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

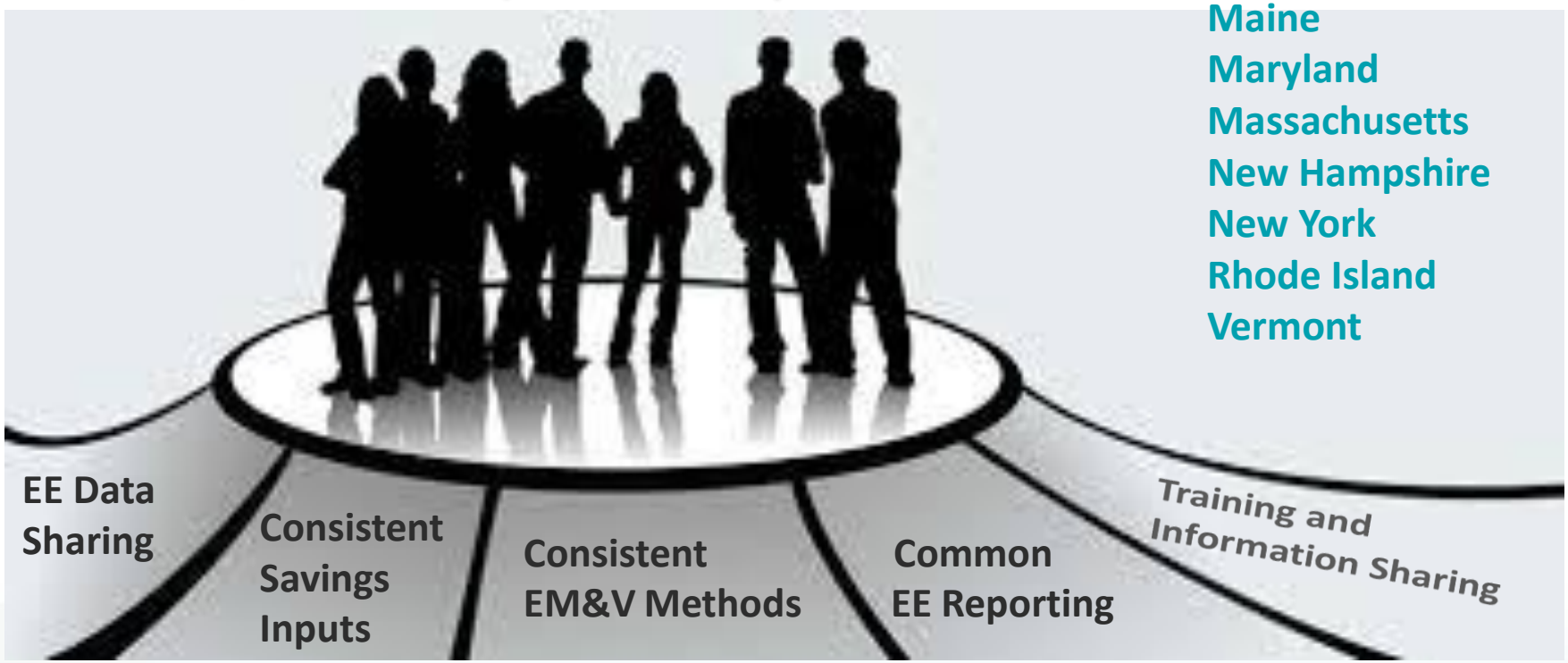
Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world

***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

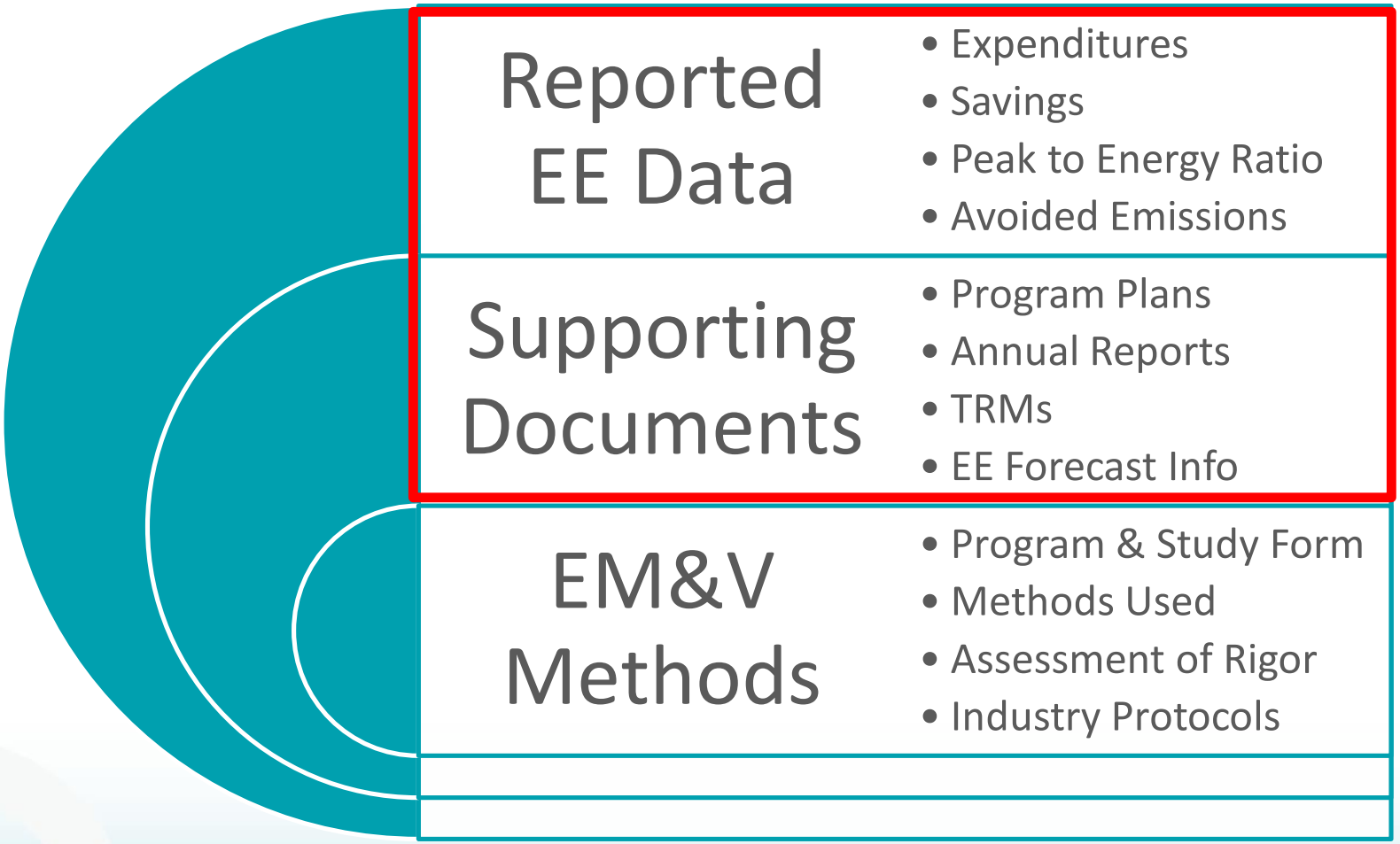
## Goal: Build a Transparent and Common EM&V Platform (per NECPUC/MACRUC Resolutions)

