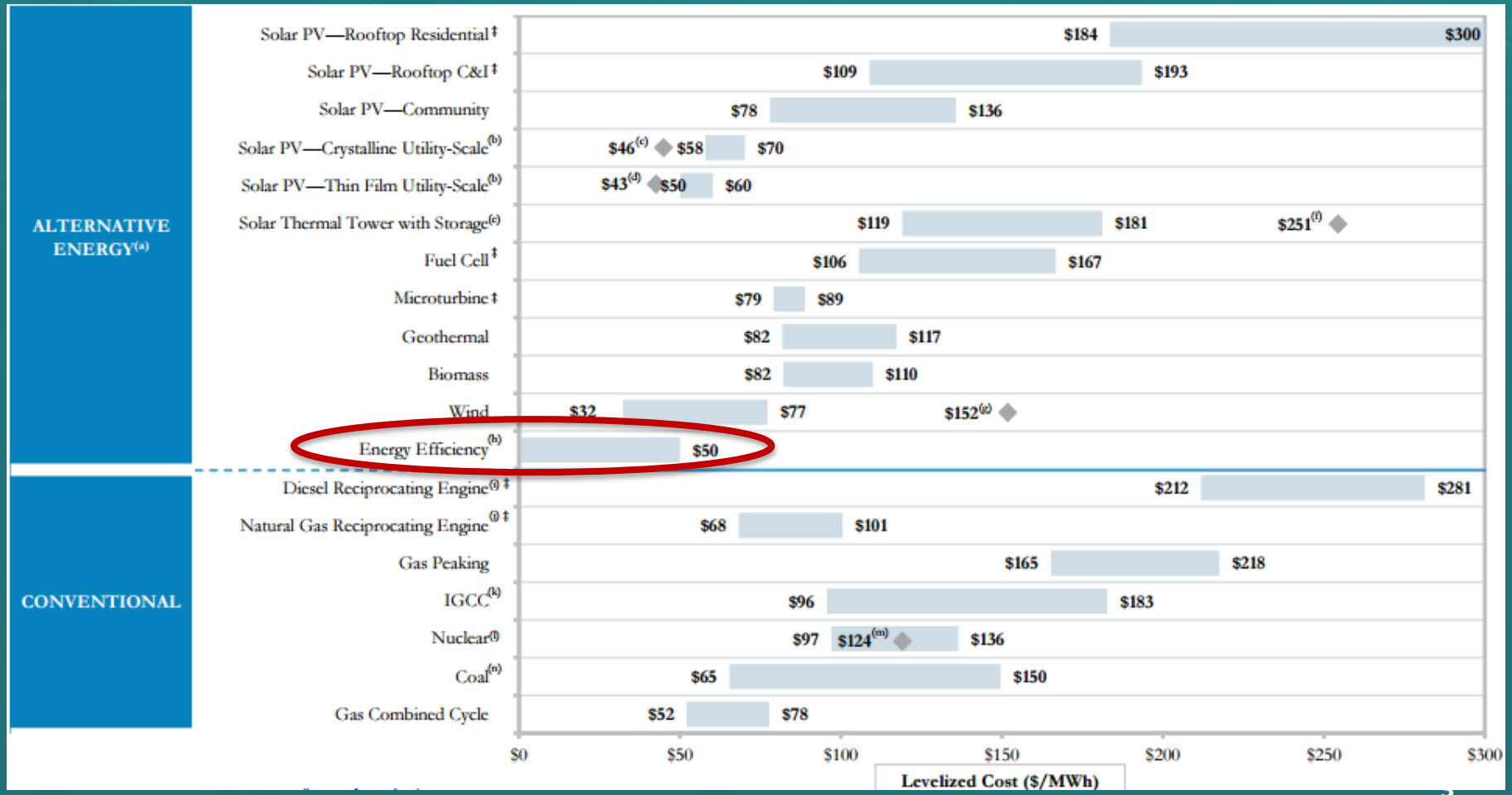
- Energy Efficiency as the Least Cost Energy Resource
- Energy Efficiency as an Economic Driver
- State Energy Efficiency Policies and Savings Goals
- Public Policies advancing Next Generation Energy Efficiency
- Per Capita Energy Efficiency Expenditures
- Efficiency Savings as a Percent of Retail Sales (Gas and Electric)
- Cost of Saved Energy by State
- Energy Savings by Sector and Program Type

The figures in this presentation are compiled from the Regional Energy Efficiency Database (REED), program administrator plans, annual reports, U.S. EIA, and ACEEE.

Energy Efficiency

The Least-Cost Energy Resources

With a lifecycle cost of between $0 and $50/MWh, investments in energy efficiency are more cost-effective than investments in *any* conventional energy generation resource.



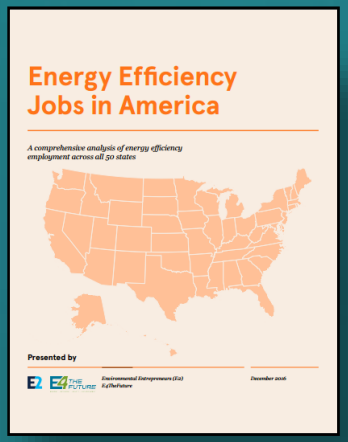
Source: Lazard Levelized cost of Energy Analysis: Version 9.0 (2015)

Energy Efficiency as an Economic Driver

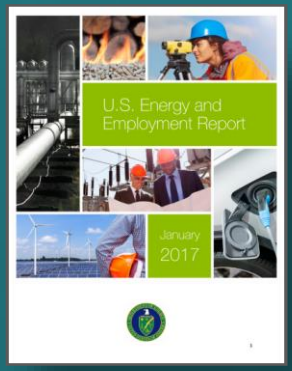
Job Creation and Economic Growth

	Percent Total Population Employed By EE	Total Direct Jobs in Energy Efficiency
DC	2.23%	14,681
VT	1.37%	8,585
MA	1.23%	82,848
MD	0.78%	46,724
RI	0.77%	8,112
ME	0.66%	8,843
NH	0.51%	6,833
NJ	0.43%	38,378
PA	0.42%	53,175
NY	0.35%	69,704
CT	0.35%	12,460
DE	0.25%	2,334

Source: E2/E4TheFuture
Energy Efficiency Jobs in America
(December 2016)



Resource: U.S. Department of Energy
U.S. Energy and Employment Report
(January 2017)



Energy Efficiency Policies and Goals

New England States

STATE	POLICY TYPE	PROGRAM ADMINISTRATOR	ENERGY SAVINGS GOALS
Connecticut	All Cost-Effective Energy Efficiency	Electric & Gas Utilities 2016-18 Plan	Electric: 1.5% retail sales Gas: 0.6% retail sales (forecasted retail sales)
Maine	All Cost-Effective Energy Efficiency	Efficiency Maine Trust 2017-19 Plan (proposed) Budgets and Metrics	Proceeding Pending
Massachusetts	All Cost-Effective Energy Efficiency	Electric & Gas Utilities + CLC 2016-18 Plan Term Sheet	Electric: 2.93% retail sales Gas: 1.24% retail sales (forecasted retail sales)
New Hampshire	All Cost-Effective Energy Efficiency	Electric & Gas Utilities 2017 Plan	Electric: 1.3% retail sales Gas: 0.8% retail sales (2014 retail sales)
Rhode Island	All Cost-Effective Energy Efficiency	Electric & Gas Utilities 2015-17 Plan	Electric: 2.6% retail sales Gas: 1.1% retail sales (2012 retail sales)
Vermont	All Cost-Effective Energy Efficiency	Efficiency Vermont, BED, VGS 2015-17 Plan Demand Resource Proc.	Electric: 2.1% retail sales Gas: 0.9% retail sales (forecasted retail sales)

