Northeast Energy Efficiency Partnerships

Standardization of Energy Efficiency Information: The Northeast Regional Perspective

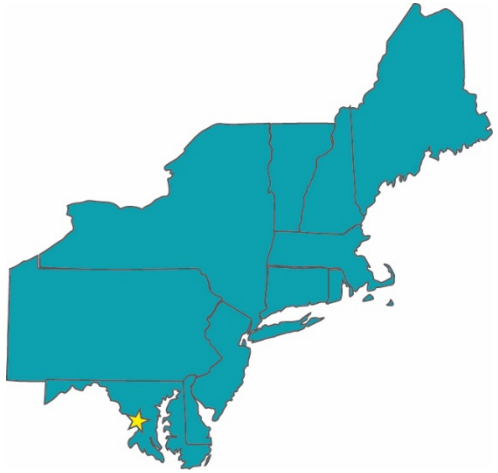
Presented to EIA Energy Conference

July 11, 2016

About NEEP

Mission

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



Approach

Overcome barriers and transform markets via

Collaboration, Education and Enterprise

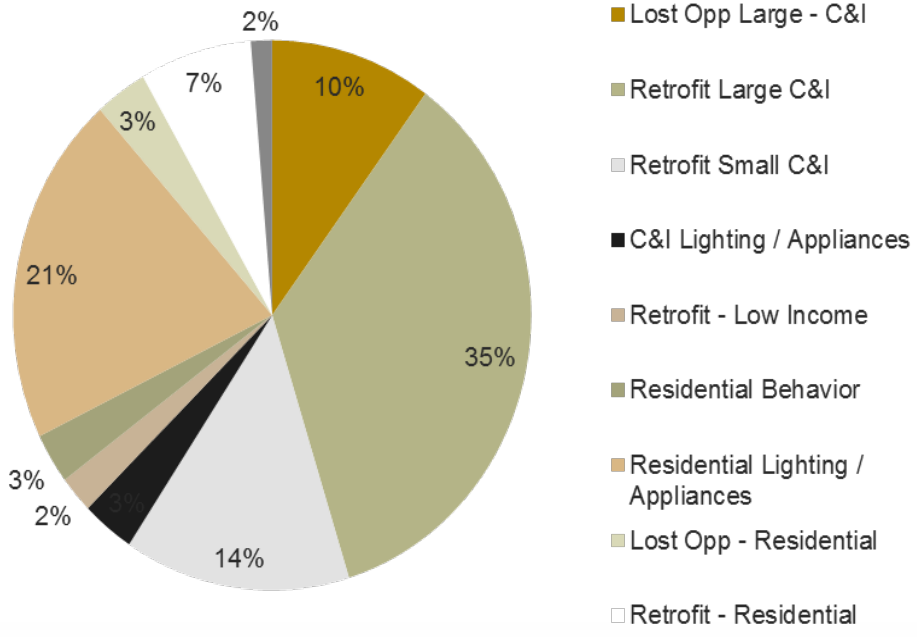
Vision

Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world

One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs

Benefits of Standardization: A Common Language

kWh per year



Calories per serving

Nutrition Facts

Serving Size 1 Banana (130g)
Servings per Container 1

Amount Per Serving	
Calories 300	Calories from Fat 130
	% Daily Value*
Total Fat 16g	**24%**
Saturated Fat 8g	**39%**
Trans Fat 0g	
Cholesterol 0g	**0%**
Sodium 15mg	**1%**
Potassium 320mg	**9%**
Total Carbohydrate 44g	**15%**
Dietary Fiber 4g	**16%**
Sugars 32g	
Protein 2g	
Vitamin A	2%
Vitamin C	15%
Calcium	2%
Iron	6%
Riboflavin (Vitamin B2)	4%
Vitamin B6	15%
Folate	4%
Magnesium	6%
Copper	4%
Manganese	10%

* Percent Daily Values are based on a 2000 calorie diet. Your daily values may be higher or lower, depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Enhancing Credibility of Results

- What Evaluation Measurement & Verification (EM&V) approach was used to estimate savings?
- Do we have confidence in the accuracy of the results?
- How do the EM&V approaches compare across states?
- How do the EM&V approaches used align with any existing state, regional or national EM&V protocols?

