



Northeast Energy Efficiency Partnerships

The Value of Consistent, Transparent Energy Efficiency Reporting Across the Country: Current and Future Uses

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Northeast Energy Efficiency Partnerships

About NEEP

Mission

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

Approach

Overcome market 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

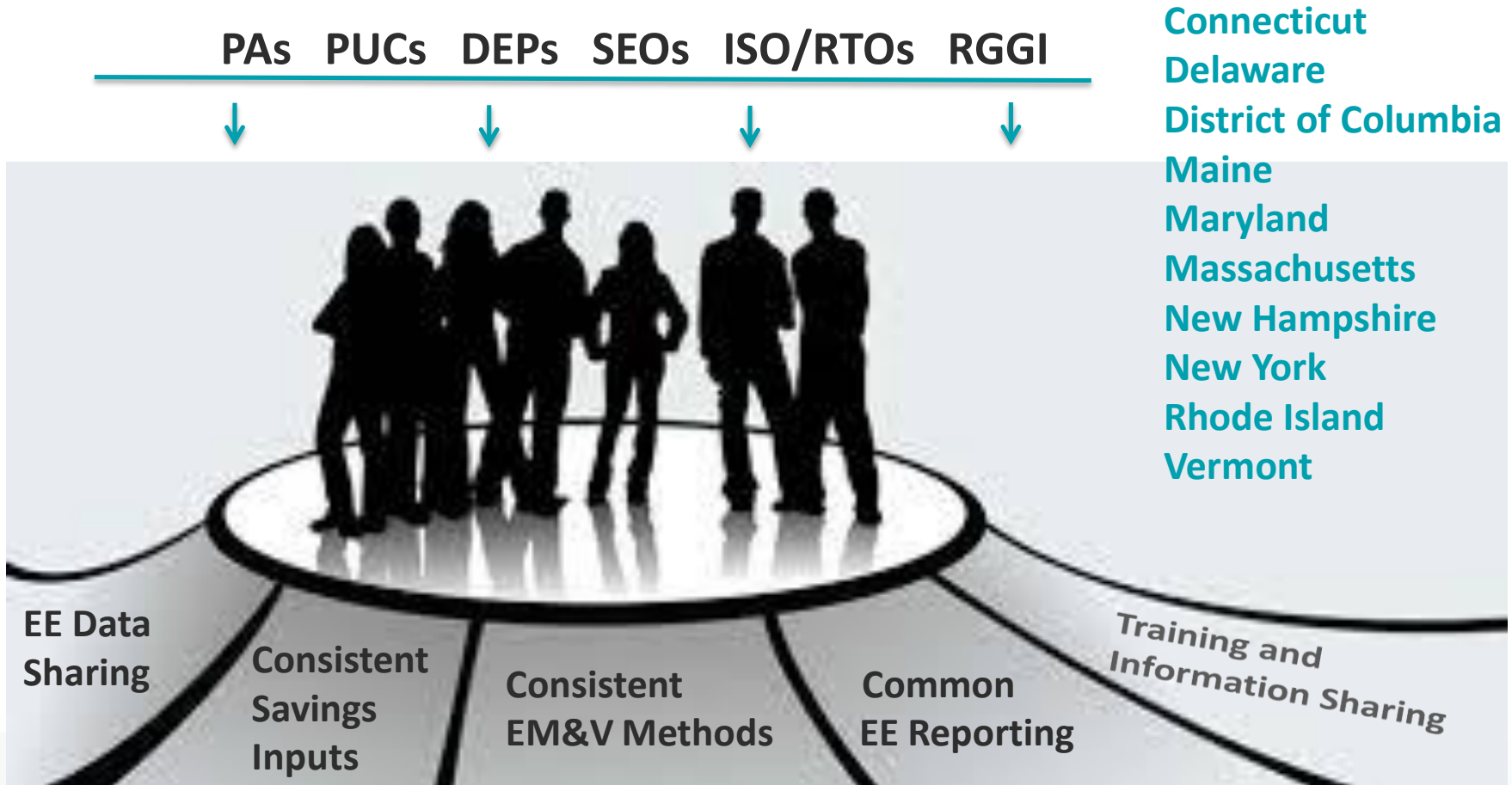


One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs

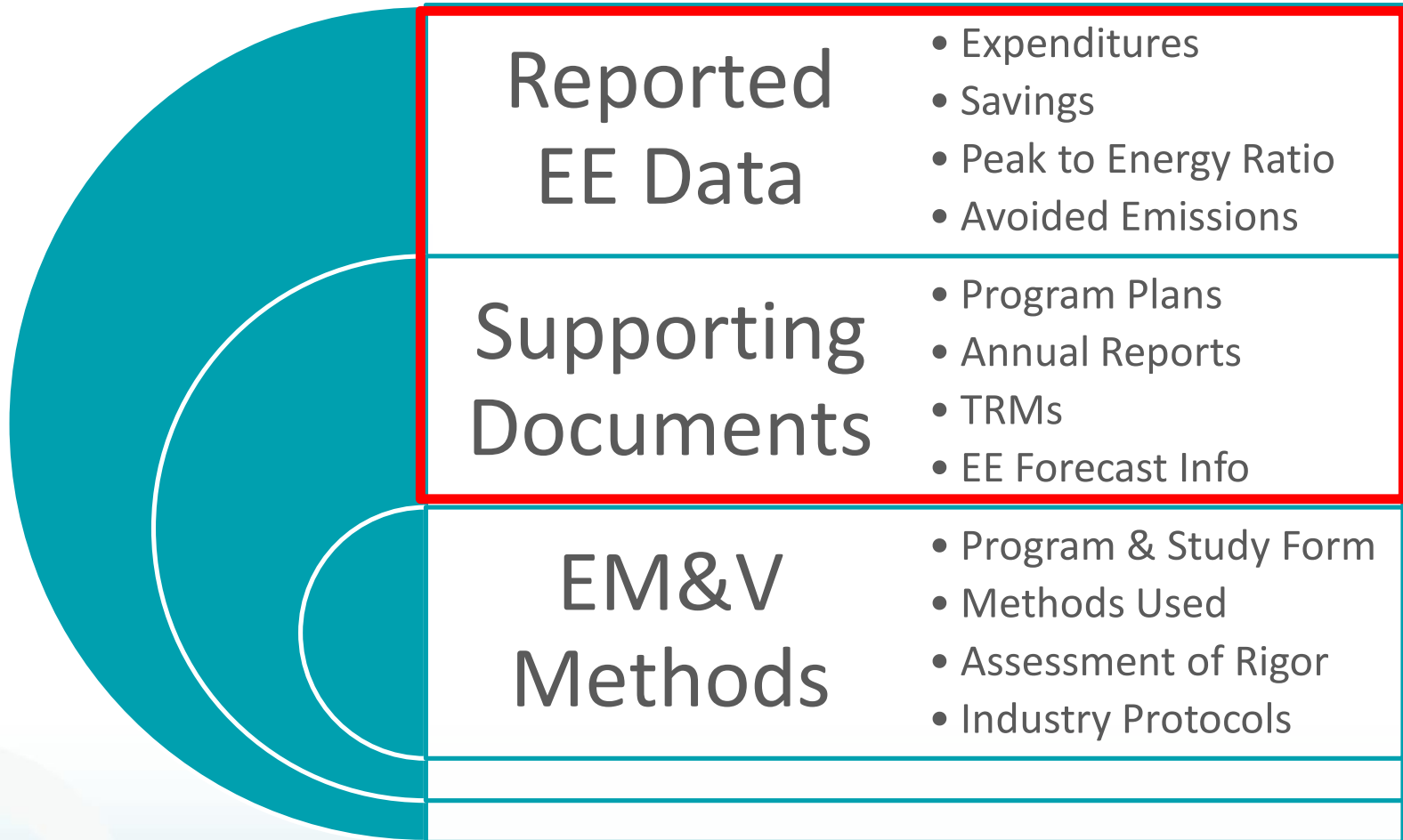
Regional EM&V Forum



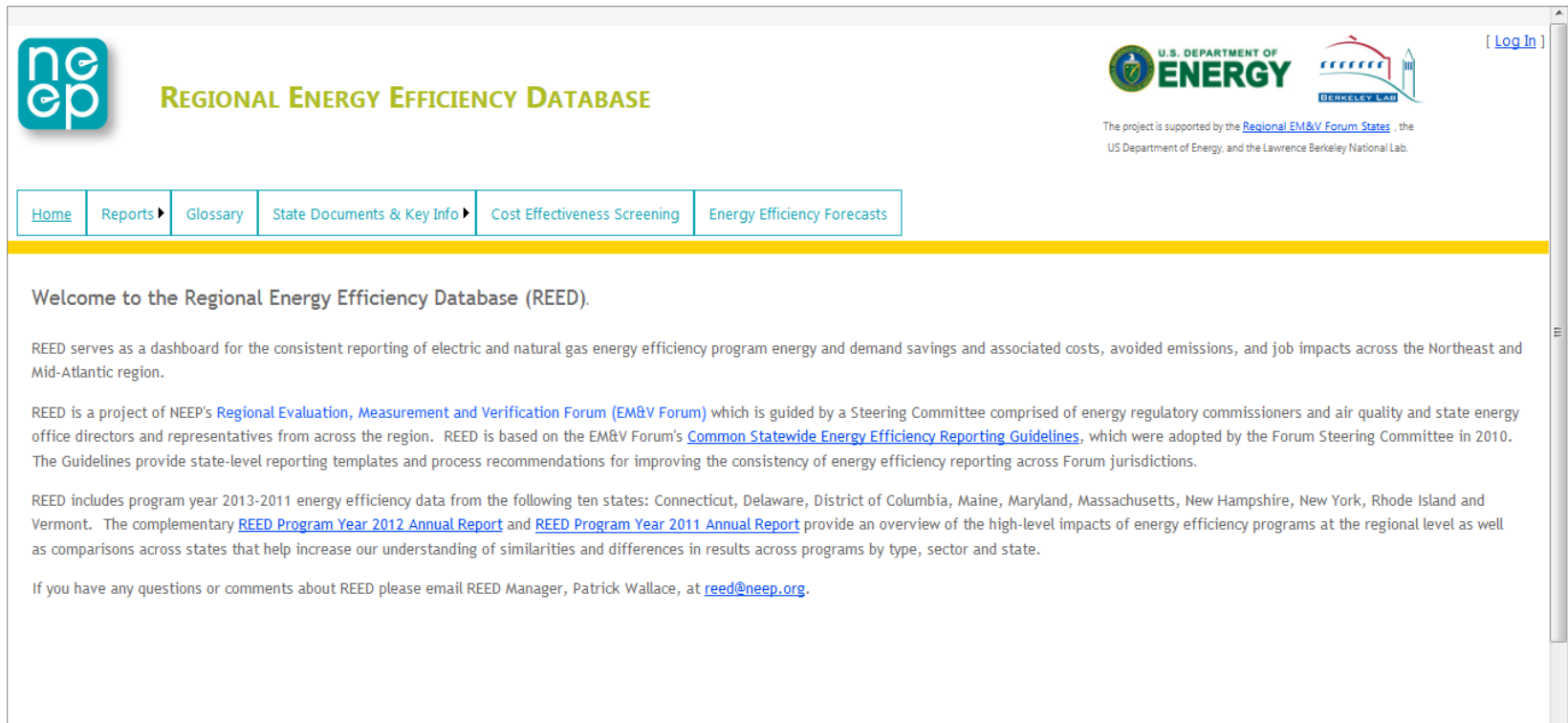
Goal: Build a Transparent and Common EM&V Platform (per NECPUC/MACRUC Resolutions)



Regional Energy Efficiency Database



REED Overview



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 the title 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 begins with a "Welcome to the Regional Energy Efficiency Database (REED)." section, followed by three paragraphs of introductory text and a contact email address: reed@neep.org.

Visit REED at www.reed.neep.org

REED Overview

Types of Data included in Common Reporting Guidelines and REED:

- Annual and Lifetime Energy Savings
- Summer and Winter Peak Demand Savings
- Peak to Energy Ratios