Energy Efficiency Policies and Goals

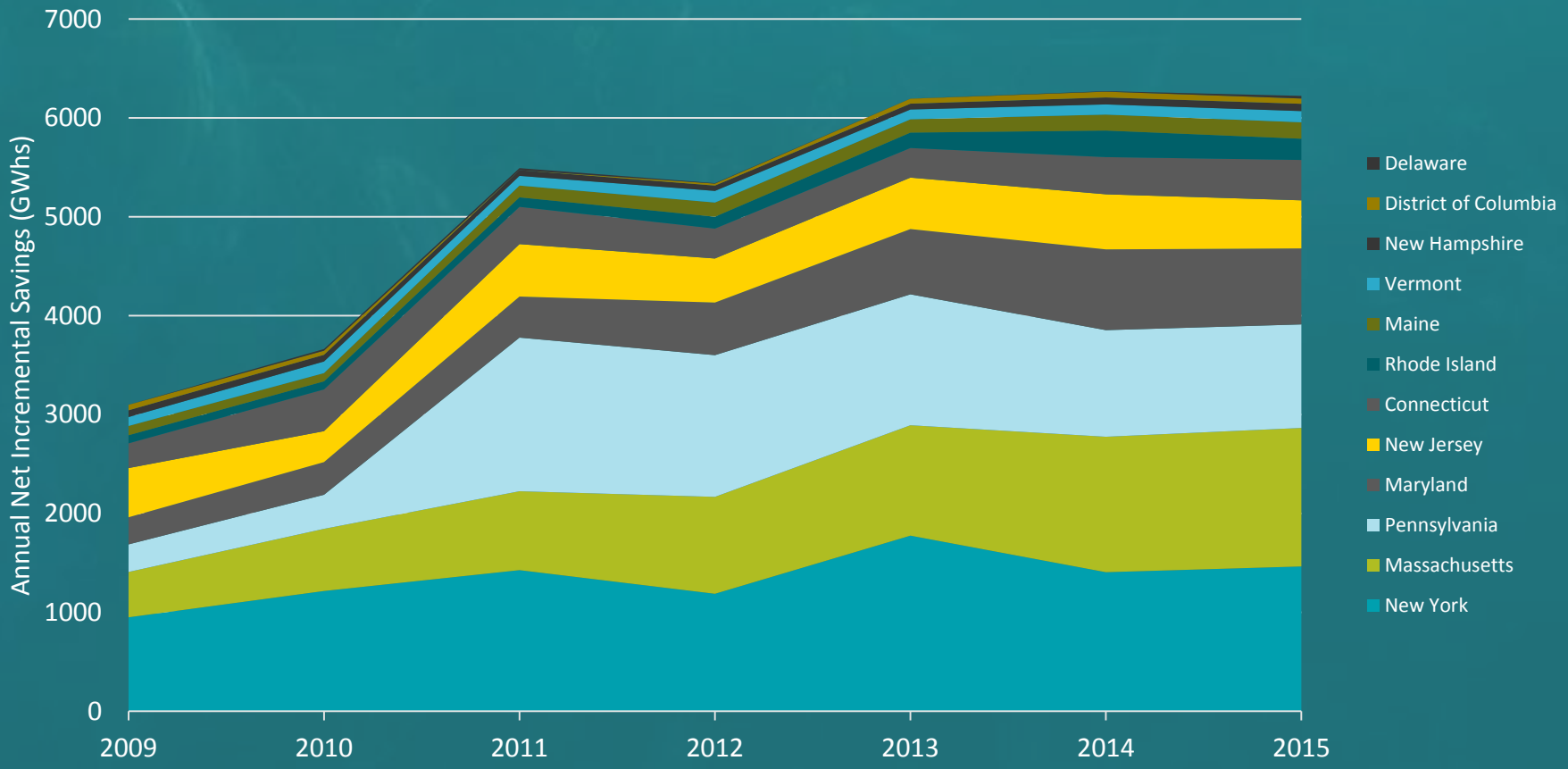
The Mid-Atlantic Region

STATE	POLICY TYPE	PROGRAM ADMINISTRATOR	ENERGY SAVINGS GOALS
Delaware	All Cost-Effective Energy Efficiency	Utilities+ Sustainable Energy Utility	Proposals Pending
District of Columbia	Efficiency Utility Goals	Sustainable Energy Utility	Electric: 0.53% retail sales Gas: 0.44% retail sales (2014 retail sales)
Maryland	Energy Efficiency Resource Standard	Electric and Gas Utilities Order No. 87082 Gas Working Group Targets	Electric: 2.0% retail sales (2020) Gas: Pending Proceeding (2014 retail sales)
New Jersey	Efficiency Funding	NJCEP OCE+ Utilities Strategic Plan	No mandated savings goals
New York	Energy Efficiency Portfolio Standard	NYSERDA + Utilities NYSERDA Clean Energy Fund Utility ETIPs	Electric: 1.09% retail sales Plus PSEG-LI/NYPA: 1.51% total Gas: 0.35% retail sales (2014 retail sales)
Pennsylvania	Energy Efficiency Resource Standard Funding Capped	Electric Utilities Act 129 Phase III	Electric: 0.8% retail sales Gas: none (2013 retail sales)

Energy Efficiency Policies and Goals

Provide Extensive Savings

Annual verified electric savings have more than doubled in recent years, moving from ~3,100 GWh in 2009 to ~6,300 GWh in 2015. This is a direct result of regulatory policies and executive leadership in states supporting energy efficiency as a first order resource.



Sources: 2013-15 data is drawn from EIA form 861. 2011-12 and 2015 data is drawn from NEEP's REED Database, ACEEE Scorecard/program administrator reports (D.C. Del., NJ. Pa.). 2009-12 data is drawn, in part, from ACEEE scorecards.

Advancements in Public Policy

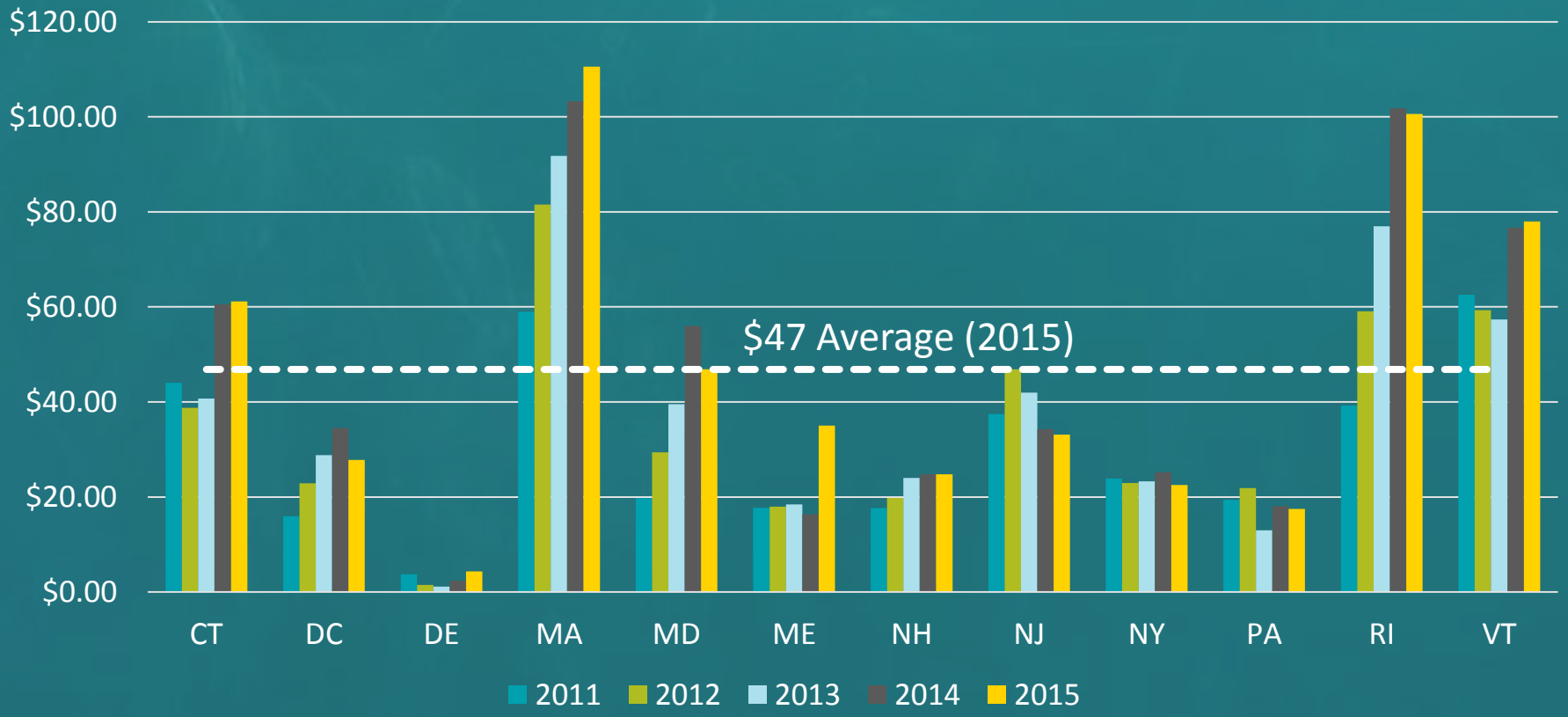
Leading to Next Generation Energy Efficiency

