PA Consulting Group

State of Wisconsin Public Service Commission of Wisconsin

Focus on Energy Evaluation

Impact Evaluation of the Education and Training Program

Program Area: Business Programs

Final Report: November 20, 2008

Evaluation Contractor: PA Consulting Group

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1. EXECUTIVE SUMMARY

This section summarizes the more detailed findings found elsewhere in the report.

1.1 BACKGROUND AND PURPOSE

This report describes research conducted in the spring and summer of 2008 as part of the evaluation plan for the Focus on Energy Business Programs Education and Training (E&T) Program Untracked Savings Study. The purpose of this impact evaluation report is to estimate untracked[1] attributable savings (UAS) resulting from the E&T Program. These UAS are the E&T-attributable portion of energy savings from projects that do not appear in the Focus WATTS or WISeerts databases and were implemented at the building or facilities of the trainees' companies.[2] This report estimates the E&T UAS that occurred in the recent past and uses these past energy savings to project 2008 E&T Program UAS. It also shows how these recent UAS can be used to project UAS for future years.

It is important to note that these untracked attributable savings are different from participant spillover savings that we estimated in previous studies. When we estimated participant spillover effects from the Focus on Energy Business Programs in 2005,[3] we were estimating the level of untracked energy savings that had "spilled over" due to the influence of tracked projects. To credit a project with participant spillover energy savings, we had to find a causal link between the older tracked project and the newer untracked project. For example, a program participant might have had a positive experience with a tracked energy-savings project and decided to implement similar projects in their other facilities. Although in most cases such program participants would have also sought Focus financial incentives for these new projects (therefore making them "tracked projects"), sometimes they did not and these were generally the types of projects that produced participant spillover energy savings.

The untracked attributable savings from the Focus E&T Program that are measured in this report are different from these participant spillover savings. They do not represent spillover from an earlier tracked project, but are the first effects of a clearly-identified program activity

[1] The terms "tracked" and "untracked" indicate whether or not an energy-efficient project appears in the Focus WATTS or WISeerts program tracking databases and therefore were included in the Business Program's *ex ante* gross energy savings claims. In theory any energy-saving project that the Focus program influenced, even if this influence did not include financial incentives, can be claimed in these program tracking databases. In reality, however, the projects listed in these databases are almost exclusively projects that received financial incentives from Focus on Energy.

[2] There were also a handful of trade allies in our trainee sample. Although we did ask the trade allies about the influence of the training courses on their sales practices, the number of trade ally respondents was too small for any estimation of untracked attributable savings for this small subgroup. However, the *Process Evaluation of the Business Programs E&T Education and Training (E&T) Program* does contain a brief summary of these trade ally survey responses.

[3] Miriam L. Goldberg, Christopher Dyson, and Valy T. Goepfrich, KEMA Inc , *Focus on Energy Statewide Evaluation, Business Programs: Participant Spillover Savings Study, Final Report*: December 22, 2005, Evaluation Contractor: PA Government Services Inc.

(e.g., a company representative took a particular training course).[4] This explicit causal link between an E&T Program training course and a specific energy-saving project also distinguishes the E&T Program untracked energy savings from more loosely-defined claims of program market effects where the causal links between program effects and end user behaviors are not clearly defined.

A separate report—the *Process Evaluation of the Business Programs E&T Education and Training (E&T) Program*—discusses other issues related to the training courses. These other issues include training drivers and barriers, barriers to post-training implementation, and other related issues such as awareness of Focus benefits for post-training incentives and the availability of non-Focus training.

1.2 METHODOLOGY

This is a brief summary of the research approach used for this Impact Evaluation. A more thorough description of the methodology is in the detailed section of this report.

1.2.1 The CATI Survey of Trainees

The first step in our impact evaluation was to conduct a Computer-Aided Telephone Interview (CATI) survey of a sample of E&T Program trainees. The survey had a number of research objectives, many of which are described in more detail in the E&T Program Process Evaluation. For the purposes of the E&T Program Impact Evaluation, the main objectives of this survey were to:

- Identify all energy-saving projects that the trainee's company implemented since the trainee took the course along with some basic information about the project needed for future analysis; and

- Obtain trainee's estimates of the influence of the training courses as well as the Focus financial incentives on these implemented energy-saving projects.

We completed CATI surveys with 309 trainees who took E&T Program training courses during the 2004–2007 time period. This was slightly over our target of 300 completed surveys. The total number of trainees in the sample frame was 1,588. The sample allocations (targeted completes) were not purely proportional to the population of trainees, but involved a slight oversampling of the categories having fewer registrants. Post-survey weighting was used to adjust for the oversampling and insure that aggregate results were representative of the population.

[4] This is not to say that the trainees were not influenced by earlier tracked projects. They could have been. But we are assuming that in assigning relative attribution to the training courses, the trainees are accounting for these other influences. So, for example, if an untracked project was mostly influenced by a positive experience with a tracked project and only slightly influenced by a training course, we are assuming that the respondent would capture the lesser influence of the training course in the way that they responded to the program attribution questions. The estimated effects of tracked projects on untracked projects would be captured elsewhere through our estimates of participant spillover.

1.2.2 The Company/Project Database Matching Process

The 309 respondents to the CATI survey identified 593 energy-saving projects that had been completed since taking their training courses. The next step in the analysis was to determine which of these post-training energy-saving projects were actually untracked energy-saving projects that had been influenced by the E&T Program.

This database matching process proved to be much more difficult than anticipated due to company spelling variations and the limited nature of the project information. After the database matching process was finished, there were still over 300 trainee-identified energy-saving projects that could not be unequivocally identified as tracked or untracked based on the database information alone. We then used the program attribution questions in the CATI survey to filter out projects where any attribution to the training course was highly doubtful.[5] This program attribution filtering process reduced the list to 248 projects and 162 unique trainees. According to the trainees, all these projects had been influenced by the training courses to some degree. Yet it remained to be determined: (1) How many of these projects were tracked vs. untracked; and (2) How much gross and net energy savings these untracked projects accounted for.

