



NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

# Northeast and Mid-Atlantic Energy Efficiency Snapshot

*Energy Efficiency Policy By the Numbers*

Summer 2015

# AN OVERVIEW OF ENERGY EFFICIENCY POLICY IN THE NORTHEAST STATES



The Policy Snapshot is a brief overview of energy efficiency policy by the numbers in New England, New York, and the Mid-Atlantic regions. Included are charts on the following:

- The Case for Energy Efficiency
- State Energy Efficiency Policies and Savings Goals
- Region-wide Energy Efficiency Expenditures, 2008-2016
- Combined Energy Efficiency Expenditures by State: 2011-2016
- Electric Energy Savings as percent retail sales, 2010-2013
- Natural Gas Savings as percent retail sales, 2010-2013
- ISO-New England Energy Efficiency Forecasts

The figures in this presentation are compiled from the [Regional Energy Efficiency Database](#) (REED), program administrator plans, annual reports, U.S. EIA, ACEEE, and ISO-NE's Energy Efficiency Forecast.



# Energy Efficiency: The Least Cost Resource



# Energy Efficiency is the Least Cost Resource



LAZARD'S LEVELIZED COST OF ENERGY ANALYSIS—VERSION 8.0

## Unsubsidized Levelized Cost of Energy Comparison

Certain Alternative Energy generation technologies are cost-competitive with conventional generation technologies under some scenarios; such observation does not take into account potential social and environmental externalities (e.g., social costs of distributed generation, environmental consequences of certain conventional generation technologies, etc.) or reliability-related considerations (e.g., transmission and back-up generation costs associated with certain Alternative Energy generation technologies)