TREND	NEXT GENERATION POLICY	STATES
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.	MA, NY, CT, RI, DC, NH, MD
Strategic Electrification and Geo-targeting	Planning to procure savings from energy systems as a whole — across all fuels — with an emphasis on targeting distributed energy resources and their capabilities to defer or limit the need for further investments in distribution and transmission system assets.	VT, RI, NY, MA, ME
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."	RI, MA, CT, VT, DC, NY, DE
New Program Strategies	Harnessing new technology and policy innovations within utility program plans to enhance customer understanding around energy usage through expanded energy data access, information communication technologies, and strategic energy management strategies.	MA, VT, CT, NY
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.	MD, CT, RI, MA, PA.
EM&V 2.0	Coupling new data collection technologies and software-as-a-service analytic tools with traditional evaluation, measurement, and verification strategies for real-time feedback of efficiency program impacts that is less costly and sufficiently accurate.	States exploring use as customer engagement tool
Ongoing Evolution of Financing Tools	Leveraging private capital investments to increase funding available for energy efficiency programs through the use of Green Banks and related credit facilities, while also preserving proven program structures.	NY, CT, PA., NJ

Per Capita Energy Efficiency Investments

Electric and Natural Gas Programs Combined

Efficiency investments are increasing across New England and the Mid-Atlantic. In 2015, combined efficiency program investments will average approximately $47 per capita.

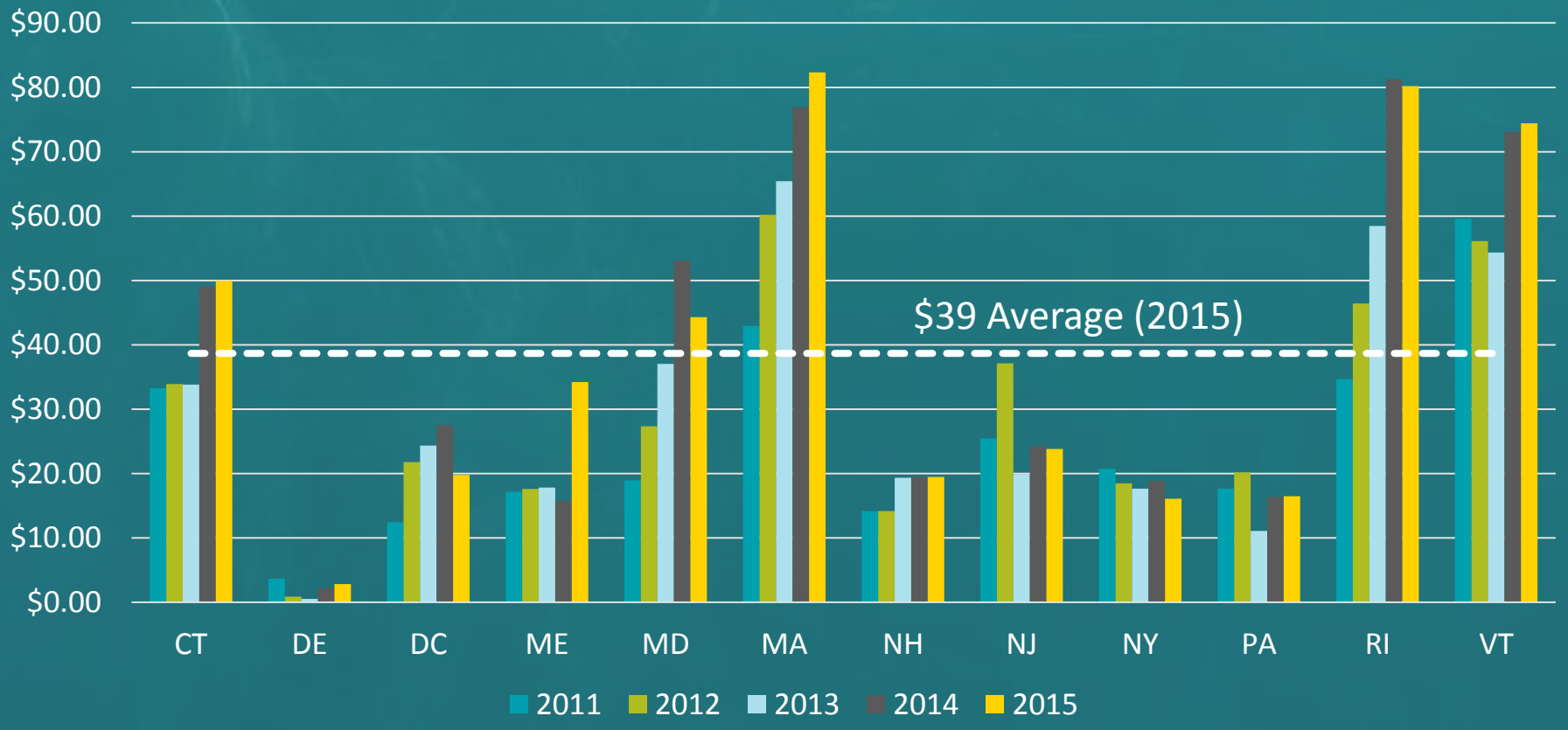


Source: 2011-15 data is drawn from NEEP's REED Database with the exception of DC, DE, NJ, and PA, which are drawn from ACEEE Scorecard. For further information on which program administrators are included in REED, please see the REED Footnotes website.

Per Capita Energy Efficiency Investments

Electric Programs, 2011-15

The overwhelming majority of per capita energy efficiency investments in our region are directed toward electric programs, largely because avoided costs for electricity are higher than they are for natural gas.