Facilitate Transactions

How Energy Efficiency Stakeholders Can Use Standardized Data

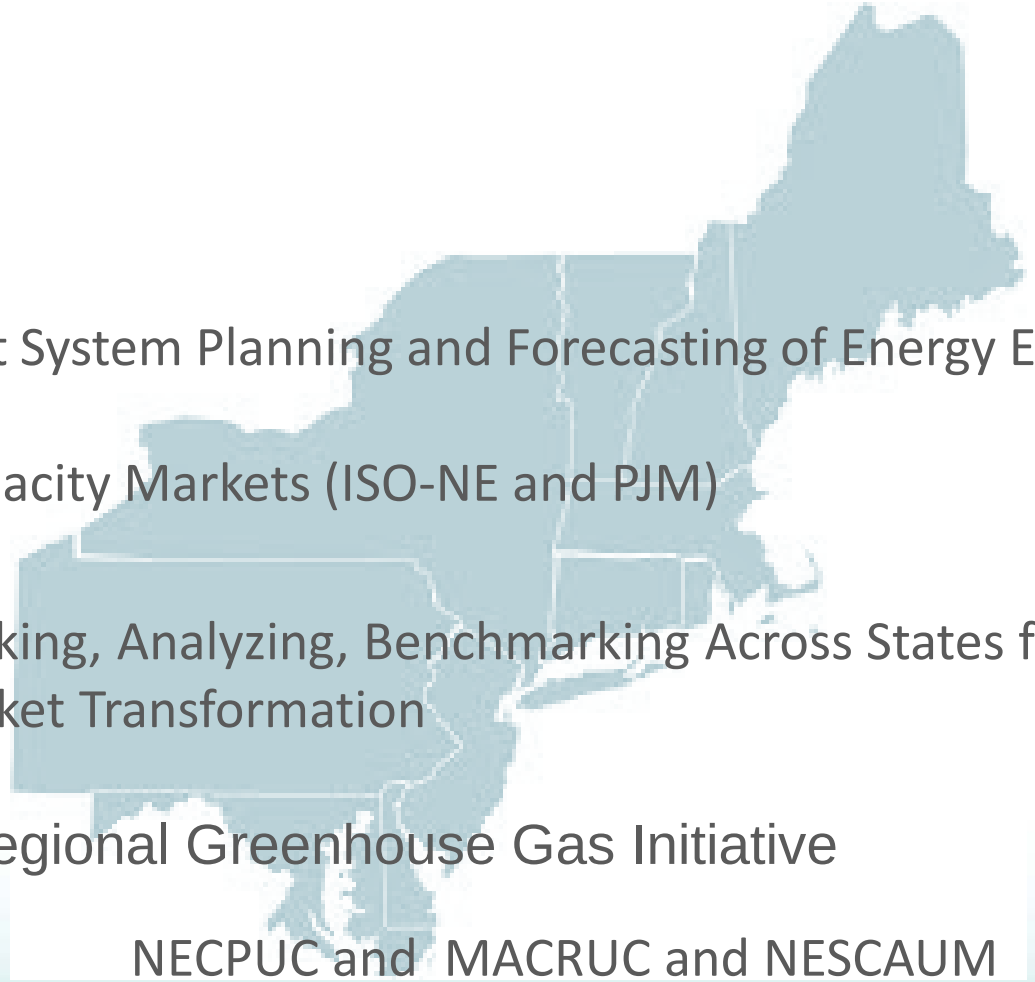
Compare program impacts to help identify best practices

Aggregate results to inform regional and national impacts / policies

Support system & transmission planning, forecasting

Incorporate EE data into air quality plans

Regional Drivers of Standardization



Independent System Planning and Forecasting of Energy Efficiency

Forward Capacity Markets (ISO-NE and PJM)

