



Synapse
Energy Economics, Inc.

Survey of Energy Efficiency Screening Practices in the Northeast and Mid-Atlantic

NEEP EM&V Forum Annual Public Meeting

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Forum Energy Efficiency Screening Survey

- The Cost-Effectiveness Testing Guidance and Research project:
 - Phase 1: Survey current state practices to identify key differences, issues and challenges across the states.
 - Phase 2: Develop recommendations on how the Forum can provide guidance to states on cost-effectiveness issues.
 - Phase 3: Conduct research on specific topic areas that warrant further attention.
- Goals of the Phase 1 survey:
 - To ensure that Forum members understand key differences and issues with current cost-effectiveness testing practices across the region.
 - To identify the key topics and issues that the Forum should consider for developing guidance on cost-effectiveness testing (i.e., for Phase 2).

Overarching State Policy Drivers

- CT: Focus on electric and gas utility system impacts only.
- DC: EE programs must meet the Societal Cost test.
- MA: Implement all available energy efficiency and demand response that is cost-effective.
- NH: Reduce market barriers to investments in efficiency.
- NY: Maximize cost-effectiveness given limited funding.
- RI: Implement all cost-effective energy efficiency.
- VT: Apply least-cost planning, including environmental costs.

Note that states also have more focused policy goals.

Key Findings

- Energy efficiency screening practices differ significantly across the states surveyed.
- The key differences are in the following areas:
 - Choice of screening test.
 - Treatment of non-energy benefits.
 - Discount rates used.
 - Treatment of risk.
 - Treatment of the avoided cost of environmental compliance.
 - Treatment of price suppression effect.
 - Estimates of avoided transmission and distribution costs.
- Some of these differences may be warranted. Others may not be.

Summary of Survey Results

Cost-Effectiveness Metric		Connecticut	Delaware	District of Columbia	Massachusetts	New Hampshire	New York	Rhode Island	Vermont
Primary Policy Driver		Focus on electric system impacts only	Still under development	Energy efficiency programs must meet the Societal Cost test	All available cost-effective energy efficiency	Reduce market barriers to investments in cost-effective energy efficiency	Maximize cost-effectiveness given limited funding	All cost-effective energy efficiency	Least cost planning including environmental costs
Cost-Effectiveness Test(s) & Application	Primary Test	PAC	TRC	Societal	TRC	TRC	TRC	TRC	Societal
	Secondary Test	TRC	Societal; RIM						TRB; PAC
	Primary Screening Level	Program	Portfolio	Portfolio	Program	Program	Measure	Portfolio	Portfolio
	Additional Screening Level(s)		Program	Program, Project, Measure			Project, Program		Program, Project, Measure
	Discount rate used in Test (Real)	Utility WACC (currently 7.43%)	Societal Treasury Rate (rate TBD)	Societal 10Yr Treasury (currently 1.87%)	Low-Risk 10Yr Treasury (currently 0.55%)	Prime Rate (currently 2.46%)	Utility WACC (currently 5.5%)	Low-Risk 10Yr Treasury (currently 1.15%)	Societal (currently 3%)
	Study period over which Test is applied	Measure Life	Measure Life	Measure Life	Measure Life	Measure Life	Measure Life	Measure Life	Measure Life
Avoided Costs Included in Primary Cost-Effectiveness Test	Capacity Costs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Energy Costs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	T&D Costs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Environmental Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Price Suppression	Yes	Yes	Yes	Yes	No	No	Yes	No
	Line Loss Costs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Reduced Risk	No	Yes	Yes	No	No	No	No	Yes
OPIs/NEBs Included in Primary Cost-Effectiveness Test	Utility OPIs	No	No	No	Quantified	No	No	Quantified	Part of 15% Adder
	Participant OPIs								
	Resource	No	Yes - Calculation TBD	Quantified	Quantified	Quantified	Quantified	Quantified	Quantified
	Low-Income	Qualitative	No	Part of 10% Adder	Quantified	Qualitative	Qualitative	Quantified	Additional 15% Adder
	Equipment	No	No	O&M Quantified	Quantified	No	Qualitative	Quantified	O&M Quantified
	Comfort	No	No	Part of 10% Adder	Quantified	No	No	Quantified	Part of 15% Adder
	Health & Safety	No	No	Part of 10% Adder	Quantified	No	No	Quantified	Part of 15% Adder
	Property Value	No	No	Part of 10% Adder	Quantified	No	No	Quantified	Part of 15% Adder
	Utility Related	No	No	Part of 10% Adder	Quantified	No	No	Quantified	Part of 15% Adder
Societal OPIs	No	No	Part of 10% Adder	No	No	No	Quantified	Part of 15% Adder	

Primary Cost-Effectiveness Tests Used

Total Resource Cost (TRC) Test most common test.

