



NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

# Regional Evaluation, Measurement & Verification Forum

## OVERVIEW

October 2011

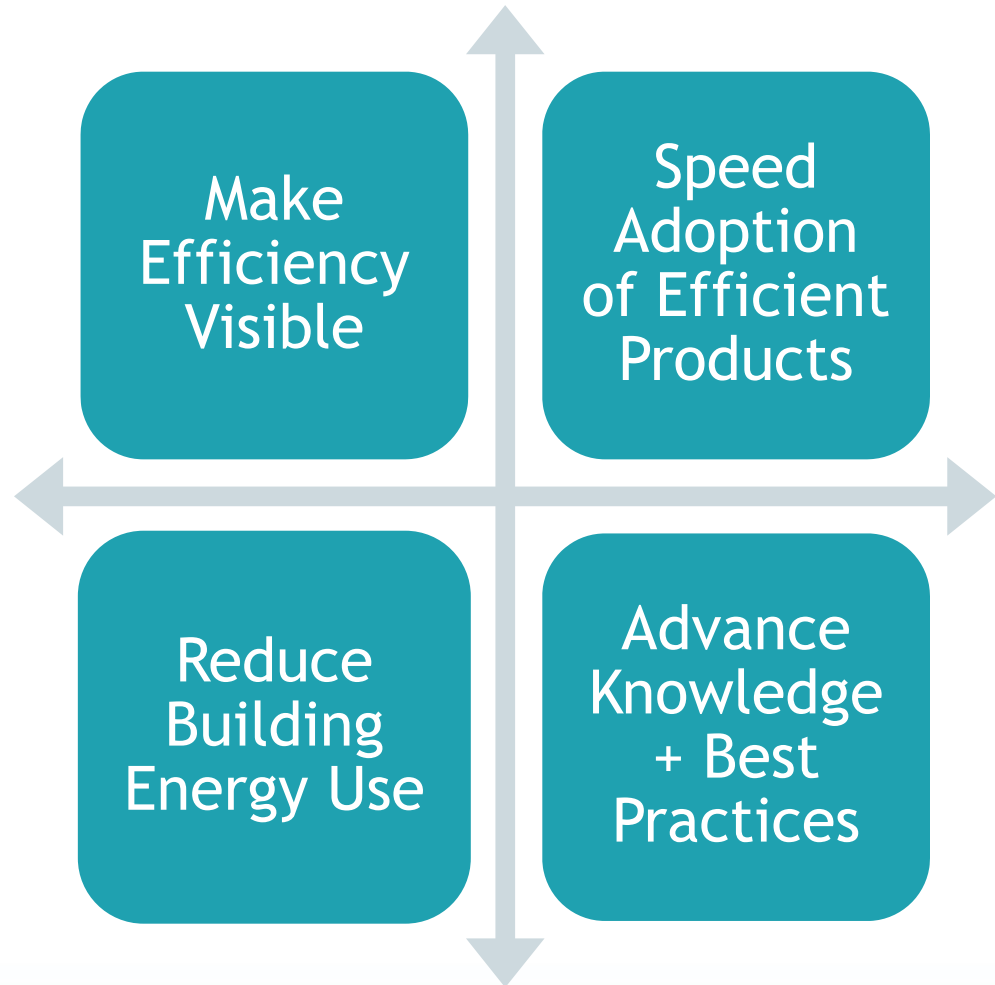
# Accelerating energy efficiency since 1996



## NEEP 2011 STRATEGIES

**MISSION**  
Accelerate energy efficiency in homes, buildings & industry in the Northeast - Mid-Atlantic region.

**GOAL**  
Keep the Northeast region a national leader in accelerating energy efficiency.



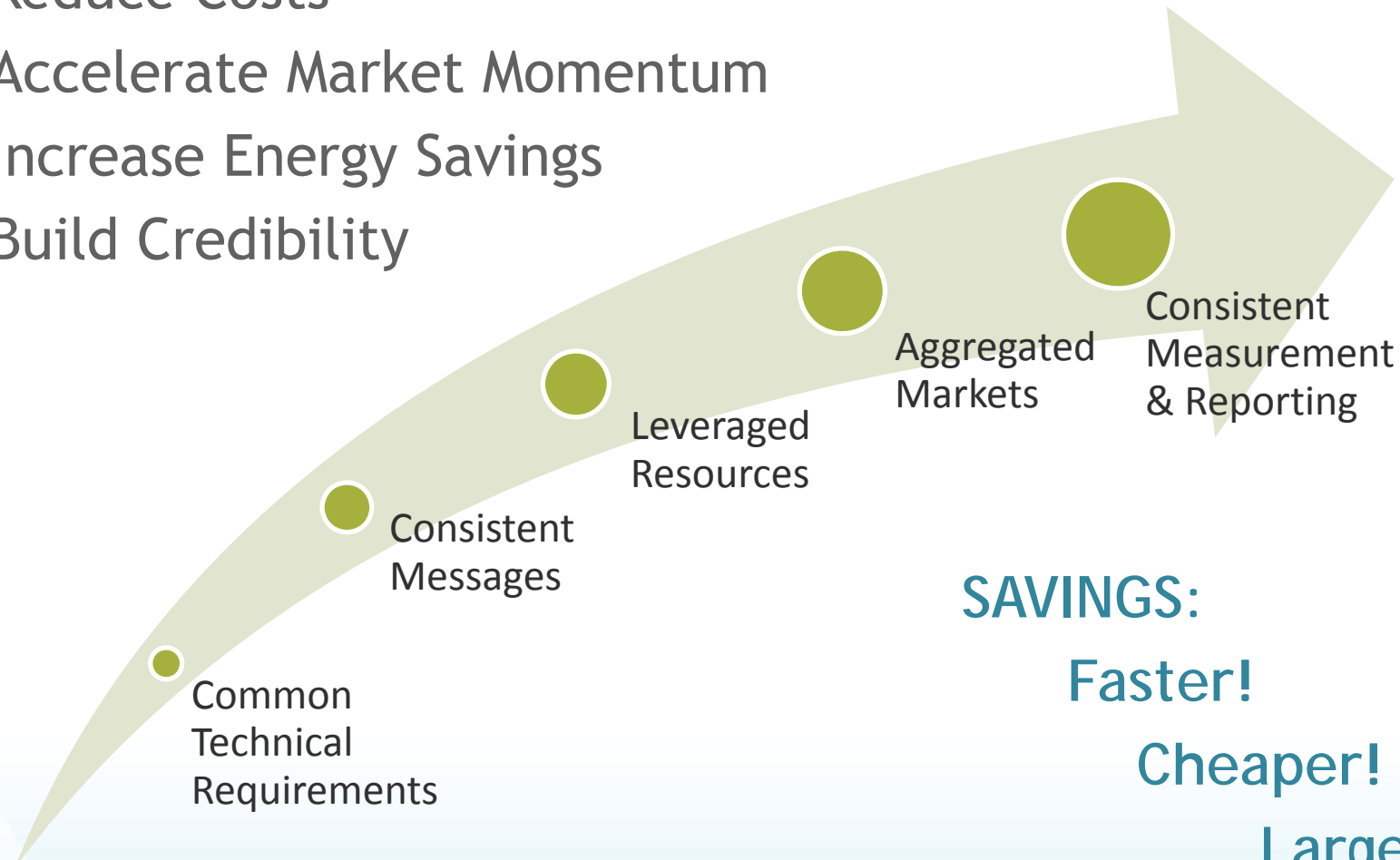
**APPROACH:** *Collaboration, Education, Advocacy*