PAs PUCs DEPs SEOs ISO/RTOs RGGI

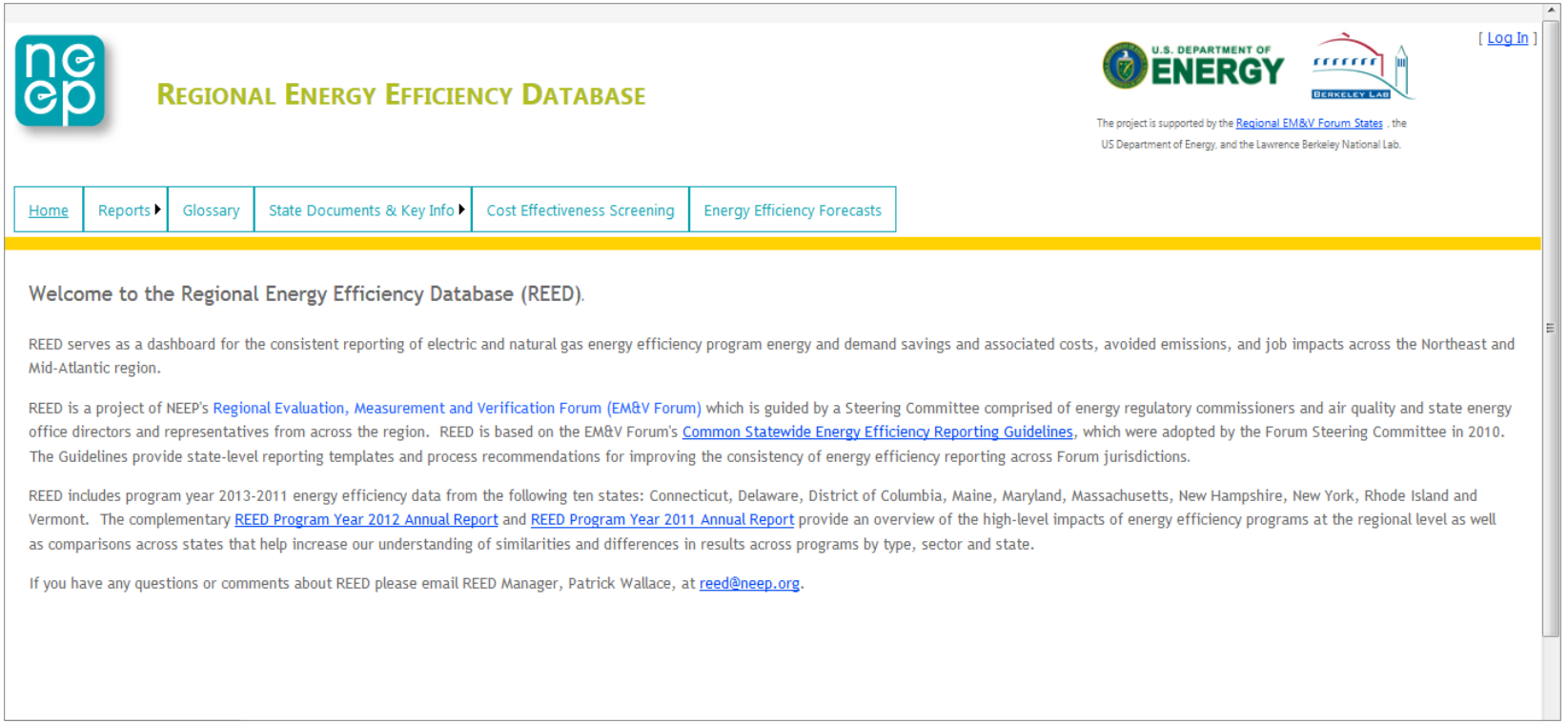



Connecticut
Delaware
District of Columbia
Maine
Maryland
Massachusetts
New Hampshire
New York
Rhode Island
Vermont