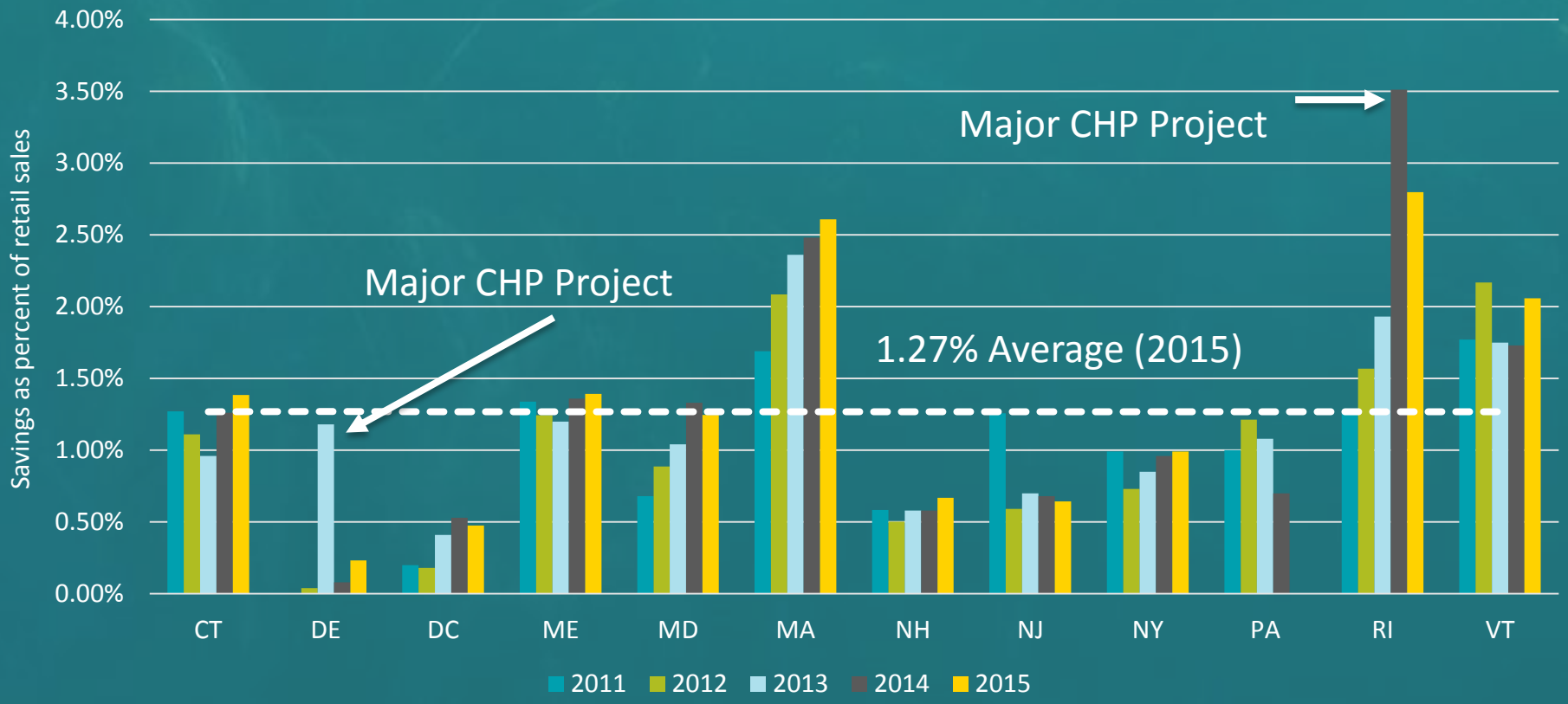


Source: 2011-15 data is drawn from NEEP's REED Database with the exception of DC, DE, NJ, and PA, which are drawn from ACEEE 's Scorecard. For further information on which program administrators are included in REED, please see the REED Footnotes website.

Savings as Percent of Retail Sales

Electric Programs, 2011-15

Thanks to policy leadership, efficiency serves a growing portion of electricity demand, with leading states achieving savings of **more than two percent of annual electric sales**.

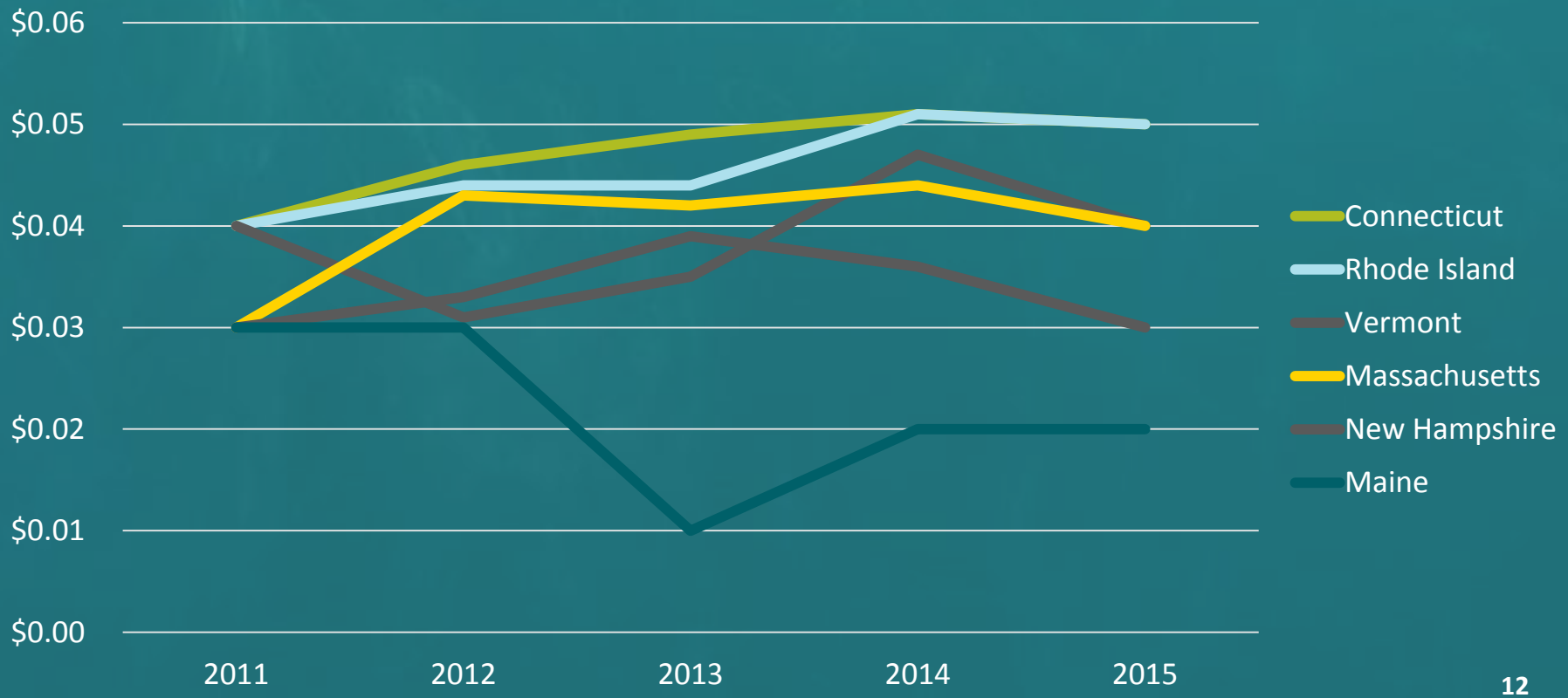


Many states, including Rhode Island and Delaware, are embracing Combined Heat and Power (CHP) as a cost-effective means of delivering savings and encouraging large customer participation in programs.

Source: 2011-15 data is drawn from NEEP's REED Database with the exception of DC, DE, NJ, and PA, which are drawn from ACEEE 's Scorecard. For further information on which program administrators are included in REED, please see the REED Footnotes website.

Levelized Cost of Saved Electricity:
LCOE per kwh, New England States

While the costs of saved energy may vary according to state-specific factors such as program scale, maturity, and depth, one thing remains constant: **the cost of saved energy is a fraction of cost of retail electricity, which is more than $0.16**. The LCOE figures in this graph are based on a consistent discount rate across states, derived from the long-term U.S. treasury bond.