1.2.3 The Engineering Surveys

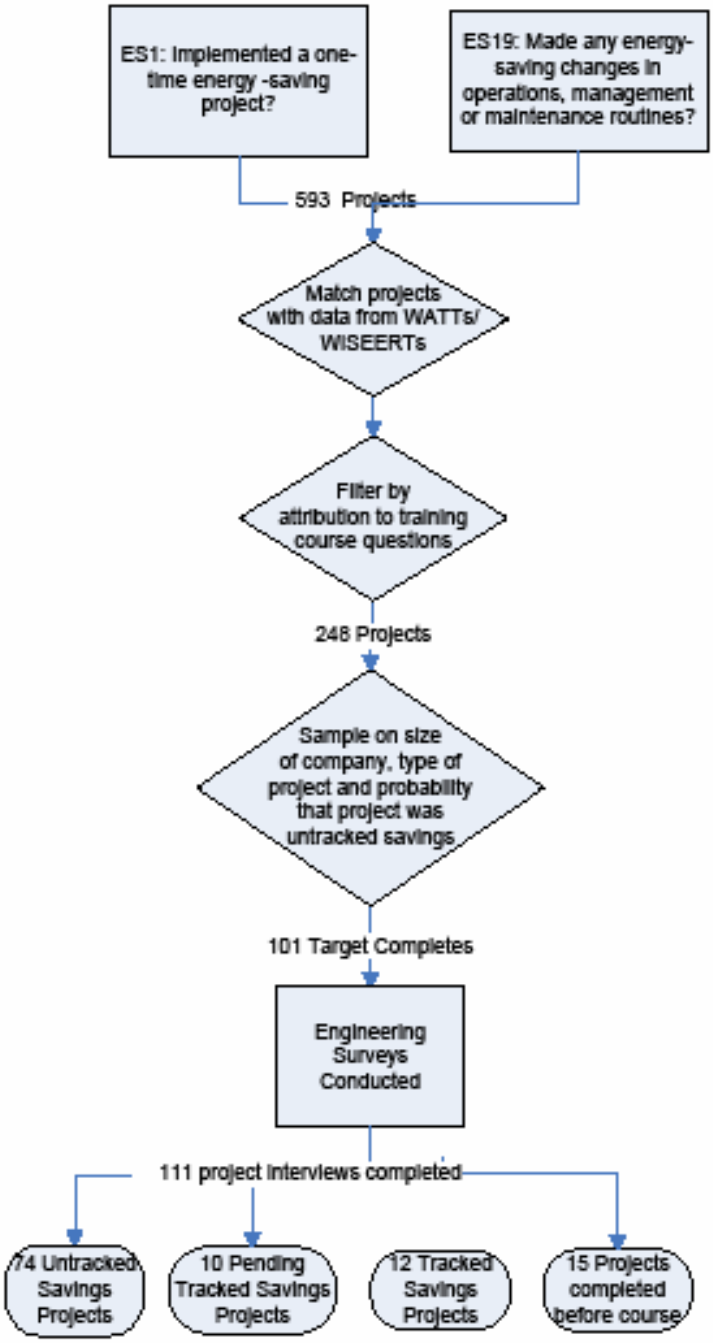
The next stage of the analysis involved KEMA engineers interviewing trainees to collect additional information. The original purpose of the engineering surveys had been just to collect the project information needed to estimate the gross energy savings for untracked energy-saving projects. Yet the company/project database matching process still left many unconfirmed potential matches between the energy-saving projects identified by the trainees and those we found in WATTS/WISeerts. Therefore, we expanded the scope of the engineers' responsibilities to include clarifying these ambiguities to the degree possible.

Because we expected the expanded engineer surveys to be very labor-intensive we decided that rather than attempt to survey all 162 trainees, we would instead try to complete surveys with a sample of 70 trainees. We used a number of different categories to stratify the sample frame of 248 projects represented by the 162 trainees. These categories included the size of the trainee's company, the type of project, and the probability that the project was an untracked energy- saving project. The engineers were eventually able to complete interviews with 78 trainees representing 111 projects.

After each interview, the engineers reclassified the projects as untracked, tracked, or pending tracked (if the respondent indicated that they were in the process of seeking Focus incentives). For the untracked energy-saving projects they then estimated the gross first year savings for kilowatt-hours, kilowatts, and therms. Each engineering analysis then went through a second review by a senior engineer. Figure 1-1 shows the analysis chain for the post-training energy-saving projects.

[5] For example, we removed all projects for which the implementation date the trainee provided preceded the date of the training course. We also removed projects that the trainees said would "very likely" have been implemented without the training course.

Figure 1-1. Analysis Chain for Post-Training Energy-Saving Projects



1.2.4 Calculating Program Attribution

The E&T Program CATI survey instrument was finalized in April 2008 and fielded in May—before the revisions to the program attribution questions for the 2008 main Focus BP impact analysis had been finalized. Therefore, the E&T Program attribution questions were based on the 2007 version of the Focus BP impact analysis survey. We chose to use the simplified program attribution methodology that had been used in 2007 when information about the program's effects on measure quantity or efficiency were inapplicable (see discussion in 2.2.1b.ii). This simplified approach bases initial attribution (A1) on the likelihood of the measure being implemented absent the program effects and then gives additional credit to the project for any acceleration effects.

1.2.5 Estimating E&T Program Untracked Energy Savings

Our methodology estimated Untracked Attributable Savings (UAS) for the E&T Program. UAS were defined as savings motivated by the program but not included in program tracking data.

Our methodology counted energy savings in the year in which the project was implemented ("first-year savings"). For the one-time projects, since we knew what year the project was completed, we counted the first-year savings in that program year. To be considered attributable, one-time projects must have been completed in the first four years after the training course.[6]

For the O&M projects, since we did not know what year they were first implemented, we assumed that they were implemented first in the year after the training.[7] Since we were only estimating first-year savings, we made no assumptions about measure life for either the one-time or the O&M projects.

This methodology reported UAS resulting in year X as the result of cumulative influences of E&T Program training in prior years. For example, new project implementation in 2008 due to E&T Program training was the sum of 2004 training influence on adoption four years out, 2005 training influence on adoption three years, 2006 training influence on adoption two years out, and 2007 training influence on adoption one year. This savings estimation approach is analogous to counting tracked energy savings implemented in the current year that were the result of multiple years of the program working with the customer on a project.

1.2.6 Our Estimates of E&T Program Untracked Attributable Savings

Table 1-1 shows Untracked Attributable Savings (UAS) for year 2008 by project type (one-time vs. O&M projects) and savings type.

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[6] We chose the four-year limit for two reasons. First, this was within the range of estimates of the duration of training effects as cited by other program evaluations. Second, as Table 3-6 shows, the large majority of projects that trainees claim to have been training-influenced occur within four years of the training course.

[7] An alternative approach would have been to assume that the O&M projects were initiated at lags varying from one to four years after training. Using this approach, we would have the same total (first-year) O&M savings as the adopted approach, but it would simply be spread out over four years.

Table 1-1. Untracked Attributable Savings (UAS) for 2008 by Project Type and Savings Type

Project Type	Savings Type	2008
One-Time	kWh	6,149,181
One-Time	kW	751
One-Time	therms	3,268,883
O&M	kWh	2,799,165
O&M	kW	1,695
O&M	therms	549,388
All	**kWh**	**8,948,346**
All	**kW**	**2,447**
All	**therms**	**3,818,271**

To illustrate how these UAS estimates for 2008 were derived, we can use the 6,149,181 kWh savings for one-time projects as an example. Figure 1-2 represents graphically the per-trainee average kWh savings for one-time projects over time. Multiplying the average per-trainee savings in Figure 3-1 by the number of trainees in Table 1-2 produces the total kWh estimates that appear in Table 1-2.

