

# Custom NEBs: Are They Worth It? - Experiences, Challenges, and Directions in Massachusetts

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## ABSTRACT

This paper is the first public presentation of the context and past experience in Massachusetts with estimating non-electric benefits (NEBs) from commercial and industrial custom energy efficiency projects. It reviews the challenges experienced in applying an initial approach, the study and decision to move to a different approach, the details of that prospective/retrospective approach, and the early experiences with the new two-part approach, including preliminary findings.

## Introduction

Non-electric benefits (NEBs) are benefits other than electricity savings associated with the implementation of an energy efficiency project. Identification and quantification of these benefits may be helpful in a number of ways. On a project level, inclusion of NEBs may help guide customers in their financial decision-making about a project and contribute to the cost effectiveness of projects and their eligibility for incentive payments under energy efficiency programs. On a program or portfolio level, the addition of NEBs may enhance the program's perceived value by stakeholders and support regulatory purposes, such as encouraging program administrators to maximize portfolio value.

In Massachusetts, quantification of NEBs began in 2001 with assessment of the value of certain non-electric benefits that were generated by residential programs. In 2003, Massachusetts program administrators (PAs)<sup>1</sup> agreed to a set of benefits associated with commercial and industrial prescriptive projects, and began including these benefits in measure and program cost-effectiveness testing, as well as estimations of program value. Program value is a component of the shareholder incentive mechanism in Massachusetts that rewards energy efficiency PAs for program achievements. The value targets for the incentive are established in program planning, prior to the program year. After the program year, actual implementation results are evaluated and reported. The incentive is awarded based on achievements relative to the targets that were established in program planning.

By 2004, in Massachusetts, NEBs were being counted for all sectors and programs except for commercial and industrial (C&I) custom projects that were part of PAs' new construction and retrofit programs. C&I custom projects are often one-of-a-kind energy efficiency projects, unique to a customer, its business, equipment, and/or processes. Massachusetts PAs agreed to count C&I custom NEBs in the establishment of the overall program value targets for 2004 and, thus, as a component of the shareholder incentive mechanism as well.

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<sup>1</sup> The four Massachusetts Program Administrators involved in this effort were NSTAR Electric and Gas, National Grid, Unitil, and Western Massachusetts Electric Co. The fifth PA, Cape Light Compact, has very few C&I custom projects and declined to participate.

This paper describes the experiences with custom NEB estimation in Massachusetts and emerging directions.

## Custom NEBs 2003-2006

To develop an estimate of C&I custom NEBs for the 2004 program plan, Massachusetts PAs pooled data on custom projects installed or studied in 2003. Some of the NEB savings estimates were identified in technical assistance (TA) reports that are done by outside vendors at the initiation of a project to describe recommended energy efficiency projects and estimate their electric savings. Other NEB savings were developed by PA staff through analyses of projects for which the TA failed to identify any NEBs. Each NEB quantity was multiplied by approved statewide values of \$/MMBtu or \$/gallon and summed to determine an aggregate value of NEBs in dollars, from the 2003 projects. This dollar value was divided by the kWh savings associated with all custom projects installed in 2003—even those that had no NEBs—and a predictive NEB index in \$/kWh was derived. The value of custom NEBs for the 2004 plan and incentive was determined by multiplying the NEB \$/kWh index by the aggregated custom measure savings included in each program administrator’s 2004 plan.

During 2004, PAs relied primarily on outside TA vendors to estimate custom NEB benefits at the initiation of efficiency projects. The NEB estimator was to work with the project materials and the customer to arrive at an identified benefit, present the calculation approach, and document it in their report to the customers. As noted by one of the PAs, “this approach [for NEBs] is the same approach we use for estimating kWh impacts.” NEBs were not included in custom project cost-effectiveness screening or rebate calculations. Occasionally they would be included in presentation of project benefit/cost estimations to customers.