Tracking, Analyzing, Benchmarking Across States for Market Transformation

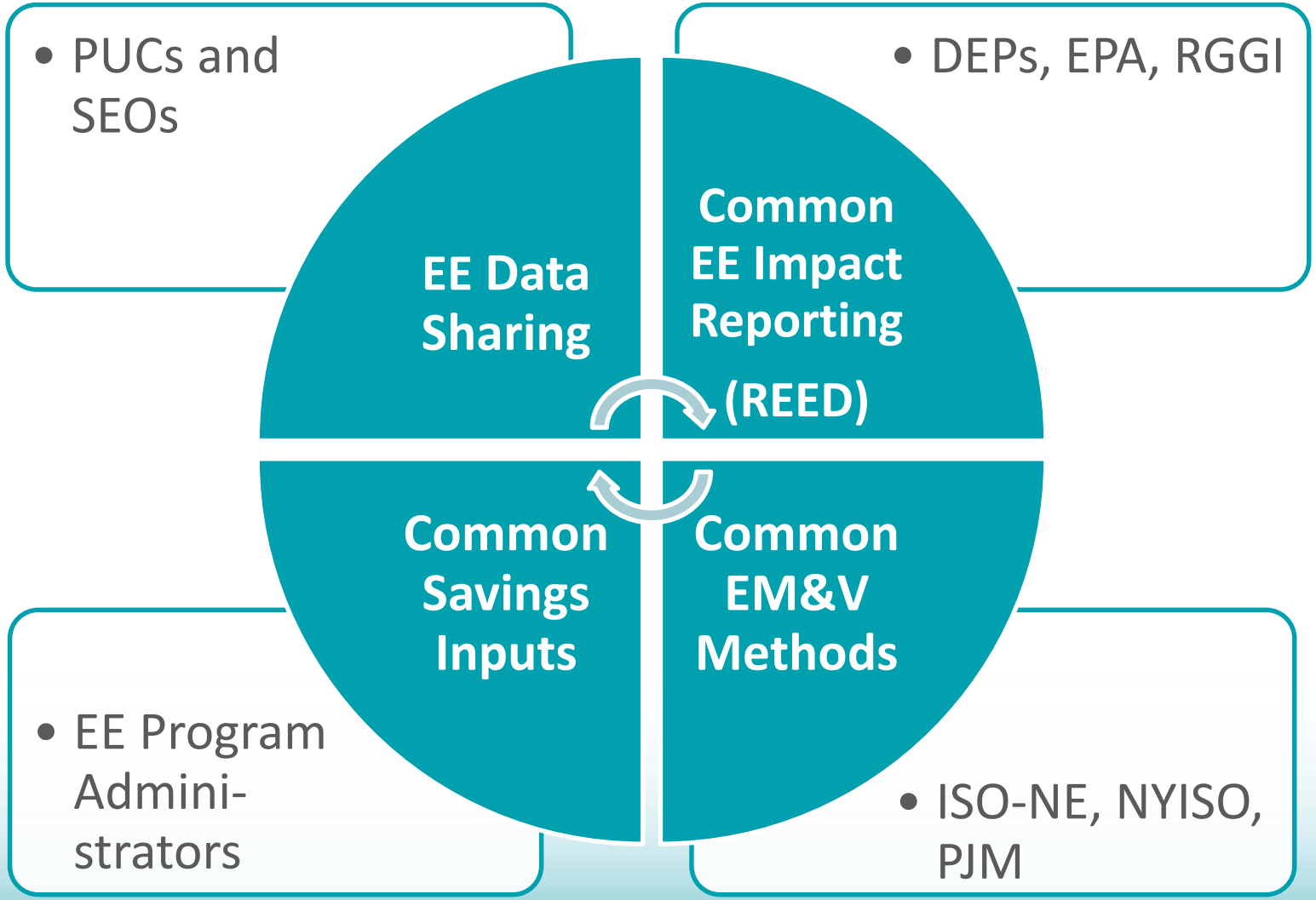
Regional Greenhouse Gas Initiative

NECPUC and MACRUC and NESCAUM

NEEP and the Regional EM&V Forum

Build a Transparent and Common EM&V Platform

NECPUC/MACRUC Resolutions



Varied Tools Support Standardization

- Multi-state Technical Reference Manual
- Policy Guidance: Cost-Effectiveness and Net Savings
- Credentialing/Certification Research
- Standardized Forms to Document Methods and Results
- Regional Energy Efficiency Database
- Home Energy Labeling Information Exchange

Key Features of Standardized Products…
Can Also Be Challenges

- Voluntary…*build coalition of the willing*
- Organic…*can end up as a lowest common denominator product*
- Developed with stakeholder and expert peer input…*can take time*