Figure 1-2. Per-Trainee Average kWh Savings for One-Time Projects

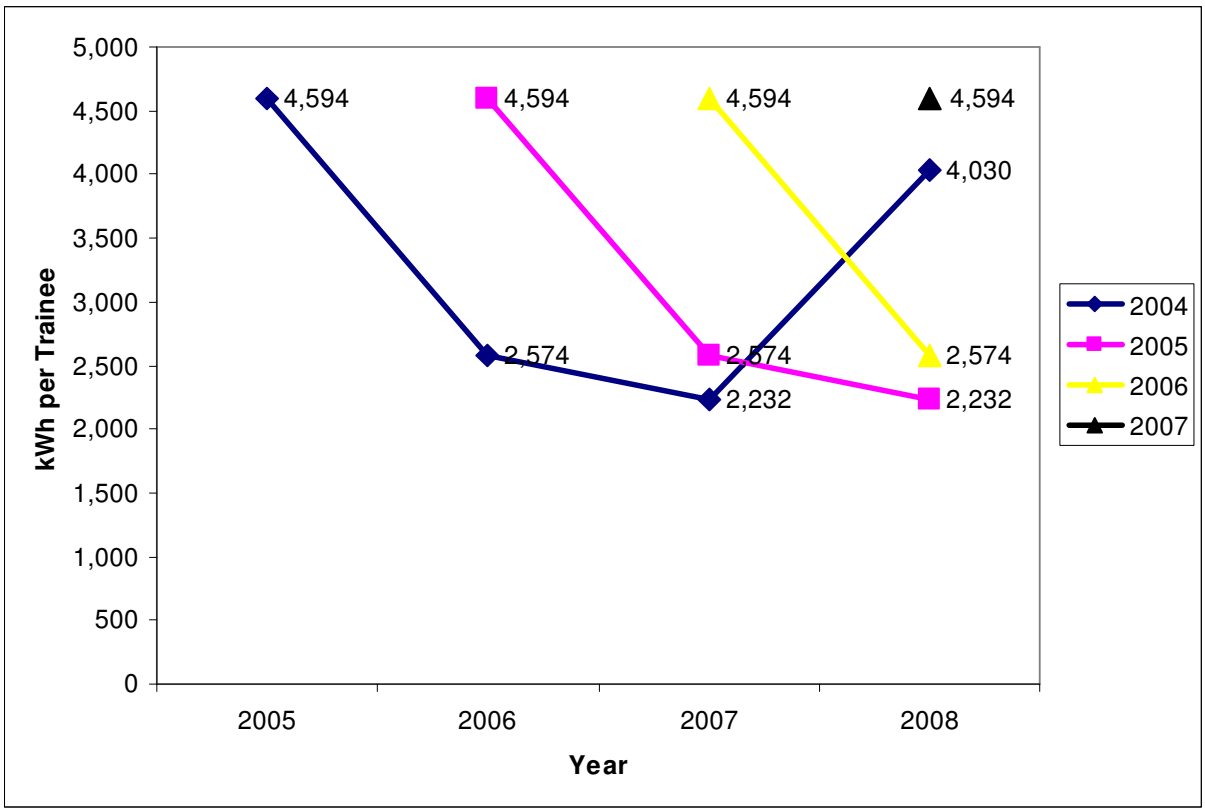


Table 1-2. Total Trainee kWh Savings for One-Time Projects

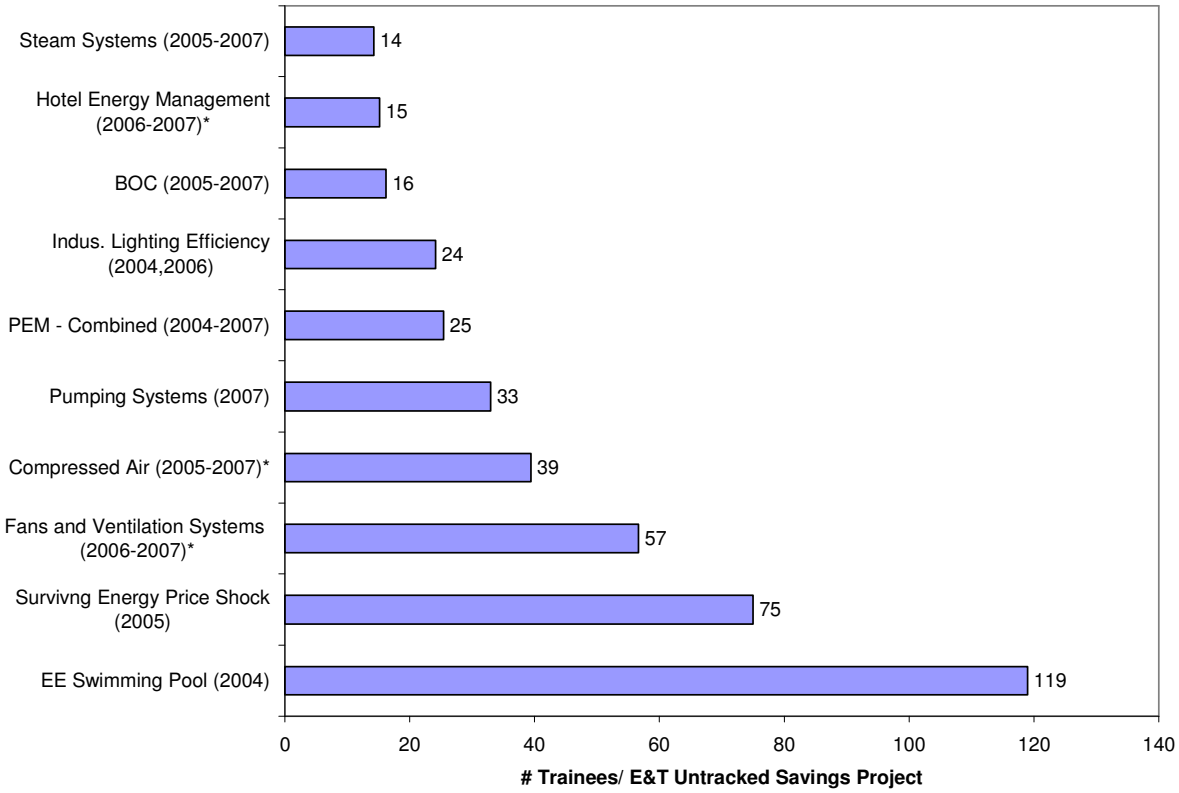
Program Year	Trainees	Year			
		2005	2006	2007	2008
2004	436	2,002,881	1,122,141	973,144	1,757,262
2005	554		2,544,945	1,425,840	1,236,518
2006	637			2,926,227	1,639,459
2007	330				1,515,942
					6,149,181

This methodology can also be used to project future UAS based on the number of trainees in a given program year.

1.2.7 E&T Program Untracked Energy-Saving Projects by Training Course

The BOC and PEM courses had the highest number of untracked projects associated with them. These courses had the largest attendance levels, were conducted nearly ever year during the 2004–2007 period, and encouraged changes in O&M procedures—which the Focus BP programs rarely offers financial incentives for. However, when we normalized for the number of trainees who attended a given course category over the 2004–2007 period, the story changed slightly. Figure 1-3 shows the ratio of trainees to untracked energy-saving projects. It shows that the steam system, hotel energy management, and industrial lighting courses had trainee-to-untracked-project ratios that were similar to those of the BOC and PEM courses.