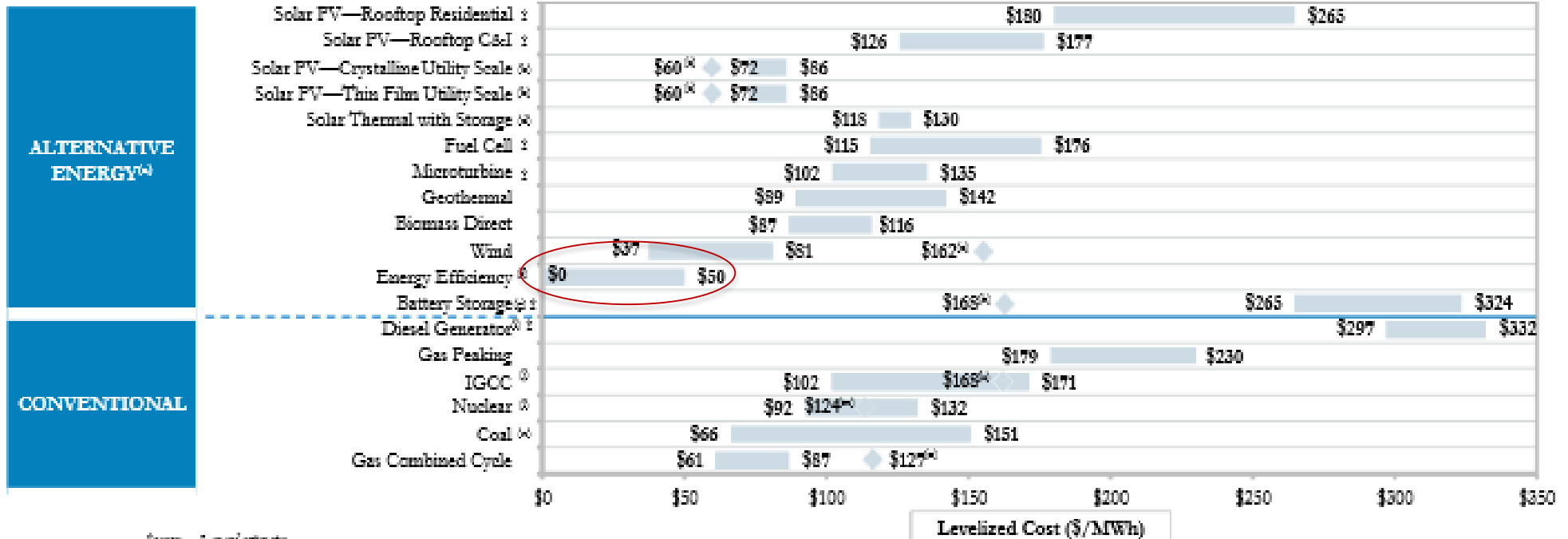


Image from: Lazard's Levelized Cost of Energy Analysis-Version 8.0

# Energy Efficiency is the Lowest Risk Resource

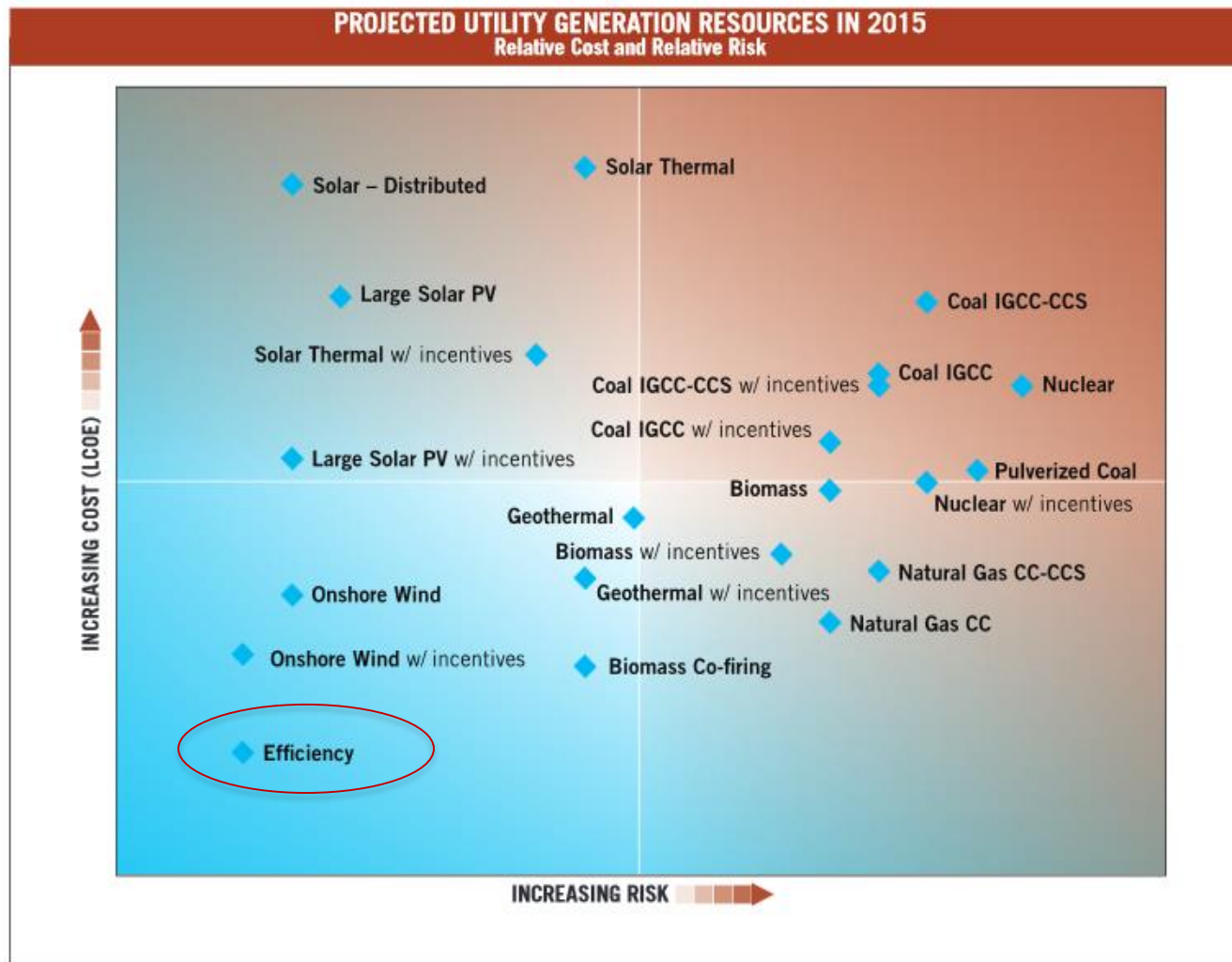
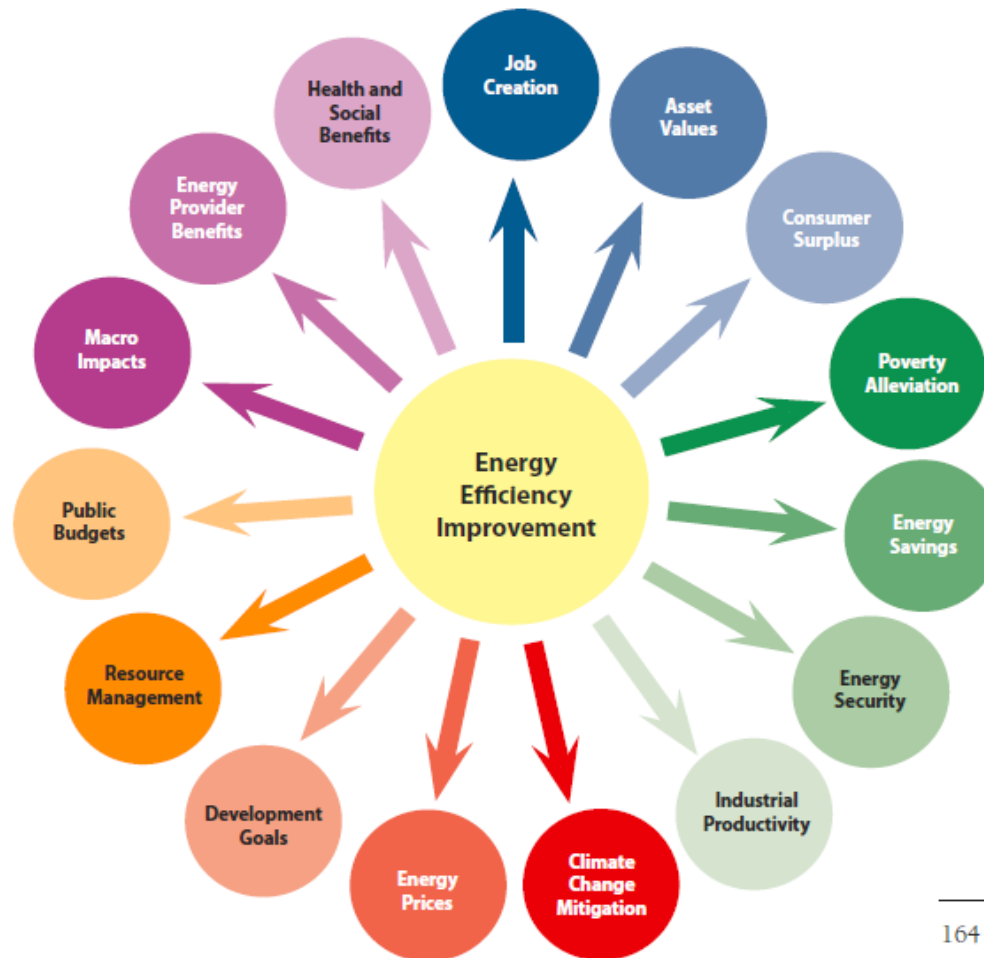


Image from Ceres Report: Practicing Risk Aware Regulation: What Every State Regulator Needs to Know

# Energy Efficiency Comes with Multiple Benefits



The Multiple Benefits of Energy Efficiency <sup>164</sup>



164 Ryan



Image from: A Layer Cake of Benefits: Recognizing the Full Value of Energy Efficiency

# Energy Efficiency is a Resource for Meeting Climate Change and Air Quality Goals

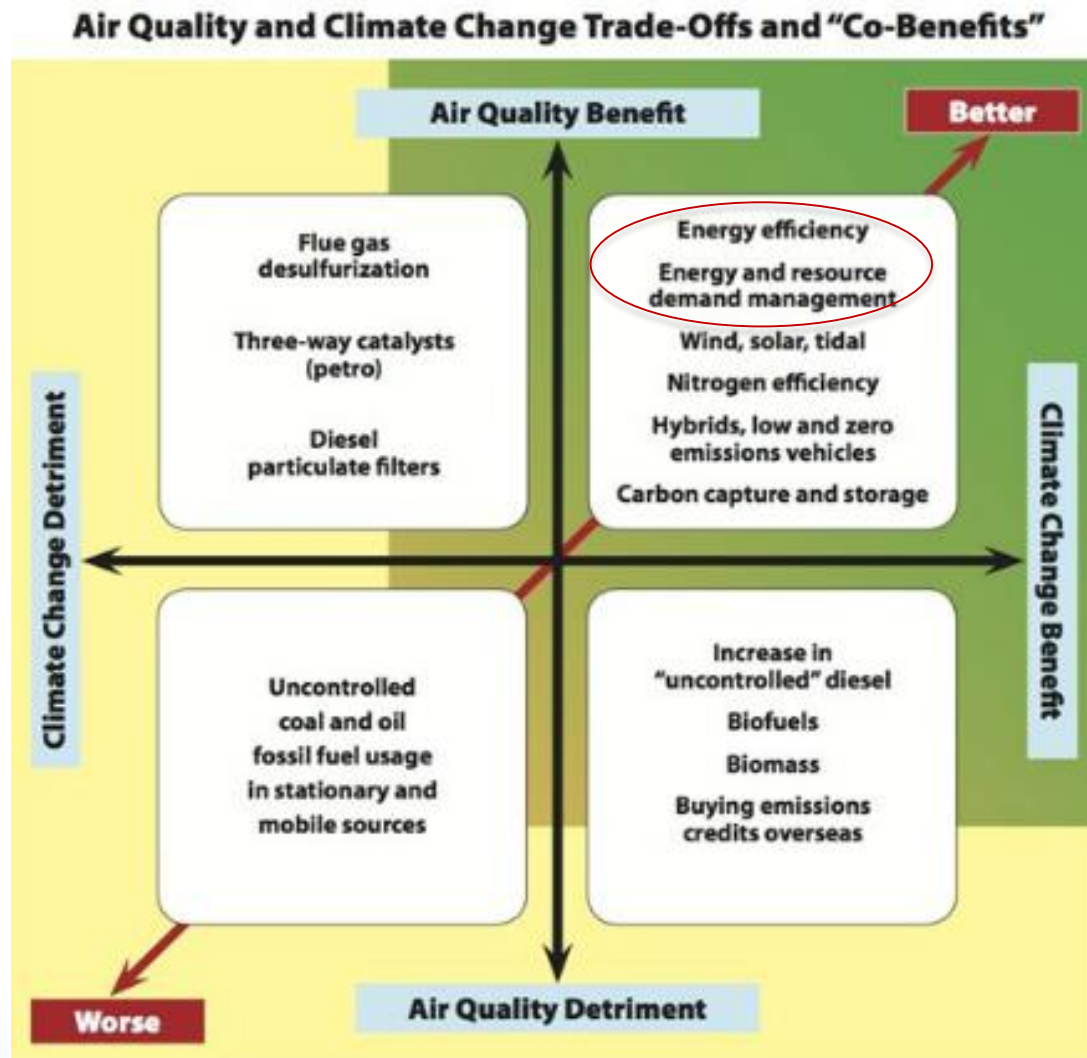


Image from AESP Presentation: EPA's Proposed 111(d) Standards to Reduce Carbon Emissions from Existing Power Plants: What it might mean for the energy efficiency industry.