- Avoided Air Emissions*
- Savings as a Percent of Sales
- Program Expenditures
- Job Creation Impacts
- Cost of Saved Energy*
- Program Funding Sources

* REED internal calculations, using methodology supported by Forum participants

REED Overview



Home | Reports | Glossary | State Documents & Key Info | Cost Effectiveness Screening | Energy Efficiency Forecasts

Share

Energy Savings
Demand Savings
Peak to Energy
Avoided Emissions
Savings as Percent of Sales
Total Annual Expenditures
Expenditures as Percent of Total Cost
Job Imp: >

Energy Savings
Gross Annual Energy Savings Electric Meter Level (MWh) for 2013
 States: Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
 Program Sectors: All
 Program Types: All

Region	State	Gross Annual Energy Savings Electric Meter Level (MWh)
ISO-NE	Connecticut	~250K
	Massachusetts	~1250K
	New Hampshire	~100K
	Rhode Island	~180K
	Vermont	~120K
NY-ISO	New York	~1350K
PJM	Delaware	~150K
	District of Columb..	~80K
	Maryland	~950K

Energy Savings Values
 Gross Annual Energy Savings Electric Meter Leve... ▾

Calendar Year
 (All)
 2011
 2012
 2013

State
 (All) ▾

Program Sector
 (All) ▾

Program Type
 (All) ▾

In accessing the REED and printing reports, the user agrees to NEEP's current full disclaimer per its website.

See the [Glossary](http://reed.neep.org/Glossary.aspx) page for definitions of all REED program type categories and the [Report Footnotes](http://reed.neep.org/Footnotes.aspx#energy_savings) page for more information

Supporting Documents



neep REGIONAL ENERGY EFFICIENCY DATABASE

U.S. DEPARTMENT OF ENERGY ENERGY BERKELEY LAB

The project is supported by the [Regional EM&V Forum States](#), the US Department of Energy, and the Lawrence Berkeley National Lab. [[Log In](#)]

Home Reports State Documents & Key Info Cost Effectiveness Screening Energy Efficiency Forecasts

STATE DOCUMENTS & KEY INFO

The State Documents and Key Information pages provide a comprehensive overview of the supporting documents, reports, and technical reference manuals to name a few, and the savings estimates for energy efficiency programs in each state. These pages aim to provide you with a deeper understanding of the data found in REED to help you answer your energy efficiency questions. For questions about specific reports in REED, please visit the [Report Footnotes](#) page.

The information on these pages is presented in a multiple choice format for those that are not highlighted with a blue background. You may also view a [comparison](#) of the pages.