# Regional Energy Efficiency Database



# REED Overview




**Visit REED** at www.reed.neep.org

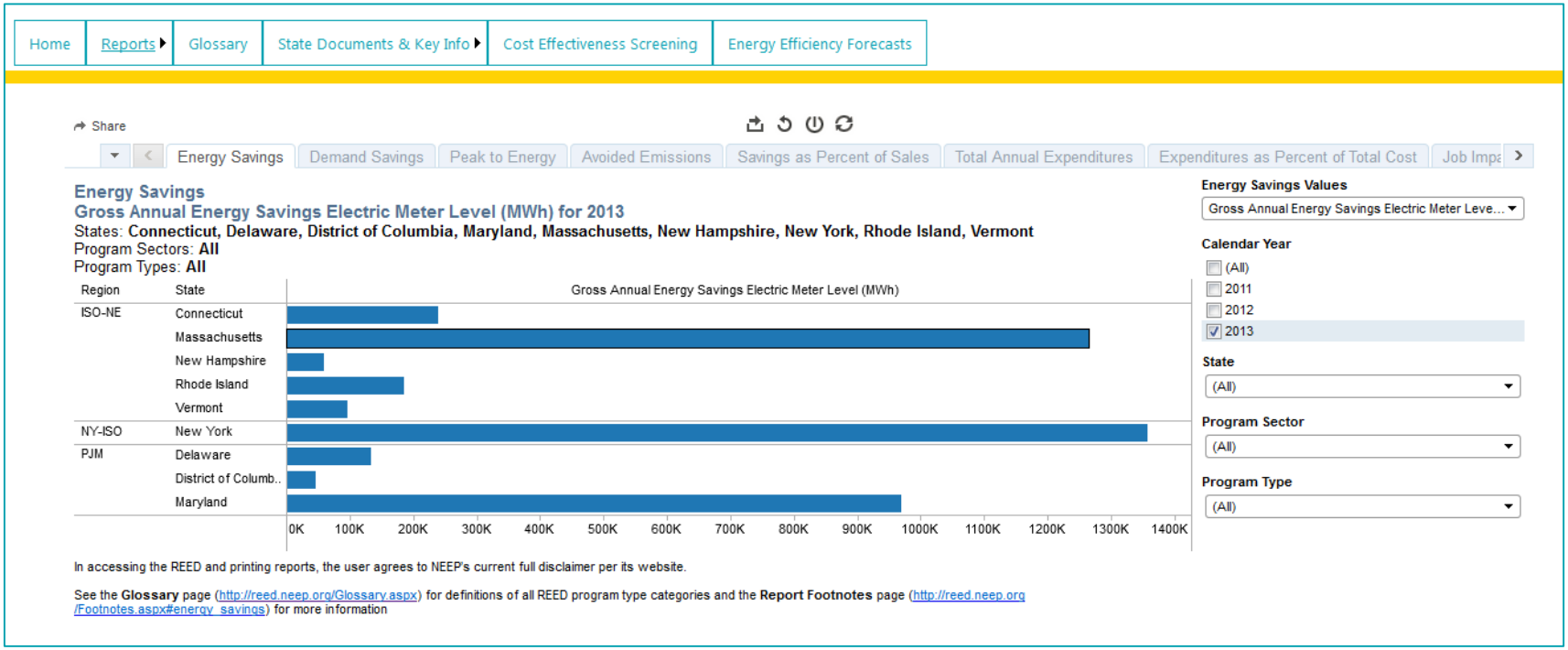
# REED Overview

Types of Data included in Common Reporting Guidelines and REED:

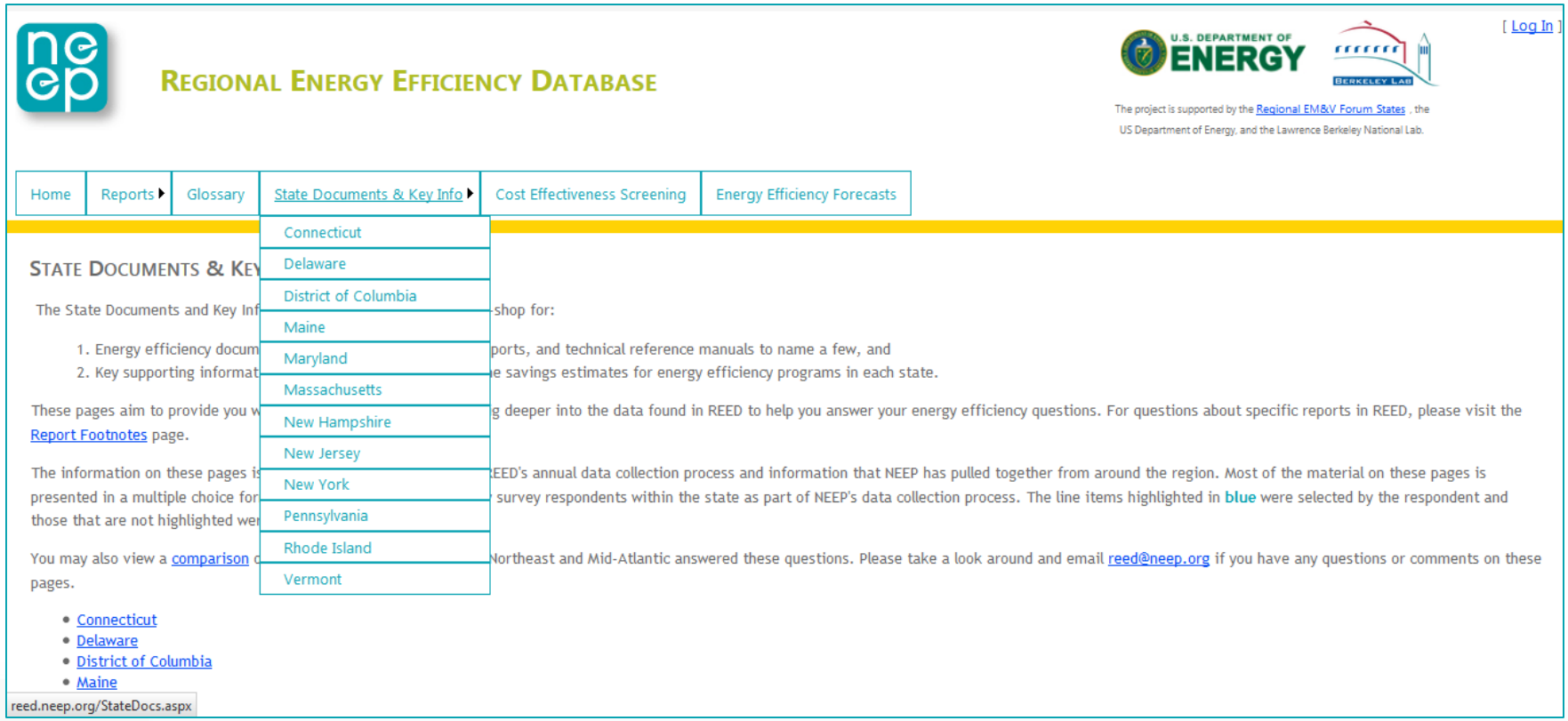
- Annual and Lifetime Energy Savings
- Summer and Winter Peak Demand Savings
- Peak to Energy Ratios
- Avoided Air Emissions*
- Savings as a Percent of Sales
- Program Expenditures
- Job Creation Impacts
- Cost of Saved Energy*
- Program Funding Sources