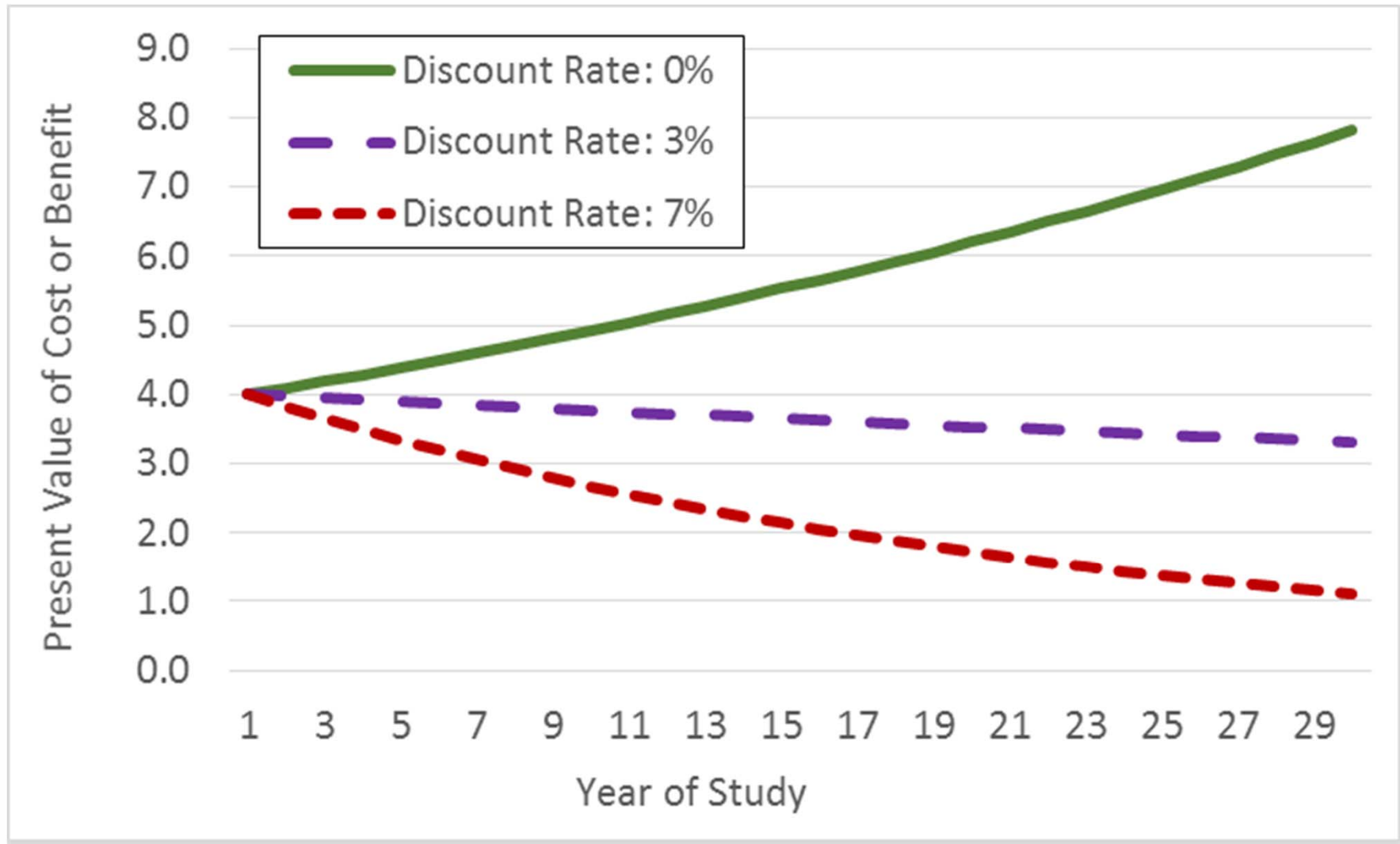
Primary Screening Test	States
Total Resource Cost Test (5)	<ul style="list-style-type: none">• Delaware*• Massachusetts• New Hampshire• New York• Rhode Island
Societal Cost Test (2)	<ul style="list-style-type: none">• District of Columbia• Vermont*
Program Administrator Cost Test (1)	<ul style="list-style-type: none">• Connecticut*