- Cofunded with multistate and national support…*lacks individual state control*
- Educates a broad stakeholder community…*when successfully implemented*
- Many aspects transferable to other regions or nation

Streamlined EM&V Reporting and Review: via 2 Standardized Forms

NOT THIS! (Impact Evaluation Studies)

CONTENT

Study Form

1 – General Information

2 – Study Summary and Results

3 – **EM&V Methods** for Gross Savings

4 – **EM&V Methods** for Net Savings

5 – Study **EM&V Rigor** Summary

6 – **Evaluation Protocols**

7 – Recommendations

Program Form

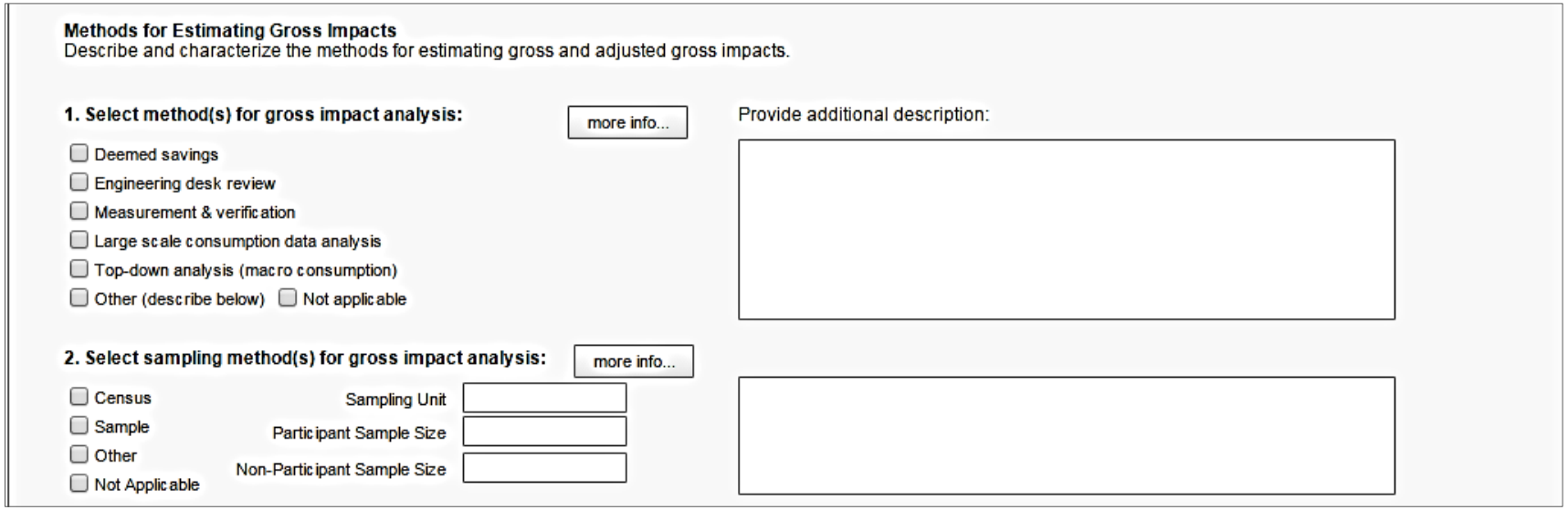
1 –Program Year Summary

2 – **EM&V Methods** Summary

3 – **EM&V Rigor** Summary

4 – **EM&V Protocols**

FORMAT



Methods for Estimating Gross Impacts
Describe and characterize the methods for estimating gross and adjusted gross impacts.