Field implementation personnel, both from program administrators and external engineering consultants, were given training in coordination with the introduction of custom NEBs into program plans. This training consisted of face-to-face meetings as well as the distribution of a detailed six-page “NEB User Guide” which focused on identifying and documenting NEBs. NEB savings were collected in nine different categories as shown in Table 1. The “other” category essentially allowed any non-electric benefit, as long as it was quantified and documented.

**Table 1.** NEB Categories

<b>NEB</b>	<b>UNITS</b>	<b>DETAILS</b>
Oil	Gallons	all fuel oil used, identified as #2, #4, or #6
Gas, heating	Therms	natural or propane gas used for heating applications
Gas, non-heating	Therms	natural or propane gas used in non-heating applications
Water	Gallons	
Wastewater	Gallons	
Labor	\$	in-house or contract labor costs for production, training, or maintenance, including overhead costs
Material	\$	production or maintenance, including scrap reduction
Site Environmental	\$	e.g., hazardous waste handling, NOx credits, landfill
Other	\$	e.g., reduced product spoilage, increased rental or production revenue, transportation costs

The PAs' experiences in 2004 were mixed. Despite the training and frequent reminders to field personnel to assess NEBs, NEBs were identified for only between 5% and 15% of all custom projects. The success of this effort seems to be somewhat varied across the PAs, and only NSTAR had some confidence in their NEB data collection effort. Field personnel only identified the most obvious NEBs (typically fuel and water savings) and did not possess the familiarity with project impacts to be able to predict some of the other expected impacts. No projects reported material or site environmental savings. The PAs noticed that many TA vendors either did not conduct the assessment or neglected to identify that the assessment was conducted and no benefits were identified. Field personnel had many other competing priorities and, while they may have been aware of the contribution of NEBs to the overall shareholder incentive, they had no direct incentive to focus their efforts or technical assessment budgets on the novelty of NEB identification. Some PAs indicated that they had to bring the assessment estimation process back in-house as a result of poor vendor performance.

During 2004, PAs tracked the value of NEBs achieved relative to the target established in their respective plans. While program administrators achieved their NEB value goal, PAs felt that this was more the result of chance than having successful procedures in place to handle the prediction and identification of custom NEBs. For example one PA was at 10% of its NEB value goals in November but still made its goal at year-end due to the completion of one large project that generated many million dollars in estimated labor savings. The Massachusetts PAs concluded that program level NEB value could not be reliably predicted for the purposes of setting goals and, therefore, the shareholder incentive was an ineffective means of promoting custom NEBs. PAs and other stakeholders agreed to suspend the C&I custom NEB value assessment and not include them in program planning.

Over the course of 2005-06, PAs worked to improve the existing approach toward data collection of custom non-electric benefits. PAs agreed to quantify NEBs for a certain number of custom projects each year in order to keep NEB assessment in the minds of field implementation personnel. To help streamline the process, the number of NEB categories tracked was reduced to six, collapsing all non-resource impacts into one "other" category.

NEB identification slowly moved up the learning curve as a result. Table 2 shows National Grid's NEB collection data for 2004-2006 in Massachusetts. It shows that the percent of custom projects for which NEBs were identified was increasing over time, and that the majority of NEBs being identified were resource NEBs. Nevertheless, the PAs were still uncertain whether NEB data could be used to establish reliable estimates for predicting future program year NEB quantities.

**Table 2.** National Grid NEB Data Collection in Massachusetts, 2004-2006

Year	Project w/NEBs	Population	%	NEB Type		
				Resource Only	Non-Res. Only	Both
2004	21	206	10	4	15	2
2005	21	160	13	13	7	1
2006	34	174	20	20	9	5
TOTAL	76	540	14	37	31	8

## Developing a New Approach

Massachusetts PAs commissioned a study to establish reasonable methods for estimating and predicting the quantity of C&I custom NEBs, i.e., MMBtu of natural gas, gallons of oil or water, and dollars

for non-resource NEBs. The PAs selected TecMarket Works of Oregon, Wisconsin, to review their previous custom program assessment approach, assess the costs and benefits of NEB data collection, and recommend whether NEBs from C&I custom measures should be assessed as part of program planning. If the recommendation was positive, TecMarket was to further recommend an assessment process that would reliably identify and quantify NEBs and their associated quantities.