* CT, DE, & VT use secondary tests as well

Discount Rates Used in Screening

	10-Yr. Treasury or Prime	Societal	Utility Cost of Capital
Range	0.5 to 2.0%	3.0%	5.0 to 7.5%
TRC	Delaware Rhode Island Massachusetts New Hampshire		New York
SCT	District of Columbia	Vermont	
PACT			Connecticut

Implications of Different Discount Rates



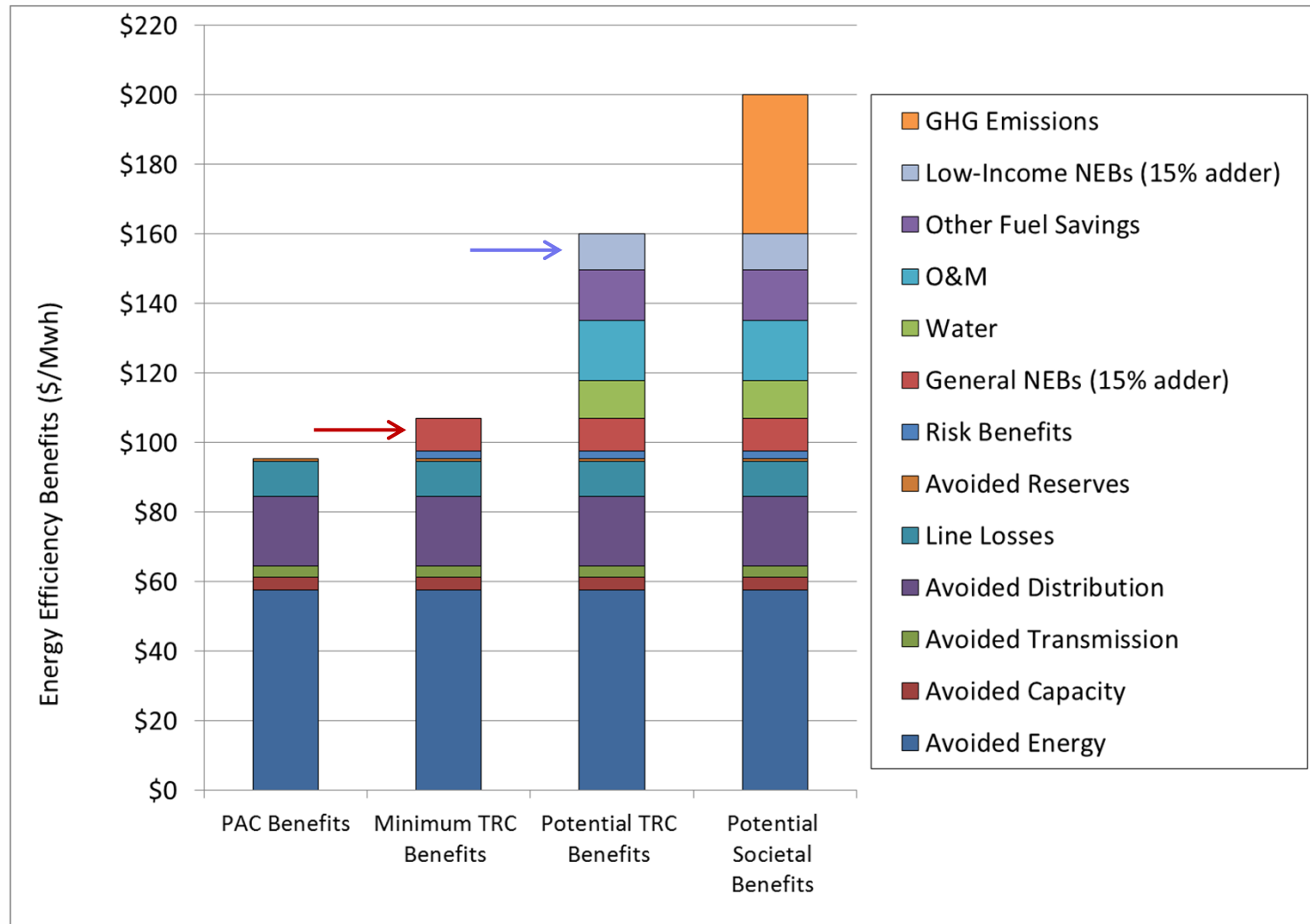
Accounting for Non-Energy Benefits

OPI Category	Examples	States Using
Utility NEBs	<ul style="list-style-type: none">• Reduced arrearages• Improved customer service	MA, RI, VT
Low-Income NEBs		ALL
Participant NEBs	<ul style="list-style-type: none">• Productivity• Comfort• Health• Operations & Maintenance Costs	DC, MA, NY, RI, VT
Societal NEBs	<ul style="list-style-type: none">• Environmental benefits• Economic development• National security	DC, RI, VT