Figure 1-3. Number of Trainees per Untracked Energy-Saving Project by Training Course



We also compared the untracked energy-savings energy projects to the larger group of post-training energy saving projects that the trainees said were influenced by the training course in some way. Table 1-3 shows that untracked energy-saving projects account for, on average, a fifth of the training-influenced post-training projects. For the steam system training courses, the untracked energy-saving projects accounted for nearly two-thirds of the training-influenced projects. It is important to caution, however, that the count of "total post-training projects"—from which the count of "other post-training projects was also derived—is based solely on the information provided by trainees in the CATI survey. The engineering survey found out that many projects that the trainees had identified as post-training energy-saving projects in the CATI survey either were not energy-saving projects or actually preceded the training course.

Table 1-3. Untracked Energy-Saving Projects as Percentage of Total Program-Influenced Post-Training Energy Savings Projects

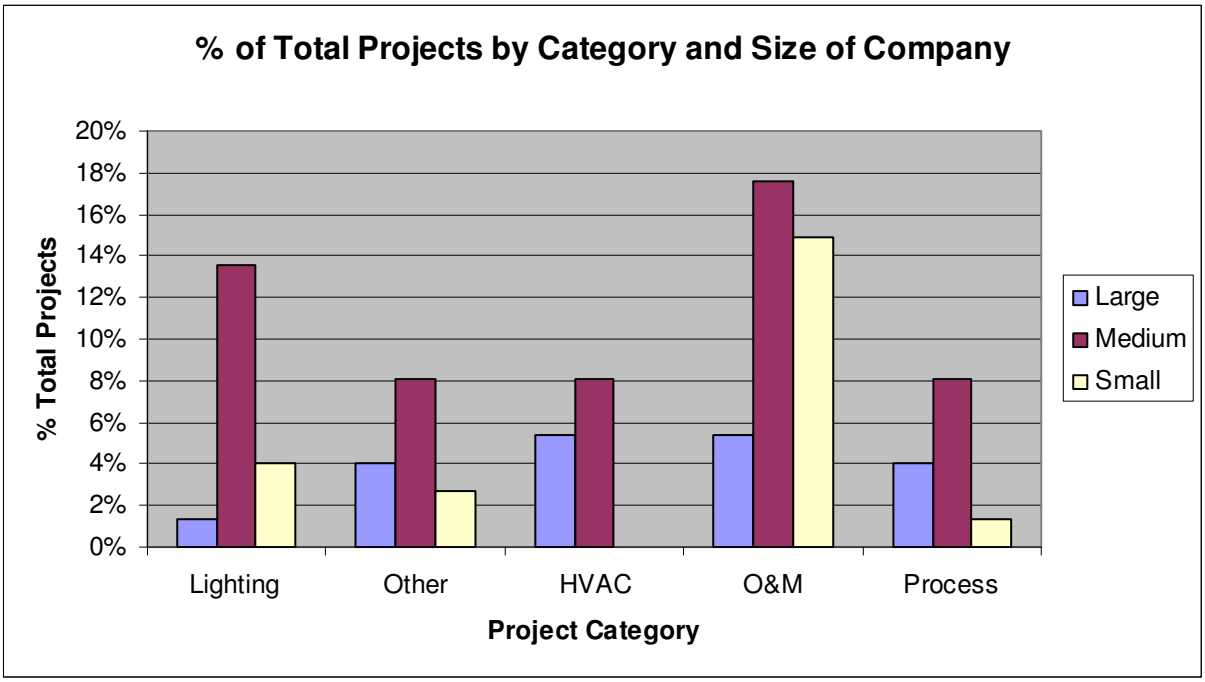
Training Course	Untracked Savings Projects	Other Training-Influenced Post-Training Projects	Total Training-Influenced Post-Training Projects	Untracked as % of Total Training-Influenced
BOC (2005-2007)	18	61	79	23%
Bottom Line Results	0	0	0	#DIV/0!
Compressed Air (2005-2007)*	5	24	29	17%
EE Swimming Pool (2004)	1	16	17	6%
Fans and Ventilation Systems (2006-2007)*	3	24	27	11%
Hotel Energy Management (2006-2007)*	5	10	15	33%
Indus. Lighting Efficiency (2004,2006)	7	21	28	25%
Industrial Refrigeration Best Practices	0	7	7	0%
PEM - Combined (2004-2007)	22	97	119	18%
Pumping Systems (2007)	1	6	7	14%
Steam Systems (2005-2007)	11	7	18	61%
Survivng Energy Price Shock (2005)	1	16	17	6%
Total	**74**	**289**	**363**	**20%**

Note: * Indicates that similar courses were combined into a single stratum

1.2.8 E&T Program Untracked Energy Savings Projects by Project Category and Company Size

Figure 1-4 looks at how the untracked energy-saving projects themselves are distributed across project categories and company sizes. It shows that for the small companies the O&M projects accounted for most of the untracked energy-saving projects. For the medium-sized companies lighting and O&M projects accounted for the bulk of the untracked energy-saving projects. For the large companies there is a fairly even distribution of project types. One possible explanation for this is that since O&M projects usually do not require a large capital expenditure, these projects are more appealing for companies of smaller size. Another possibility is that the larger companies already are following good O&M procedures due to their larger economies of scale and the greater likelihood that they will have energy managers. The fact that almost 40 percent of the untracked projects were O&M is likely due to the fact that Focus does not offer financial incentives for most such projects.

Figure 1-4. Untracked Energy Savings Projects by Company Size and Project Category



1.3 DETAILED FINDINGS

The following sections provide a more detailed discussion of the results that are described at a high level in the executive summary.

2. INTRODUCTION

2.1 BACKGROUND AND PURPOSE

This report describes research conducted in the spring and summer of 2008 as part of the evaluation plan for the Focus on Energy Business Programs Education and Training (E&T) Program Untracked Savings Study. The purpose of this impact evaluation report is to estimate untracked attributable savings (UAS) resulting from the E&T Program. These UAS are the E&T-attributable portion of energy savings from projects that do not appear in the Focus WATTS or WISeerts databases and were implemented at the building or facilities of the trainees' companies[8]. This report estimates the E&T UAS that occurred in the recent past and uses these past energy savings to project 2008 E&T Program UAS. It also shows how these recent UAS can be used to project UAS for future years.

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of program market effects where the causal links between program effects and end user behaviors are not clearly defined.

A separate report—the *Process Evaluation of the Business Programs Education and Training (E&T) Program*—discusses other issues related to the training courses. These other issues include training drivers and barriers, barriers to post-training implementation, and other related issues such as awareness of Focus benefits for post-training incentives and the availability of non-Focus training.

2.2 METHODOLOGY

This section describes the research approach used for this Impact Evaluation.

2.2.1 The CATI Survey of Trainees

The first step in our impact evaluation was to conduct a Computer-Aided Telephone Interview (CATI) survey of a sample of E&T Program trainees. The survey had a number of research objectives, many of which are described in more detail in the E&T Program Process Evaluation. For the purposes of the E&T Program Impact Evaluation, the main objectives of this survey were to:

- Identify all energy-saving projects that the trainee's company implemented since the trainee took the course along with some basic information about the project needed for future analysis
- Obtain trainee's estimates of the influence of the training courses as well as the Focus financial incentives on these implemented energy-saving projects.

