New Approaches to Cost-Effectiveness Testing

Robin LeBaron, NHPC

Presentation at the Oregon Home Performance Guild Second Annual Conference
October 29th, 2013
Robin LeBaron

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
• 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 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
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

<table>
<thead>
<tr>
<th>Analysis Level</th>
<th>Program</th>
<th>Analysis Period</th>
<th>Discount Rate</th>
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<tr>
<td>Measure Life</td>
<td>Portfolio</td>
<td>Discount Rate</td>
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<td>Projected annual savings</td>
<td>Projected lifetime utility savings</td>
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## Utility Costs and Benefits

<table>
<thead>
<tr>
<th>Measure</th>
<th>Utility Costs</th>
<th>Utility Benefits</th>
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<tbody>
<tr>
<td>Program Administration</td>
<td>Avoided Energy Costs</td>
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<tr>
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## Policy Costs and Benefits

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<td>Avoided fuel costs</td>
<td>Avoided water costs</td>
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<td>Reduced GHG Emissions</td>
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## Participant Costs and Benefits

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<td>Participant Contribution</td>
<td>Other Fuel Savings</td>
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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
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
• 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 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 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
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


Seeking co-signers
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Thank you!