# MAKING EFFICIENCY HAPPEN



## REGIONAL STRATEGIES

- ✓ Reduce Costs
- ✓ Accelerate Market Momentum
- ✓ Increase Energy Savings
- ✓ Build Credibility



**SAVINGS:**

**Faster!**

**Cheaper!**

**Larger!**

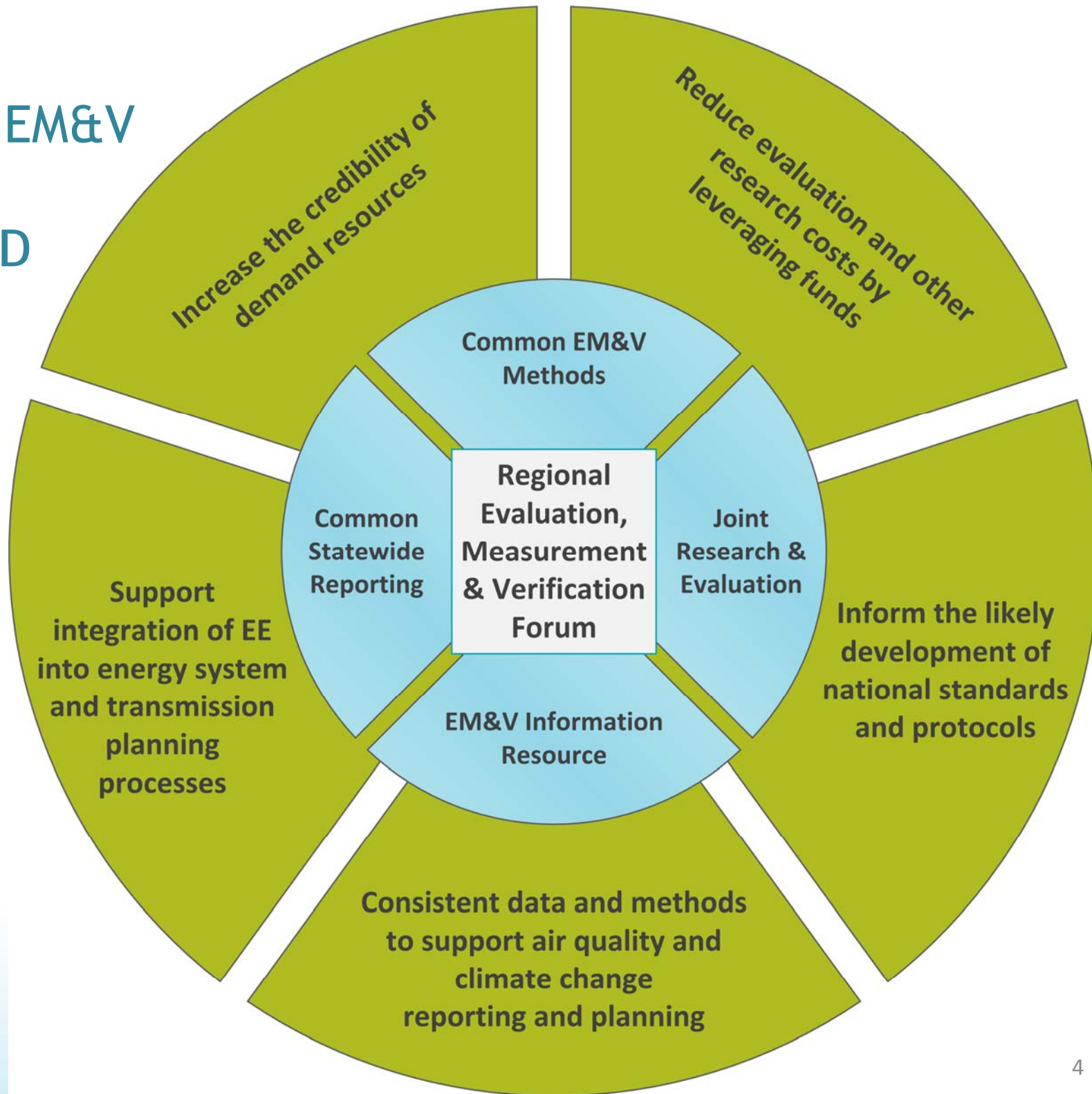


# REGIONAL EM&V FORUM

## What is the Forum?

- Key area of NEEP's work to *Advance Knowledge and Best Practices*.
- Supported by resolutions passed in 2008 by New England Conference of Public Utility Commissioners (NECPUC) and Mid-Atlantic Conference of Regulatory Utility Commissioners (MACRUC) to establish and fund a regional forum to build consistency in EM&V and reporting of EE for range of policies
- **Seed funding** (3-year plan and setting up operations) provided by: US DOE, US EPA, NYSERDA, Energy Foundation, CSG
- **Steering Committee** convened in July 2008, Project Committees formed fall 2008, Forum projects launched 2009

