

New Approaches to Cost-Effectiveness Testing

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NATIONAL HOME PERFORMANCE COUNCIL

- National stakeholder organization
- Takes on challenges to the home performance industry
 - Reducing data-related pain and suffering through standards
 - Making the value of energy efficient homes visible
 - Intersections between smart grid and home performance
 - And cost-effectiveness testing

THE CHALLENGE

- Current test implementation consistently understate the value of energy efficiency resources
- Result: Energy efficiency opportunities are not fully exploited, resulting in higher energy costs and other lost benefits
- Test implementation tends to focus on risks of action – *inaction also involves risks*
- *How do we ensure that C/E tests fairly and appropriately value demand-side resources?*

THE CHALLENGE: 50 STATES

- National problem: plays out differently in different states
- Pacific Northwest is thoughtful and advanced regarding cost-effectiveness issues
- In other areas, efficiency programs may be stunted, constrained, or never get off the ground because of cost-effectiveness tests

LIMITATIONS OF EXISTING C/E TESTS AND TEST METHODS

- Benefits often not thoroughly accounted for – particularly significant problem in case of participant and other hard-to-quantify benefits
- No adequate or consistent method for accounting for public policy considerations
- Testing methods are used inconsistently and without reference to best practices

LIMITATIONS: HARD-TO-QUANTIFY BENEFITS

- Participant costs can be very significant for some programs (whole house, multifamily, C &I etc.)
- Significant evidence suggests the corresponding participant benefits exist – but can be very hard to quantify, and are often ignored Other societal-level benefits may also be hard to quantify, particularly over a 25-50 year time frame
- As a result, costs consistently considered, benefits inconsistently considered (i.e. lack of symmetry)





LIMITATIONS: METHODS ALL OVER THE MAP

- Tremendous variation in which tests are used, and how tests are applied
- Some differences are important and appropriate
- Others: not so much
 - Example: assumptions about energy saved per measure: one state assumes a measure saves one fifth the energy as a neighbor state
 - No accounting for many crucial avoided costs

LIMITATIONS: THE PUBLIC INTEREST IS MISSING

- Energy efficiency affects many public policy goals
 - Reduces long-term energy costs
 - Assists low-income customers with high energy burdens
 - Increases the diversity of energy resources
 - Improves system reliability
 - Reduces fossil fuel use
 - Reduces long term environmental impacts of energy
 - Promotes economic development
 - Reduces the externalities of energy price volatility
- These public policy considerations often not taken into account in tests as currently applied







ANOTHER PERSPECTIVE: THE RESOURCE VALUE FRAMEWORK

- Start with either a “utility system” or “total / societal” perspective – both legitimate
- Use RVT worksheet
- Symmetry is crucial: fully account for costs *and* benefits
- Use a toolkit of methods to address the hard-to-quantify benefits
- Take statutes and public policy considerations into account
- Use best practices
- Be transparent

WORKSHEET FOR GUIDANCE

- Coalition is in process of creating a Worksheet for C/E valuation framework
- Method for ensuring transparency and consistency in testing
- Recommends statement of key assumptions: discount rate, level of testing, etc.
- Groups costs and benefits by category: participant, utility, society, etc.
- Based on principle of symmetry: corresponding costs and benefits must be fully accounted for

Assumptions

Utility costs and benefits

Policy costs and benefits

Participant costs and benefits

Resource Value Test			
Program Name			
1 Key Assumptions, parameters and summary of results			
Analysis Level	Program	Analysis Period	
	Portfolio	Discount Rate	
Measure Life			
Projected annual savings		Projected lifetime utility savings	
2 Utility Costs		Utility Benefits	
Program Administration		Avoided Energy Costs	
Incentives Paid to Participants		Avoided Capacity Costs	
		Avoided T&D Costs	
		Wholesale Market Price Suppression	
		Avoided Cost of Environmental Compliance	
		Utility Non-Energy Benefits	
NPV Total Utility Cost		NPV Total Utility Benefits	
3 Policy costs		Policy Benefits	
		Avoided fuel costs	
		Avoided water costs	
		Reduced Air Emissions	
		Reduced GHG Emissions	
		Avoided solid waste costs	
NPV Total Policy Costs		NPV Total Policy Benefits	
4 Participant Costs		Participant Benefits	
Participant Contribution		Other Fuel Savings	
		Water and Sewer Savings	
		Reduced O&M Benefits	
		Health Impacts	
		Employee Productivity	
		Comfort	
		Other Participant Non-Energy Benefits	
NPV Total Participant Cost		NPV Total Participant Benefits	
Total Costs and Benefits			
Total Costs		Total Benefits	
Benefit-Cost Ratio		Net Benefits	

THE ETERNAL QUESTION: WHICH TEST?