- [Connecticut](#)
- [Delaware](#)
- [District of Columbia](#)
- [Maine](#)

reed.neep.org/StateDocs.aspx

<http://reed.neep.org/StateDocs.aspx>

REED Overview



How Energy Efficiency Stakeholders Can Use REED 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

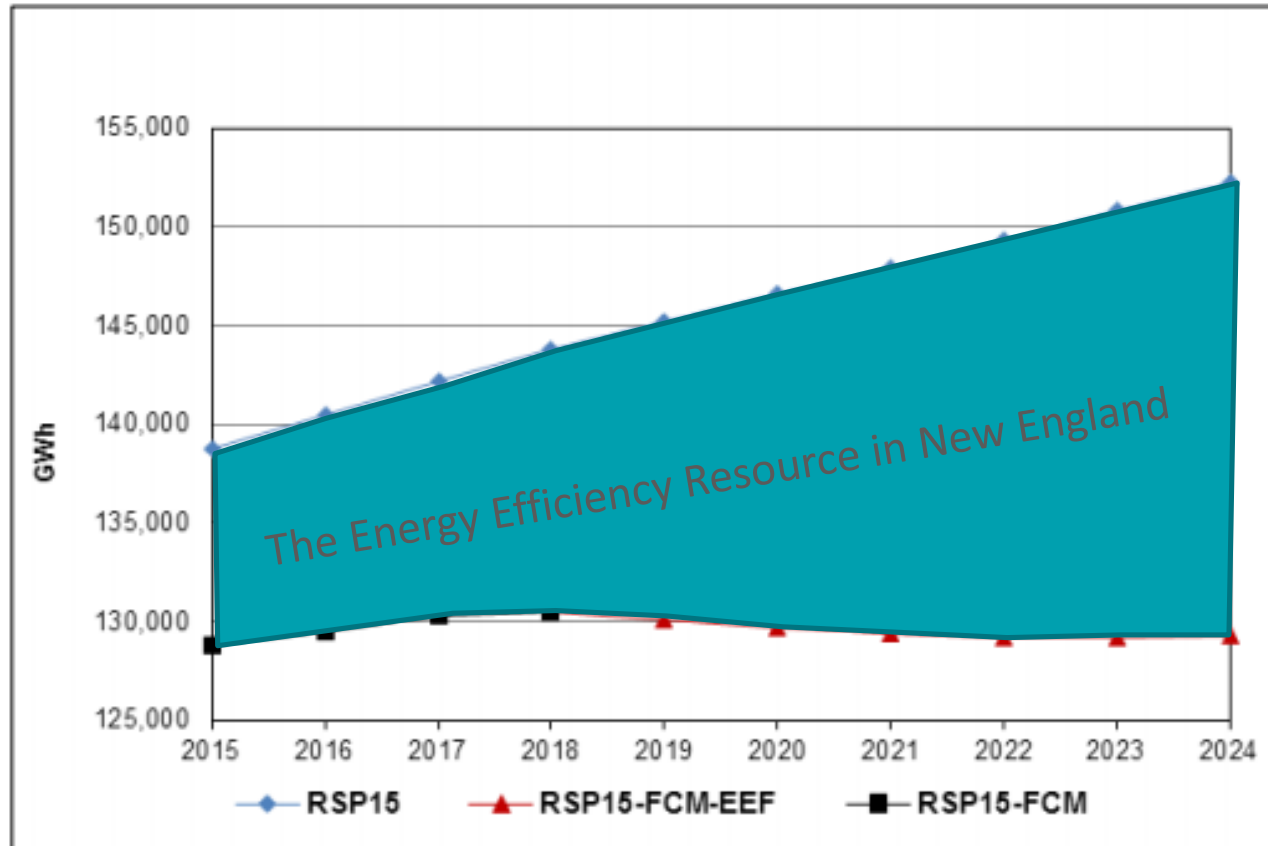


Current REED Usage

- How much do states typically spend on EMM&V as a percentage of their total EE portfolio?
- How has the peak to energy ratio from EE programs changed over the last three years? What programs are the primary drivers of high peak to energy ratios?
- How much did states save in average annual CO2 emissions in 2013?
- Which states spent the most on a \$/MWh basis and which state spent the least?