# REGIONAL EM&V FORUM: GOALS AND PURPOSE



# REGIONAL EM&V FORUM

## Who's Involved?



- ❑ **Ten Jurisdictions:** New England states, New York, Maryland, Delaware, District of Columbia (with New Jersey participating in 2009 only)
- ❑ **Steering Committee:** PUC commissioners, SEO directors, and air regulator representatives
- ❑ **Project Committees (and subcommittees):** PUC staff and air quality agency staff, SEOs, program administrators, US DOE, US EPA

# FORUM STRUCTURE AND ROLES



## NEEP Board of Directors

- Provide overall strategic guidance for NEEP Projects
- Approve Annual Forum Agenda, Budget and Revenue Plan
- Oversee NEEP Operations and Fiscal Management

## Steering Committee

- Adopts Forum agenda & budgets
- Adopts Forum products, and encourages their use in respective states/region
- Provides clear, accountable governance
- Encourages access to EE data/information

## Project Committees

- Inform development of project agenda/budgets
- Review draft and final project deliverables
- Develop recommendations to Steering Comm.

## Project Subcommittees

Work with NEEP staff to develop RFPs, select project 3<sup>rd</sup> party contractors, review draft and final deliverables

Protocol  
Development

Research &  
Evaluation

Education & Info  
Access

## NEEP Forum Staff

- Convene/facilitate committees
- Provides technical and administrative support, project management
- Secure Forum revenues
- Retain 3<sup>rd</sup> party contractors
- Coordinate Forum with state, regional, and national EM&V efforts
- Disseminate Forum results and products to target audiences
- Serve as legal fiduciary and fiscal agent/manager for Forum projects
- Maintain Forum website and Library

## 3<sup>rd</sup> Party Contractors

- Conduct research to inform EM&V and reporting guidelines
- Conduct joint R&E studies

FORUM  
USERS

# FORUM LEADERSHIP



**Steering Committee Co-chairs:**  
Rich Sedano, RAP and NEEP Board Member  
Paul Roberti, RI PUC

**Project Committee Co-Chairs**

## **Protocol Development**

Lisa Shea  
(NSTAR Electric & Gas)  
Helen Eisenfeld and  
Mary Cahill  
(NY Power Authority)

## **Research & Evaluation**

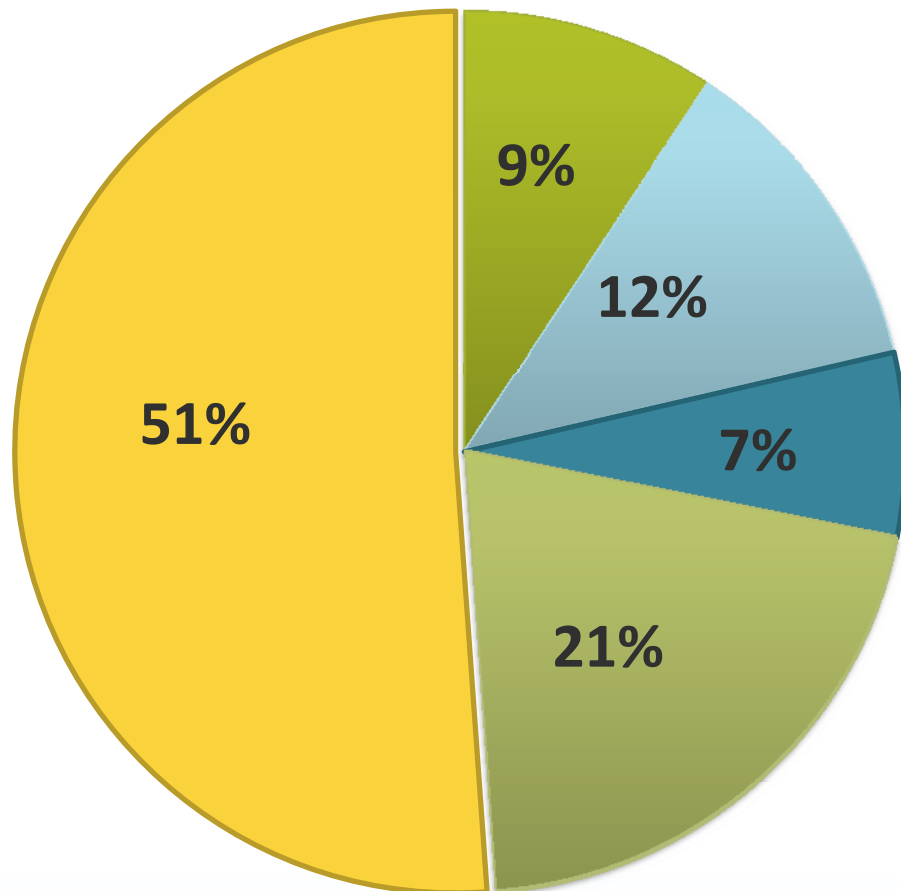
Dave Jacobson  
(National Grid)  
Tom Belair  
(Public Service NH)