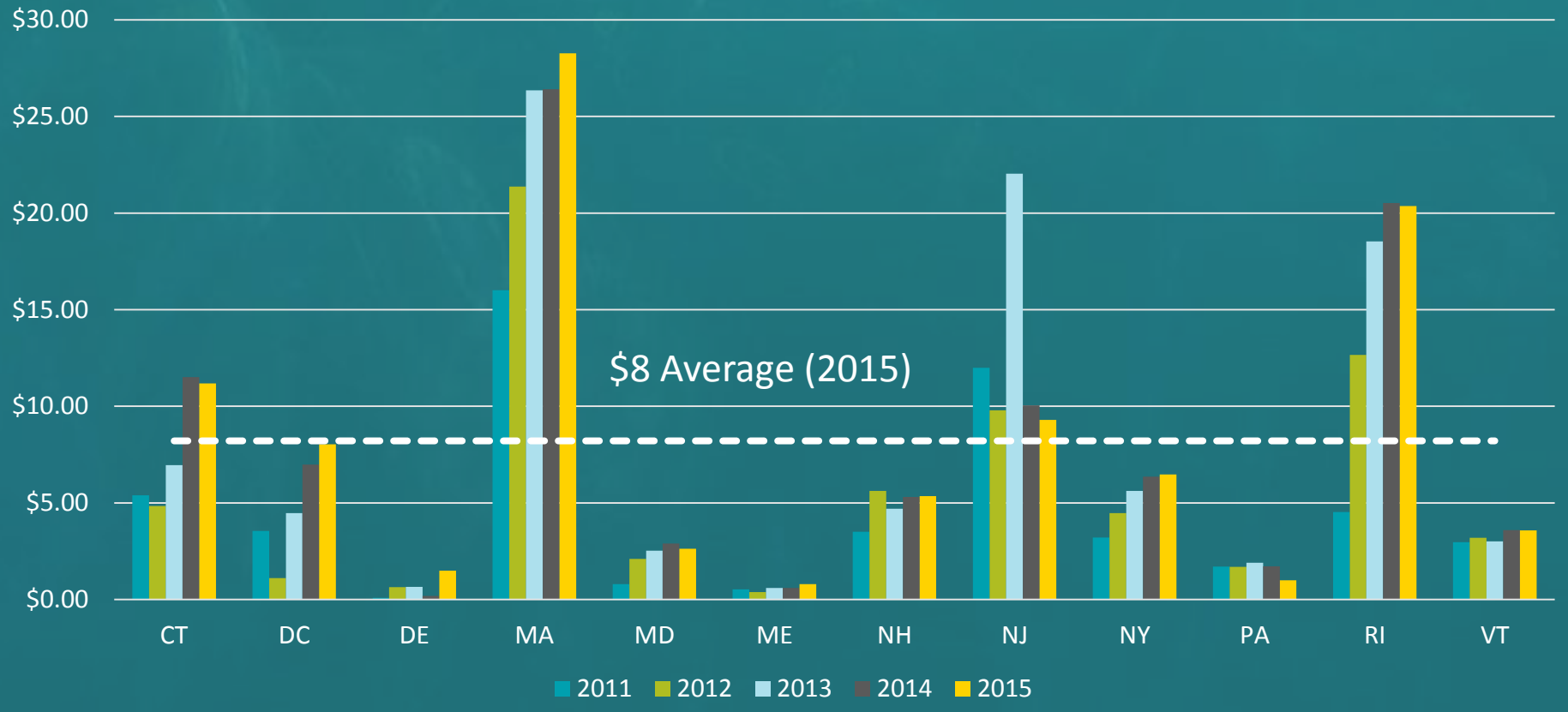


Source: NEEP REED Database. For further information, see the NEEP REED footnotes page.

Per Capita Investment

Natural Gas Programs, 2011-15

On a simple per capita basis, investments in gas efficiency programs in the region are generally less extensive than investments in electric efficiency, but this may have to do with several states in our region that lack a statewide gas distribution level infrastructure.

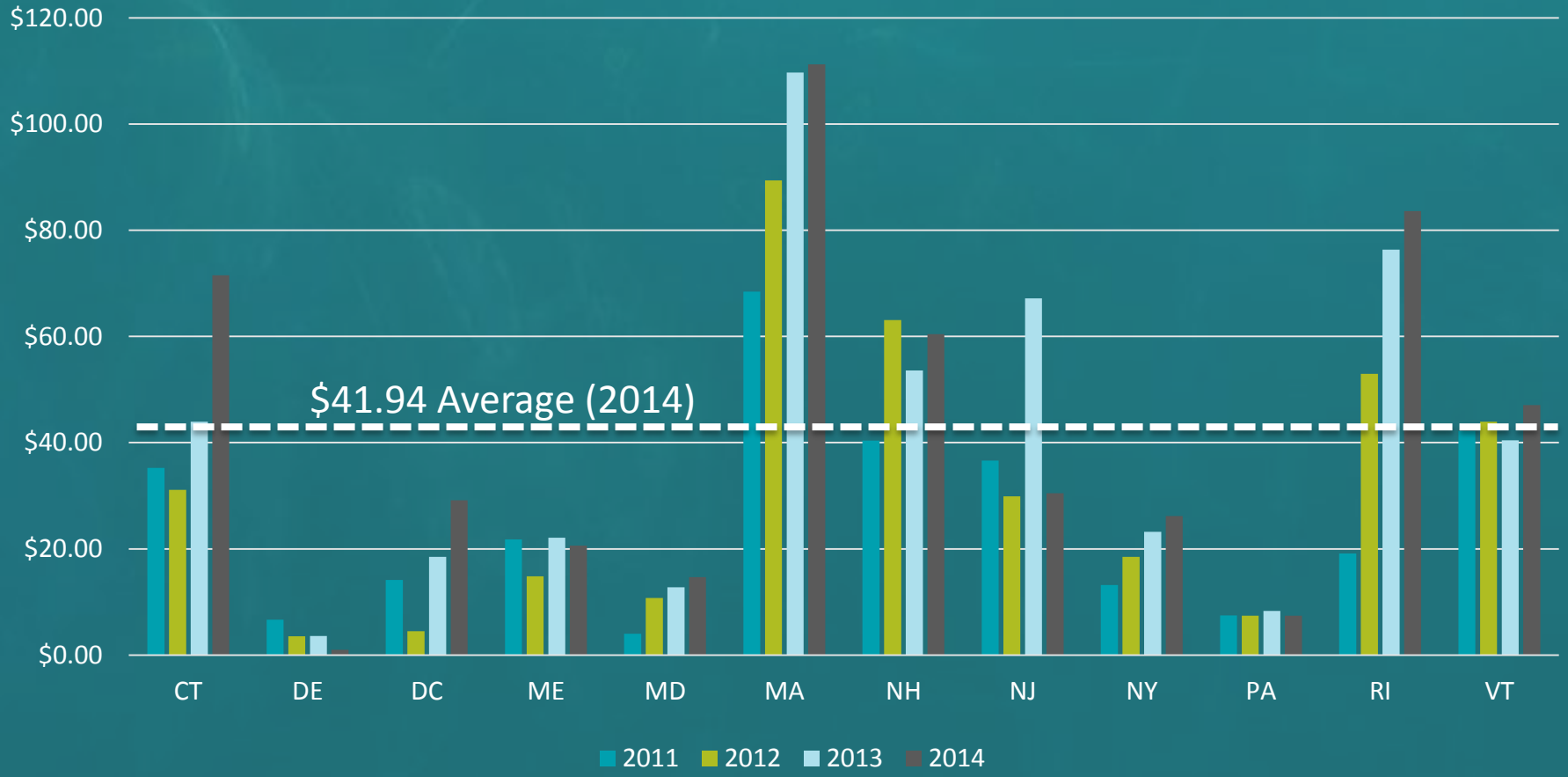


Source: 2011-15 data is drawn from NEEP's REED Database with the exception of DC, DE, NJ, and PA, which are drawn from ACEEE 's Scorecard. For further information on which program administrators are included in REED, please see the REED Footnotes website.