Starting Point for Deeper Questions and Analysis

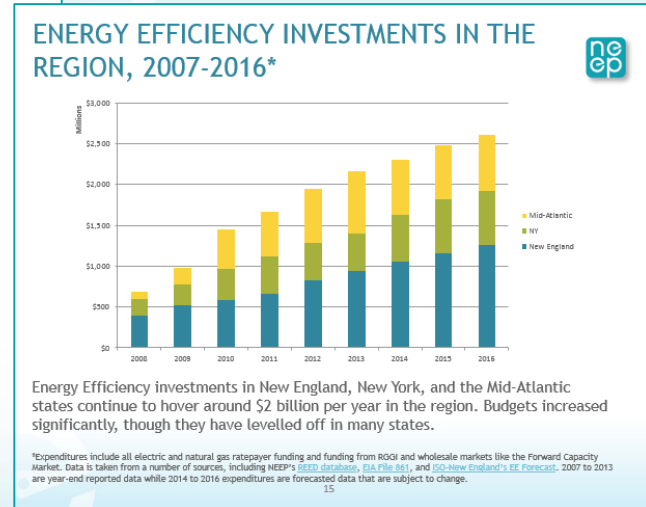
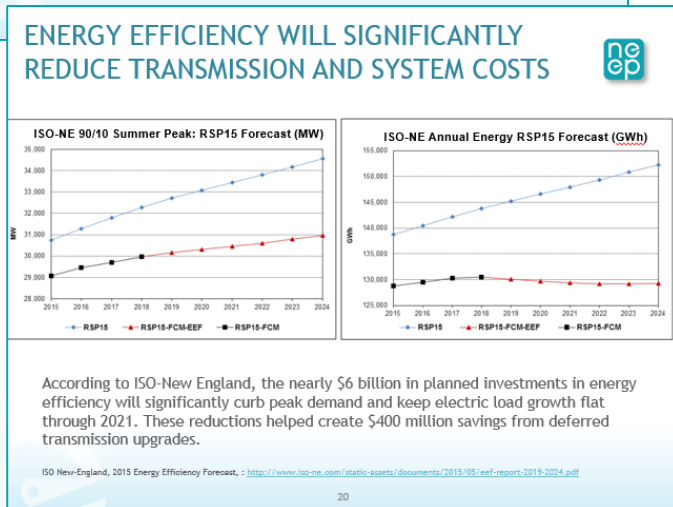
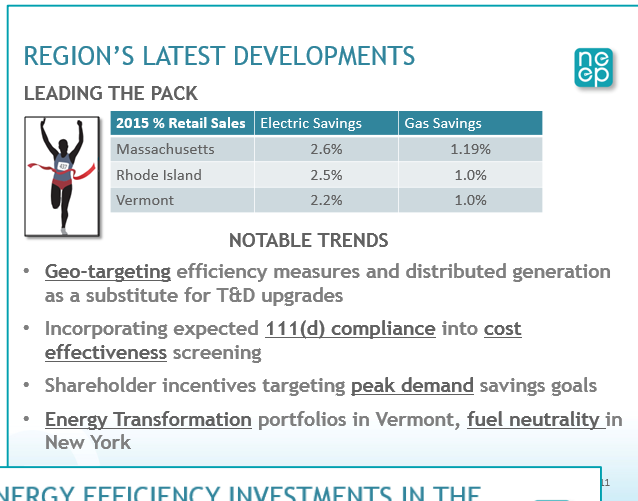
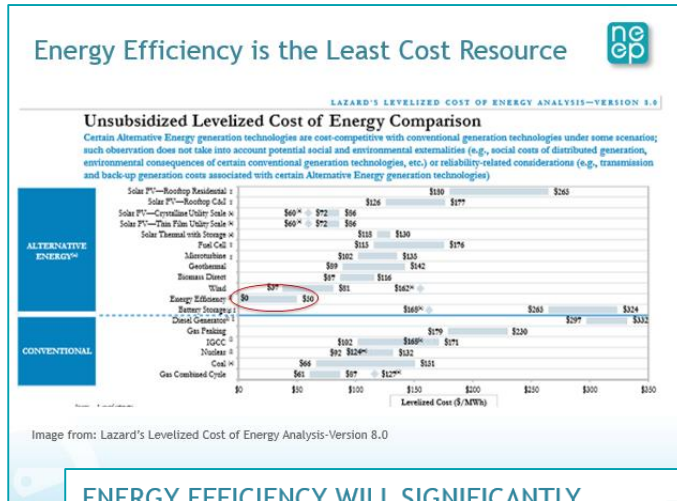
Current REED Usage