A. CATI SURVEY SAMPLING PLAN

The Focus on Energy Education and Training program offered courses on a variety of topics either via webinar or in-person course sessions. Webinars lasted approximately ninety minutes and in-person sessions varied in duration from ninety minutes to meeting for one day a week over multiple weeks. The courses that met in-person typically were offered multiple times per year at various locations across Wisconsin, and the webinars were offered multiple times throughout the year. Some of the in-person courses were conducted over multiple sessions.[11]The courses spanned eleven content areas plus one marketing area[12].

[11] For the in-person courses, we only had access to the course registration information, not the attendance lists. Therefore, we treated all courses that had multiple sessions—such as the BOC courses—as a single course. Although this was done out of necessity, we think this is still a reasonable approach. First multi-session courses such as the BOC were designed to be taken *in toto* rather than partially. For example, to achieve Level I BOC certification, trainees complete course modules totaling 56 hours of training plus project assignments. This justifies treating the multiple sessions as a single course effect and also minimizes the chance that some BOC trainees would be taking more/fewer modules than others. Second, to become BOC-certified, trainees must also take at least one class per month. This means that most BOC trainees are likely completing their course sessions in less than a year. This relatively-compressed time frame is another justification for treating the multiple course sessions as a single course effect. It also means that even if the evaluators did get access to in-person attendance lists and therefore were able to try to distinguish intra-course effects (e.g., the effect of one

A total of 147 individual course sessions were included in this study, comprising all of the webinars and in-person sessions of courses that were held from March 2004 through December 2007, except for one course. The exception was the omission of a course that had targeted energy efficiency at wastewater plants. This course was not included in the study because it was only held in March 2004 with eighteen attendees and was not offered again. All of the other courses that were offered in 2004 had been offered again more recently and had greater attendance.

Program staff provided us with the registration databases used for courses from 2004 through 2007. Attendee lists from web-based events occurring in the fall of 2007 were also provided. Only eight registrants were missing a phone number.

Table 2-1 summarizes the number of attendees that were available for sampling (population), the number of completed surveys we planned to obtain (targeted completes) and the number of completed surveys we actually obtained from each course type.

Note that the events were grouped into categories defined by topic areas, except for the Building Operator Certification (BOC) courses. The BOC courses were aggregated by the designated Level of certification and then further aggregated for reporting purposes. BOC Renewals, which do not involve additional training, were excluded from this study.

BOC module on project implementation vs. another taken a few months later) it is doubtful whether the trainees could meaningfully distinguish the effects of training sessions taken so close together.

[12] Bottom Line Results was a sales training program for Trade Allies.

Table 2-1. Population Counts, Targeted Completes, and Actual Completes by Training Course

Category	Registrants		Target	Completes	
	Number	Percent		Number	Percent
Bottom Line Results 2005	55	3%	8	8	3%
Building Operator Certification 2004-2006	149	8%	23	23	7%
Building Operator Certification 2007	60	3%	9	9	3%
Level 2 Building Operator Certification 2006	68	3%	10	10	3%
Industrial Lighting Best Practices 2004-2006	169	9%	26	26	8%
Compressed Air Energy Management 2004-2006	131	7%	20	21	7%
Compressed Air Energy Management 2007	70	4%	11	12	4%
Swimming Pool Energy Management 2004-2005	119	6%	18	18	6%
Ventilation Systems 2005-2006	96	5%	15	15	5%
Ventilation Systems 2007	76	4%	12	14	5%
Hotel Energy Management 2005-2006	60	3%	9	9	3%
Hotel Energy Management 2007	16	1%	2	2	1%
Industrial Refrigeration Energy Management 2005-2006	58	3%	9	9	3%
Practical Energy Management - Commercial 2004-2006	172	9%	26	28	9%
Practical Energy Management - Industrial 2004-2006	201	10%	31	31	10%
Practical Energy Management - Implementors 2004-2006	39	2%	6	6	2%
Practical Energy Management - Commercial 2007	91	5%	14	17	6%
Practical Energy Management - Industrial 2007	51	3%	8	8	3%
Practical Energy Management - Implementors 2007	7	0%	1	1	0%
Pumping System Energy Management 2007	33	2%	5	5	2%
Business Strategies 2005	75	4%	12	12	4%
Steam System Energy Management 2005-2006	129	7%	20	20	6%
Steam System Energy Management 2007	32	2%	5	5	2%
Total	**1957**	**100%**	**300**	**309**	**100%**

The sample allocations (targeted completes) were not purely proportional to the population of trainees, but involved a slight oversampling of the categories having fewer registrants. Post-survey weighting was used to adjust for the oversampling and insure that aggregate results were representative of the population.

Our analysis of the registration database found that 18 percent of individuals had registered for two or more events. For sampling purposes, multiple registrations by one person within a category were aggregated, and the individual's registration was allocated to the category having the fewest registrants. For the CATI survey questions concerning a course's effect on project implementation, such multi-course takers were only asked about the effects of the course for the course stratum that they had been assigned to.

However, despite these attempts at specificity in the survey, it is possible that multi-course trainees may have conflated the influence of the course they were asked about with the other course(s) they took. The E&T Program Process Evaluation report examines the reasons why respondents took multiple courses and also analyzes which combinations of courses were more likely than others.

B. IMPACT EVALUATION INFORMATION COLLECTED BY THE CATI SURVEY

The CATI survey instrument, which was reviewed by the Wisconsin Public Service Commission (PSC) staff and the Focus on Energy implementation contractors, was designed to address a number of different issues related to the E&T Program. Many of these issues are discussed in detail in a separate report: the Process Evaluation of the Business Programs Education and Training (E&T) Program. These other issues include training drivers and

barriers, barriers to post-training implementation, and other related issues such as awareness of Focus benefits for post-training incentives and the availability of non-Focus training.

For the purposes of the E&T Program Impact Evaluation, the CATI survey collected:

- Basic information about the post-training energy-saving projects
- Program attribution information—information about how the training course (as well as other Focus assistance) influenced the nature of the project.

i. Basic Information about Post-Training Energy-Saving Projects

Because there was no *ex ante* information about the post-training energy-saving projects (as there is for a conventional Focus on Energy impact evaluation, for example) the CATI survey was designed to collect enough basic information to: (1) help the evaluators find out if the project was already listed in WATTS/WISeerts*;* and (2) help the engineers to prepare for their follow-up interviews and to identify the relevant projects for the interviewees. The basic information included:

- *The type of project:* E.g. whether the project involved a replacement of existing equipment, a modification of existing equipment, a new construction project, a building expansion project, etc.
- *The type of energy-using equipment:* E.g., whether the project involved lighting equipment, motors, compressed air, etc.
- *A brief description of the project*
- *The approximate year the project was completed or was expected to be completed*
- *The location (city and state) of the company facilities where the project was completed*
- *Financial assistance:* Whether the trainee recalled receiving a rebate, price discount, or any other financial assistance for the project
- *Focus financial assistance:* Whether the trainee thought that the rebate, price discount, or the majority of any other financial assistance was paid for by Focus on Energy
- *Focus non-financial assistance:* Whether the trainee thought that the project had received any non-financial assistance from Focus and what was the nature of this non-financial assistance.