TecMarket Works interviewed utility representatives to better understand the utility-specific experience and perspectives collecting and processing the NEBs data. This effort was intended to compare the methods in the field employed by the participating utilities to the jointly devised 2004 NEB data collection plan. Three interviews were conducted with representatives from National Grid (NGrid), Western Mass Electric, and NSTAR Electric and Gas Corporation. Representatives from Unitil were not interviewed, on their recommendation, since they had not collected any custom NEBs data in 2004.

TecMarket's findings (2006) provided greater understanding of the experiences of the PAs in 2004. Their findings are summarized below.

### **Training and User Guide**

Training was not uniform among the PAs. Western Mass relied on "on the job" training through the User Guide and project-specific conversations with engineers for training, rather than formal training. NGrid held a vendor meeting in early 2004 and a couple of meetings with the technical assistance staff during the year who were also at the first meeting in early 2004. NSTAR has monthly meetings with vendors and utility staff to discuss all aspects of their work, including NEB data collection, as well as interaction as needed on a project-by-project basis. No additional formal training was provided, but NSTAR was satisfied that NEB data was being successfully collected.

The User Guide was designed by the Program Administrator NEB working group based on their understanding of NEBs, which was further developed than implementation personnel's understanding. The Guide was overly explanatory, instead of providing a simple set of directions. Consequently, there was a significant disconnect between the User Guide and its intended audience. Western Mass personnel felt it raised more questions than it answered. NGrid and NSTAR were sure that field staff had access to the User Guide, but were not sure if they were using it or not.

### **NEB Identification and Quantification**

TecMarket found that field staff generally did not have problems identifying the NEBs experienced by the customer. What was difficult for the individuals conducting the assessments was gathering sufficient information about specific NEBs in order to quantify them. TecMarket suspected that this was because the assessment was a prospective assessment requiring the collection of information about events that had not yet occurred.

It was not clear if the low numbers of reported NEBs indicate that the vendors missed NEBs or if they reported the correct quantities of NEBs for the projects. Regardless, vendors overall felt it took a lot of effort to collect the NEBs, both to understand what the utility was asking for and to modify their own approach and analytical tools.

### **Impact on Customers**

One goal of NEB identification and collection was the potential of these added benefits to be considered in participant decision-making about whether to proceed with a project or not. Western Mass representatives didn't feel that the NEBs ever influenced the participants' investment decision. Even though

the NEBs were discussed with the customer, the utility never received feedback as to whether this condition factored into the participants' decision-making process. The NSTAR representative had a more optimistic view of the influence of NEB data on participant decisions and reported that, of the projects with at least one reported NEB, it may have influenced a decision 15 to 20 percent of the time.

### **Cost of Data Collection**

Based on PA experience, the typical TA study costs about \$7,500 when conducted by vendors. Anecdotal data suggested that the non-electric benefit assessment added about 5 to 10 percent to this cost for a total of about \$375 to \$750 per NEB assessment. The cost of the TA study is split between the PA and the participant. As a result, the average cost to a PA of the assessment for non-electric benefits is \$187 to \$375 per study. In aggregate, Massachusetts PAs spend about \$1.2 million per year on TA studies, so about \$60,000 to \$120,000 would be spent assessing NEBs, of which the participant covers about \$30,000 to \$60,000 and the PAs cover an identical amount. Not all custom projects are supported by TA studies. Some are supported by vendor estimates while others are based on analyses by in-house staff.