* REED internal calculations, using methodology supported by Forum participants

# REED Overview



# Supporting Documents




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

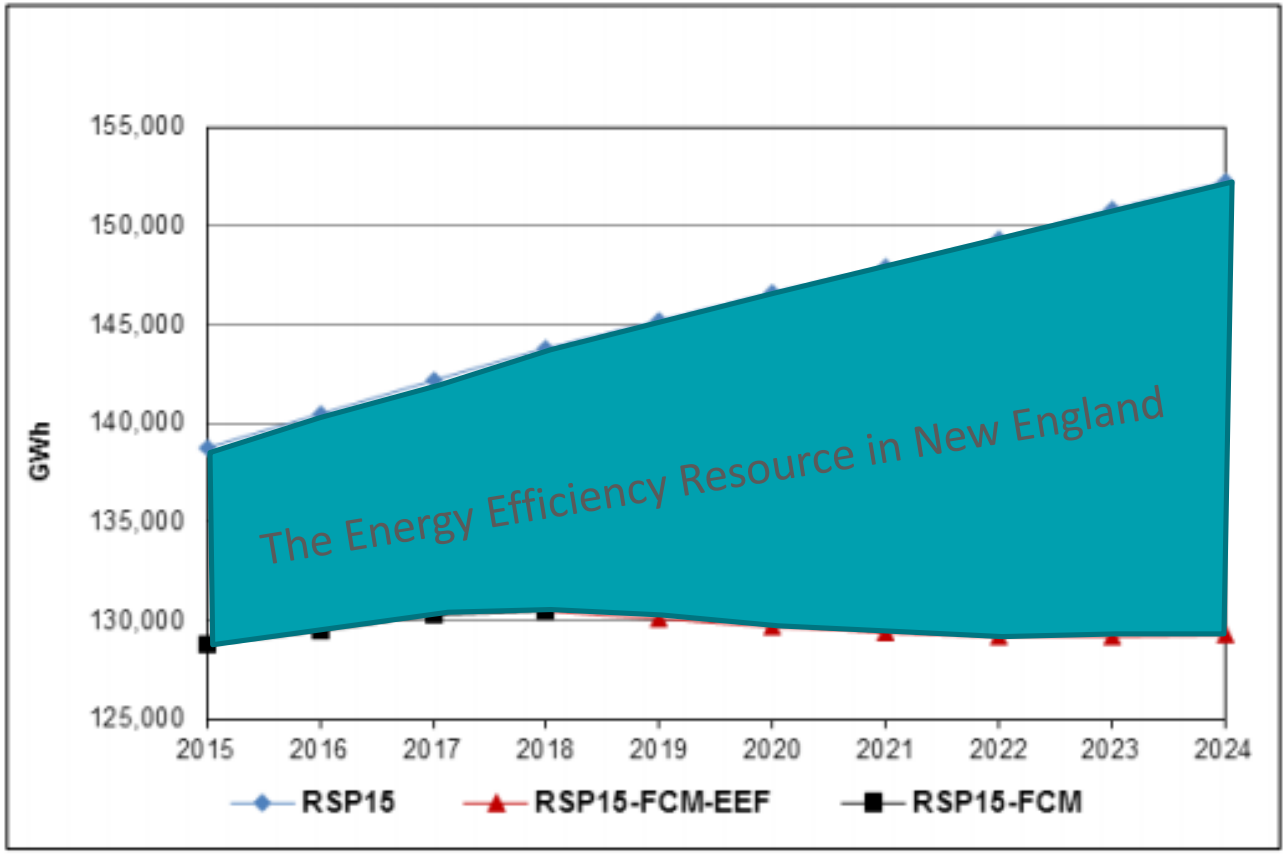
Incorporate EE data into air quality plans

# Current REED Usage

- How much do states typically spend on EM&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

### Energy Efficiency is the Least Cost Resource

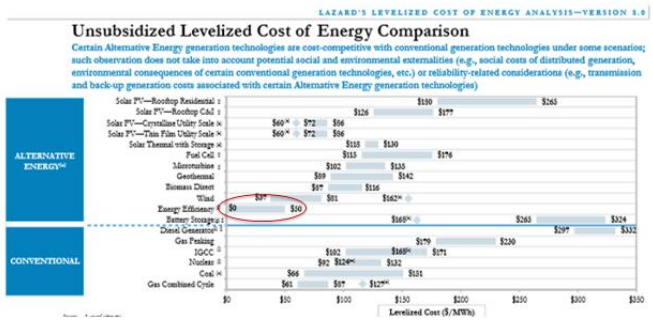



Image from: Lazard's Levelized Cost of Energy Analysis-Version 8.0

### REGION'S LATEST DEVELOPMENTS

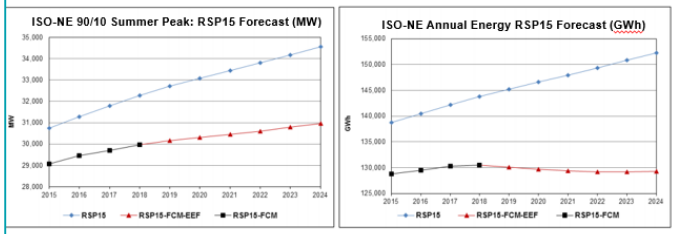
LEADING THE PACK

| 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

### ENERGY EFFICIENCY WILL SIGNIFICANTLY REDUCE TRANSMISSION AND SYSTEM COSTS




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

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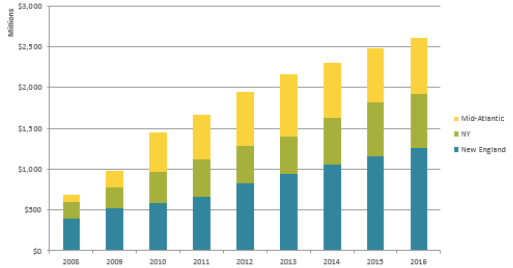
### ENERGY EFFICIENCY INVESTMENTS IN THE REGION, 2007-2016*




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.