1. Select method(s) for gross impact analysis: more info...

Provide additional description:

- ☐ Deemed savings
- ☐ Engineering desk review
- ☐ Measurement & verification
- ☐ Large scale consumption data analysis
- ☐ Top-down analysis (macro consumption)
- ☐ Other (describe below) ☐ Not applicable

2. Select sampling method(s) for gross impact analysis: more info...

- ☐ Census
- ☐ Sample
- ☐ Other
- ☐ Not Applicable

Sampling Unit
Participant Sample Size
Non-Participant Sample Size

structured response

flexible response

http://www.neep.org/initiatives/emv-forum/model-emv-methods-standardized-reporting-forms

NEER
NATIONAL ENERGY EFFICIENCY REGISTRY

NEER Objectives

- Provide a consistent framework for EE to be included as an "eligible resource" in federal and state plans
- Demonstrate verification of EE projects according to the appropriate eligibility standards
- Facilitate the opportunity for inter- and intrastate trading

Benefits of a NEER

The NEER will:

- Not prescribe EM&V but will outline consistent requirements for data
- Aggregate rate payer and non-rate payer programs
- Support the development of financial instruments representing verified EE savings
- Be flexible to support a range of EE projects and program types

NEER Development Elements

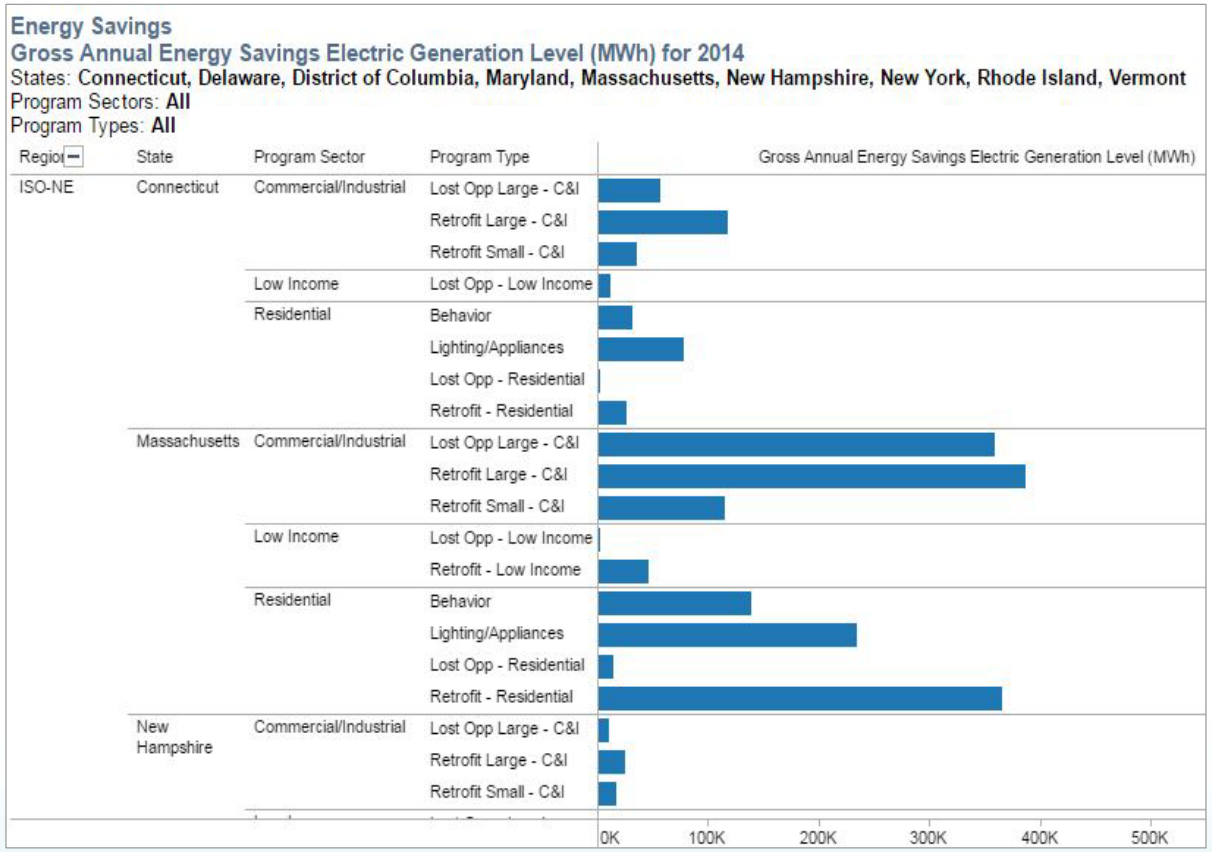
Identifying Trends in Regional Data

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:

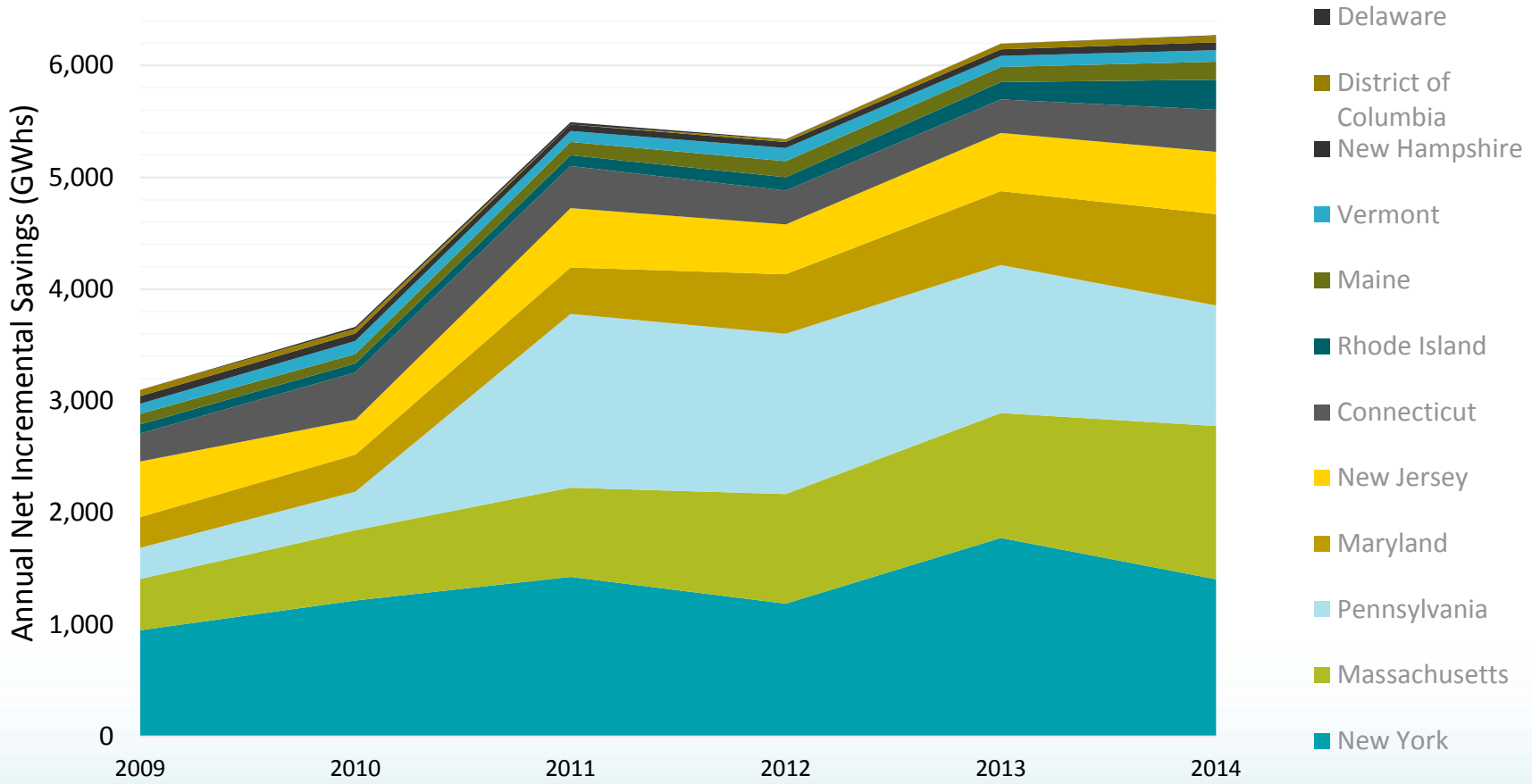
- Annual & Lifetime Savings
- Peak Demand Savings
- Avoided Air Emissions
- Program Expenditures
- Job Creation Impacts
- Cost of Saved Energy
- Program Funding Sources
- Supporting Information



Learn more at reed.neep.org

Policies Provide Extensive Savings

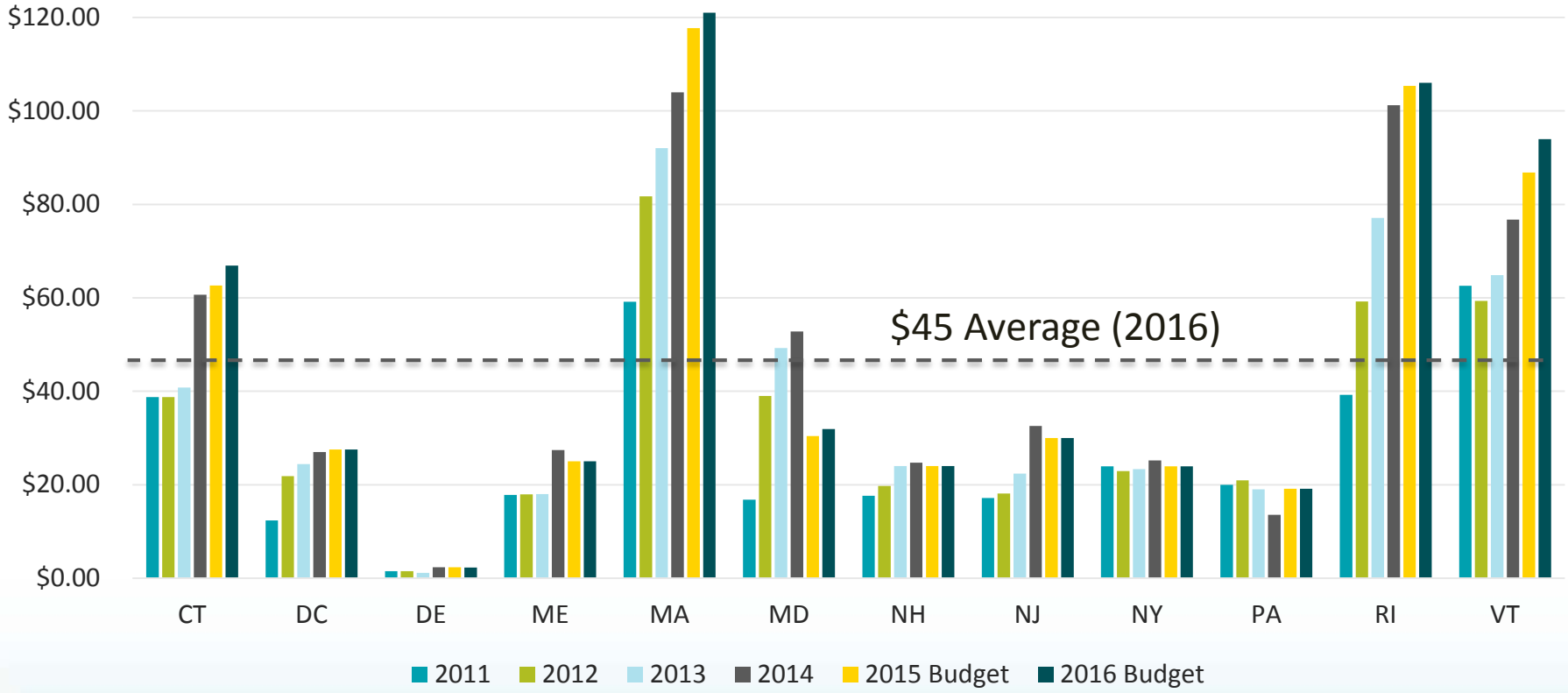
Annual verified electric savings have more than doubled in recent years, moving from ~3,100 GWh in 2009 to ~6,300 GWh in 2014. This is a direct result of regulatory policies and executive leadership in states supporting energy efficiency as a first order resource.