In terms of collecting this basic program information, there was a separate question sequence for energy-saving “one-time” projects vs. energy-saving operations and maintenance (O&M) projects. We defined one-time projects for the surveyors as “discrete” projects that had “a defined beginning and end date.” We defined O&M projects for the surveyors as projects that involved a change in the company’s routine operations or maintenance procedures. The type of basic project information collected for one-time and O&M project was similar except that no project completion dates were collected for the O&M projects. After the engineering interviews, the engineers did change the classification (one-time vs. O&M) of some projects.

ii. Information about Program Attribution

The CATI survey also gathered program attribution information—information about how the training course (as well as other Focus assistance) influenced the nature of the project.[13] This information included:

- *The influence of the training course on project implementation:* Whether the training course influenced the implementation of the project in any way and what was the nature of this influence.
- *The likelihood of the project being implemented without the training.*
- *Acceleration effects of training:* Whether the project would have been undertaken at a different time without the training. If they said that the project would have happened later without the training, they were asked how many months later and how the training had accelerated the training.
- *Training effects on the energy savings of the project:* Whether the energy savings achieved by the project would have been greater, less, or the same without the training course.[14] If the trainee said that the training increased the energy savings resulting from the project, we asked why this was.
- *The likelihood of the project being implemented without the assistance of the core Focus Business Programs:* The main objective of the program attribution questions was to assess the influence of the E&T Program on the implementation of energy-saving projects. Yet one of the reviewers of the CATI survey suggested it would also be useful to know about the influence of assistance (financial or otherwise) from the core Focus Business Programs on the post-training projects. Due to concerns about survey length (the program attribution question sequence could be repeated for up to six different projects) and because post-training projects that received Focus financial incentives were highly likely to be "tracked" projects anyway, we restricted the program attribution sequence for the core Focus Business Programs to a single "likelihood" question.

[13] The E&T CATI survey instrument was finalized in April 2008 and fielded in May—before the revisions to the program attribution questions for the main Focus BP impact analysis had been finalized. Therefore, these program attribution questions were based on the 2007 version of the Focus BP impact analysis survey.

[14] We did not attempt to separate these energy savings attribution effects into quantity and efficiency effects as is done in the CATI survey for the main Focus impact analysis. One reason for this is that unlike the main Focus impact analysis, we did not know ahead of time what types of projects we would encounter. This made it extremely difficult to pre-program the quantity and efficiency attribution questions to suit the project types, as is done for the main Focus impact analysis CATI surveys. Another reason is that we were anticipating that a large number of the untracked savings projects were going to be O&M projects. This was because the BOC and PEM training courses encourage these sorts of projects and Focus financial incentives are rarely available for O&M projects. Quantity and efficiency attribution questions are rarely suitable for O&M projects. Indeed a large proportion of the untracked energy-saving projects did turn out to be O&M projects.

2.2.2 The Company/Project Database Matching Process

The 309 respondents to the CATI survey identified 593 energy-saving projects that had been completed since taking their training courses. The next step in the analysis was to determine which of these post-training energy-saving projects were actually untracked energy-saving projects that had been influenced by the E&T Program.

The evaluators tried to match trainee company/organization names from the E&T Program course registration database with company/organization names from WATTS/WISeerts. This proved extremely difficult due to inconsistencies in spelling and abbreviations of company names, the existence of multiple locations for companies (which made address-based matching more complicated), and having a contractor or property management firm listed as the company in WATTS/WISeerts in place of the company funding the project.

The evaluators then attempted to match projects that had been identified by the trainees in the CATI survey with projects that had been pulled from WATTS/WISeerts. This proved very challenging due to the level of specificity provided by the data from WATTS/WISeerts compared with the qualitative project descriptions obtained by the CATI survey. If there was ambiguity as to whether a given project identified by the trainee was the same one as a project in WATTS/WISeerts, for the sake of caution we flagged it as a possible match and kept it in our sample frame of potential untracked energy-saving projects. We also retained information from the CATI survey as to whether the trainees said that they had received Focus financial incentives. This information was also used in the filtering process, as explained below.

After the database matching process was finished, there were still over 300 trainee-identified energy-saving projects that could not be unequivocally identified as tracked or untracked based on the database information alone. We then used the program attribution questions in the CATI survey to filter out projects where any attribution to the training course was highly doubtful. For example, we removed all projects for which the implementation date the trainee provided preceded the date of the training course. We also removed projects that the trainees said would “very likely” have been implemented without the training course.[15]

This program attribution filtering process reduced the list to 248 projects and 162 unique trainees. According to the trainees, all these projects had been influenced by the training courses to some degree. Yet it remained to be determined: (1) How many of these projects were tracked vs. untracked; and (2) How much gross and net energy savings these untracked projects accounted for.

2.2.3 The Engineering Surveys

The next stage of the analysis involved KEMA engineers interviewing trainees to collect additional information. The original purpose of the engineering surveys had been just to collect the project information needed to estimate the gross energy savings for untracked energy-saving projects. Yet the company/project database matching process still left many

[15] Limitations of the length of the CATI survey prevented us from exploring whether the course changed the way a project was being implemented if it had been started prior to the trainee taking the course.

unconfirmed potential matches between the energy-saving projects identified by the trainees and those we found in WATTS/WISeerts. Therefore, we expanded the scope of the engineers' responsibilities to include clarifying these ambiguities to the degree possible. To accomplish this, we provided the engineers with all the company and project information that had been gathered from the CATI survey and the WATTS/WISeerts database. We also provided them with instructions as to what key company or project information still needed to be clarified.

Because we expected the expanded engineer surveys to be very labor-intensive we decided that rather than attempt to survey all 162 trainees, we would instead try to complete surveys with a sample of 70 trainees. Since the number of projects per trainee varied and we did not know which trainees would complete engineer surveys, we did not know how many projects these 70 trainees would account for, but we estimated it to be slightly over 100 projects.

We used a number of different categories to stratify the sample frame of 248 projects represented by the 162 trainees. These categories included the size of the trainee's company, the type of project, and the probability that the project was an untracked energy-saving project. The size of the trainee's company was based on the number of employees. Large companies had 500 employees or greater, medium companies had 50–499 employees, and small companies had fewer than 50 employees. The type of project was based on whether it was a "one-time" project or O&M project and the type of end uses involved in the project.

The last category—the probability that the project was an untracked energy-saving project—was based on information we had gathered in the company/project database matching process[16]. Table 2-2 shows how we characterized the probability for the post-training projects.

[16] Projects that were both flagged as a possible match in WATTS/WISeerts and ones that the trainee reported as having received FOE incentives for were identified as unlikely sources of UAS and removed. We did not conduct a detailed analysis of these deleted projects since the focus of the study was on identifying UAS.