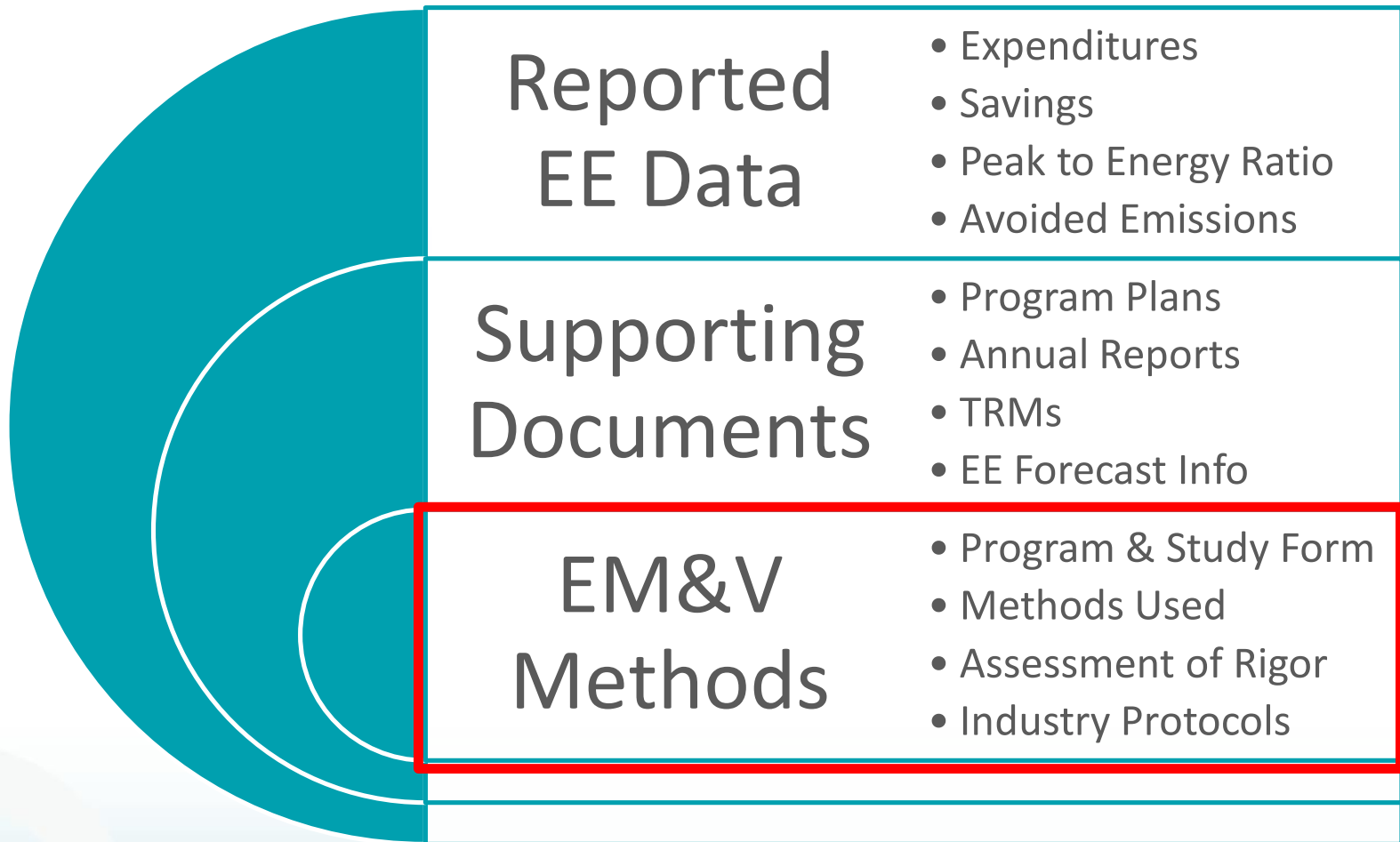
Consistency in EE reporting can support system planning

Current REED Usage

Energy Efficiency Policy Snapshot



Regional Energy Efficiency Database



Standardized EM&V Methods Reporting



The 'Food Label' for Various Audiences

PUCs, DEPs, EPA, SEOs, system planners, PAs, evaluation consultants want to know:

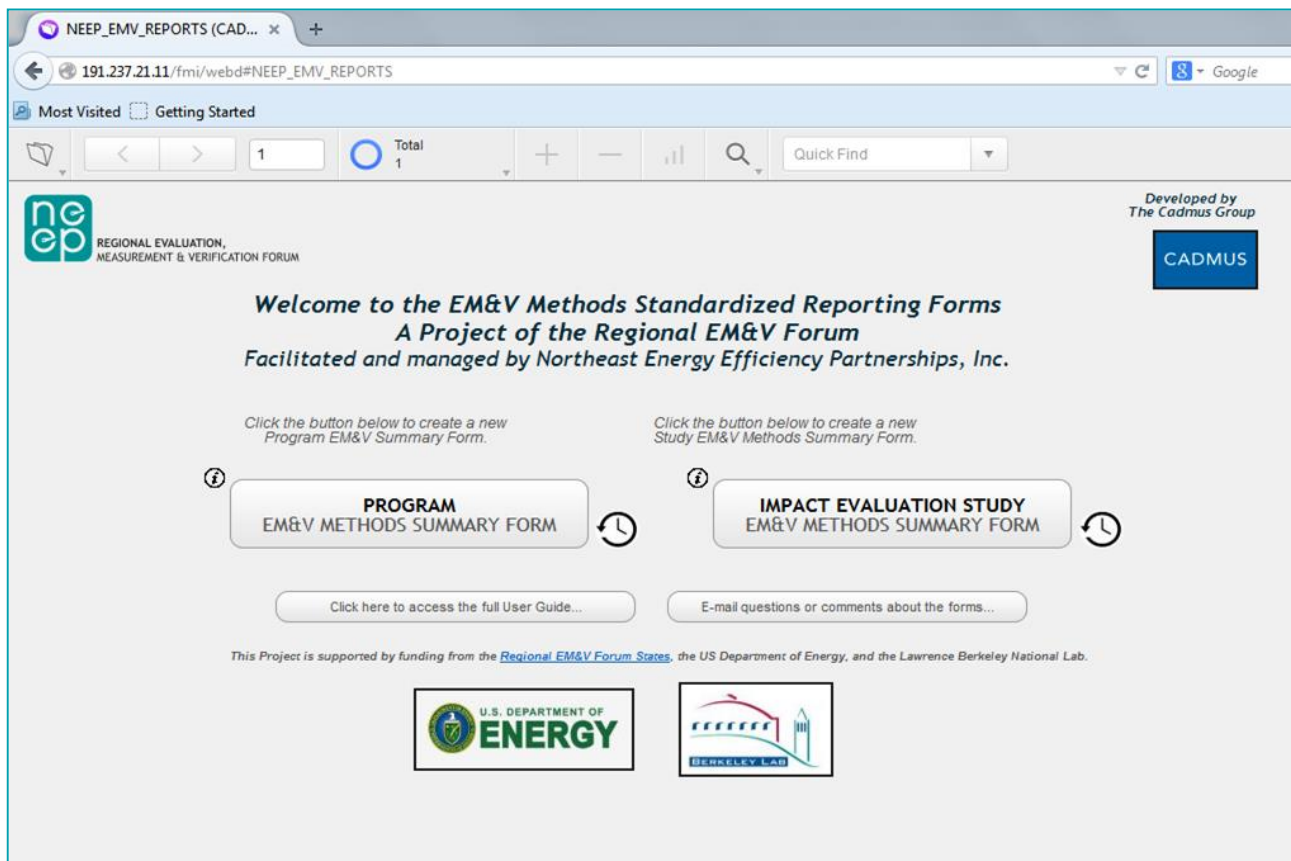
- What EM&V methods were used to estimate reported savings?
- How rigorous are the reported EE savings?
- How do EM&V methods compare across states?
- How do EM&V methods used align with existing state, regional or national EM&V protocols?
- Where should I focus my attention in review of specific studies and program EM&V?
- How can I streamline my evaluation review process and reduce administrative costs?

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	80g

Standardized EM&V Methods Reporting



The Forms – Digital Platform – Version 1.0



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

Standardized EM&V Methods Reporting



Study Form



Program Form

Standardized EM&V Methods Reporting



Program Form - Methods

3. Indicate EM&V methods used to evaluate program savings. ?

Method	Method	Methods Savings
Baseline <input type="checkbox"/> Stipulated baseline <input type="checkbox"/> Building code or federal/state Standard <input type="checkbox"/> Standard practice <input type="checkbox"/> Existing conditions <input type="checkbox"/> Dual or dynamic baseline <input type="checkbox"/> Other (describe below) <input type="checkbox"/> Not applicable	Verification <input type="checkbox"/> None <input type="checkbox"/> Document review <input type="checkbox"/> Participant survey <input type="checkbox"/> Visual (on-site) inspection <input type="checkbox"/> Other (describe below) <input type="checkbox"/> Not applicable	Gross savings <input type="checkbox"/> Deemed savings <input type="checkbox"/> Engineering desk review <input type="checkbox"/> Measurement & verification <input type="checkbox"/> Large scale consumption data analysis <input type="checkbox"/> Top-down analysis (macro consumption) <input type="checkbox"/> Other (describe below) <input type="checkbox"/> Not applicable
Net-to-gross <input type="checkbox"/> Stipulated NTG ratio <input type="checkbox"/> Self-Reporting Surveys <input type="checkbox"/> Trade Ally Panel <input type="checkbox"/> Large-scale consumption data analysis <input type="checkbox"/> Cross-sectional studies <input type="checkbox"/> Top-down evaluations <input type="checkbox"/> Market sales data analysis <input type="checkbox"/> Structured expert judgement approach <input type="checkbox"/> Historical tracing (case study) <input type="checkbox"/> Other (describe below) <input type="checkbox"/> Not Applicable	Measure life <input type="checkbox"/> Stipulated value, program-level <input type="checkbox"/> Stipulated value, measure-level <input type="checkbox"/> Project-specific values	Persistence <input type="checkbox"/> None <input type="checkbox"/> Degradation <input type="checkbox"/> Rebound <input type="checkbox"/> Other (Describe Below) <input type="checkbox"/> Not Applicable

Standardized EM&V Methods Reporting

EM&V Rigor



Program Administrator PROGRAM NAME Home

State Program Sector Program Year

User Guide | Program Year Summary | Program EM&V Methods Summary | Program EM&V Rigor Summary | Relevant EM&V Documents

1. Describe the overall EM&V strategy for the program **EM&V Strategy** certainty.

2. Characterization of EM&V Rigor
The following four questions aim to provide information on the overall rigor of the evaluation. In the context of this form, we define "rigor" in terms of the validity of the results, based on (1) the quality of the data, (2) appropriateness of the way the data was collected, (3) statistical confidence and precision of the results, and (4) appropriateness of the measurement methods. See the user guide for general information about interpretation of this information: [\[link to user guide on NEEP website\]](#)

1. Data Quality

- All study components are recent and based on primary research.
- Most study components are based on recent and secondary research.
- Study EM&V components savings are not based on recent research.