# Avoided Emissions Due to EE in 2013



All units are in lbs.	Avoided CO <sub>2</sub>	Avoided NO <sub>x</sub>	Avoided SO <sub>x</sub>
Connecticut	190,445,065	93,918	83,484
Delaware	155,612,136	132,124	342,053
District of Columbia	52,762,745	44,799	115,979
Maryland	1,131,481,071	960,691	2,487,123
Massachusetts	1,003,008,796	494,634	439,675
New Hampshire	46,683,098	23,022	20,463
New York	928,062,181	109,882	130,671
Rhode Island	147,280,338	72,630	64,561
Vermont	77,087,413	38,016	33,793
<b>Total</b>	<b>3,732,422,842</b>	<b>2,958,659</b>	<b>4,893,843</b>

The avoided CO<sub>2</sub> emissions are equivalent to taking more than 350,000 cars off of the road







# State Policies in the Region



# EFFICIENCY POLICIES: NEW ENGLAND



State	Policy Type	Program Administrator	Energy Savings Goals
Connecticut	<a href="#">All Cost-Effective Energy Efficiency</a>	Electric & Gas Utilities	<a href="#">~1.4% of electric sales</a> (proceeding pending)
Maine	<a href="#">All Cost-Effective Energy Efficiency</a>	Efficiency Maine Trust	~1.5% of electric sales by 2016
Massachusetts	<a href="#">All Cost-Effective Energy Efficiency</a>	Electric & Gas Utilities + CLC	2.5% of electric & 1.08% of natural gas sales annually by 2018 <a href="#">(proceeding pending)</a>
New Hampshire	<a href="#">Program Funding Only</a>	Electric & Gas Utilities	<i>No mandated savings goals, but EERS</i> <a href="#">proceeding pending</a>
Rhode Island	<a href="#">All Cost-Effective Energy Efficiency</a>	Electric & Gas Utilities	<a href="#">2.6% of electric &amp; 1.1% of natural gas sales annually by 2017</a>
Vermont	<a href="#">All Cost-Effective Energy Efficiency</a>	Energy Efficiency Utility	<a href="#">2.1% of electric sales annually by 2017</a>

# EFFICIENCY POLICIES: NY AND MID-ATLANTIC

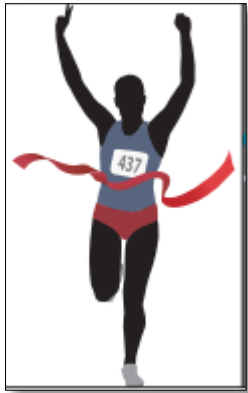


State	Policy Type	Program Administrator	Energy Savings Goals
Delaware	<a href="#">All Cost-Effective Energy Efficiency</a>	Utilities+ Sustainable Energy Utility	<i>~In Progress</i>
District of Columbia	<a href="#">Efficiency Utility Goals</a>	Sustainable Energy Utility	N/A
Maryland	<a href="#">Energy Efficiency Resource Standard</a>	Electric and Gas Utilities	<i>~-2.0% of electric sales in <a href="#">2020</a></i>
New Jersey	<a href="#">Efficiency Funding</a>	Office of Clean Energy + Utilities	<i>No mandated savings goals</i>
New York	<a href="#">Energy Efficiency Portfolio Standard</a>	NYSERDA + Utilities	<i>(proceeding pending, <a href="#">15-M-0252</a>)</i>
Pennsylvania	<a href="#">Energy Efficiency Resource Standard</a> <i>Funding Capped</i>	Electric Utilities	<i>~-0.8% of electric sales annually through 2021, but will likely be adjusted to account for 111(d) impacts</i>

# REGION'S LATEST DEVELOPMENTS



## LEADING THE PACK



2015 % Retail Sales	Electric Savings	Gas Savings
Massachusetts	2.6%	1.19%
Rhode Island	2.5%	1.0%
Vermont	2.2%	1.0%

## NOTABLE TRENDS

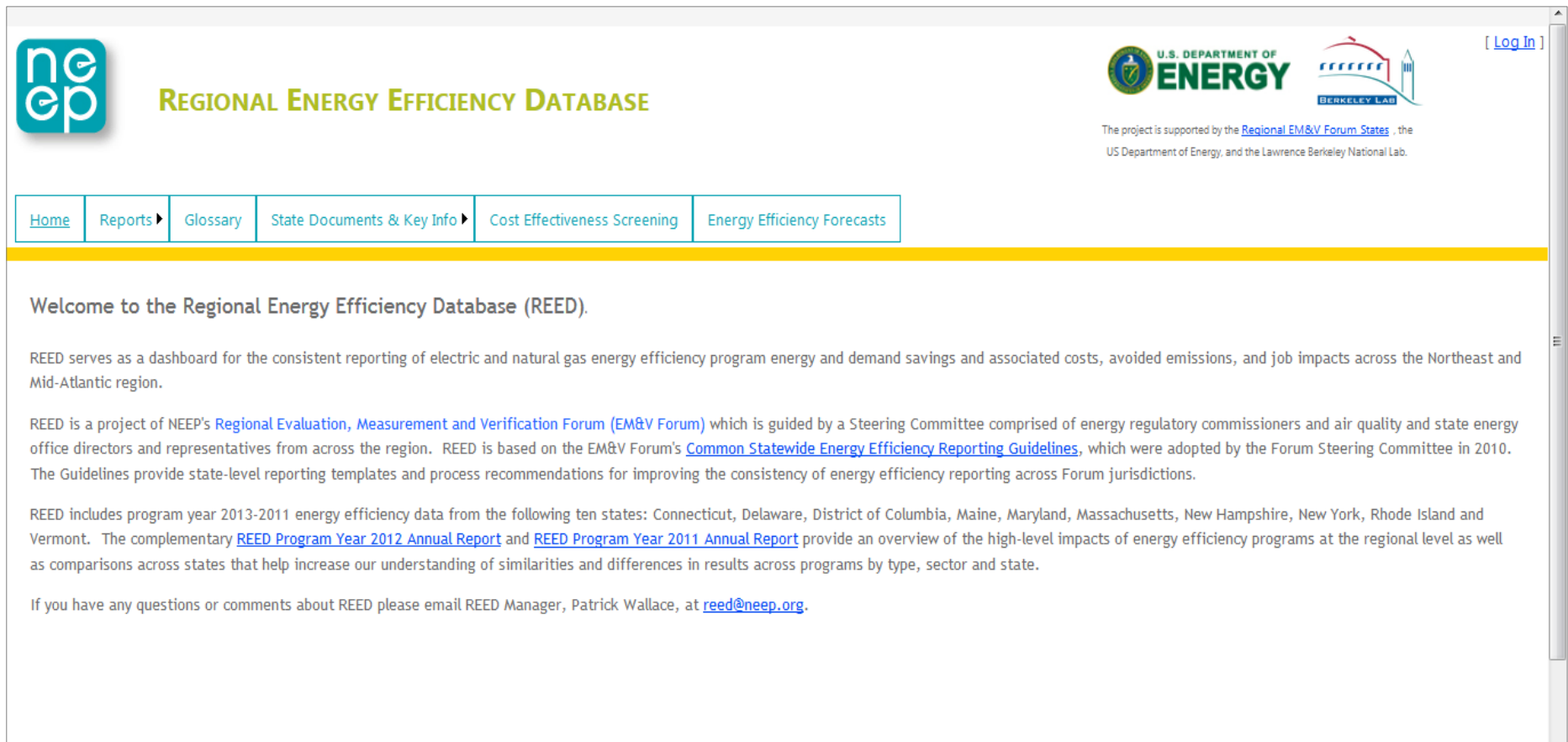
- Geo-targeting efficiency measures and distributed generation as a substitute for T&D upgrades
- Incorporating expected 111(d) compliance into cost effectiveness screening
- Shareholder incentives targeting peak demand savings goals
- Energy Transformation portfolios in Vermont, fuel neutrality in New York
- Market segmentation within programs