Per Capita Natural Gas Investments

Dollars per Residential and Commercial Customer

Looking as investments per residential and commercial customer, rather than population, provides a more accurate comparison of gas savings and investment for rural states like Vermont, New Hampshire and Connecticut, which lack statewide delivery infrastructure.

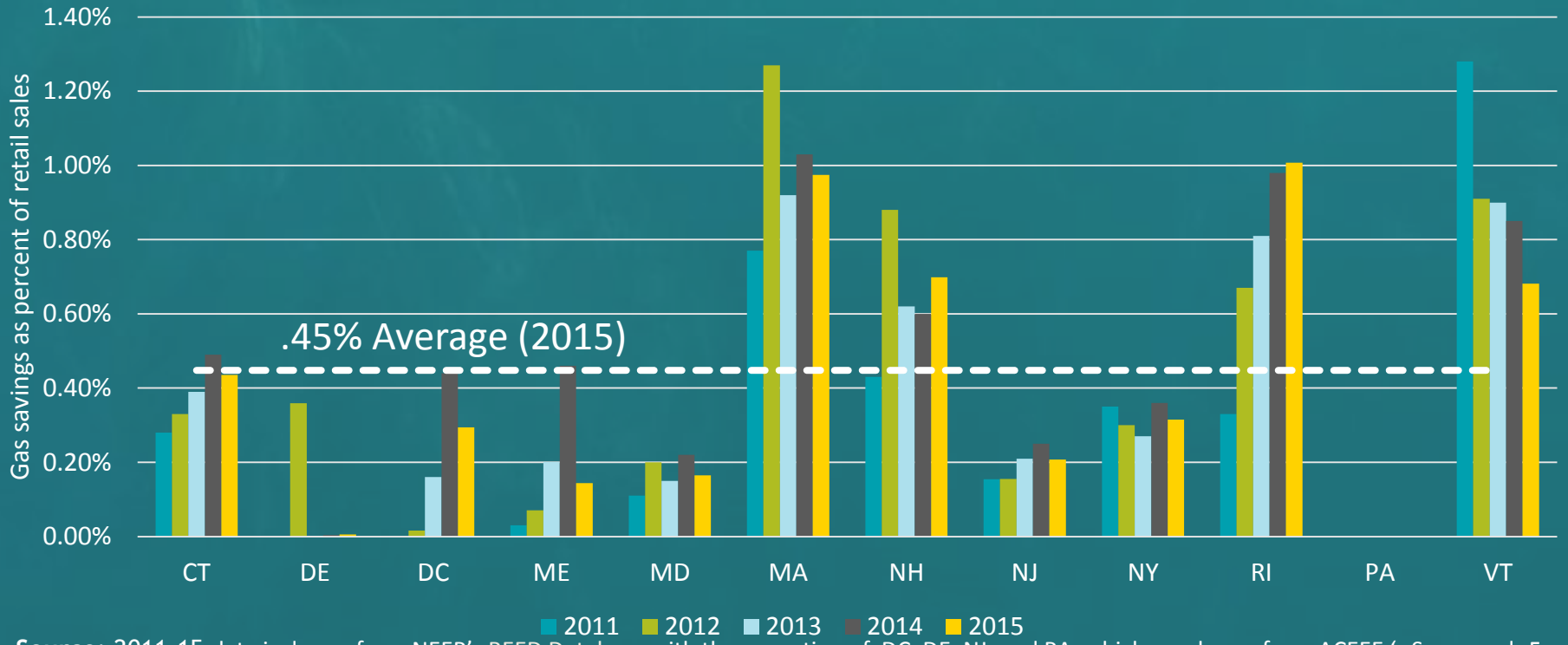


Source: 2011-14 data is drawn from NEEP's REED Database with the exception of DC, DE, NJ, and PA, which are drawn from ACEEE 's Scorecard. For further information on which program administrators are included in REED, please see the REED Footnotes website.

Savings as a Percent of Retail Sales

Natural Gas Programs, 2011-15

While natural gas programs are more modest than their electric counterparts, leading states aim to achieve savings of about one percent of retail sales, with the region saving on average ~0.65 percent of retail sales. Pennsylvania remains the *only* state in the region state doesn't claim savings from comprehensive gas efficiency programs.

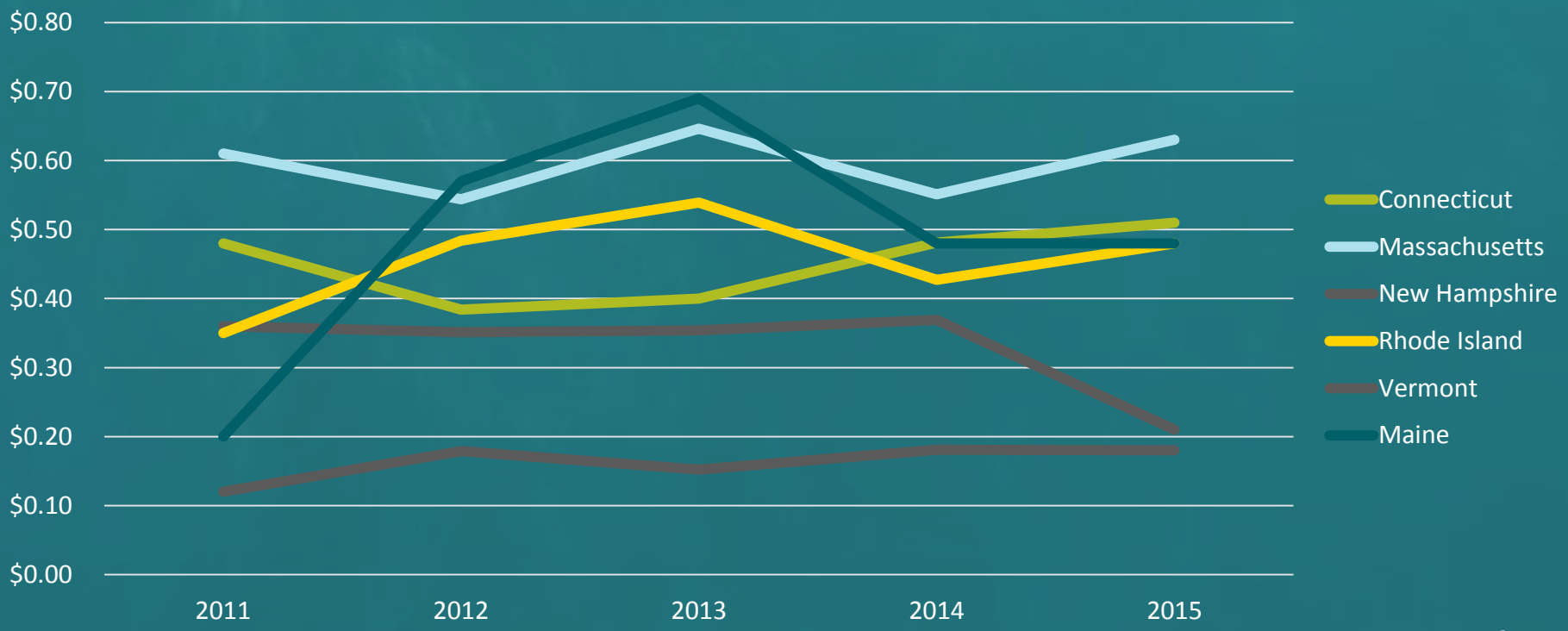


Source: 2011-15 data is drawn from NEEP's REED Database with the exception of DC, DE, NJ, and PA, which are drawn from ACEEE 's Scorecard. For further information on which program administrators are included in REED, please see the REED Footnotes website. *While Pennsylvania doesn't claim savings for programs run by any regulated program administrator, the Department of Environmental Protection does in fact fund gas efficiency incentives for consumers.