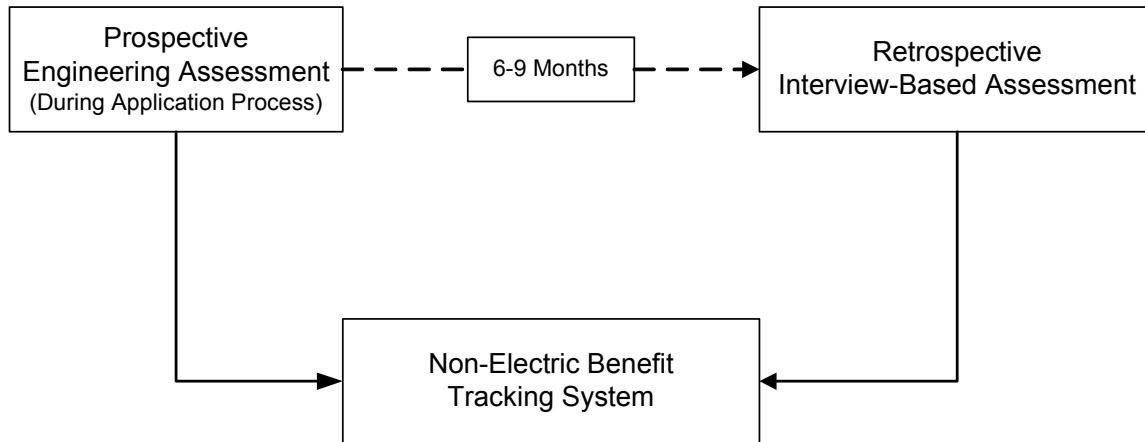
### **Overall Assessment**

The overall impression of the 2004 effort was that the effort was uneven among the PAs. NGrid noted that the utilities' lack of experience collecting NEB information was a major part of the issue. PAs were still climbing the learning curve, in knowing what was a NEB, how to collect sufficient data to value it, and have enough data to be able to predict NEBs at the program level. The NGrid representative noted, "We're not good enough collecting what is out there, so how can we predict it?" Western Mass felt that it did not help that the customers did not readily see the value of collecting NEB information. On the other hand, NSTAR felt that the collection of NEBs was not a challenge.

### **Recommended Approach**

While there were many difficulties encountered with the 2004 effort to identify and quantify NEBs, based on its assessment of the NEB identification and quantification efforts, TecMarket found that the experiences to date had laid a good foundation on which a more successful NEB assessment protocol could be built. They concluded that NEBs from C&I custom measures could reliably and cost effectively be identified and quantified as part of program planning and implementation. TecMarket made several recommendations for an improved NEB assessment process for use by the Massachusetts PAs.

TecMarket's central recommendation was to implement a dual approach system which involves both a prospective assessment similar to the approach used since 2004 and a retrospective assessment conducted 6 to 9 months after the technology is installed and the measures have been used enough for customers to be able to identify NEBs and quantify them. They recommended that this approach be strongly coordinated among the PAs and that a tracking system be established to enable pooling of data across PAs. An overview of this approach is presented in Figure 1.



**Figure 1.** Recommended Dual Approach

As recommended by TecMarket, the dual assessment approach would be supplemented by clearer and more comprehensive vendor and staff training on the prospective approaches to valuing non-electric benefits. The training would inform staff and vendors of the importance of comprehensive assessments that identify and quantify the applicable benefits over a number of different types of projects. The training would further stress that it is part of the scope of work for TA studies and, as such, will be paid for and is expected to be part of the final report. The tracking system would enable pooling of data across PAs, and facilitate management review and quality control. The overall process should be well structured, managed, and monitored, and the results should be aggressively tracked, reviewed and assessed.

TecMarket recommended that the approach be tested for a period of no less than one program year to a period no longer than two years, and possibly be phased in to allow for testing and proper introduction of some new methods and to build a reliable reference for predictive Custom Program NEB estimates. Following this testing period, the PAs were to assess the results to collectively determine if the quantification of NEBs from the Custom Program is reasonable and should be continued.