# Efficiency by the Numbers



# AN OVERVIEW OF THE REGIONAL ENERGY EFFICIENCY DATABASE (REED)



The screenshot shows the homepage of the Regional Energy Efficiency Database (REED). At the top left is the neep logo. To its right is the title "REGIONAL ENERGY EFFICIENCY DATABASE" in green. On the right side, there are logos for the U.S. Department of Energy and Berkeley Lab, along with a "[ Log In ]" link. Below these is a navigation menu with buttons for "Home", "Reports", "Glossary", "State Documents & Key Info", "Cost Effectiveness Screening", and "Energy Efficiency Forecasts". The main content area has a yellow header bar. Below it, the text reads: "Welcome to the Regional Energy Efficiency Database (REED). REED serves as a dashboard for the consistent reporting of electric and natural gas energy efficiency program energy and demand savings and associated costs, avoided emissions, and job impacts across the Northeast and Mid-Atlantic region. REED is a project of NEEP's Regional Evaluation, Measurement and Verification Forum (EM&V Forum) which is guided by a Steering Committee comprised of energy regulatory commissioners and air quality and state energy office directors and representatives from across the region. REED is based on the EM&V Forum's Common Statewide Energy Efficiency Reporting Guidelines, which were adopted by the Forum Steering Committee in 2010. The Guidelines provide state-level reporting templates and process recommendations for improving the consistency of energy efficiency reporting across Forum jurisdictions. REED includes program year 2013-2011 energy efficiency data from the following ten states: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont. The complementary REED Program Year 2012 Annual Report and REED Program Year 2011 Annual Report provide an overview of the high-level impacts of energy efficiency programs at the regional level as well as comparisons across states that help increase our understanding of similarities and differences in results across programs by type, sector and state. If you have any questions or comments about REED please email REED Manager, Patrick Wallace, at reed@neep.org."

# AN OVERVIEW OF THE REGIONAL ENERGY EFFICIENCY DATABASE (REED)

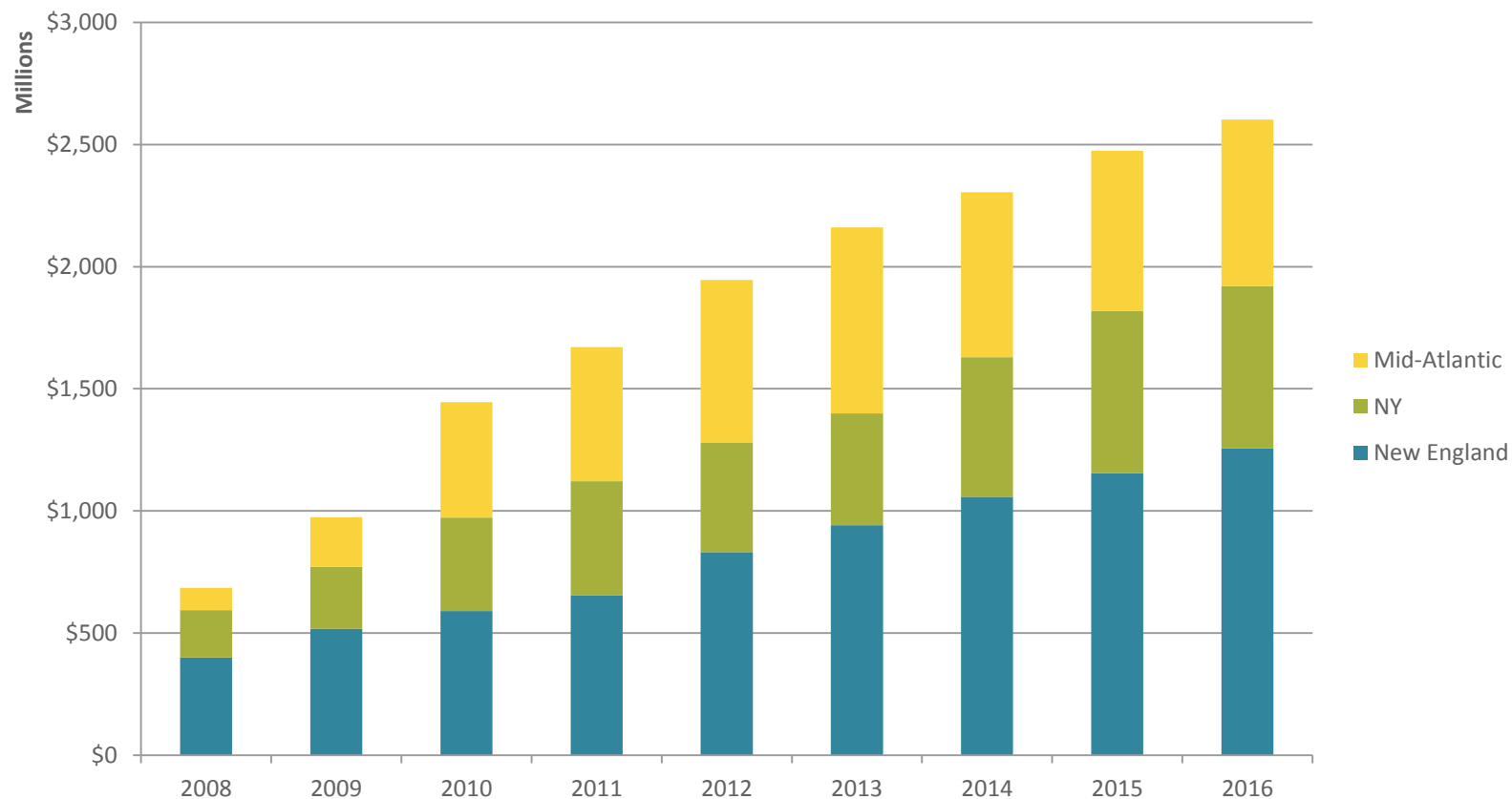


**What it is:** REED serves as a dashboard for the consistent reporting of electric and natural gas energy efficiency program energy and demand savings and associated costs, avoided emissions, and job impacts across the Northeast and Mid-Atlantic regions.

**REED's Purpose:** Promote transparency and consistency in reporting of EE impacts across the region to increase the credibility and understanding of the EE resource to support state and regional energy, economic and environmental policies.