Sources: 2013-14 data is drawn from EIA form 861. 2011-12 data is drawn from NEEP's REED Database and ACEEE Scorecard/program administrator reports (D.C. Del., NJ. Pa.). 2009-10 data is drawn from ACEEE scorecards.

Benchmarking Per Capita Energy Efficiency Investments (*Electric and Natural Gas Programs Combined)*

Efficiency investments are increasing across New England and the Mid-Atlantic. In 2016, combined efficiency program investments will average approximately $45 per capita.



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 Scorecard. 2015-16 data is drawn from energy efficiency program plans in each state. For further information on which program administrators are included in REED, please see the REED Footnotes website.

REED Data Collection & Use

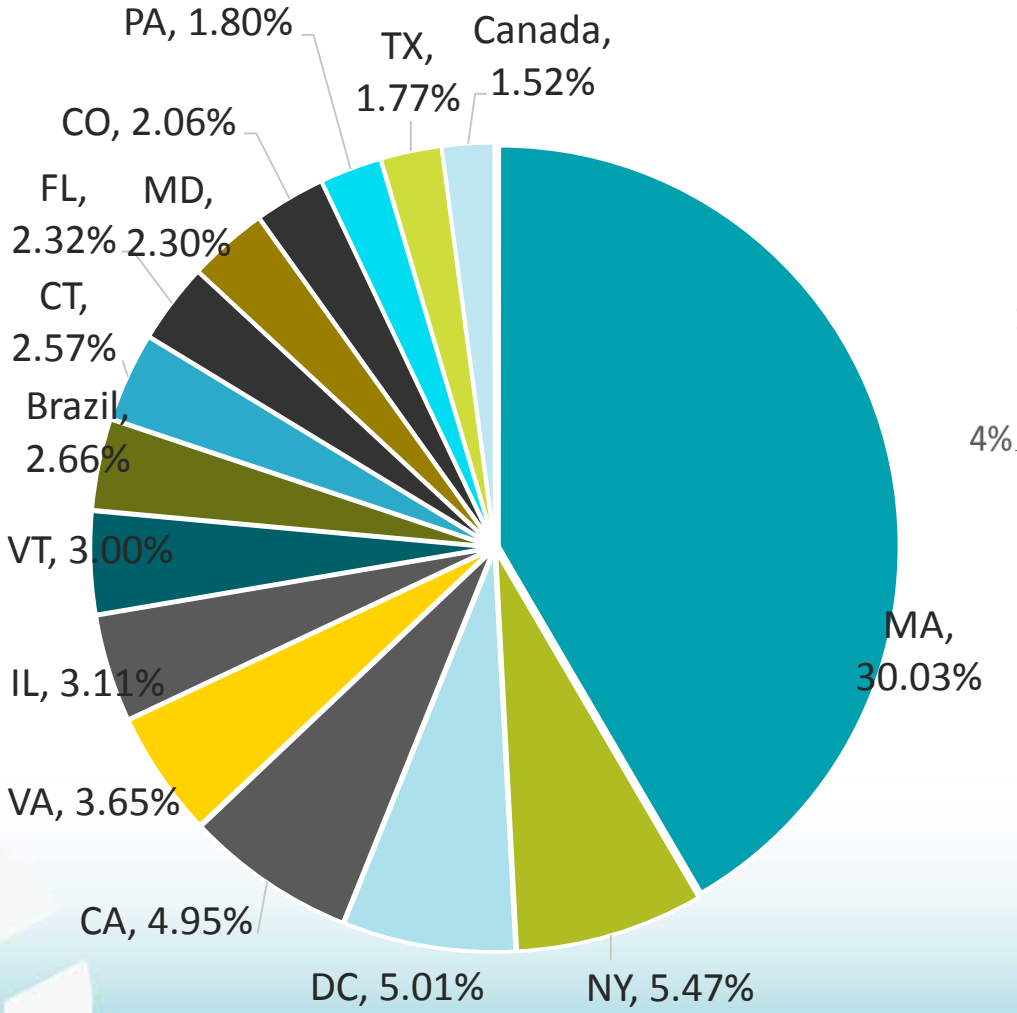
Partnerships to date…

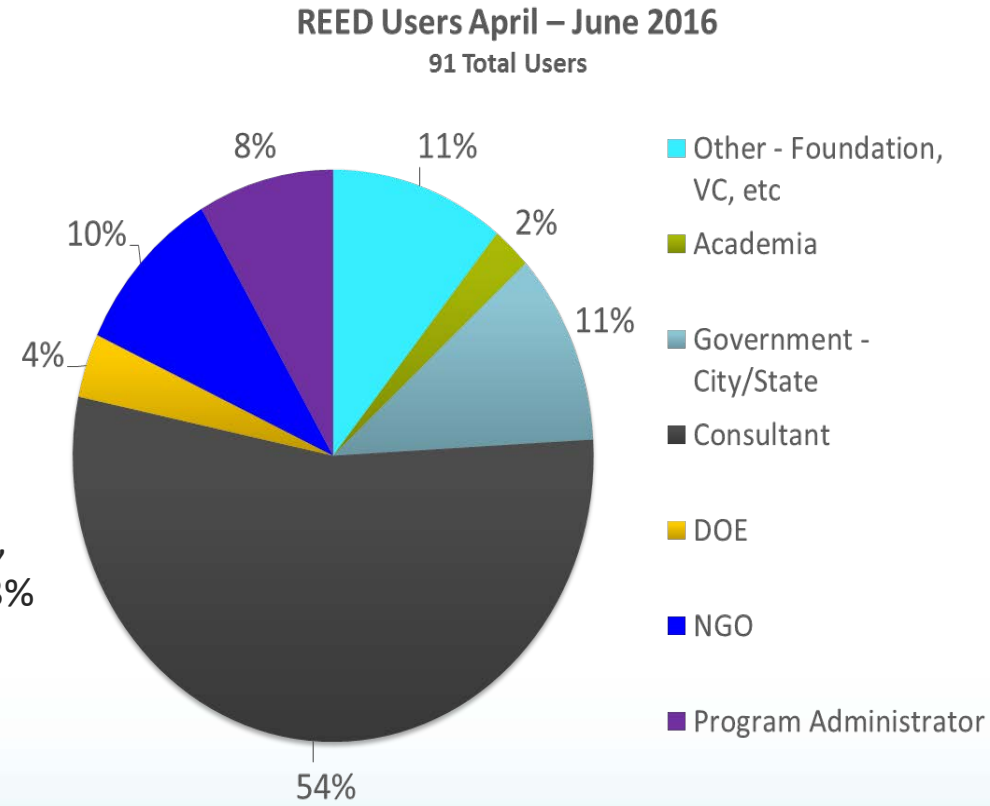
- **ISO-NE:** ISO-NE collects data from PAs (for its EE forecast) and sends CSV file to NEEP → reduces reporting burden for PAs
- **NY ISO:** Cross checks its NY EE data with REED
- **EIA DSM Forum 861:** Informed parameter terminology and definitions (2012-13?); other needs/opportunities?
- **LBNL:** Initial discussion - align LBNL and REED program typology
- **ACEEE:** Recent discussions to better coordinate next year with REED data → ACEEE for its annual EE Scorecard

…Materials in REED

- Enabling legislation
- Annual Reports
- Program Plans
- Technical Reference Manuals
- Potential Studies
- Net and Gross Savings Assumptions
- Description of Review and Approval Process
- Relevant NEEP Documents and Resources