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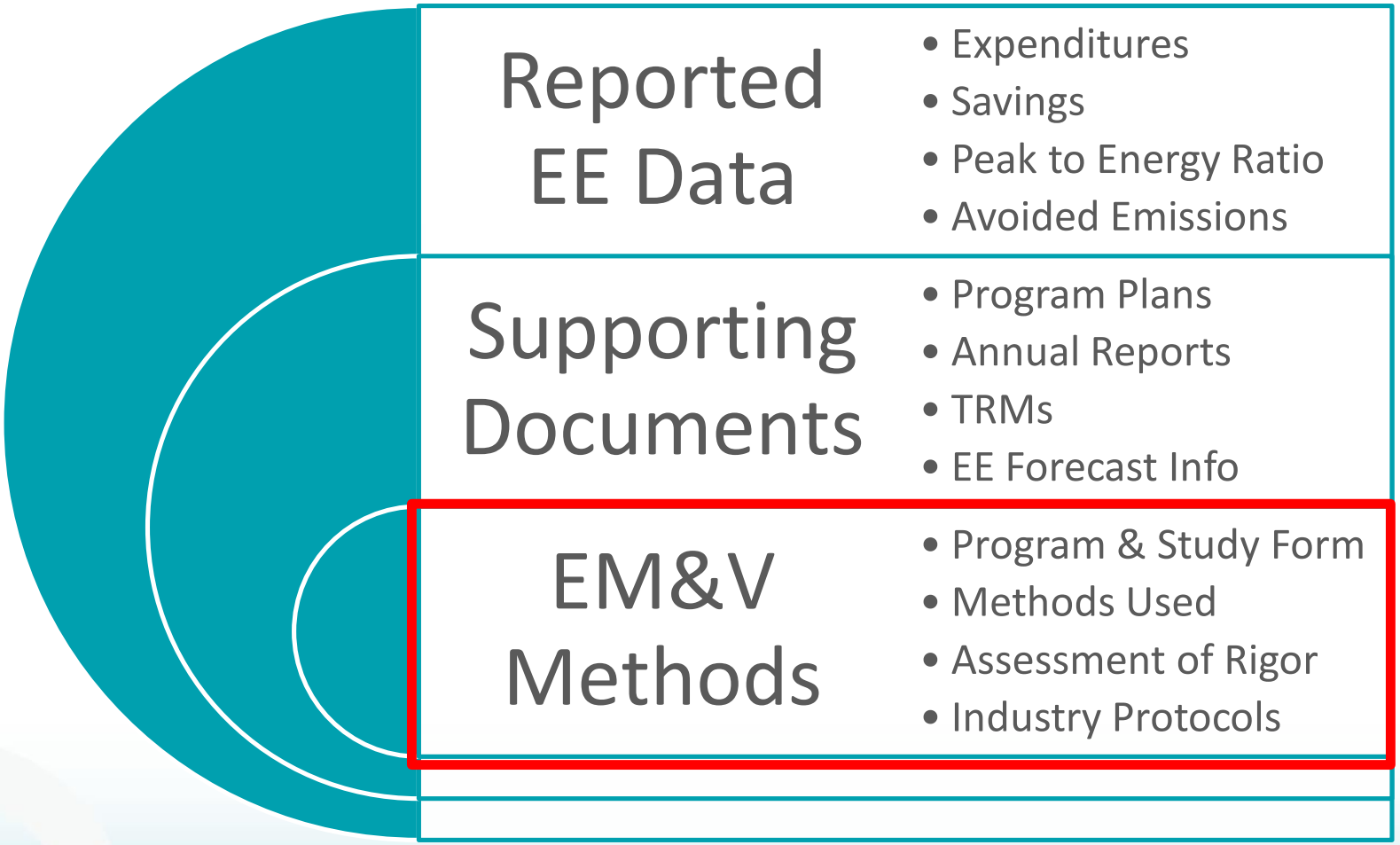
The full Energy Efficiency Policy Snapshot can be found here.