*Visit REED at [www.neep-reed.org](http://www.neep-reed.org)*

# ENERGY EFFICIENCY INVESTMENTS IN THE REGION, 2007-2016\*



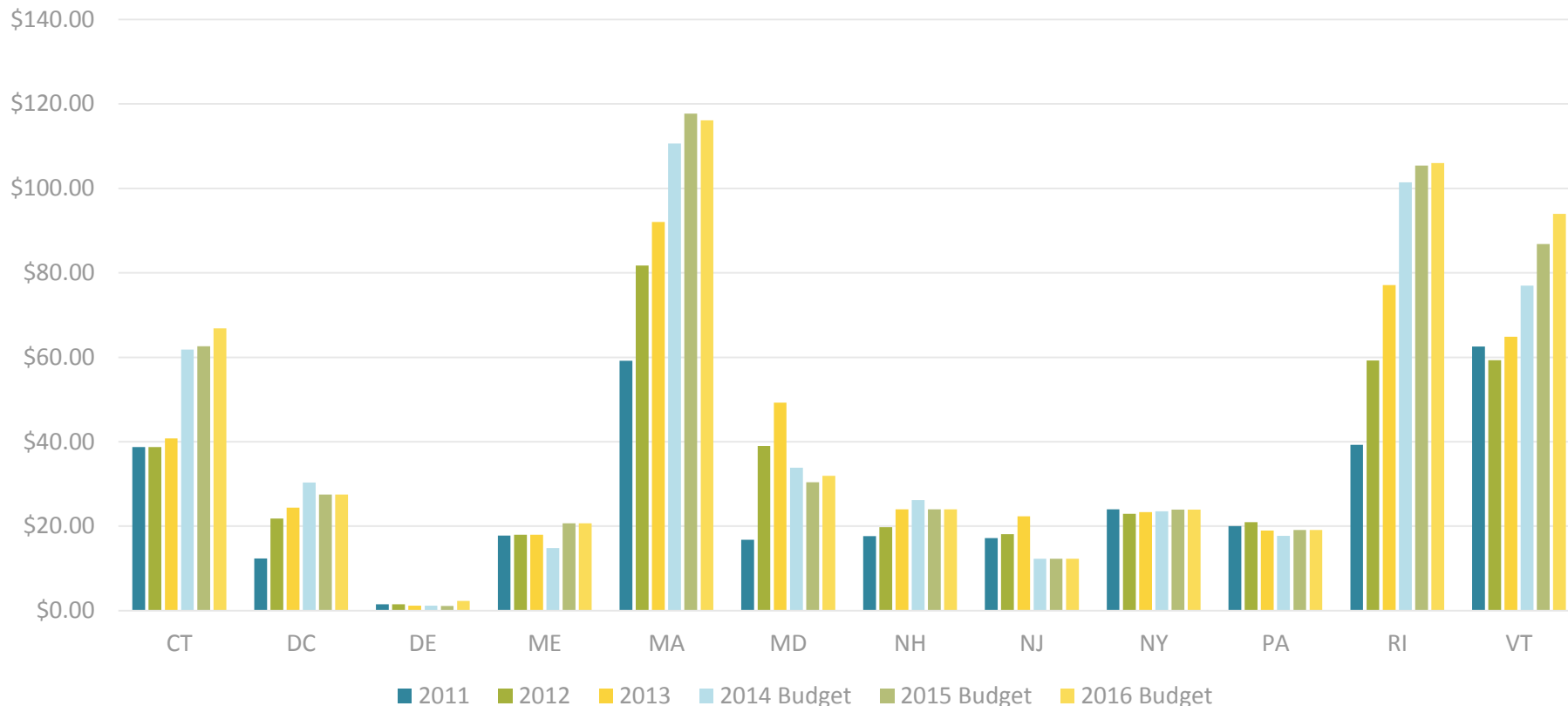
Energy Efficiency investments in New England, New York, and the Mid-Atlantic states continue to hover around \$2 billion per year in the region. Budgets increased significantly, though they have levelled off in many states.

\*Expenditures include all electric and natural gas ratepayer funding and funding from RGGI and wholesale markets like the Forward Capacity Market. Data is taken from a number of sources, including NEEP's [REED database](#), [EIA File 861](#), and [ISO-New England's EE Forecast](#). 2007 to 2013 are year-end reported data while 2014 to 2016 expenditures are forecasted data that are subject to change.



# STATE SPENDING ON ENERGY EFFICIENCY

## COMPARISON OF 2011 TO 2016 PER CAPITA PROGRAM SPENDING

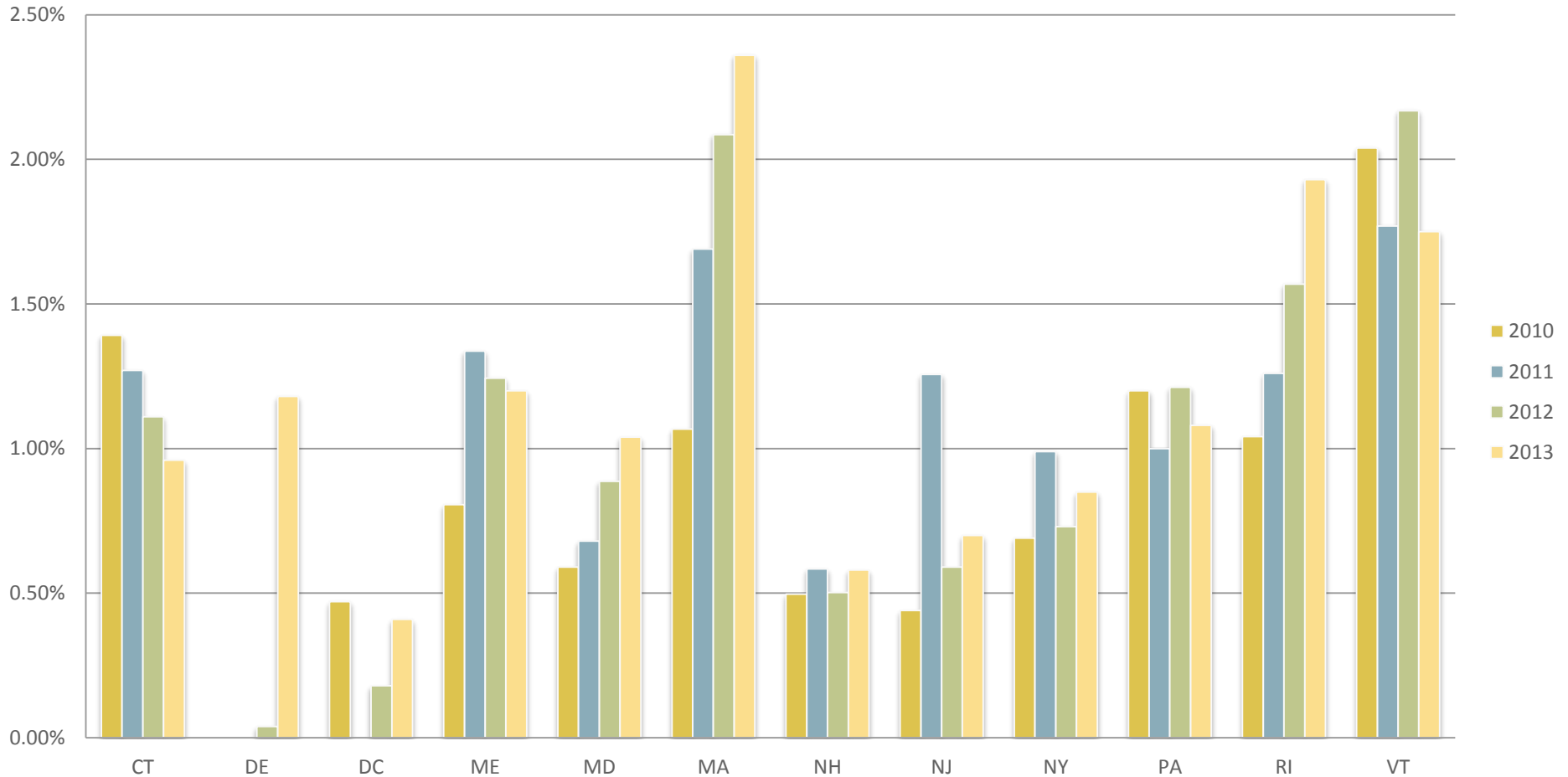


Efficiency investments are rising in many states in New England and in the Mid-Atlantic. The next generation of three year plans continues the trend towards robust investments in energy efficiency. Combined efficiency program investments per-capita will average approximately \$45 in 2016.

Expenditures include all electric and natural gas ratepayer funding and funding from RGGI and wholesale markets like the Forward Capacity Market. 2010-2013 are year-end reported data while 2014-16 expenditures are forecasted data that are subject to change. Population figures are taken from the U.S. Census Bureau via Google, and 2014 population figures used for 2014-16.