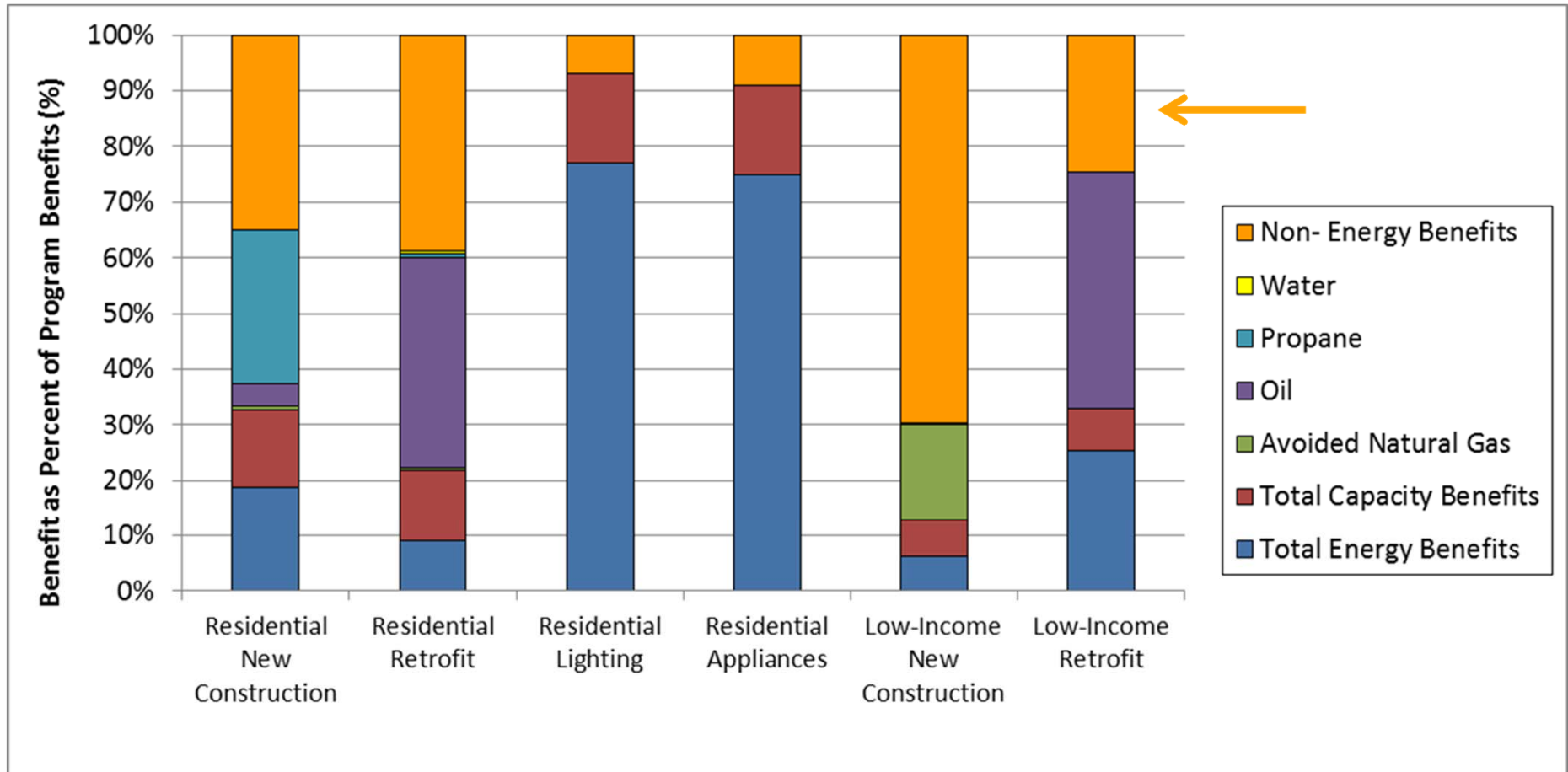
Different Approaches to Non-Energy Benefits