# 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

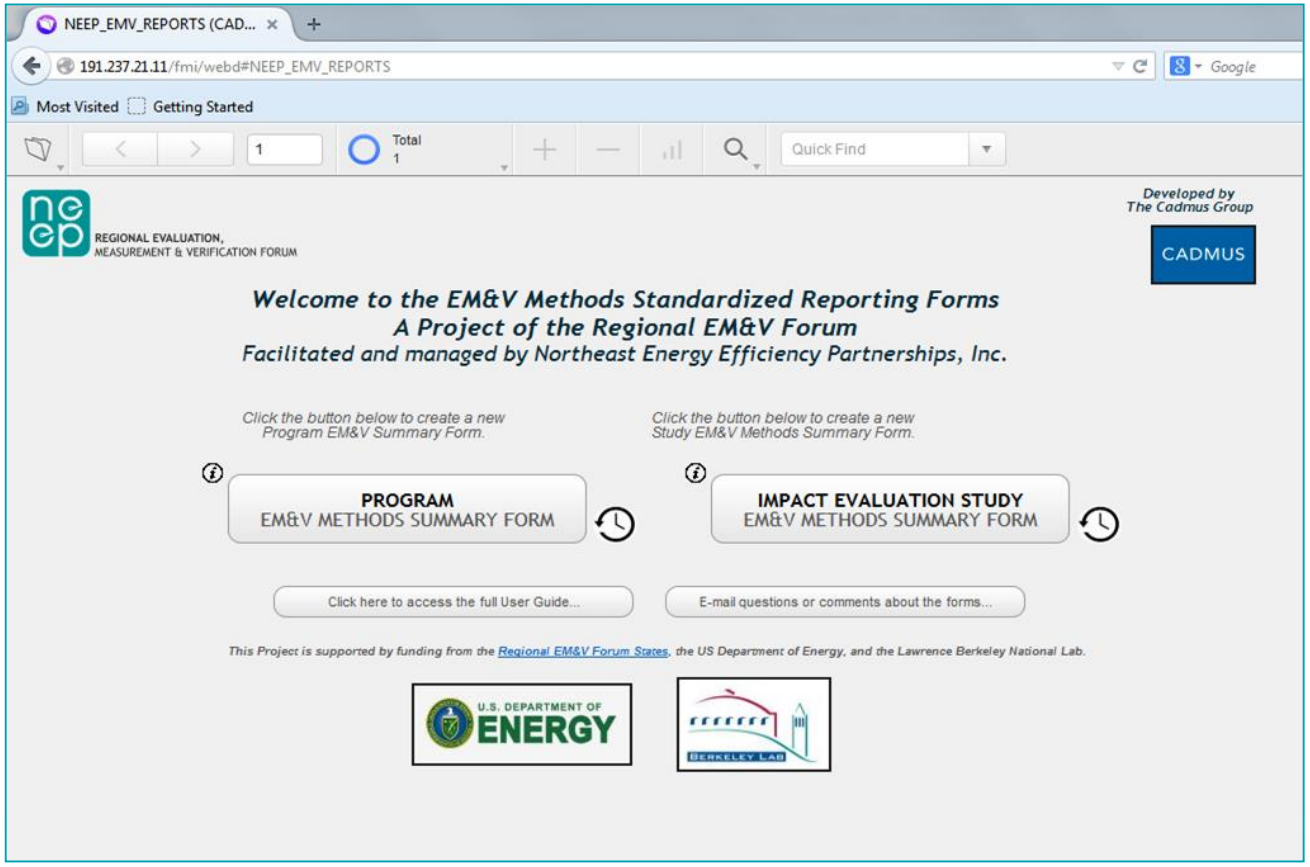
| | % Daily Value* |
|---|---|
| **Total Fat** 16g | **24%** |
| Saturated Fat 8g | **39%** |
| Trans Fat 0g | |
| **Cholesterol** 0g | **0%** |
| **Sodium** 15mg | **1%** |
| **Potassium** 320mg | **9%** |
| **Total Carbohydrate** 44g | **15%** |
| Dietary Fiber 4g | **16%** |
| Sugars 32g | |
| **Protein** 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 | 30g |