## **Education & Info Access**

Crissy Godfrey  
(MD Public Service  
Commission)  
Pam Stonier  
(VT Public Service  
Board)

# FORUM BUDGET

2009-2011 = \$6,085,000



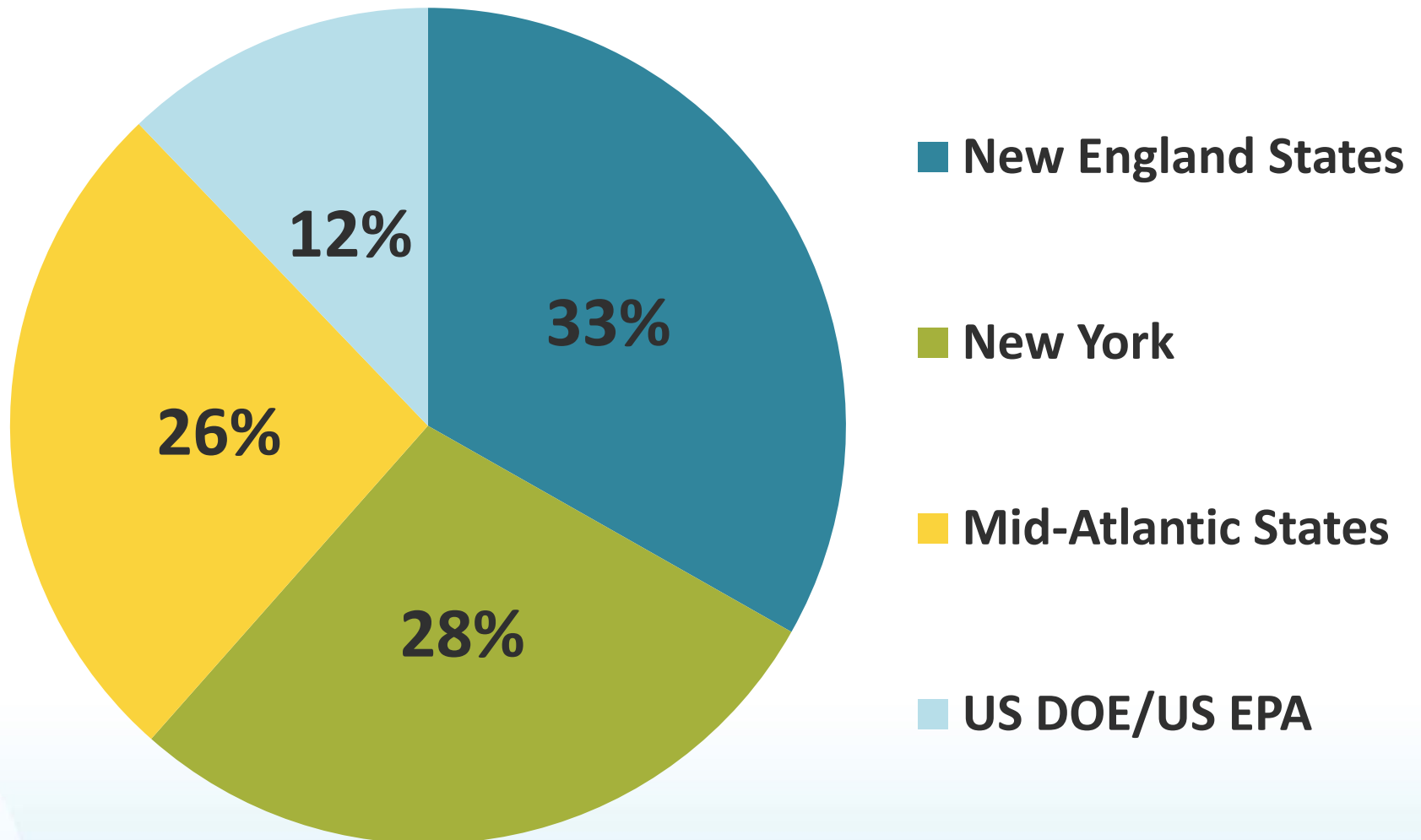
- Forum Operations
- Project Management
- Educ & Info Access
- Protocol Development
- Research & Evaluation

EM&V Forum budget  $\approx$  10% of total EM&V expenditures for New England, New York and Mid-Atlantic states