# ELECTRIC SAVINGS, 2010-2013

ELECTRIC SAVINGS AS A PERCENTAGE OF STATE RETAIL ELECTRIC SALES

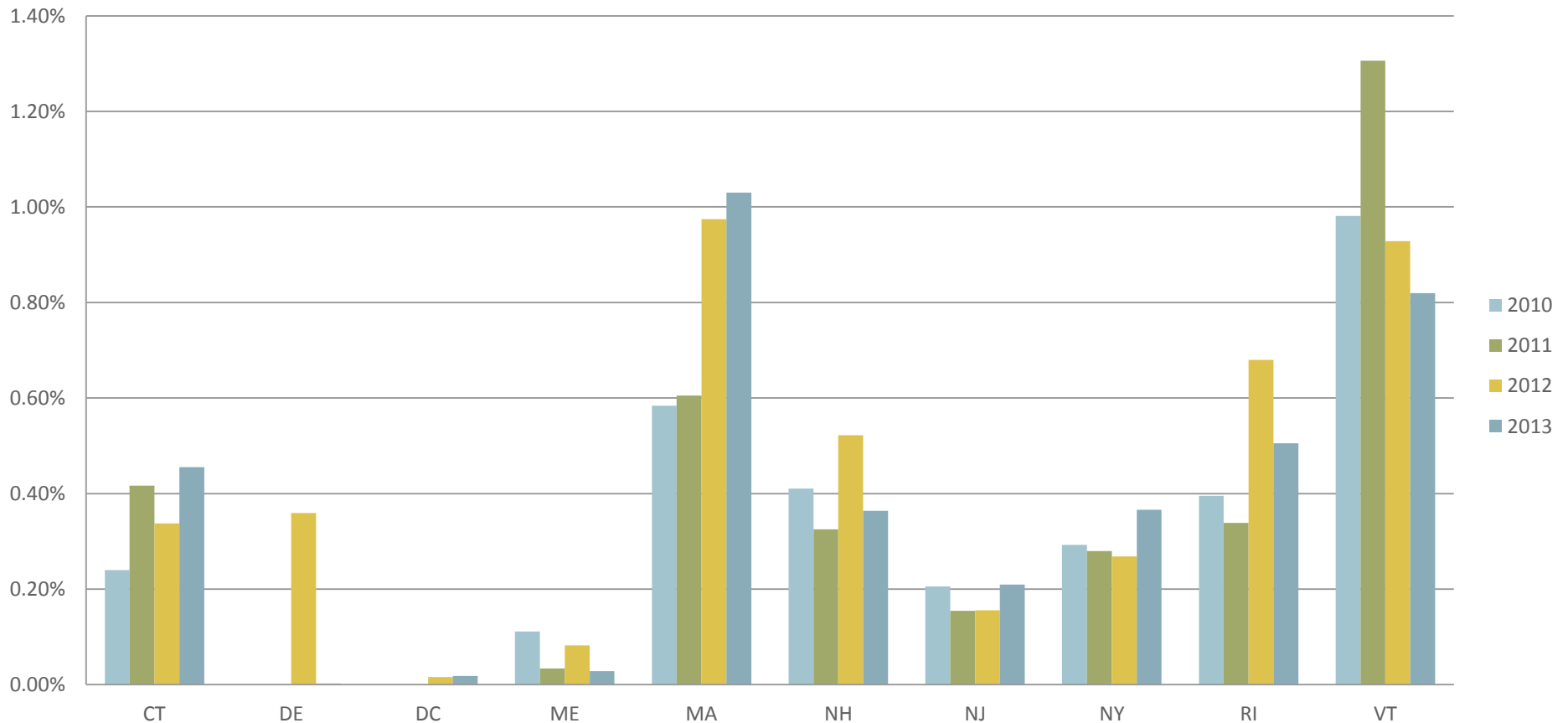


Policy has driven energy efficiency to make up a growing portion of our electricity demand, with leading states achieving savings of about 2 percent of annual electric sales.

Electricity savings are taken from NEEP's [REED Database](#), [EIA File 861](#), and the [ISO New England EE Forecast](#). Electricity sales data are taken from the [EIA's State Electricity Profiles website](#). New York and New Jersey figures for 2013 are taken from ACEEE.

# NATURAL GAS SAVINGS, 2010-2013

GAS SAVINGS AS A PERCENTAGE OF STATE NATURAL GAS SALES



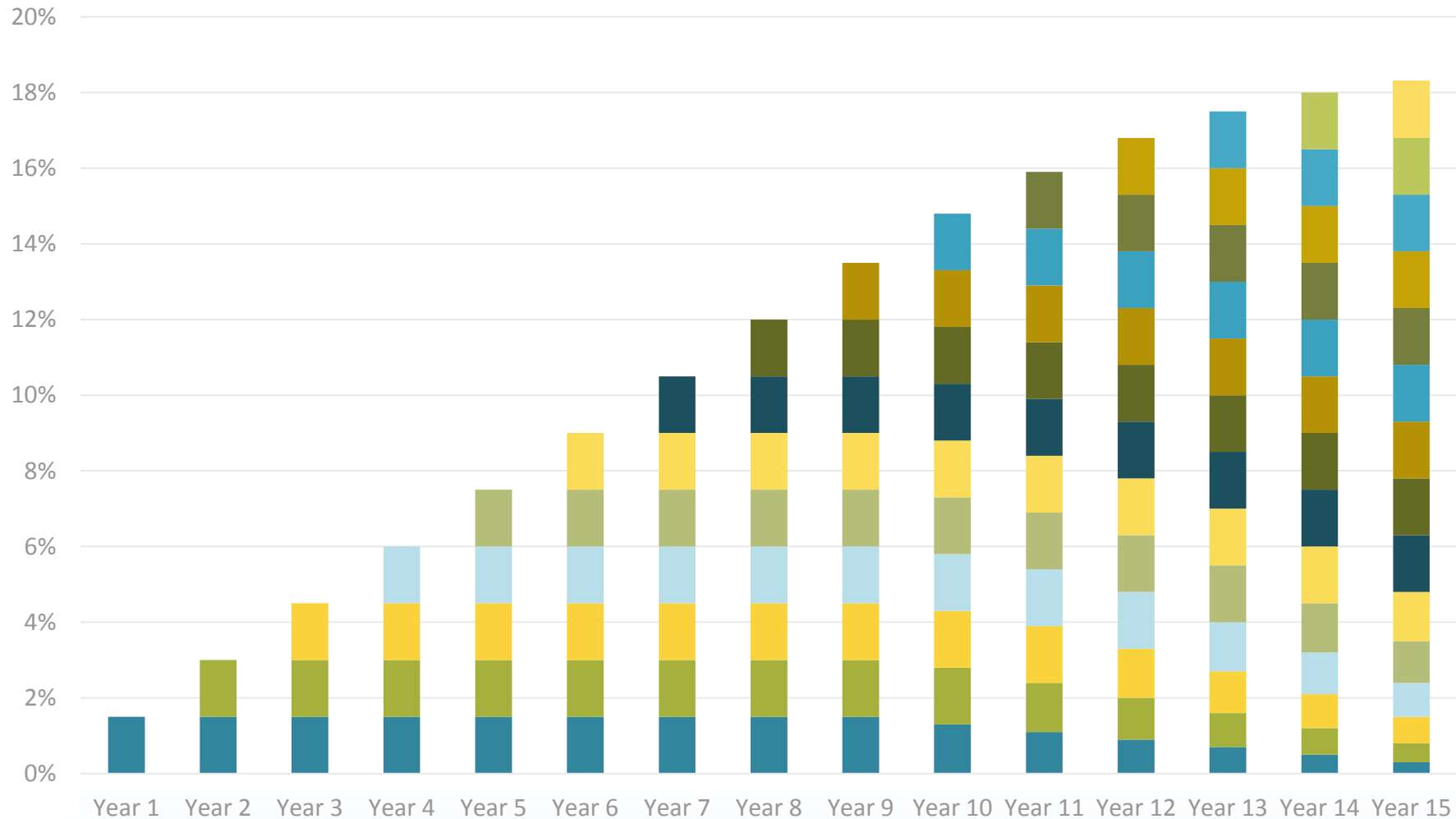
While natural gas programs are more modest, leading states aim to achieve savings of about 1 percent of retail sales.