TecMarket was confident that with concentrated efforts on collecting quality NEB data, reliable values for predicting NEBs at the program level would begin to emerge within one to two years and that predictive values at the program level will stabilize enough to be used as reliable predictive indices for calculating the value of NEBs at a program level. They were less confident that project-level NEBs could be predicted with a significant degree of accuracy, even after one or two years of testing, because of the variance of the value of the benefits at the custom technology or project level.

## Adopted Approach

The PAs adopted a modified set of TecMarket's recommendations to improve the identification and collection of non-electric benefit data in 2007<sup>2</sup>. The approach involves

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<sup>2</sup> TecMarket further recommended management performance metrics and vendor rewards and penalties. The PAs did not accept TecMarket's recommendation that incentives be given to engineering consultants that performed well because it would have created inequity between NEB assessment work and all of the other work these outside vendors do for the PAs.

- (1) Coordinated vendor and field engineer training
- (2) Pre-screening custom projects for the likely presence of NEBs and including a prospective NEB assessment in the scope of work for qualifying projects' technical assistance studies;
- (3) Surveying customers regarding NEB impacts approximately 6 to 9 months after project installation;
- (4) Collection of cost data for conducting the activities in step (2) and (3); and
- (5) Creating a common system for periodically pooling and analyzing data across all PAs. The PAs agreed to analyze the pooled data in fall 2007 and decide about whether and how to include custom NEBs in 2008 program planning.

Each one of the plan's components is examined in detail below.

### **Coordinated Training**

PAs developed a common training presentation and delivered it first to staff engineering personnel from all four companies, and then to staff engineers plus the most active TA vendors. Trained staff personnel would be counted on to assist other TA vendors who did not attend the training session.

The training sessions consisted of five parts: state of NEBs research; new approaches to assessing NEBs prospectively at project initiation; case studies and field experience; preview of new retrospective NEBs assessment approach, and implementation details.

The training session was delivered by representatives of each of the four PAs and an expert from TecMarket Works. This diverse group of presenters was intended to impress upon the audiences that all PAs were planning to approach NEB assessment similarly for 2007. The TecMarket expert helped make the point that this was not just another requirement from the back office, but that there was significant research and thought behind the recommendations.

In addition to the training, the User Guide was updated for 2007. From its previous wordy version, it was streamlined into a set of practical bulletized instructions under the following topics that were intended to carry the TA community through all phases of the prospective NEB approach:

- When to Quantify NEBs
- When NOT to Quantify NEBs
- What to Quantify
- How to Estimate NEBs
- What to do with the NEB Data
- What NOT to do with NEBs
- What if there are No NEBs
- Administrative Details

### **Prospective Assessment**

The prospective assessment of NEBs recommended by TecMarket is essentially the same as the method used by the PAs since 2004. This is an engineering approach practiced by the TA vendors to identify and quantify NEBs as part of the program application and electric energy savings and technology assessment process conducted in the early stages of the project. Vendors have had some experience with this approach, so there is an established track record that can be built upon, and there is a pre-existing vendor relationship that can be utilized for education and feedback.

The prospective approach is likely to be most successful in identifying resource NEBs. These benefits—in the form of oil, natural gas (for heating or non-heating applications), water, and wastewater impacts—are those that are most closely connected to the energy savings from a project and should therefore be most accessible and quantifiable before project implementation.

The prospective assessment is more expensive than a retrospective assessment. Among all the PAs in Massachusetts, it is estimated that there are between 300 and 400 custom energy efficiency projects per year. If all of them were to be studied prospectively for NEBs at a cost of \$750 per site, this would potentially increase the cost of engineering studies by \$300,000; because of finite efficiency budgets, this increase in funding for studies would have to come at the expense of rebates to customers<sup>3</sup>.