Regional Database Attracts A Diverse Audience

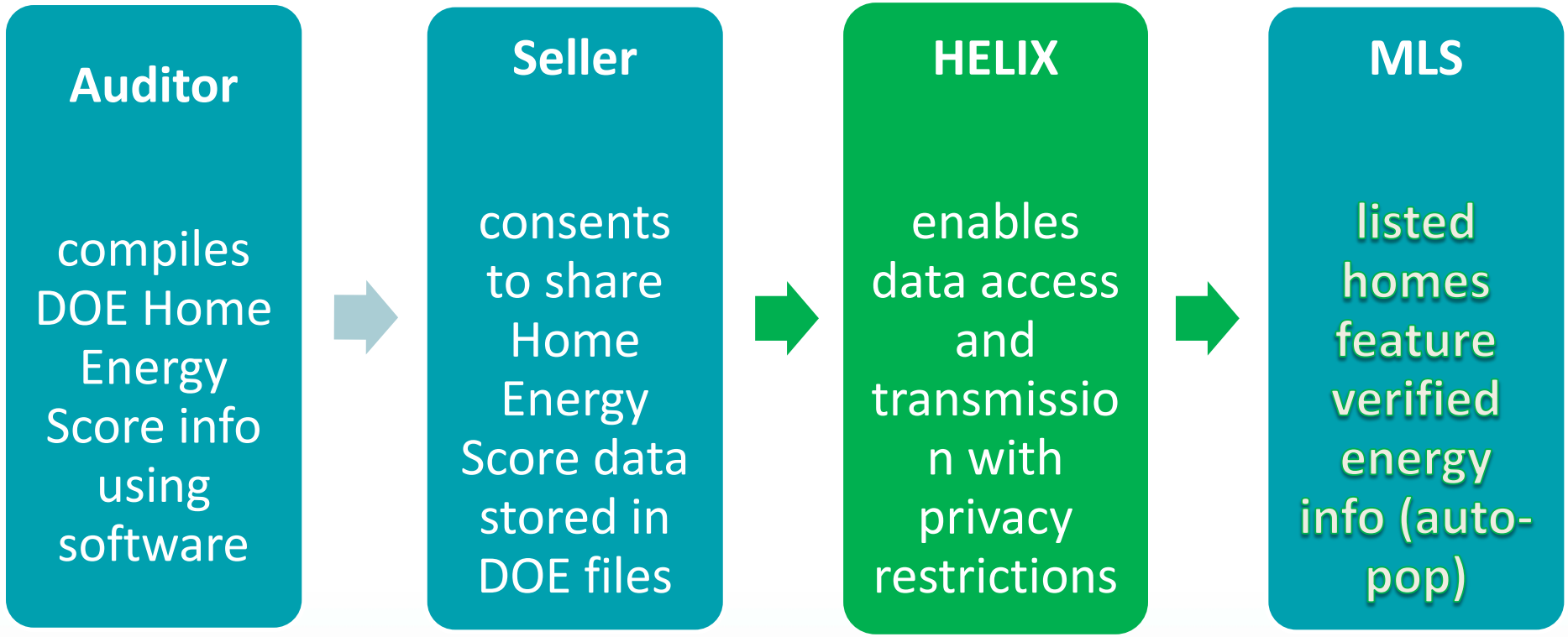




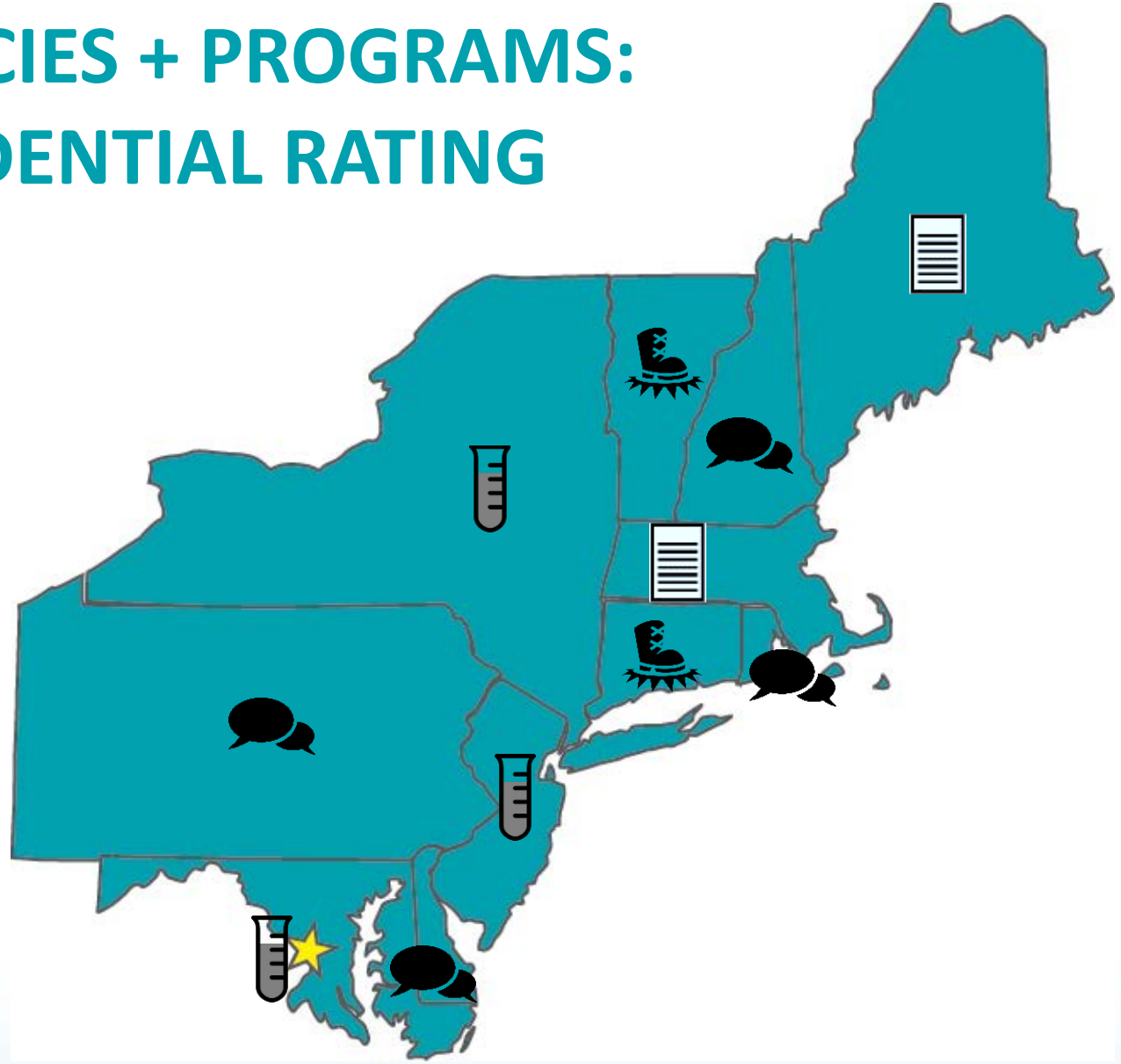
HELIX

- Home Energy Labeling Information eXchange (HELIX)
  - 3 year project (2016-2018)
  - New England + New York
  - Database development and implementation
  - Outreach to real estate community

INFORMATION FLOW - 2018



POLICIES + PROGRAMS: RESIDENTIAL RATING



Implementation Legislation Pilot Discussion

Takeaways: Threading the Needle of Standardization

- Achieving consensus without mediocrity
- Avoiding extra burden
- Providing structure and allowing flexibility
- Defining rigor
- Compatibility with other products and activities

Pilot efforts, education and coordination are and will be important

New Opportunities for Standardization?

Policy Trends and 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
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

See NEEP's *2016 Regional Roundup* for more information.

Thank you!

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