Table 2-2. Categorizing Training-Influenced Post-Training Projects by Their Probability of Being a Tracked/Untracked Energy-Saving Project

Probability of Being a Tracked/Untracked Energy-Saving Project	Trainee's Company Found in WATTS/WISeerts?	Trainee-Identified Project Found in WATTS/WISeerts?	Trainee Said Project Received FOE Financial Incentives?
Probably Untracked Energy-Saving Project	No	No	No
Probably Untracked Energy-Saving Project	Yes	No	No
Probably Tracked Energy-Saving Project—Category I	Yes	Possible match	No
Probably Tracked Energy-Savings Project—Category II	No	No	Yes
Probably Tracked Energy-Savings Project—Category II	Yes	No	Yes

Table 2-3 shows the sampling plan for the engineering surveys. The engineers were eventually able to complete interviews with 78 trainees representing 55 companies and 111 unique projects[17].

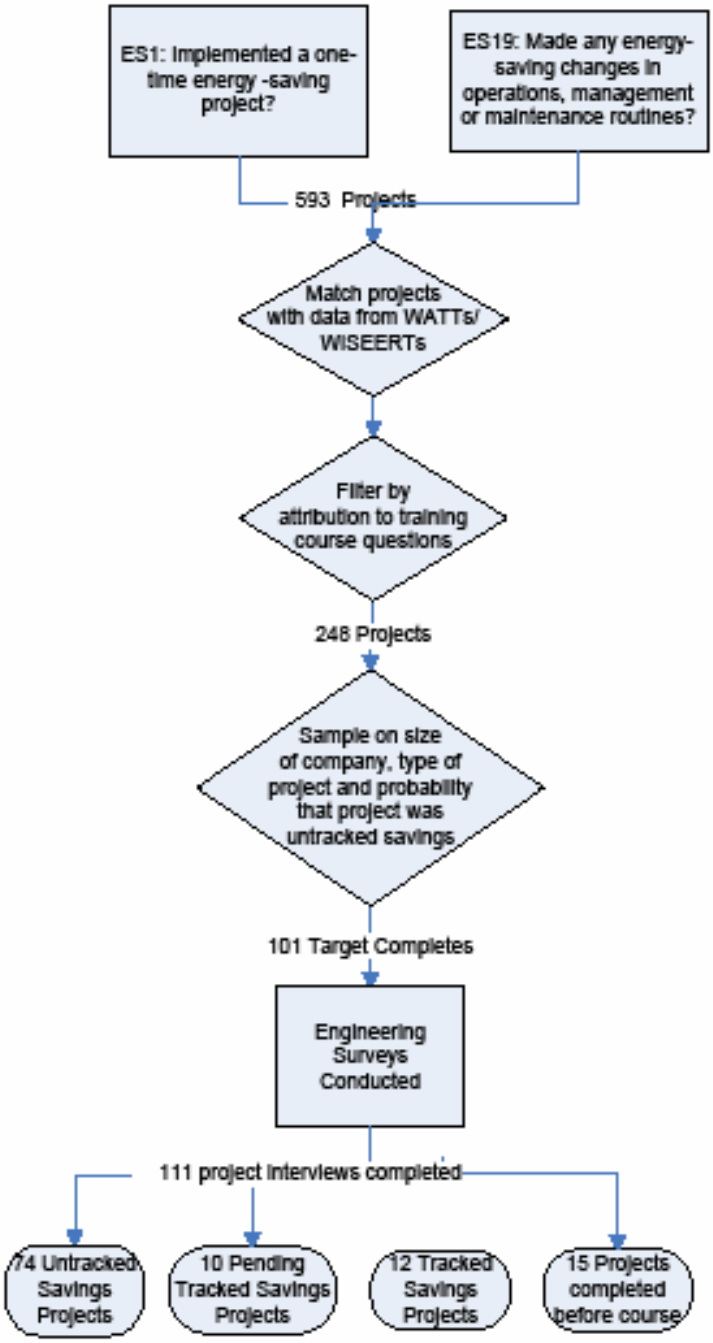
[17] During the interview process, we determined that three additional projects were duplicates of projects described by another trainee from the same company. Therefore, we omitted these projects from the analysis.

Table 2-3. Sampling Plan for Engineering Surveys

Trainee Company Size	Project Type	Probability of Being a Tracked/Untracked Project						Grand Total	
		Probably Untracked Projects		Probably Tracked Projects - Category I		Probably Tracked Projects - Category II			
		Pop.	Target	Pop.	Target	Pop.	Target	Pop.	Target
Large	Lighting only	2	2	2	1	2	1	6	4
	Other (no process, no HVAC)	1	1	1	1			2	2
	HVAC, no process	2	2	3	2	3	2	8	6
	O&M	11	11	8	6	1	1	20	18
	Process	3	3	4	3	1	1	8	7
Large Total		**19**	**19**	**18**	**13**	**7**	**5**	**44**	**37**
Medium	Lighting only	10	6	11	3	5	1	26	10
	Other (no process, no HVAC)	4	2	6	1	3	1	13	4
	HVAC, no process	3	2	7	2	2	0	12	4
	O&M	25	17	23	5	5	1	53	23
	Process	2	2	8	2	1	0	11	4
Medium Total		**44**	**29**	**55**	**13**	**16**	**3**	**115**	**45**
Small	Lighting only	6	2	10	2	3	0	19	4
	Other (no process, no HVAC)	5	2					5	2
	HVAC, no process	1	0	1	0	1	0	3	0
	O&M	26	8	13	2	2	0	41	10
	Process	1	0					1	0
Small Total		**39**	**12**	**24**	**4**	**6**	**0**	**69**	**16**
Unknown	Lighting only	1	0	1	0			2	0
	Other (no process, no HVAC)	1	0	1	0	1	0	3	0
	HVAC, no process			1	0			1	0
	O&M	5	2	5	1	2	0	12	3
	Process			2	0			2	0
Unknown Total		**7**	**2**	**10**	**1**	**3**	**0**	**20**	**3**
Grand Total		**109**	**62**	**107**	**31**	**32**	**8**	**248**	**101**

After each interview, the engineers reclassified the projects as untracked, tracked, or pending tracked (if the respondent indicated that they were in the process of seeking Focus incentives). For the untracked energy-saving projects they then estimated the gross first year savings for kilowatt-hours, kilowatts, and therms. Each engineering analysis then went through a second review by a senior engineer. Figure 2-1 shows the analysis chain for the post-training energy-saving projects.

Figure 2-1. Analysis Chain for Post-Training Energy-Saving Projects



2.2.4 Calculating Net Energy Savings

As noted, the E&T Program CATI survey instrument was finalized in April 2008 and fielded in May—before the revisions to the program attribution questions for the 2008 main Focus BP impact analysis had been finalized. Therefore, the E&T Program attribution questions were based on the 2007 version of the Focus BP impact analysis survey. We chose to use the simplified program attribution methodology that had been used in 2007 when information about the program's effects on measure quantity or efficiency was inapplicable (see discussion in 2.2.1b.ii). This simplified approach bases initial attribution (A1) on the likelihood of the measure being implemented absent the program effects and then gives additional credit to the project for any acceleration effects. Table 2-4 shows how project attribution was determined based on the likelihood question.