To save time and money, the PAs developed a screening protocol to reduce the number of projects for which a prospective assessment is attempted. The steps in the screening process are as follows:

- If the project is a custom lighting project, a prospective assessment of NEBS should not be done. The non-electric impacts from custom lighting are typically related to heating energy. The PAs accepted the task of developing a predictive algorithm for non-electric benefits as opposed to requiring vendors to perform a site-by-site analysis of non-electric benefits from these projects.
- If the project is one of the technologies included in Table 3, a NEB assessment should be performed. Experience to date indicates that these projects typically have NEBs. Prescreening them removes a step in the prospective assessment process and allows the engineer to proceed to quantification.

**Table 3.** Custom Projects Likely to Have NEBS

END USE	TYPES OF NEBS
HVAC	<ul style="list-style-type: none"> <li>• Heat Recovery -- Fuel savings.</li> <li>• Air to Water Chiller -- Water and chemical impacts</li> <li>• HVAC systems and controls -- Fuel impacts</li> </ul>
Industrial Processes	<ul style="list-style-type: none"> <li>• Injection molding -- Material, waste reduction, hydraulic reduction, and productivity benefits.</li> <li>• VFDs -- Material, waste reduction, hydraulic reduction, and productivity benefits if project affects precision</li> </ul>
Industrial Refrigeration	<ul style="list-style-type: none"> <li>• Reduced spoilage benefits if the project includes better temperature control</li> </ul>
Comprehensive Design	<ul style="list-style-type: none"> <li>• Fuel impacts</li> </ul>

- After the first two screens outline above, the TA vendor should ask the customer if they think the project may have an impact on any of the quantities listed in Table 4. If the customer thinks the project may have an impact, it increases the chances that the vendor will be able to gain enough information to quantify the NEB prospectively. The non-resource categories in Table 4 are more

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<sup>3</sup> This is presented to illustrate the potential cost of TA NEB assessments and the motivation to avoid this expense when it is not needed. Because only about half of all custom projects receive TA studies, and customers typically pay for a portion of the study cost, the actual impact on program budgets would be less than \$300,000.



specific than the categories previously used, in Table 1. This is intended to get the customer to think more concretely about the potential impacts of the project.

**Table 4.** NEB Categories for Customer Interview

Natural gas for heating	Transportation costs
Natural gas for non-heating	Rental or facility-related revenues
Fuel oil	Output volumes or sales levels
Fresh water	Solid waste or other pollution and emission levels
Wastewater	Labor (non operations and maintenance)
Spoilage or defect costs	Operation and maintenance costs
Materials and material handling costs	Insurance, licensing and fees
“Other” benefits	

- Include NEB assessment in the scope of work for the technical assistance study if there is sufficient information to specifically estimate NEBs before a project. This determination is made after the engineer, having identified the type of benefit they plan to assess, defines the information that would be needed to quantify the benefit. If the customer and/or engineer does not have this information, then the quantification cannot take place. For example, if the customer believes that a new process will reduce the scrap rate, but cannot quantify that reduction, the NEB cannot be quantified prospectively. In these cases, the engineer will report the presence of the benefit, but further note that it cannot be quantified prospectively.

Once a measure passes the screening process, the NEB assessment becomes part of the scope of work for the TA study. Under this approach, the engineer may need to communicate with the participant to collect some technology use and application data, examine the information collected or available on the proposed measures and employ his or her professional training as an engineer. The assessment uses standard engineering estimation approaches that are consistent with the measure. For example, if the measure converts a building from air to water cooling, the engineer will estimate the increased amount of water consumption (and wastewater, if any, as well) based on the selected cooling equipment. In general, the engineering calculation approach is always accompanied by a formula or equation that presents the calculations used to estimate the impact.

If the engineer conducting the assessment is unable to develop a NEB calculation, it is acceptable to use some form of a literature derived value to complete the estimate and then provide the source of the stated quantity in the analysis report. Such a value would be an estimate from published or other documentable sources that either identifies impacts for a particular measure, or a similar process. For example, if the vendor or utility field staff only has a brochure from the equipment manufacturer that states the equipment uses 25% less water than the equipment it replaced, the engineer can use that literature-derived stated value to estimate the amount of water to be replaced as long as the information source is recorded in the TA study.