# FORUM FUNDING SOURCES

## Leveraging Resources

2009-2011 Budget = \$6,085,000



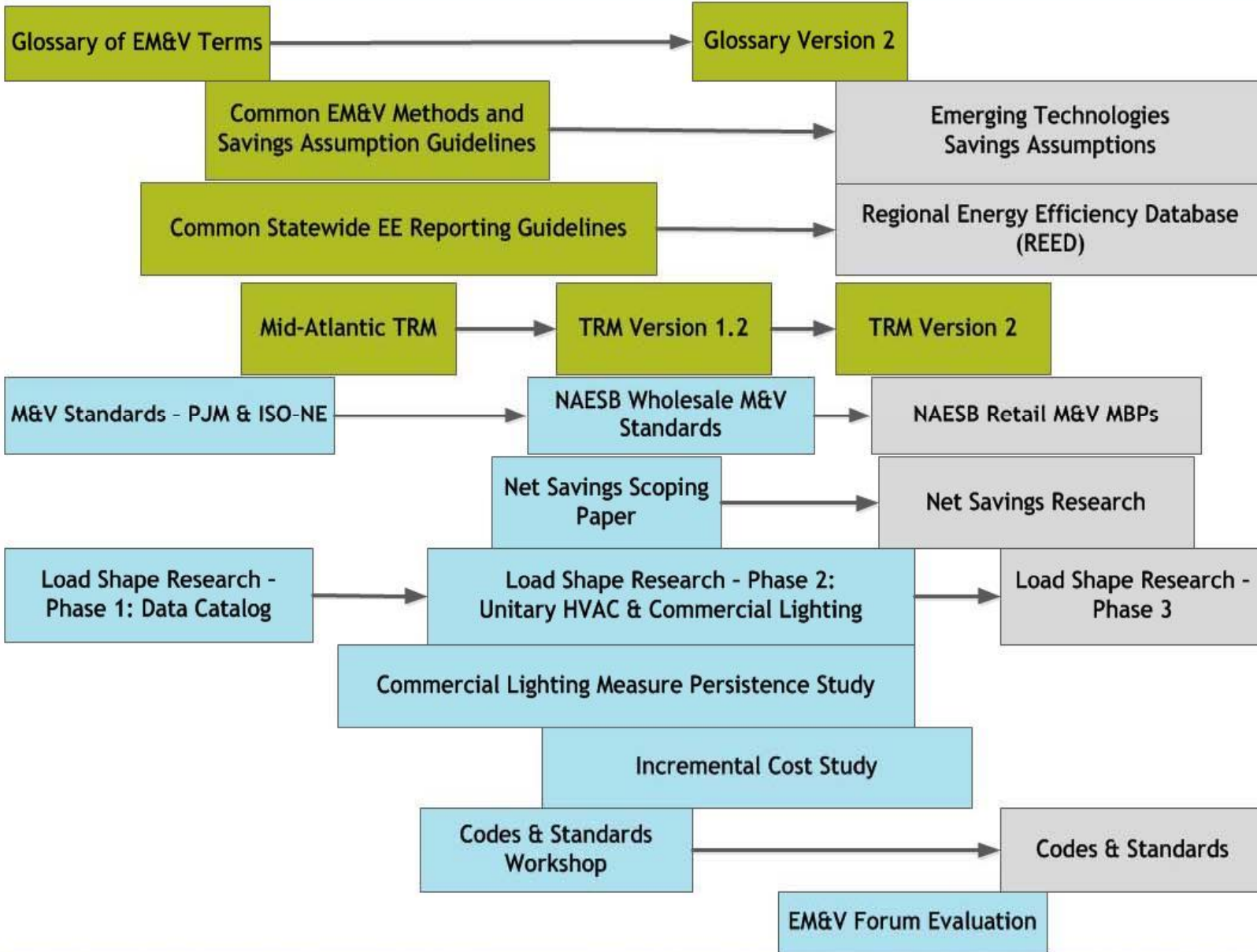
# Regional Evaluation, Measurement & Verification Forum

2009

2010

2011

2012-2014  
(3-year Plan Under Development)



*Color Key*

Adopted by Steering Committee

In Process/Planned

Ongoing

Complete

Ed & Info Access Activities: Annual Public Meeting, Communications (Quarterly Newsletter & Monthly Updates), EM&V Resource Library, Forum Website

## FORUM PROJECTS (TO DATE, IN PROGRESS)

### Protocol Development



- Forum Glossary of EM&V Terms (2011 V2)
- Regional EM&V Methods Guidelines (2010)
- Mid-Atlantic TRM (MD, DE, DC) (2010/2011 update)
- Net Savings Scoping Paper (2010-11); Net Savings Common Definitions and Policy Research (Q1 2012)
- Common Statewide EE Reporting Guidelines (2010) - with Phase 2 Implementation in 2011-12
- Impact of EE on Codes & Standards Workshop (2010); with possible guidelines for estimating savings (2012)

## FORUM PROJECTS (TO DATE, IN PROGRESS)

### Research & Evaluation / Education & Info Access



### RESEARCH & EVALUATION PROJECTS

- Loadshape Research - Unitary HVAC, Comm. Lighting, Phase 3 starting this fall (2009-2012)
- Commercial Lighting Measure Persistence (2010-11)
- Incremental Cost Study (2011)
- Emerging Technologies Savings Assumptions (2011-12)

### EDUCATION & INFORMATION ACCESS

- Regional EE Database (REED): Launch in Q1 2012
- EM&V Resource Library
- Forum Annual Public Meetings - 2009, 2010, 2011

## 2012-2014 FORUM PLAN

### Implementation: Use and Referencing of Forum Products



- ❑ **Forum Glossary of EM&V Terms** - many states referencing/using, also outside the Forum region
- ❑ **Regional EM&V Methods Guidelines:** referenced by NY, DC, DE - further outreach needed in other Forum states. Guidelines to help inform US DOE *Uniform EM&V Methods Project*
- ❑ **Mid-Atlantic TRM:** Used by MD, DE and DC
- ❑ **Common Statewide EE Reporting Guidelines:** Implementation in 2012 (via Regional EE Database). Referencing to date includes ISO New England 2011 Draft Regional System Plan, as possible source to collect EE data to support integrating EE in RSP
- ❑ **Net Savings Common Definitions:** Forthcoming early 2012...

## 2012-2014 Plan Overview

(Results from Forum Evaluation - July 2011)



- Continue 3 Core Substantive Functions plus Base Operations Function:
  1. Protocol Development/Implementation
  2. Research & Evaluation
  3. Education & Information Access
  4. Base Operations
- Emphasis on R&E, with focus on Forum product implementation
- Maintain existing Forum operational structure (with some improvements)
- Forum Funding/budget:
  - Maintain cost allocation framework
  - Continue to leverage \$\$ across Forum and new states, federal grants, new sources (ISOs/RTOs?)
  - Budget: maintain past funding levels, approx \$2 million/year

# 2012-2014 Plan Overview

## Forum Goals and Objectives

(Results from Forum Evaluation - July 2011)



1. Focus on effective use and implementation of Forum protocol/guidelines products in Forum states:
  - Use of Glossary, EM&V Methods & Savings Assumptions Guidelines
  - Implement Regional Energy Efficiency Database (REED) and evolve to meet state and regional needs
  - New protocol development efforts to target emerging technologies or other new areas
  - Forum participants to reference Forum products in e.g., PUC orders, guidance documents, EE plans, evaluation RFPs, etc.
2. Align/inform national protocols/guidance with Forum products (for EM&V methods, common reporting, and savings assumptions)