Natural gas savings are taken from NEEP's [REED Database](#), [EIA File 861](#), and the [ISO New England EE Forecast](#). Natural gas sales data are taken from the [EIA Natural Gas Consumption by End Use site](#). New York and Jersey 2013 savings figures are from ACEEE.

# EE SAVINGS ARE CUMULATIVE



Savings as a Percent of Sales Over Time: Illustrative Example

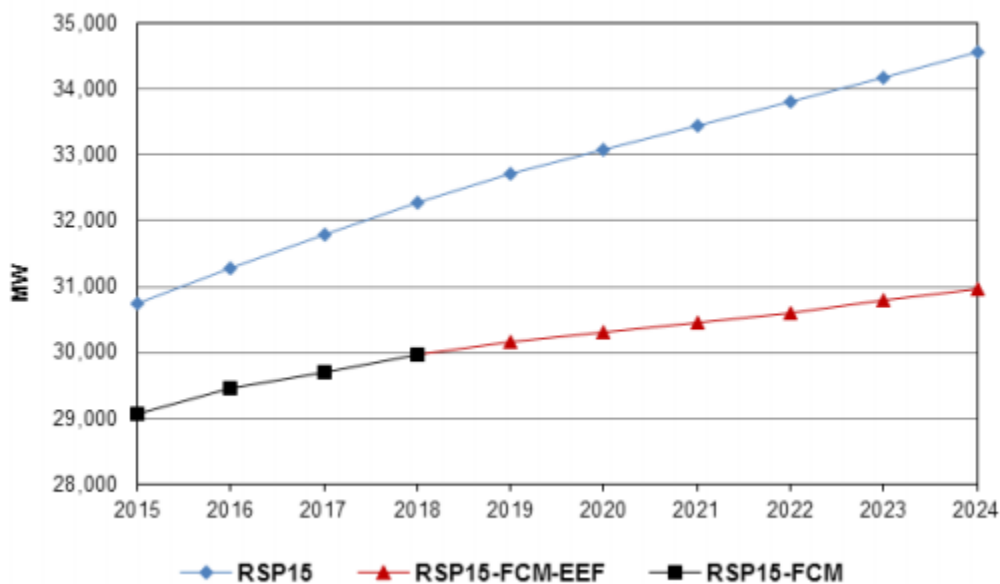


Savings as a percent of sales figures (like those in the previous slides) are generally calculated on an annual basis, but the savings from energy efficiency programs accumulate over time.

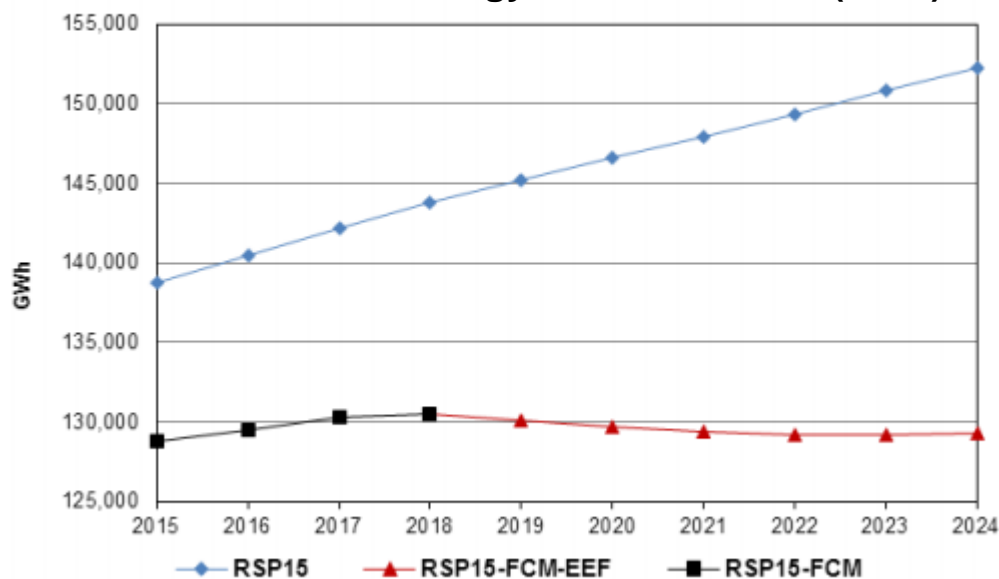
# ENERGY EFFICIENCY WILL SIGNIFICANTLY REDUCE TRANSMISSION AND SYSTEM COSTS



### ISO-NE 90/10 Summer Peak: RSP15 Forecast (MW)



### ISO-NE Annual Energy RSP15 Forecast (GWh)

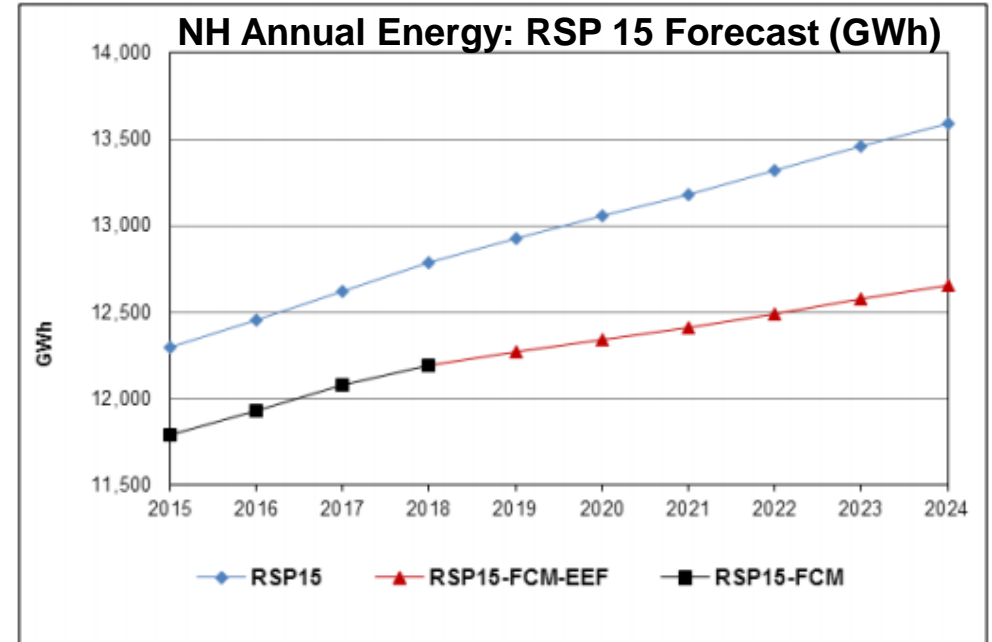
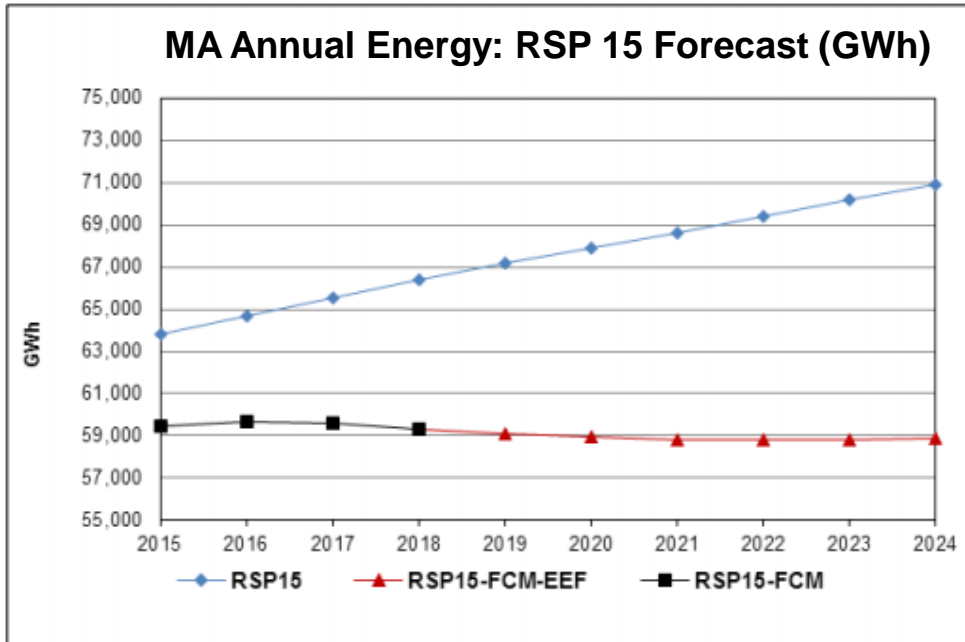