## Retrospective Assessment

However, many of the non-electric benefits cannot be forecasted or quantified via a prospective approach. Typically, participants do not know the full extent of the impacts of installing a more energy efficient measure or group of measures. Or, they may believe there is a benefit, but are unable to provide sufficient information to quantify it before the project is installed. As a result, using solely a prospective approach can mean that many NEBs that can be reliably quantified will be missed. A retrospective assessment, between six and nine months after the installation of a measure, will allow a participant enough time to use the measures, become experienced in their non-electric effects, and be able to discuss the benefits and help place a numeric value on them. This timeframe is short enough that the participant will still remember the benefits and their effects.

To accomplish this Retrospective Assessment, TecMarket Works developed a questionnaire, with input from the PAs. The questionnaire was divided into three parts, an introduction, a set of filtering questions, and detailed NEB assessment.

In the introduction, the interviewer describes the interview and its purpose in contributing to the overall value of the energy efficiency programs, confirms that the interviewee is the correct person to talk to about the impacts of the subject measure, and guarantees confidentiality. In the filtering questions, the interviewer asks the customer if the installed project had an impact in any of the fifteen categories listed in Table 4. If needed, the interviewer can give an example of the type of benefit covered in each category.

If the prospective NEBs assessment conducted at the initiation of a project has estimated the value of the resource NEBs in a particular category, those categories can be skipped during the retrospective assessment. This is because the current goal of the prospective/retrospective NEB assessment effort is data collection for the purposes of determining whether NEBs should be included in estimates of overall efficiency program value. The intent of the retrospective assessment of NEBs is to quantify benefits that were not explicitly covered in the prospective assessment. In this way, the retrospective assessment supplements the prospective assessment of NEBs. If the purpose were to verify the estimates of NEBs, the prospective NEB categories could be covered during the retrospective interview.

For each category where the customer had indicated that the project has had an impact, a set of detailed questions is asked.

- (1) Did the customer experience an increase or decrease in the NEB category as a result of the installed measure?
- (2) How did the implementation of the measure change the NEB category? This is an open ended question intended to draw out the customer's experience and prepare them for attempting to quantify the NEB.
- (3) What is the value of this change? How would the customer calculate the value of this benefit, and what would the resulting value be? This is an open ended question that reveals the customer's estimation process and facilitates review and confirmation. It culminates in a quantification based on that process.
- (4) If the customer is unable to methodically quantify the benefit, the interviewer asks the customer what is their best estimate of the dollar value of the benefit.
- (5) For NEBs that result in a calculated or stated value, the interviewer asks the customer about the expected duration of the benefit in years, for comparison to the expected measure life of the installed measure.

The PAs then asked TecMarket Works to administer the questionnaire to customers who installed custom projects between July 1, 2006, and March 31, 2007. The March 31 cut-off date will allow for

surveys to be completed by the end of September 2007 and contribute to the decision for custom NEB treatment in the 2008 planning cycle.

The decision to hire TecMarket to perform the retrospective assessment in 2007 does not preclude others from administering the interview in the future. Vendors may be in the best position to implement the retrospective assessment because they are already familiar with the customer and the measure installed. Having them do the survey presents the added benefit that they can provide another program touch to the participant, making them feel attended to, and see if the participant wants to proceed with any other energy efficiency measures.

### **Collection of cost data**

For both prospective and retrospective assessments in 2007, those collecting the NEB information are tasked with identifying the cost of NEB assessment. The purpose of this part of the data collection is to aid in an assessment of the worthiness of the NEB assessment process. At this point, the best estimate of the cost of prospective assessment is 5% to 15% of the cost of the TA study. Explicit collection of the incremental cost for the NEB assessment will provide better data.

For the retrospective assessment, TecMarket is conducting batches of interviews and will divide the cost of the interview session among the customers interviewed.