# 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

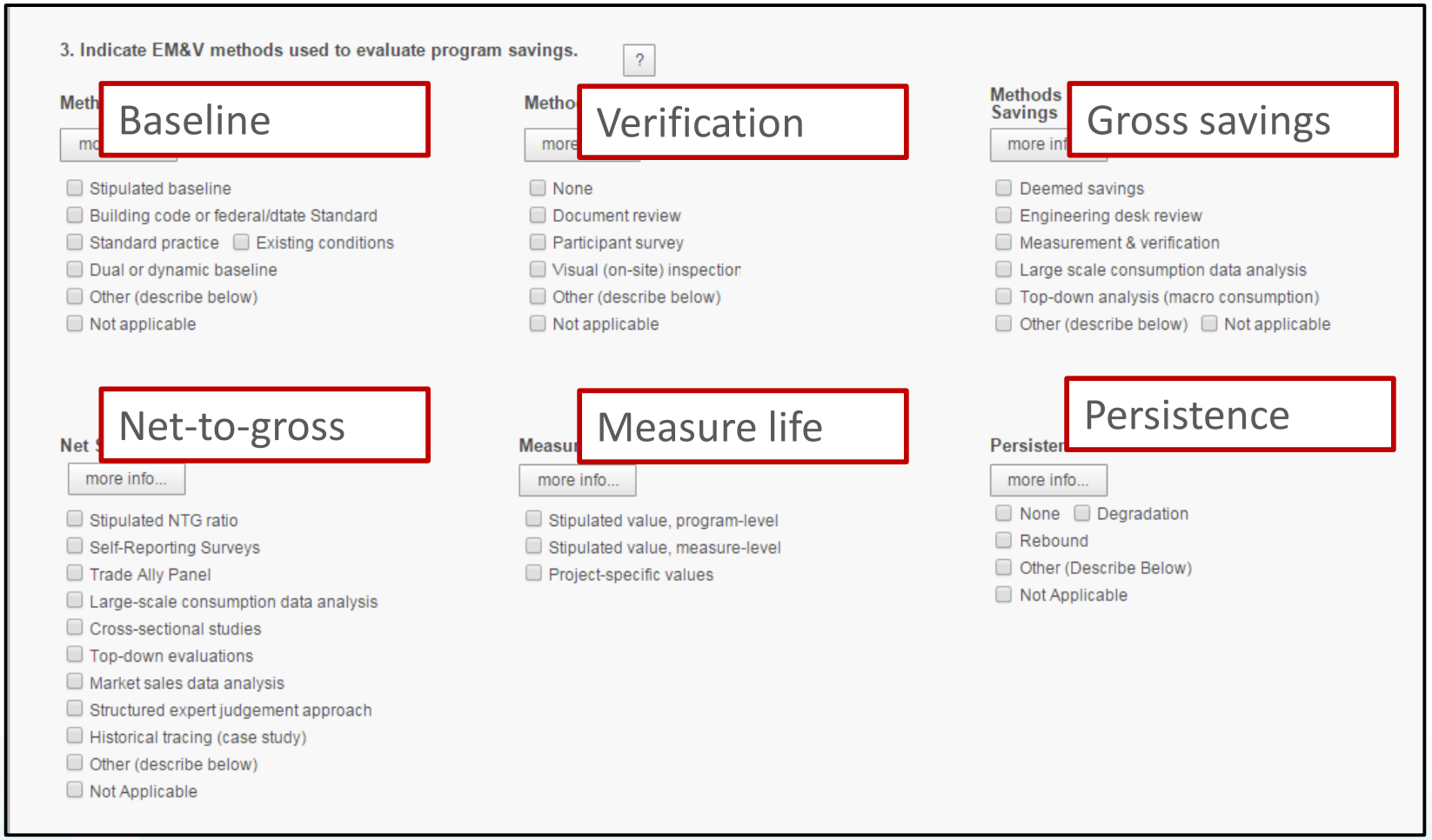


**Study Form**

**Program Form**

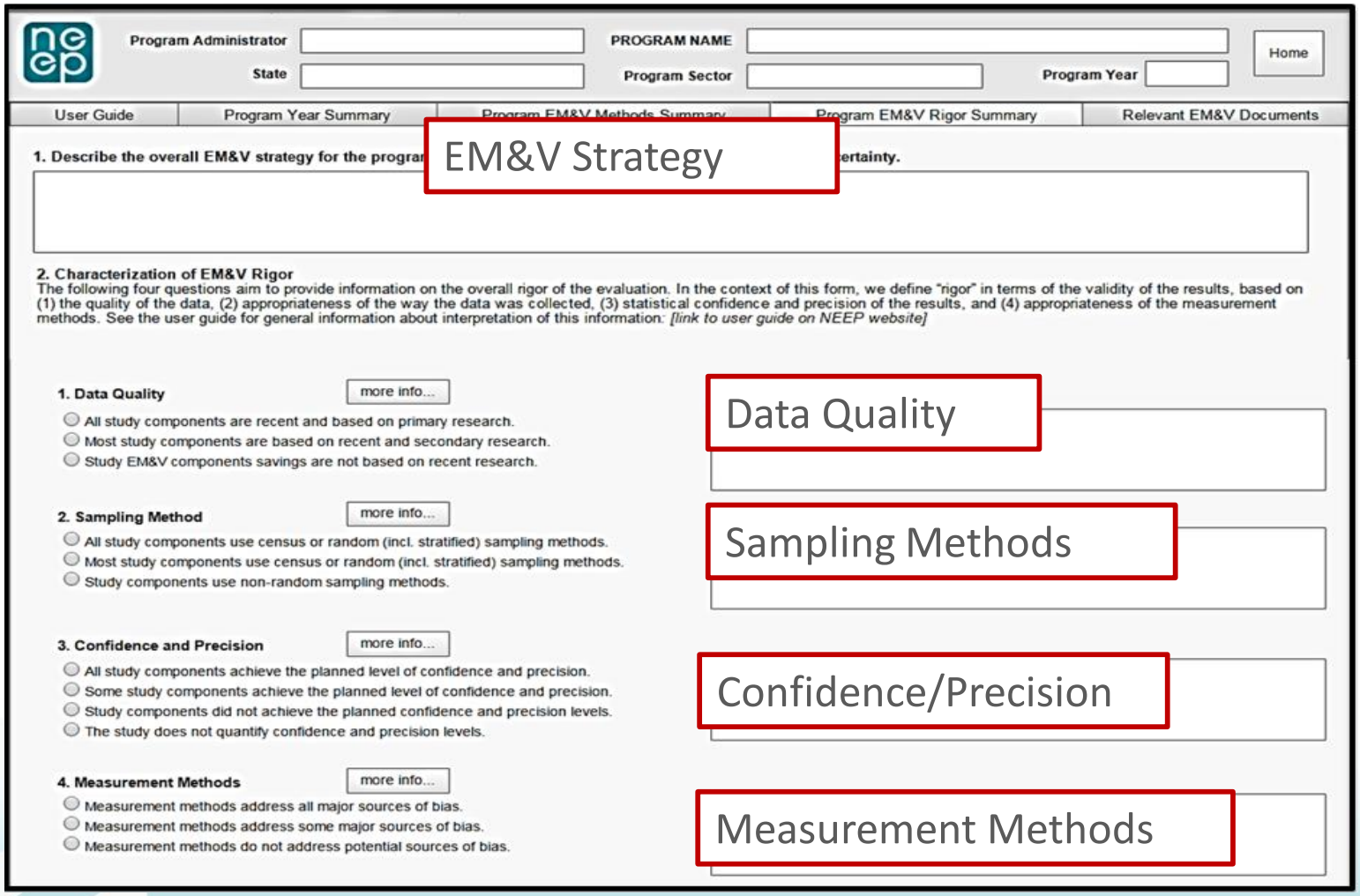
# Standardized EM&V Methods Reporting

## Program Form - Methods



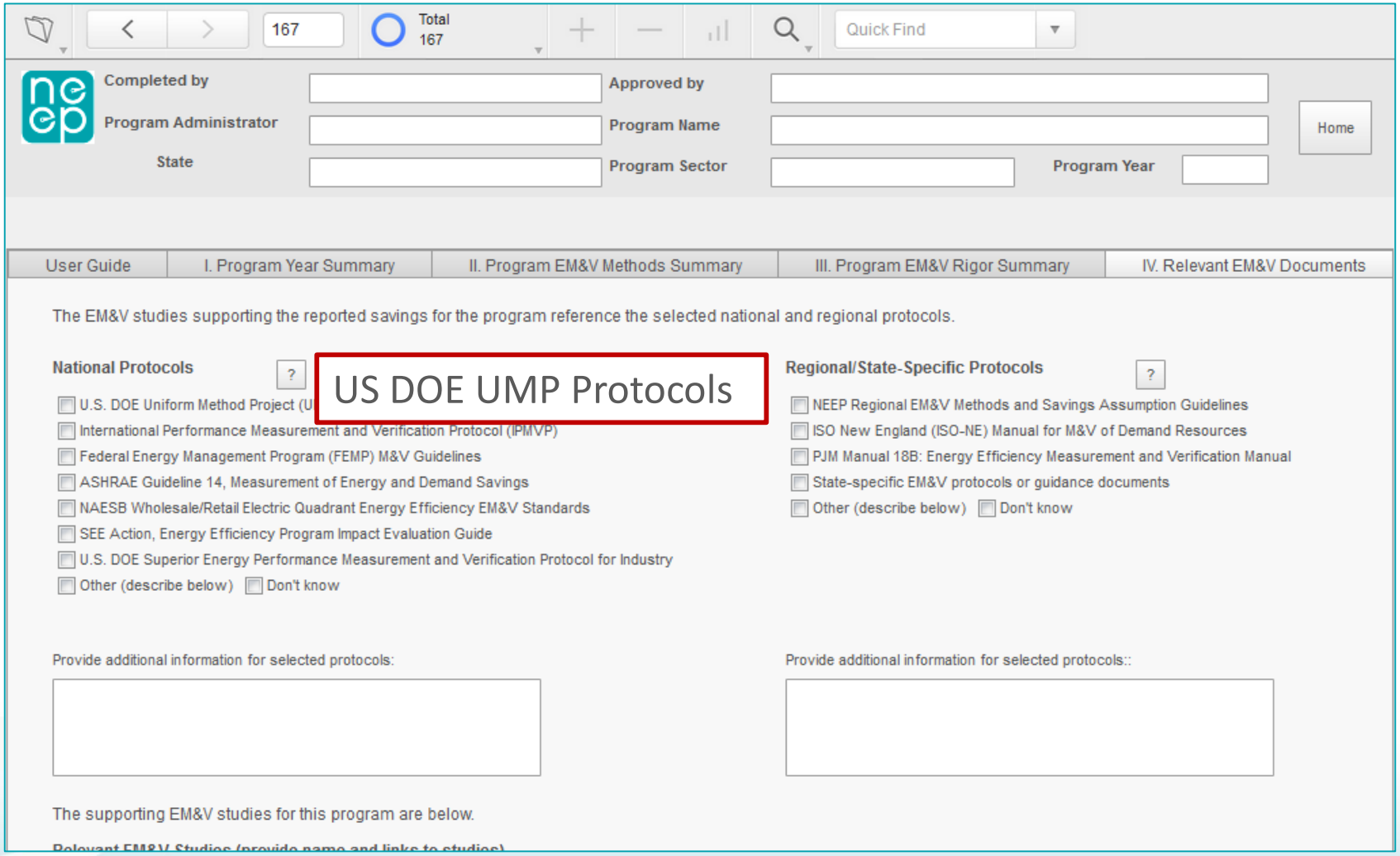
# Standardized EM&V Methods Reporting

## EM&V Rigor



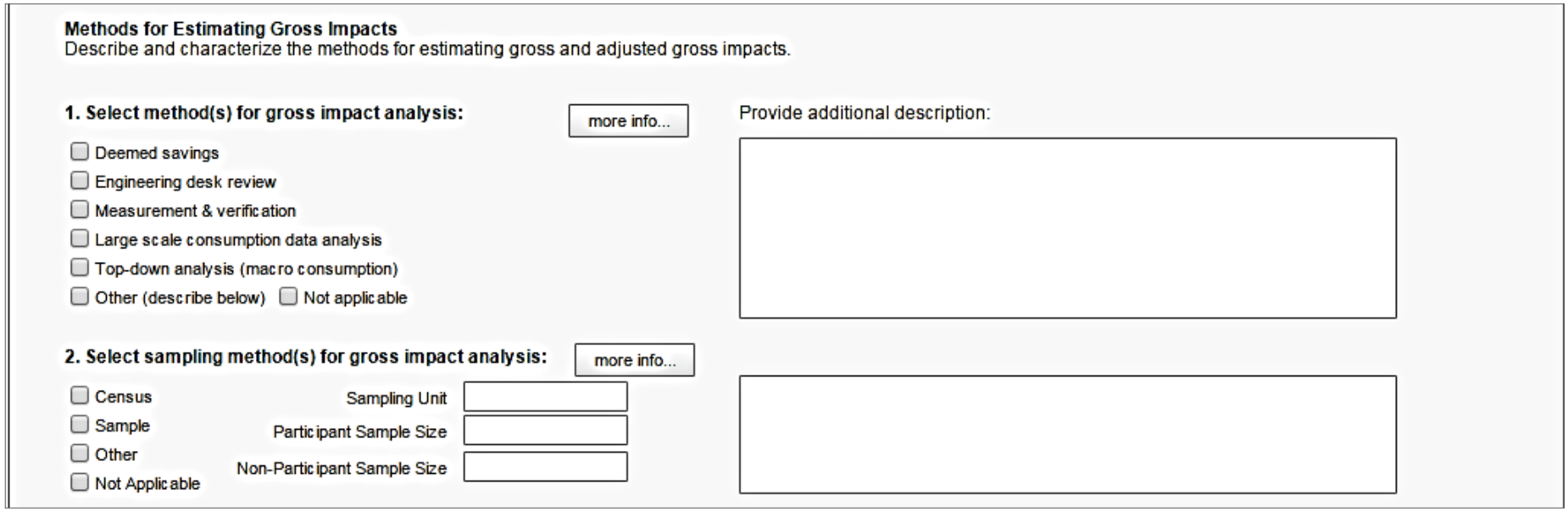
# Standardized EM&V Methods Reporting

## References Standard Industry Protocols