	CT	DE	DC	MA	NY	NH	RI	VT
Type of NEB:	PAC	TRC	Societal	TRC	TRC	TRC	TRC	Societal
Utility	None	None	part of 10% adder	Qantified	None	None	Qantified	Qantified
Low-Income	Qualitative	None	part of 10% adder	Qantified	Qualitative	Qualitative	Qantified	30% adder
Equipment	None	None	O&M quantified	Qantified	Qualitative	None	Qantified	O&M quantified
Comfort	None	None	part of 10% adder	Qantified	None	None	Qantified	part of 15% adder
Health&Safety	None	None	part of 10% adder	Qantified	None	None	Qantified	part of 15% adder
Property Value	None	None	part of 10% adder	Qantified	None	None	Qantified	part of 15% adder
Societal	None	None	part of 10% adder	None	None	None	Qantified	Quantified

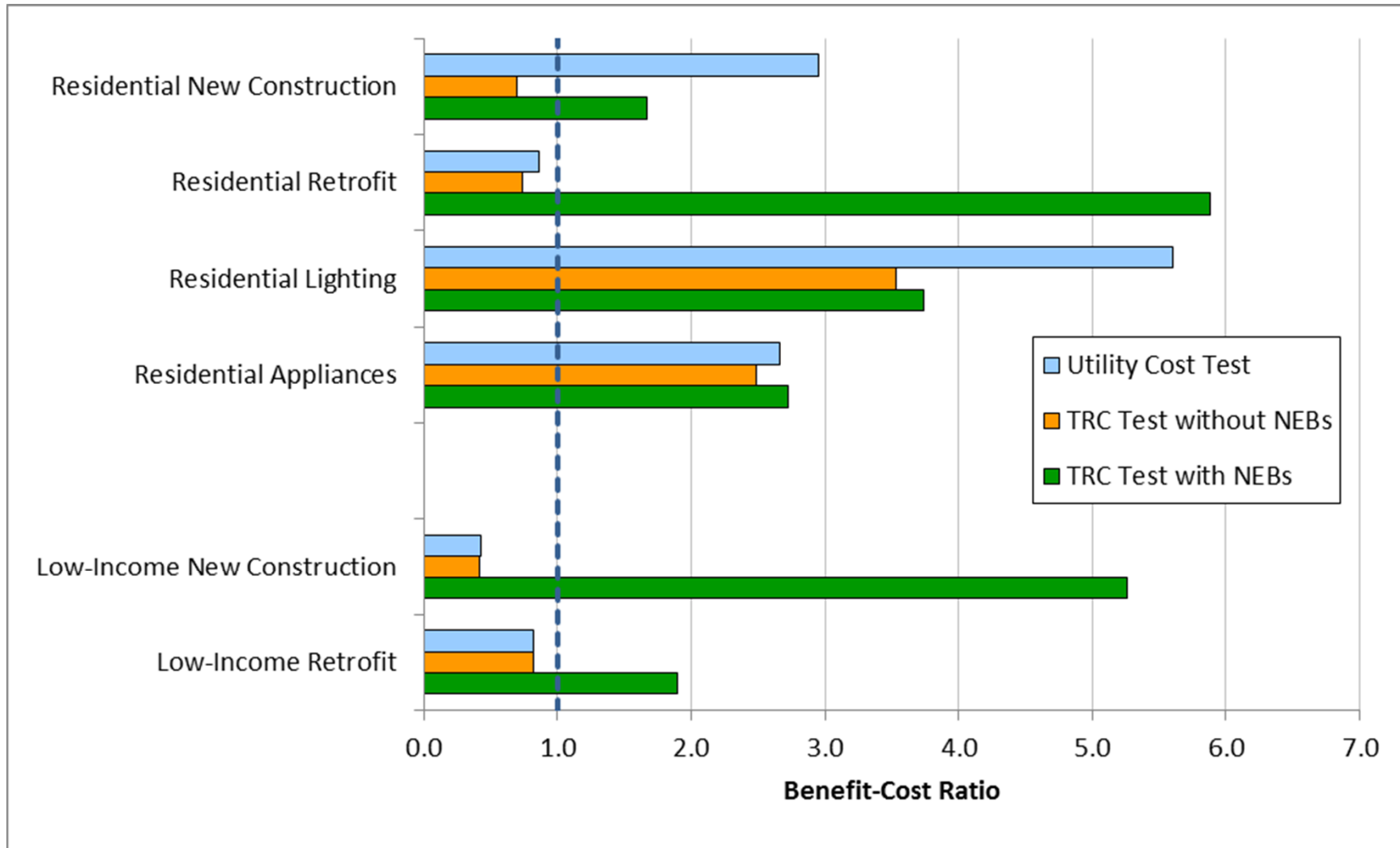
One Approach to Non-Energy Benefits: VT



A More Detailed Approach to Non-Energy Benefits: MA



Potential Magnitude of Other Program Impacts: MA



General Recommendations

1. Recommendations for how each state's screening practices can be aligned with its energy policy goals.
2. Recommendations on specific screening practices that warrant attention from the Forum.
 - Treatment of non-energy benefits.
 - Selection of discount rates.
 - Treatment of risk.
3. Recommendations for potential Forum research:
 - Identify transferable information; develop better estimates of non-energy benefits; develop a common method for determining the discount rate.

More specific recommendations are provided in the Forum Energy Efficiency Screening Survey.

Next Steps for the Forum Cost-Effectiveness Guidance And Research Project

- Phase 1: Survey Complete.
 - Available at: neep.org/emv-forum/forum-products-and-guidelines.
- Phase 2: Currently being debated by Forum Subcommittee.
 - Option 1: Utilize the results of the Energy Efficiency Screening Coalition (EESC), when available.
 - Option 2: Prepare a NEEP Forum report in parallel with the EESC.
- Phase 3: To be determined later, during or after the completion of Phase 2.



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Appendix

Several Slides That May Be Of Use

Relevant Literature

- ACEEE 2012. American Council for an Energy Efficient Economy, “A National Survey of State Policies and Practices for the Evaluation of Ratepayer-funded Energy Efficiency Programs,” February 2012, available at: <http://www.aceee.org/research-report/u122>.
