
Identifying and Valuing Non-Electric Benefits

A Participant Value Estimation Approach

for a

Custom Commercial Program

July 19, 2007

ACEEE Non-Energy Benefits Workshop
Washington DC

The Sponsors

- National Grid
- NSTAR
- Northeast Utilities
- Unitil
- Mass Department of Public Utilities

Massachusetts Utility Companies C&I Custom Program

- Incentives a wide range of technologies within commercial and industrial facilities
- Projects need to provide cost effective energy savings
- Engineering review and cost effectiveness approval required

Types of Measures

- Compressed air
- HVAC & EMS controls
- HVAC equipment
- Refrigeration
- Water Treatment
- Motors, VFDs, Fans, Pumps
- Re-commissioning
- Process equipment
- Non-prescriptive lighting
- Other as approved

Massachusetts allows NEB in cost effectiveness analysis

- Desire to acquire a more complete picture of costs and benefits
- Wants to have a planning-value for NEB for cost effectiveness projection
- Has attempted different ways of valuing NEB for both prescriptive and custom programs

Massachusetts experience

- Has been able to forecast NEB values for their standard prescriptive programs
- Has not been able to value NEBs at a level of reliability needed for the Custom Programs
- Launched a trial project with TecMarket Works

The Approach

- Could not be based on perceived or soft benefits
- Needed to be reliable, based on real benefits with real economic value
- Approach needed to be transparent and replicable
- Approach had to be supported by the IOUs and the regulatory agency

Solution: Two-Step Approach

Use a prospective and a retrospective approach

- 1. Prospective: Engineering analysis of predictable NEBs based on project-specific analysis.
 - Natural gas savings
 - Fuel oil savings
 - Water savings
 - Etc.

Solution: Two-Step Approach

Use a prospective and a retrospective approach

- 2. Retrospective: Based on interviews with participants 6 to 9 months after installation of technology

Note: We are only looking at the retrospective process in this workshop.

Non Electric Benefits Covered

- heating gas
- non-heating gas
- fuel oil
- fresh water
- wastewater
- output volumes or sales levels
- labor costs
- operation and maintenance costs
- materials and material handling costs
- wastes, spoilage or defect costs (non-water)
- spoilage or error rates
- rental or facility-related revenues
- transportation costs
- pollution or emission levels
- other benefits

The Interview – Identify the categories

1. As a result of the installation and use of <Item A> has your company experienced a change in the:

	No or <u>Not Sure</u>	<u>Yes</u> <i>If yes</i>
• Use of natural gas used for heating your facility	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete A string</i>
• Natural gas used for purposes other than space heating	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete B string</i>
• The amount of fuel or heating oil used in your facility	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete C string</i>
• The amount of fresh water or processing water used	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete D string</i>
• The amount of waste water or discharge water created	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete E string</i>
• The level of product/service output volumes or sales levels	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete F string</i>
• The level of labor needed for your facility (non-O&M)	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete G string</i>
• Facility operations and maintenance costs	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete H string</i>
• The cost of supplies, materials and materials handling	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete I string</i>
• The amount of waste, product spoilage or defects	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete J string</i>
• The level of rent received or facility-related revenues	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete K string</i>
• Transportation or materials movement costs	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete L string</i>
• Pollution or emissions levels	<input type="checkbox"/>	<input type="checkbox"/> <i>Complete M string</i>

If they identify a category...

A2. You said that you have experienced a change in the <<NEB Category>> . Have you experienced an increase or decrease in the amount of <<NEB Category>>?

- 1. Increase
- 2. Decrease
- 3. DK/NS (*Skip to the next applicable string*)

A3. How did the implementation of <Technology A> <increase/decrease> the amount of << NEB Category>> at your company?

open ended response

A4. We would now like to know what the financial value of this change means to your firm. If you were to calculate the amount of <<NEB Category>> affected and the value of this change, how would you do that and what would be the resulting values?

Work with them to identify, calculate and value benefit

Confirm the values and totals...

- O1. Overall, you indicated a dollar value increase/decrease associated with the following categories.

Read back the categories and the values provided.

- Fill in total: \$ _____
- O2. Together, these benefits total \$ _____. Would you say that this is a reasonable estimate of the total non-electric energy value associated with the installation and use of <Technology A>, or would it be somewhat lower or higher than this estimate because we counted some of these benefits twice, or for any other reason?
- O3. Can you tell me why you think the estimate should be higher or lower?
- O4. What would you say is a reasonable estimate?

Estimate the lifetime...

A5. If you were to estimate the number of years over which you would expect this change to last, what would be your best estimate?

- Best estimate of life of change: _____ Years.

Preliminary Percent of Participants Reporting Benefits

Benefit Category	Percent
Facility operations and maintenance costs, including associated labor	58%
The amount of fresh water or processing water used	21%
The amount of waste water or discharge water created	17%
Use of natural gas used for heating facility	13%
The cost of supplies, materials and materials handling	13%
The amount of product spoilage or defects	13%
Solid waste or other pollution and emissions levels and handling costs	13%
Administrative or other labor not associated with operations or maintenance	13%
Transportation or materials movement costs	8%
The level of product/service output volumes or sales levels	8%
The level of rent received or facility-related revenues	4%
The amount of fuel or heating oil used in the facility	4%
Natural gas used for purposes other than space heating	4%
Insurance, licensing and other fees	4%
Other benefits	4%

Preliminary Findings: Benefits

- Electric savings \$ 4,600,000 82%
- Non-electric savings \$ 1,000,000 18%
- Totals \$ 5,600,000

- Energy savings \$ 4,672,000 83%
- Non-energy savings \$ 92,8000 17%

Remember: These are real achieved benefits with real monetary value to the operations of the companies.

Discussion

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