## 2012-2014 Plan Overview

### Forum Goals and Objectives cont.

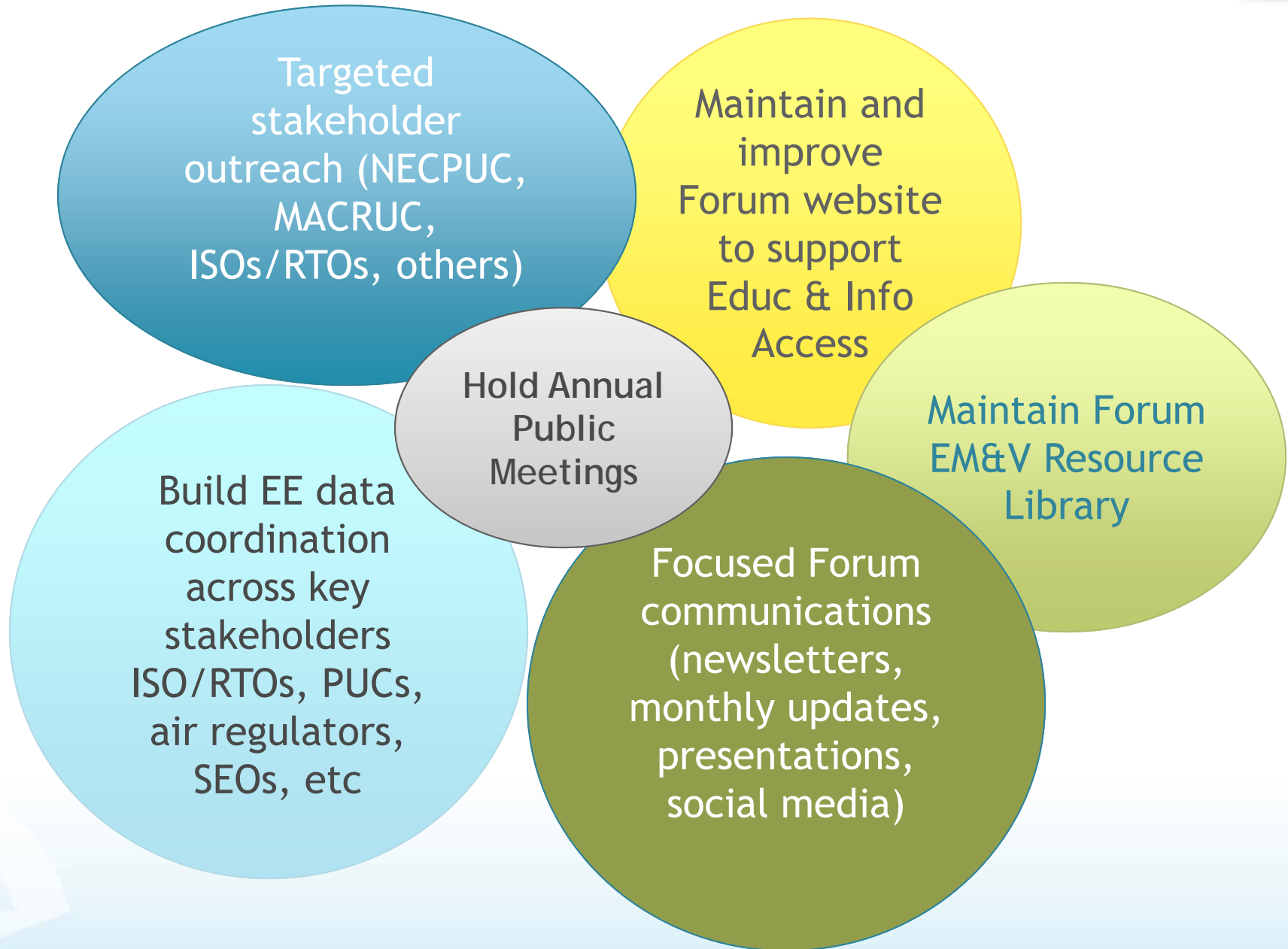
(Results from Forum Evaluation - July 2011)



3. ISO/RTO adoption and use of Forum products in planning and assessment of energy efficiency
4. Emphasis on joint research & evaluation projects to develop data assumptions to support EE program savings estimates

# 2012-2014 Plan Overview

## What Will Education & Info Access Involve?



# 2012-2014 Plan Overview

## Potential Projects



2012 - 2014 Potential Projects	
Protocol Development	Research & Evaluation
Policy Research on Current Practice and Challenges with Cost-Effectiveness Testing	Loadshape Research - Phase 3 (e.g., resid. lighting, data centers, commercial refrigeration, heat pumps)
Mid-Atlantic Technical Reference Manual - Phase 4	Incremental Cost Research - Phase 2
Regional EE Database Modifications	Measure Persistence Research - Phase 2
Methods for Calculating Impact of EE Programs on Codes & Standards	Market Share Research/Characterization (e.g., Resid / Comm lighting, HVAC)
Other?	Net Savings Research
Note: Projects may be sub-regional - TBD	

## 2012-2014 Plan - What's Next?

### Regional Energy Efficiency Database (REED)



- Database builds on Forum *Common Statewide EE Reporting Guidelines*
- REED outputs/reports:
  - ✓ Background EE Info
  - ✓ Annual incremental energy savings
  - ✓ Lifetime energy savings
  - ✓ Peak demand savings (summer/winter)
  - ✓ Expenditures, cost of saved energy
  - ✓ Avoided emissions
  - ✓ Job impacts
  - ? *Other: Forecasted EE Data*
- Project subcommittee members include state entities (SEOs, PUCs, PAs, air quality reps), ISO/RTO staff
- Launch in Jan-Feb 2012, states to report EE program impacts for 2011 program year
- Interactive Reports - view data graphically by selected state(s) or region(s), compare and/or aggregate data



# REED DATABASE PROCESS



# REED - LOGIN PAGE



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### LOG IN

Please enter your username and password. [Register](#) if you don't have an account.