Data Quality

2. Sampling Method

- All study components use census or random (incl. stratified) sampling methods.
- Most study components use census or random (incl. stratified) sampling methods.
- Study components use non-random sampling methods.

Sampling Methods

3. Confidence and Precision

- All study components achieve the planned level of confidence and precision.
- Some study components achieve the planned level of confidence and precision.
- Study components did not achieve the planned confidence and precision levels.
- The study does not quantify confidence and precision levels.

Confidence/Precision

4. Measurement Methods

- Measurement methods address all major sources of bias.
- Measurement methods address some major sources of bias.
- Measurement methods do not address potential sources of bias.

Measurement Methods

Standardized EM&V Methods Reporting

References Standard Industry Protocols



167 Total 167

Quick Find

Completed by: [] Approved by: []
Program Administrator: [] Program Name: []
State: [] Program Sector: [] Program Year: []

Home

User Guide | I. Program Year Summary | II. Program EM&V Methods Summary | III. Program EM&V Rigor Summary | IV. Relevant EM&V Documents

The EM&V studies supporting the reported savings for the program reference the selected national and regional protocols.

National Protocols [?]

- U.S. DOE Uniform Method Project (UMP) **US DOE UMP Protocols**
- International Performance Measurement and Verification Protocol (IPMVP)
- Federal Energy Management Program (FEMP) M&V Guidelines
- ASHRAE Guideline 14, Measurement of Energy and Demand Savings
- NAESB Wholesale/Retail Electric Quadrant Energy Efficiency EM&V Standards
- SEE Action, Energy Efficiency Program Impact Evaluation Guide
- U.S. DOE Superior Energy Performance Measurement and Verification Protocol for Industry
- Other (describe below) Don't know

Provide additional information for selected protocols:

[]

Regional/State-Specific Protocols [?]

- NEEP Regional EM&V Methods and Savings Assumption Guidelines
- ISO New England (ISO-NE) Manual for M&V of Demand Resources
- PJM Manual 18B: Energy Efficiency Measurement and Verification Manual
- State-specific EM&V protocols or guidance documents
- Other (describe below) Don't know

Provide additional information for selected protocols::

[]

The supporting EM&V studies for this program are below.

Relevant EM&V Studies (provide name and links to studies)

Standardized EM&V Methods Reporting

Mix of Standardized and 'Open-Ended' Questions



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:

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

Provide additional description:

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

- Census
- Sample
- Other
- Not Applicable

Sampling Unit

Participant Sample Size

Non-Participant Sample Size

Provide additional description:



structured response



flexible response

Standardized EM&V Methods Reporting

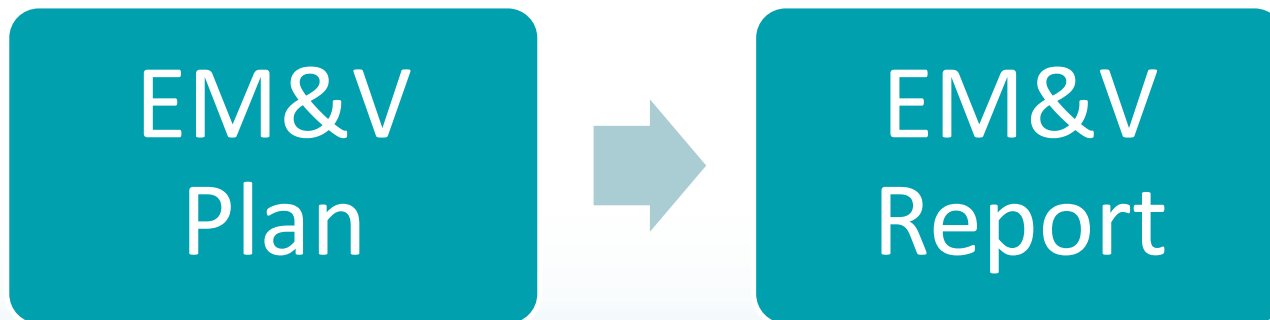
Current & Future Uses

- 1 state pilot complete (MA), additional pilots this fall/winter
- 2016 – support state implementation in Forum region
- Expand usage with states across country - TBD
 - Useful for other state EM&V reporting to PUCs - working with other REEOs
 - And also other needs (e.g. CPP compliance)

Standardized EM&V Methods Reporting

Alignment with CCP EM&V Requirements

- Forms closely align with EPA's proposed EM&V reporting requirements (some modifications needed)
- Potential for incorporation of forms into a national EE registry (e.g. The Climate Registry)
- Version 2.0 of the forms coming in early 2016.



QUESTIONS?



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