### **System for pooling and analyzing data**

The PAs agreed that for the purposes of deciding how to proceed with NEB assessment for 2008, it would make sense to have as much data on hand as possible. To that end, the PAs agreed to pool NEB data from both prospective and retrospective assessments.

The PAs developed a simple spreadsheet, named the NEB Collection Tool, for collecting NEB data. The spreadsheet was divided into four sections: project ID, NEB valuation, valuation source, and valuation background. The NEB valuation section included the same 15 categories as covered in the prospective and retrospective assessments. The source and background sections are to help document the analysis approach used in the estimation, as well as the cost.

The Collection Tool was distributed to all TA vendors for prospective data collection as well as TecMarket Works. The TA vendors were to enter data in a copy of the spreadsheet for each prospective assessment and send it to their PA contact. Each PA would send data regularly to one PA data manager, who would collect all of the NEB data. TecMarket was to send data periodically to the data manager. All of the data in all of the spreadsheets will be similarly formatted to facilitate combining all the data by fall 2007.

### **Early Experiences with the New Approach**

Joint training took place in December 2006 and final versions of the User Guide and Collection Tool were distributed to program implementation personnel in early 2007. The training was very well received and a few modifications were made to the prospective assessment process that were reflected in the final material that was distributed in January.

As of June, 2007, some prospective data has been collected. Data collection started slowly at first as expected, as the first quarter of the year is usually when projects are getting started. However, some PAs have been slower than expected in disseminating the tools to the field. The retrospective interview tool was first used in April, 2007. PAs are confident that sufficient data will be collected from both methods through September 2007 to inform a decision for 2008.

Early results from the new approach for 2007 for National Grid in Massachusetts are shown in Table 5. The retrospective interviews conducted thus far cover installations from July through September 2006. Through the interviews, NEBs have been identified for 50% of the custom projects. This compares to 28% of these projects having NEBs identified prospectively at the time they were initially processed. (Note that the eligible survey population for the period only includes the 28 projects for which NEBs had not been identified prospectively.) In addition, NEBs have been identified prospectively for 24% of the custom projects installed to date in 2007. This continues the trend of increasing prospective NEB identification seen in Table 2.

**Table 5.** National Grid NEB Data Collection in Massachusetts, 2004-2006

Year	Project w/NEBs	Population	%	NEB Type		
				Resource only	Non-res. only	Both
Jul-Sep 2006 prospective	11	39	28	7	4	2
Jul-Sep 2006 retrospective	5	10	50	0	5	1
2007 prospective	15	63	24	6	5	4

## Conclusions

The prior unreliability of custom NEB prediction, as highlighted by TecMarket Works' review, was due to lack of experience with NEB identification and quantification and, to a lesser extent, lack of data. As opposed to the 2004 goal-setting effort, which was launched with less than one year of experience, implementation personnel have been discussing custom NEBs for over four years. Training has been focused and coordinated. The increase in projects with prospective NEBs, as a percentage of the custom population, is likely the result of the new approach. The retrospective surveys are showing that customers are able to identify NEBs in cases where they could not be identified prospectively. While data collection trends are encouraging, it is premature to predict the outcome of deliberations about once again making custom NEB value a component of program value targets for 2008.

Massachusetts energy efficiency PAs believe that non-electric benefits are real components to the value of the program they offer to their customers. Over the past three-plus years, PAs have tried various approaches to large commercial and industrial custom project NEB estimation that have increased the knowledge base of everyone involved with the projects: PA staff, engineering vendors, and customers. The prospective/retrospective approach being used in 2007 builds on the prior experiences and provides a sound basis for concluding whether custom NEBs can be predicted and quantified for program value estimation in 2008 and future years. This approach, if successful, may be applied outside of Massachusetts as well, to increase the perceived and reported value of energy efficiency as programs continue to evolve.

## References

“Final Approach For Estimating and Tracking The Value of Custom Program Non-Electric Benefits: Strategies for Quantifying Non-Electric Benefits in Custom Program Applications,” TecMarket Works and Summit Blue Consulting, May, 2006.