Levelized Cost of Saved Natural Gas

LCOE Per Therm, New England States

While conventional wisdom holds that the cost of saved energy should be rising as programs mature, program administrators in Massachusetts and Rhode Island have been able to push the levelized cost of energy per therm downward. The downward trend from 2013 to 2014 may correlate with a recent expansion in program scale. In all cases, **the cost of energy savings is far less than the cost of retail natural gas, which is more than $1/therm**.



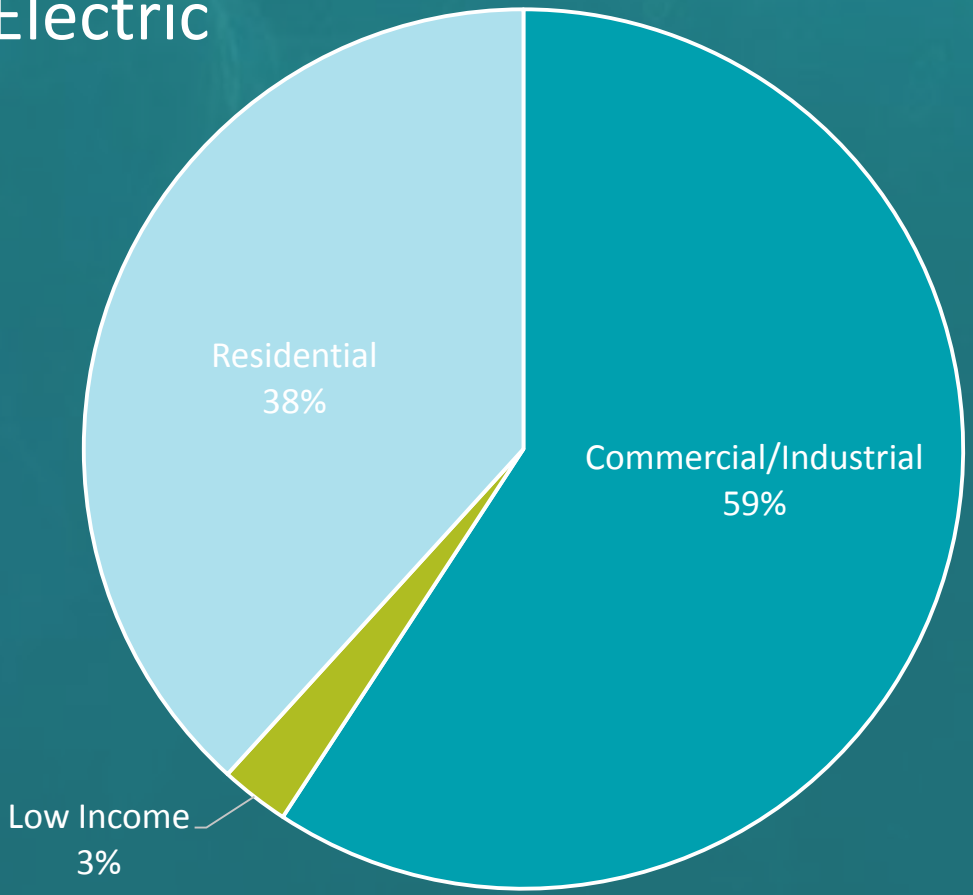
Source: NEEP REED Database. For further information, see the NEEP REED footnotes page.

Energy Savings by Sector

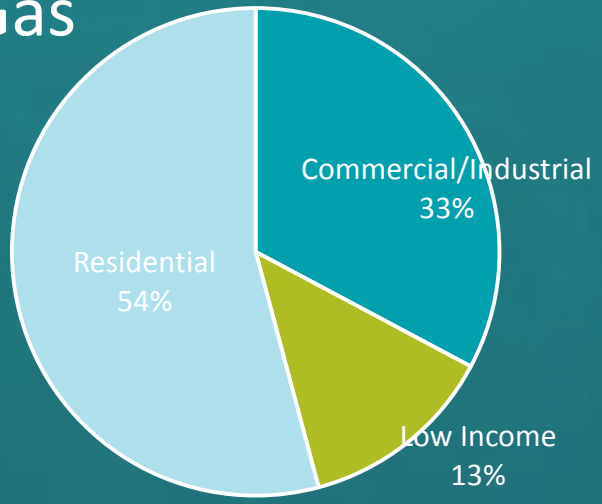
Natural Gas and Electric, 2015

In the states reporting to REED, electric programs budgets are about four times as big as for natural gas, with more mature programs doing more with gas. Electric programs derive the majority of their savings from the commercial sector, while for gas programs, residential programs deliver the most savings.

Electric



Gas



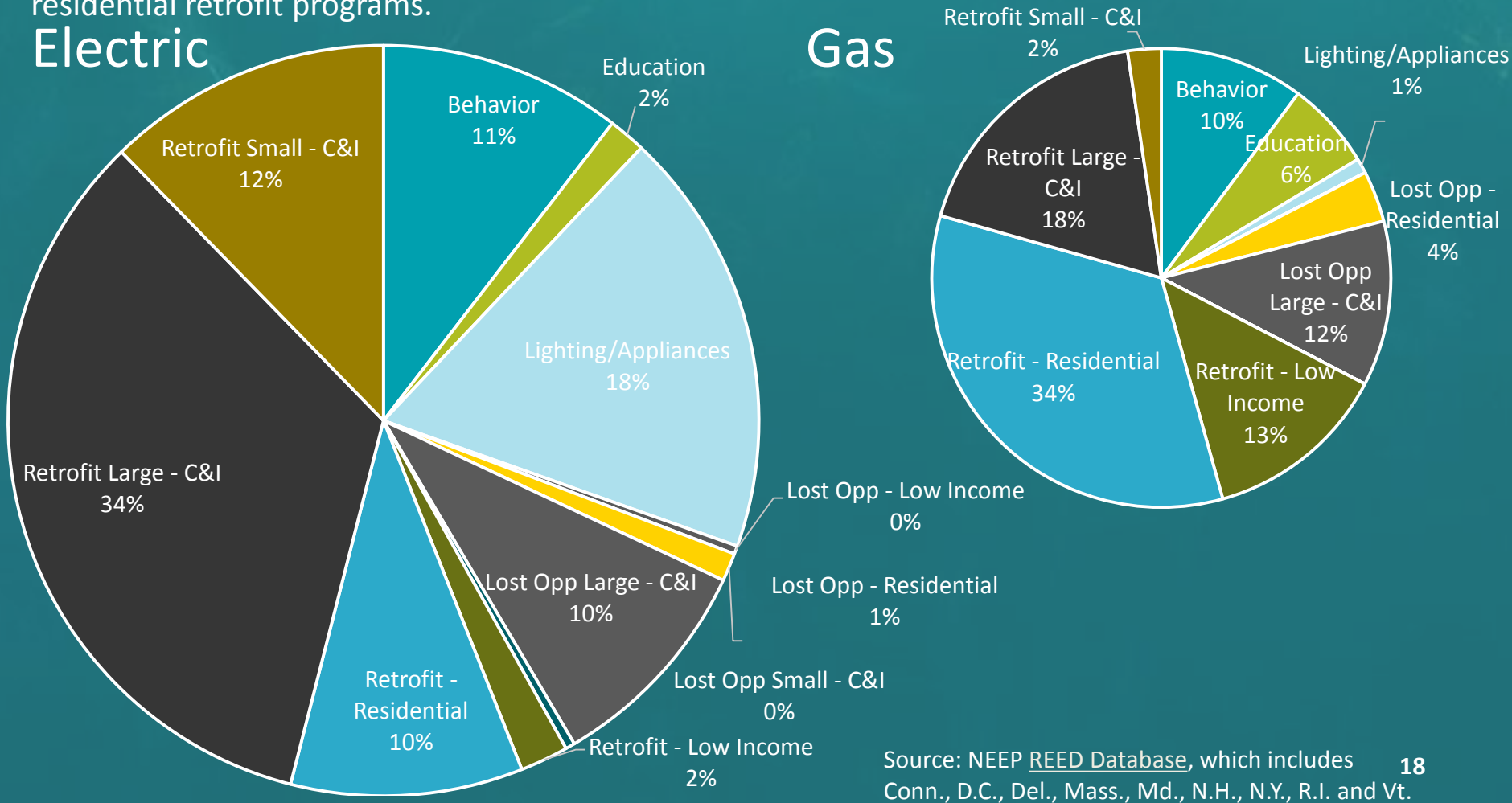
REED States 2015 Expenditures	
Electric	$1.5 Billion
Gas	$398 Million

Source: NEEP REED Database, which includes Conn., D.C., Del., Mass., Md., ME, N.H., N.Y., R.I. and Vt.