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Password:

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# FORMS PAGE - DOWNLOAD FORM, STATUS OF SUBMISSION, UPLOAD



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### FORMS

Current Reporting Period: **12/31/2011** ; after completing and uploading all forms you can submit the report to NEEP.

Jurisdiction/State

Rhode Island

Reporting Period

12/31/2011

Show only forms not yet uploaded

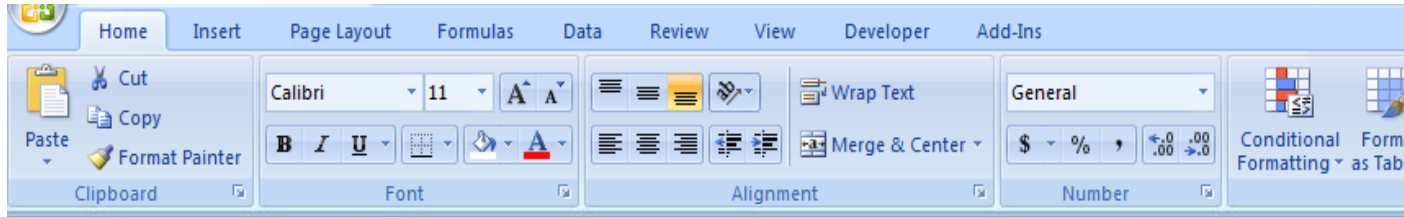
Include overwritten forms

Form Name	Form Description	Download Blank Form	Upload Completed Form	Date Uploaded
Table1.0	<input checked="" type="checkbox"/> Description of Reported Energy Efficiency Savings			<a href="#">8/28/2011</a>
Table1.1	<input type="checkbox"/> Incremental Annual Energy Savings			
Table1.2	<input type="checkbox"/> Energy Efficiency Program Lifetime Energy Savings			
Table1.3.1	<input checked="" type="checkbox"/> Summer Peak Annual Demand Savings			<a href="#">9/14/2011</a>
Table1.3.2	<input type="checkbox"/> Winter Peak Annual Demand Savings			
Table2.1	<input type="checkbox"/> Efficiency Program Funding Sources			
Table2.2	<input type="checkbox"/> Electric and Gas Energy Efficiency Program Expenditures			
Table2.3	<input type="checkbox"/> Cost of Saved Energy			
Table3	<input type="checkbox"/> Avoided Emissions			
Table4	<input type="checkbox"/> Job Impacts from Energy Efficiency Investments			

Status

Click to  
download

# COMPLETE FORMS - EXCEL COLLECTION SPREADSHEETS



	A	B	C	D	E	F	G	H	I
3		<b>ENERGY EFFICIENCY PROGRAM SAVINGS</b>	Generation	Meter	Generation	Meter			
4		<b>Residential Non-Low Income Customer</b>	Level	Level	Level	Level			
5		<b>by Program (Enter Program name below)</b>							



	A	B	C	D	E	F	G	H	I
13									
14									
15									
16									
17									
18									
19									
20									
21									

Report Incomplete: Please enter values in all fields with red backgrounds

**Table 1.3.1: Summer Peak Annual Demand Savings**

Jurisdiction/State	Program Year	Adjusted Gross Demand Savings		Net Demand Savings	
		Generation Level (MW)	Meter Level (MW)	Generation Level (MW)	Meter Level (MW)
<b>Summer Peak Demand Savings by Sector and Program</b>					
<b>ENERGY EFFICIENCY PROGRAM SAVINGS</b>					
<a href="#">Residential Non-Low Income Customer Sector</a>		-	2,000.000	-	-
<a href="#">Residential Low Income Customer Sector</a>		-	-	-	-
<a href="#">Commercial &amp; Industrial Customer Sector</a>		-	-	-	-
<b>TOTAL ENERGY EFFICIENCY PROGRAM SAVINGS</b>		-	2,000.000	-	-
<a href="#">TOTAL DEMAND RESPONSE PROGRAM SAVINGS</a>		-	-	-	-
<b>TOTAL SUMMER PEAK DEMAND SAVINGS</b>		-	2,000.000	-	-

Notifications

Required fields

Data value validation

Summer Annual Demand Savings - coincident with:

Utility Peak Demand
  ISO/RTO System Peak
  Other

Provide description of peak coincidence hours (e.g., average hours, maximum hours during peak):

<b>Jurisdiction/State:</b> XXXXX		<b>Program Year:</b> 20YY
<b>1. General Information on Reported Data</b>		
<b>1.1</b> Final annual savings data reported in what quarter of the following program year.		<input type="checkbox"/> 1st Qtr. <input type="checkbox"/> 2nd Qtr. <input type="checkbox"/> 3rd Qtr. <input type="checkbox"/> 4th Qtr.
<b>1.2</b> Reported data can be characterized as:		
<input type="checkbox"/> <b>Tracking Estimates.</b> Where reported savings are based on year-end tracking data that <input type="checkbox"/> <b>Savings Estimates Informed by Program Year Evaluation.</b> Where adjustments are made to Tracking Estimates based on program year evaluation activities (e.g., third party review such as verification of installations, impact evaluations, etc. Please generally describe types of EM&V activities: _____ <b>Are evaluation results systematically incorporated into following year Savings Tracking</b> <input type="checkbox"/> Yes or <input type="checkbox"/> No		
<b>2. Gross Savings</b>		<b>Applied to Some or All Programs?</b>
<b>2.1 Adjusted Gross Energy Savings</b> Please indicate types of adjustments made to Gross Energy Savings (or that are included in Realization Rate). Indicate if adjustments are made to some or all programs/measures.	Adjustments include: <input type="checkbox"/> Data Errors <input type="checkbox"/> Measure Persistence Factor <input type="checkbox"/> Savings Persistence Factor <input type="checkbox"/> In-Service Rate <input type="checkbox"/> Interactive Effects <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____	<input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs
<b>3. Net Savings</b>		<b>Applied to Some or All Programs?</b>
<b>3.1 Net Savings</b> Indicate types of adjustment incorporated in reported net savings. (Check all that apply.)	Adjustments include: <input type="checkbox"/> Free Ridership <input type="checkbox"/> Participant Spillover <input type="checkbox"/> Non-Participant Spillover <input type="checkbox"/> Other _____	<input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs <input type="checkbox"/> Some or <input type="checkbox"/> All Programs