According to ISO-New England, the nearly \$6 billion in planned investments in energy efficiency will significantly curb peak demand and keep electric load growth flat through 2021. These reductions helped create \$400 million savings from deferred transmission upgrades.

ISO New-England, 2015 Energy Efficiency Forecast, : <http://www.iso-ne.com/static-assets/documents/2015/05/eef-report-2019-2024.pdf>

# ...BUT NOT ALL STATES WILL BENEFIT EQUALLY

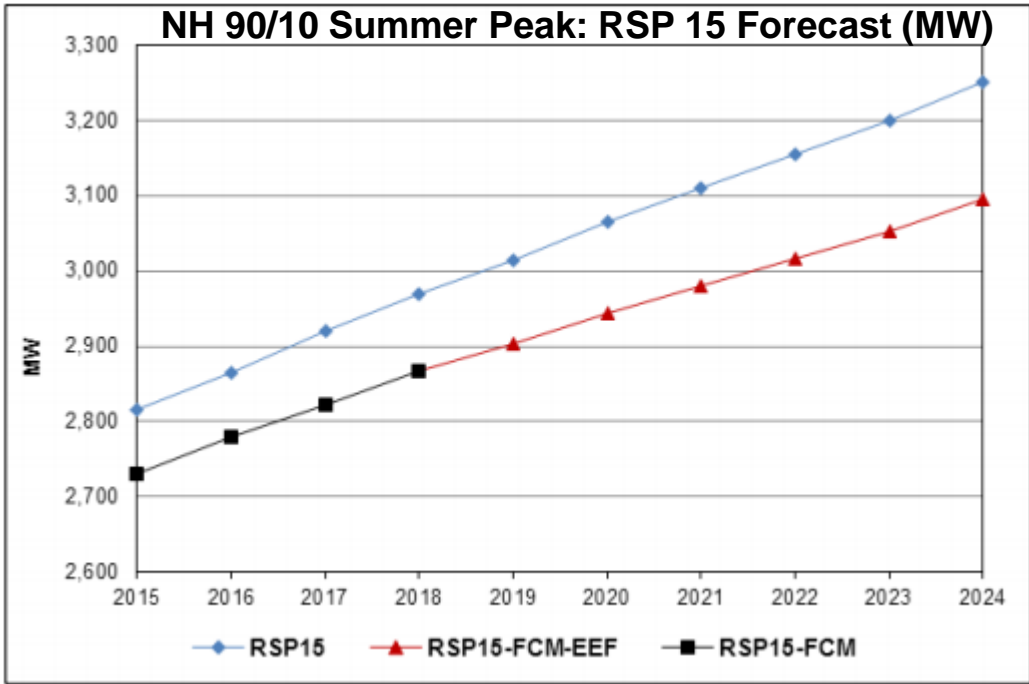
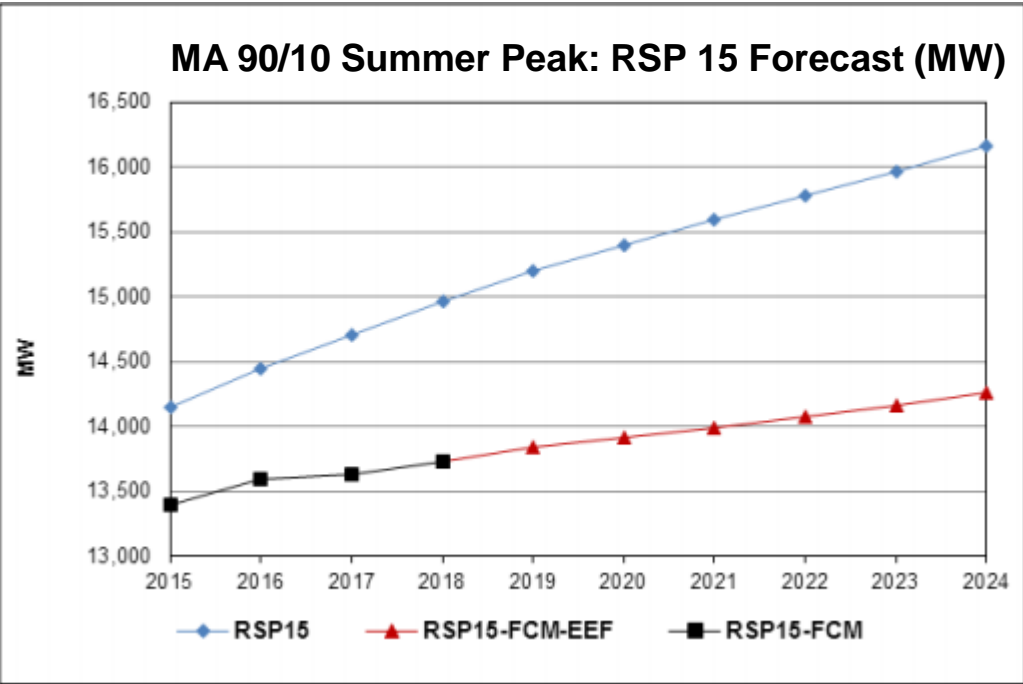
COMPARING MASSACHUSETTS' AND NEW HAMPSHIRE'S PROJECTED LOAD GROWTH



The forecast finds that states that aggressively pursue energy efficiency will see their electricity loads fall significantly. States with lower levels of investment, like New Hampshire, will not benefit as greatly.

ISO New-England, 2015 Energy Efficiency Forecast, : <http://www.iso-ne.com/static-assets/documents/2015/05/eef-report-2019-2024.pdf>

# ...AND A SIMILAR STORY FOR PEAK DEMAND



ISO New-England, 2015 Energy Efficiency Forecast, : <http://www.iso-ne.com/static-assets/documents/2015/05/eef-report-2019-2024.pdf>

# QUESTIONS?



For more information on Regional Policies, please contact:

Brian Buckley, [Bbuckley@NEEP.org](mailto:Bbuckley@NEEP.org)

P: 781.860.9177 ext. 152

Natalie Treat, [NTreat@neep.org](mailto:NTreat@neep.org)

P: 781.860.9177 ext. 121

For more information on the Regional Energy Efficiency Database (REED), please contact:

Patrick Wallace, [pwallace@neep.org](mailto:pwallace@neep.org)

P: 781.860.9177. ext. 138

Northeast Energy Efficiency Partnerships (NEEP)

91 Hartwell Avenue Lexington, MA 02421

[www.neep.org](http://www.neep.org)