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- Synapse 2012a. Synapse Energy Economics, Inc., “Best Practices in Energy Efficiency Program Screening: How to Ensure that the Value of Energy Efficiency is Properly Accounted For,” prepared for the National Home Performance Council, July 2012, available at: <http://www.synapse-energy.com/Downloads/SynapseReport.2012-07.NHPC.EE-Program-Screening.12-040.pdf>.
- Synapse 2012b. Synapse Energy Economics, Inc., “Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for Other Program Impacts and Environmental Compliance Costs,” prepared for Regulatory Assistance Project, November 2012, available at: <http://www.synapse-energy.com/Downloads/SynapseReport.2012-11.RAP.EE-Cost-Effectiveness-Screening.12-014.pdf>.

Different Cost-Effectiveness Tests Defined

	Program Administrator Cost Test	Total Resource Cost Test	Societal Cost Test
Energy Efficiency Costs:			
Program Administrator Costs	Yes	Yes	Yes
EE Measure Cost: Program Financial Incentive	Yes	Yes	Yes
EE Measure Cost: Participant Contribution	---	Yes	Yes
Energy Efficiency Benefits:			
Avoided Energy Costs	Yes	Yes	Yes
Avoided Capacity Costs	Yes	Yes	Yes
Avoided Transmission and Distribution Costs	Yes	Yes	Yes
Wholesale Market Price Suppression Effects	Yes	Yes	Yes
Avoided Cost of Environmental Compliance	Yes	Yes	Yes
Other Program Impacts (utility perspective)	Yes	Yes	Yes
Other Program Impacts (participant perspective)	---	Yes	Yes
Other Program Impacts (societal perspective)	---	---	Yes

Other Program Impacts Defined

Other Program Impacts (OPIs) include other resource benefits and non-energy benefits:

- Other Resource Benefits
 - ✓ Gas savings (for electric utilities)
 - ✓ Electricity savings (for gas utilities)
 - ✓ Oil, propane, wood savings
 - ✓ Water savings.
- Non-Energy Benefits (NEBs)
 - ✓ Utility-perspective.
 - ✓ Participant-perspective.
 - ✓ Societal-perspective.

Examples of Non-Energy Benefits

- **Utility Perspective:**
 - Reduced arrearages.
 - Reduced carrying costs on arrearages.
 - Reduced bad debt.
- **Participant Perspective:**
 - Improved safety.
 - improved health.
 - reduced O&M costs.
 - increased worker and student productivity.
 - increased comfort.
 - reduced water use.
 - improved aesthetics.
- **Societal Perspective:**
 - Environmental externalities.
 - Health care cost savings.
 - Reduced reliance on fossil fuels.