## REED Table 1.0

Provides transparency to help identify where inconsistencies in state reported data may exist (to be addressed in future versions as common definitions are developed)

# REED Table 1.0 Access to Data Sources, Supporting Material



## 4. Supporting State Energy Savings Assumptions and EM&V Process Information

**4.1 Supporting Savings Data and Assumptions.** For more detailed information regarding supporting

- a) [STATE] Program savings documents (or technical reference manuals):
- b) [STATE] or [PA] Energy efficiency program plans: [www.providelink.com](http://www.providelink.com)
- c) Program administrator annual reported data, where applicable: [www.providelink.com](http://www.providelink.com)
- d) [STATE] achievable potential studies: [www.providelink.com](http://www.providelink.com)
- e) Other

**4.2 Review and Approval of Reported Data.** The savings and cost information reported have been

- [STATE PUC]
- [STATE ENERGY OFFICE]
- Other \_\_\_\_\_

**4.3 Evaluation, Measurement and Verification (EM&V) Protocols/Methods.** The EM&V protocols or

- State PUC prescribed guidelines/methods: [www.providelink.com](http://www.providelink.com)
- Energy Efficiency M&V standards required by regional system operator [ISO New England] OR
- The Regional EM&V Forum Methods and Savings Assumptions Guidelines:
- Other (Describe) \_\_\_\_\_

## 5. Sources of Funding For Reported Energy Efficiency Activities (check all that apply):

- Electric Ratepayer Funded Programs
- Natural Gas Ratepayer Funded Programs
- Regional Greenhouse Gas Initiative (RGGI) Allowance Proceeds
- Wholesale capacity market revenues (ISO NE Forward Capacity Market/PJM Reliability Pricing
- Weatherization Assistance Programs (WAP)
- American Recovery and Reinvestment Act (ARRA) Funds
- Other (Describe): \_\_\_\_\_

# VIEW REPORTS

## SAMPLE REPORT

### COMPARISON OF COST OF SAVED ENERGY

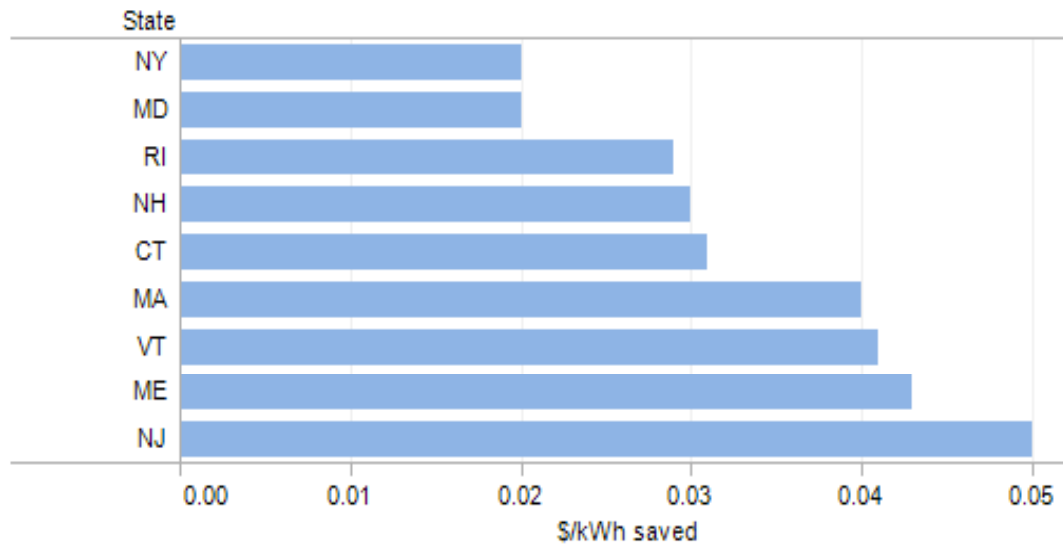


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### Cost of Saved Energy



## 2012-2014 Plan Overview

### Role of Forum Product to Support Air Quality and Climate Change Planning



1. Consistent reporting of EE data is key to helping build credibility of efficiency as strategy to meet to State Implementation Plan (SIP) compliance
2. Consistency in underlying EM&V methods used to evaluate savings is critical to determination of whether savings estimates meet EPA criteria for obtaining SIP credit
3. Build EE data coordination between EE stakeholders to support forecasting efforts: air regulators, climate change stakeholders, PUCs, ISO/RTOs, EIA, others...

# 2012-2014 Plan

## Next Steps - Development of Forum 3-Year Plan



### October - December:

- NEEP on-going outreach/discussion with Forum states to review draft agenda and budget for 2012-14 Plan
- Confirm Forum revenues (state proceedings, US DOE, US EPA, grants)
- Present 2012-14 Draft Plan to NEEP Board end of October
- November 17 Project Committees review/input on Final Draft Plan
- Final 2012-14 Plan with 2012 detailed agenda/budget for Steering Committee adoption - December 8



For more information:

<http://neep.org/emv-forum>

**Julie Michals**

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