TWO BIG PERSPECTIVES

- “Utility system” perspective
 - Is this resource less expensive for the utility than other resources?
 - Does not allow for consideration of public policy objectives (low-income, other fuels, etc.)
- “Total” / “Societal” perspective
 - Do the total benefits of the program outweigh the total costs – a large, abstract question
 - Comprehensive in theory, but extremely difficult to apply consistently in practice due to problems of monetization and quantification
 - In some states, certain costs and benefits have been ruled as beyond the purview of commissions

TAKE CARE WITH THE TRC

Slippage between “utility and ratepayers” and “society”

In our view, once the screening test is expanded to include the total cost of a resource, then the perspective of the test has shifted from the utility perspective to the societal perspective.

TWO PERSPECTIVES: TWO ENDS OF THE SPREADSHEET

- Utility perspective is the first category on the worksheet
- “Total” / “Societal” perspective is the entire worksheet

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MAKE A FULL ACCOUNTING OF PUBLIC POLICY GOALS

- List public policy goals, particularly if they're enshrined in statute
- This represents an addition to the traditional Utility test
- Address the question: is a program in the public interest?

MAKE A FULL ACCOUNTING OF PUBLIC POLICY GOALS

- In the case of the “total” perspective, full spectrum of costs and benefits should be considered by definition
- That said, a commission may not be able to consider some factors as a matter of law
- Can reduce “total” perspective to something like TRC
- Bringing policy explicitly into the analysis is a useful exercise

- A public interest perspective is entirely legitimate
- A public interest perspective is crucial

“Do we want it? Can we afford it?”

SYMMETRY

- If costs are included in a test, the associated benefits must also be included
- Costs and benefits must be accounted for even if they are difficult to monetize or quantify
- If benefits cannot be reasonably included in the test, the costs should also be excluded (or balanced using reasonable proxy values)

ADDRESSING THE UNQUANTIFIABLE

- Monetization: useful if possible, NOT zero, even if difficult
- Quantification: impacts in non-monetary terms
- Proxy adders: adjustments meant to provide best approximate value
- Alternative screening benchmarks: change to the threshold a program is required to clear
- Regulatory judgment

KEEP THE BABY...

GET RID OF THE BATHWATER

- It may be OK to make the decision to decide it's too difficult or too expensive to implement a rigorous study
- \$30 million on NEB studies in unnamed Eastern state
- BUT – if benefits are removed, the associated costs must be as well

BEST PRACTICES

- Best practices still important
- Guidance from national organizations
 - NHPC / Synapse Best Practice report
 - RAP “layer cake” and other reports
 - Upcoming NEEP report
- Examples:
 - Fully capturing all avoided costs
 - No field C/E testing at the measure level

TRANSPARENCY

- Inputs and methods should be clear and transparent
- *Use the worksheet to make inputs and assumptions clear to all stakeholders*

DISCOUNT RATE

- Discount rate should be low to reflect the low-risk nature of energy efficiency investments, and the fact that these investments are funded by rates rather than private capital
- *Example: After receiving extensive stakeholder comments, the MA DPU June 2013 determined that the discount rate should be based on the average yield of 30-year Treasury notes from the previous twelve months*

IS THE CONSUMER PROTECTED?

- The Participant test provides some consumer protection
- The Utility test indicates whether *total bills* will rise or fall
- What does the TRC / Societal test add? Answers a relatively abstract question: is this the most cost-effective resource for “society”
- A program can pass both the Participant and the Utility tests, but fail the TRC / Societal test

THE RATE CHALLENGE

- May need more research on rates: difference between short- and long-term rate impacts
- But large programs could theoretically have noticeable rate increases
- Paradoxically, one solution to the challenge of rate increases is to *expand* programs so that consumers in need can take advantage of them

NHPC ACTION PLAN FOR C/E TESTING REFORM

1. Secure broad consensus of industry experts on outline change that achieves consistent, fair and equitable valuation, and incorporation of short and long term values.
2. Present a position paper outlining a new Resource Value Framework based on this consensus at NARUC in November
3. Build a coalition to advocate in regulatory and legislative forums for the adoption of that Resource Value Framework
4. Intervene in key regulatory or legislative proceedings
5. Educate stakeholders on the importance of fair and effective valuation

NHPC FAIR VALUATION CAMPAIGN

- Support a Resource Value Framework that includes Public Interest considerations as an alternative to existing tests
- Support use of working and test principles
- Support best practices
- Develop reasonable proxy values for hard-to-quantify benefits
- Looking towards drafting a new Industry-wide Standard Practice Manual
- *Seeking co-signers*

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Thank you!