Savings by Program Type

Natural Gas and Electric, 2015

Electric programs mine the majority of their savings from lighting, appliances, and large commercial and industrial retrofits, while natural gas programs focus greater attention on low income and residential retrofit programs.



Source: NEEP REED Database, which includes Conn., D.C., Del., Mass., Md., N.H., N.Y., R.I. and Vt.

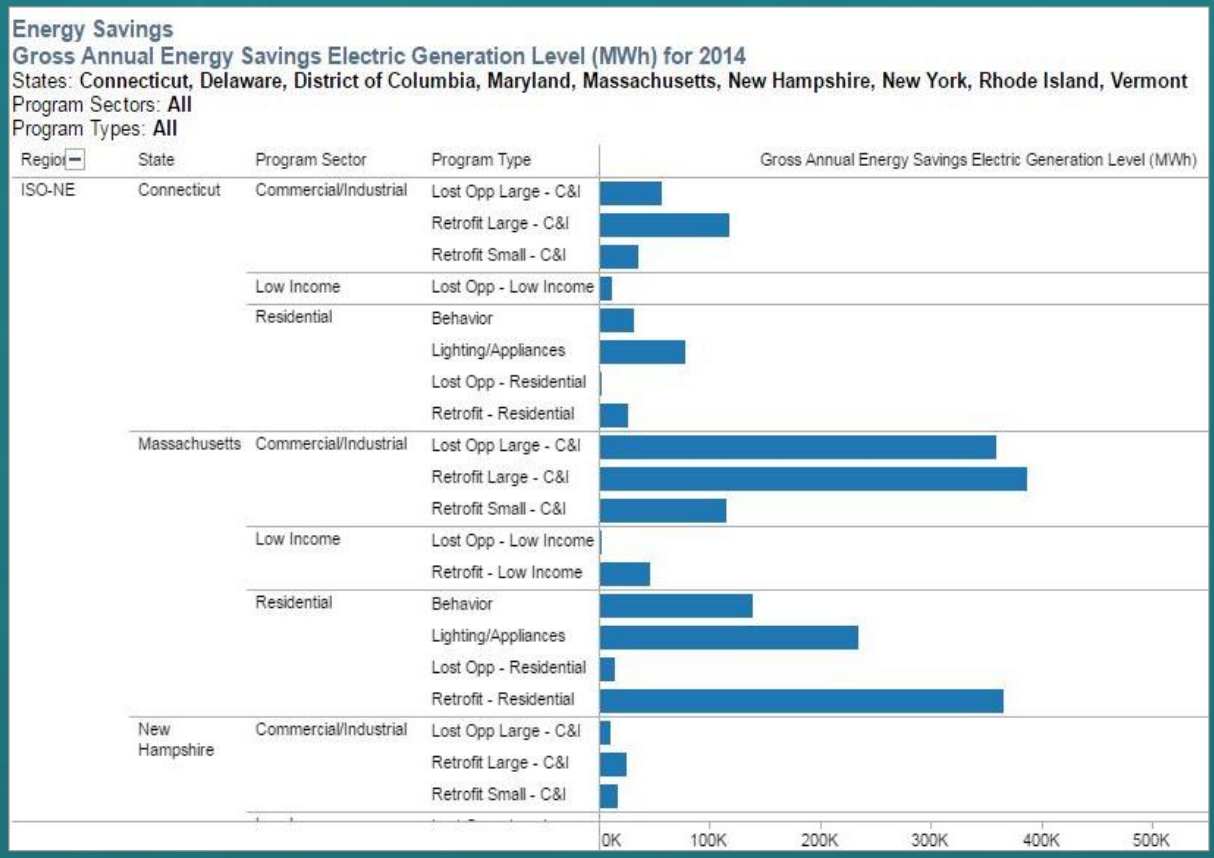
Identifying Trends in Regional Data

The Regional Energy Efficiency Database (REED)

Data collected by NEEP includes program years 2011 through 2014 for these participating jurisdictions: Conn., D.C., Del., Mass., Md., N.H., N.Y., R.I. and Vt.

REED features:

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

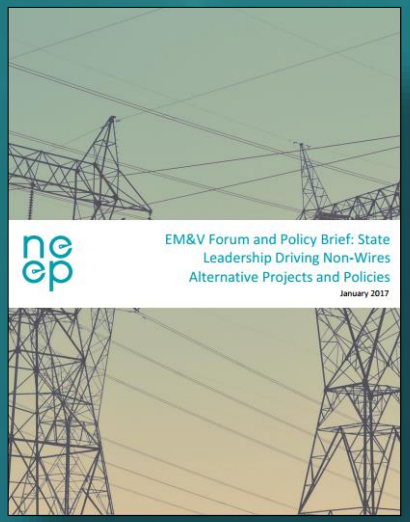


Learn more at reed.neep.org

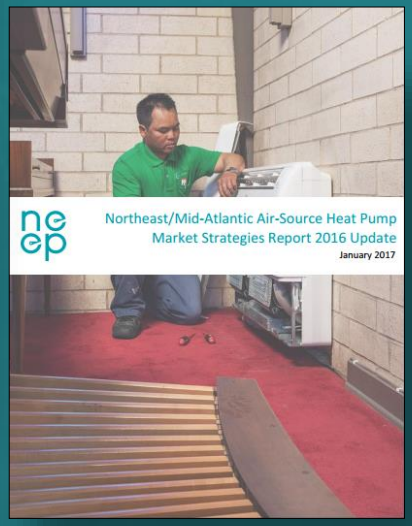
More from NEEP

A Sample of reports at NEEP.org/Resources

Leadership Driving Non-Wires Alternative Projects and Policies

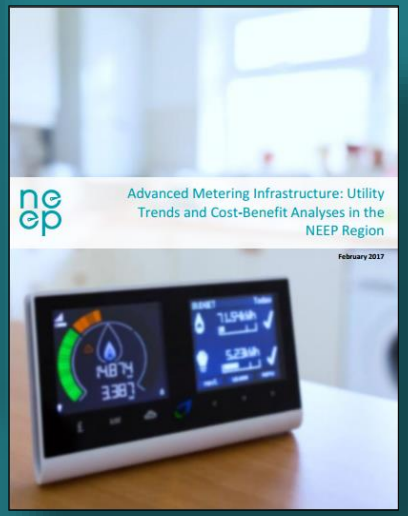


Northeast/Mid-Atlantic Air-Source Heat Pump Strategy Report 2016 Update



Auto M&V Industry Brief: How Fast is the EM&V Paradigm Changing?

AMI: Utility Trends and Cost-Benefit Analyses in the NEEP Region



Please visit NEEP's blog for the latest news and insights.

Questions?

For more information on state policies or the REED Database , please contact:

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