# 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:** more info...

- ☐ 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:** more info...

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

Sampling Unit
Participant Sample Size
Non-Participant Sample Size

structured response

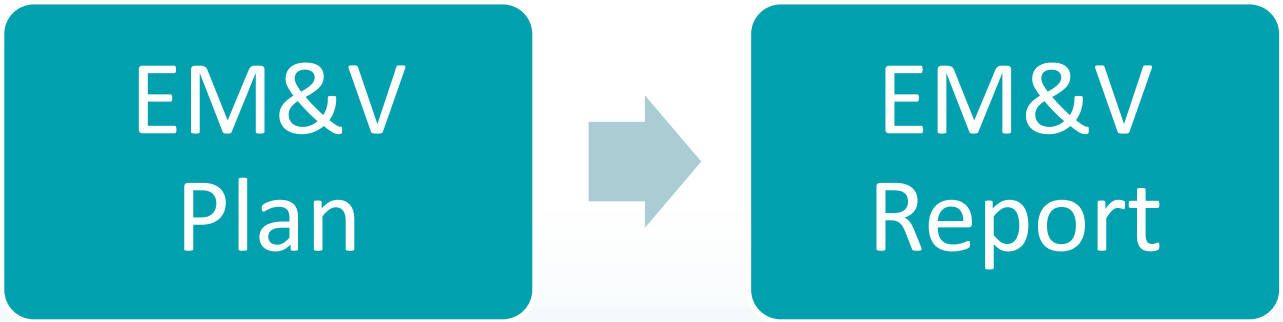
flexible response

# 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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