Table 2-4. Methodology for Project Attribution Based on Likelihood of Project Implementation in Absence of Program Effect

ES12. If you had not taken the <TRAINING_COURSE> training course, how likely would you have undertaken this energy-saving project? Would you say you would have been …				
Very Likely	**Somewhat Likely**	**Not Very Likely**	**Very unlikely**	**Don't Know/ Refused**
0% program attribution	50% program attribution	90% program attribution	100% program attribution	

The 2007 method for calculating acceleration effects was then applied. The credit given to the program for the accelerated savings was calculated as:

$A_2 = (m^*/48) * AF$

where

$m^* = \min(m, 48)$

m = number of months by which the program rebate accelerated the implementation.

CATI survey questions (ES13, ES31) determined whether the project timing would have been earlier, the same, or later without the program; and if later, how many months later (ES14, ES32). If the measure would have been installed at the same time or earlier, then number of months (m) was set at 0. If a respondent did not answer (don't know or refusal) either of the timing questions, the number of months by which the program rebate accelerated the implementation was set at 48.

The final program attribution factor for the project was then based on the summation of the initial program attribution factor (A1) and the acceleration effect (A2).

$A = A_1 + A_2$

$= A_1 + (m^*/48)\ A_1.$

Table 2-5 shows what the trainees said was the likelihood of the untracked savings projects being implemented without the E&T Program training courses. Those projects that were "very likely" to have been implemented without the training do not appear in the table because they have already been filtered out, as described above.

Table 2-5. Likelihood of Project Implementation without Training for Untracked Energy Savings Projects by Training Course

Course category	Somewhat Likely	Not Very Likely	Very Unlikely	Don't Know
Building Operator Certification	7	6	5	
Compressed Air Leak Detection	2			
Compressed Air Systems Best Practices	2	1		
Energy Efficient Swimming Pool	1			
Hotel Energy Management		1	2	1
Industrial Lighting Efficiency	4	1		1
Industrial Ventilation Systems	1	1	1	
Practical Energy Management - Commercial	8		1	
Practical Energy Management - Industrial	10	1		1
Practical Energy Management Implemenation	1			
Pumping System	1			
Smart Strategies for Hotels	1			
Steam Systems	6	2	2	
Surviving the Energy Price Shock	1			
Grand Total	**45**	**13**	**11**	**3**

2.2.5 Estimating E&T Program Untracked Energy Savings

The purpose of this section is to describe our methodology for estimating Untracked Attributable Savings (UAS) for the E&T Program. UAS were defined as savings motivated by the program but not included in program tracking data.

A. OVERVIEW

This methodology counted energy savings in the year in which the project was implemented ("first-year savings"). For the one-time projects, since we knew what year the project was completed, we counted the first-year savings in that program year. To be considered attributable, one-time projects must have been completed in the first four years after the training course.[18]

[18] We chose the four-year limit for two reasons. First, this was within the range of estimates of the duration of training effects as cited by other program evaluations. Second, as Table 3-6 shows, the large majority of projects that trainees claim to have been training-influenced occur within four years of the training course.

For the O&M projects, since we did not know what year they were first implemented, we assumed that they were implemented first in the year after the training.[19] Since we were only estimating first-year savings, we made no assumptions about measure life for either the one-time or the O&M projects.

This methodology reported UAS resulting in year X as the result of cumulative influences of E&T Program training in prior years. For example, new project implementation in 2008 due to E&T Program training was the sum of 2004 training influence on adoption four years out, 2005 training influence on adoption three years, 2006 training influence on adoption two years out, and 2007 training influence on adoption one year. This savings estimation approach is analogous to counting tracked energy savings implemented in the current year that were the result of multiple years of the program working with the customer on a project.

B. DETAILED METHODOLOGY

As noted, one-time projects were defined by their completed date and were considered attributable if they were completed in the first four years after the training course. In theory, projects completed at different periods after the course could have different levels of savings. All one-time project savings were grouped into one of four time period groups: the first, second, third and fourth calendar years after the training course. Projects completed in the year of the training course were included in the first year after the training course.

As noted a sample of 309 participating trainees were contacted to determine if they had completed projects since the training that might be UAS. Of this sample, 162 customers had completed 248 projects that were potentially UAS, the remainder did not. A subsample of 111 projects was taken from the 248. The subsample was stratified by customer size, project likelihood of being UAS, and technology type. For each of these 111 projects, an engineer re-contacted the customer to collect enough information to calculate project savings. In some cases the engineer also re-confirmed program attribution. The engineers also screened against the WATTS/WISEERTS databases to confirm that the projects were not already tracked.

First the gross energy savings calculated by the engineers were adjusted for program attribution as described in the methodology section. We then calculated stratum-level average net energy savings and then aggregated to the three customer size levels, separately for O&M and one-time projects.

First, we weighted the subsample of 111 projects to estimate the average UAS savings per potential UAS project across the full sample of 248 projects:

$$A_{zo} = \sum_{lt}\left(M_{zlto}\overline{U}_{zlto}\right) \Big/ \sum_{lt} M_{zlto}$$

Where

[19] An alternative approach would have been to assume that the O&M projects were initiated at lags varying from one to four years after training. Using this approach, we would have the same total (first-year) O&M savings as the adopted approach, but it would simply be spread out over four years.

A_{zo} = Estimated full-sample average net savings per project for customer size z, for project class o (O&M or One-time)

M_{zlto} = Count of potential UAS projects in the full sample for customer size z, project likelihood l project technology type t, and project class o

$\overline{U}_{zlto}$ = Mean kWh, kW, or therm per project in the subsample, for customer size z, project likelihood l, project technology type t, and project class o

The goal of the calculation was a UAS savings per customer estimate. The conversion from projects to customers accounts for both the number of projects per customer and limited data as lag increases (that is, we only have one year of data on the four year lag while we have four years of data on the one year lag). O&M projects were treated in the exact same fashion as one-time projects except they only count in year one, so lag years two through four are zero.

We estimated the number of potential UAS projects per training customer at lags 1, 2, 3, and 4 years from the training, for each customer size group and project class:

$$B_{zod} = M_{zod} \Big/ n_{zd}$$

Where

B_{zod} = projects per customer for customer size z, project class o, and elapsed years d

M_{zod} = Count of full sample projects for customer size z, project class o and elapsed years d

n_{zd} = Count of full sample customers of size z with elapsed years at least d as of 2008

Average UAS per project were combined with the number of UAS projects per training customer at lags 1, 2, 3, and 4 years from the training, for each customer size group and project class. The resulting average UAS savings per customer were averaged over customer size groups to derive an average UAS savings per customer at lags 1, 2, 3, and 4 years from the training, for each project class.

$$\hat{S}_{od} = \frac{1}{n_d} \sum_z n_{zd} B_{zod} A_{zo}$$

Where

$\hat{S}_{od}$ = UAS for project class o at lags 1, 2, 3 and 4 years from training.

n_d = Count of full sample customers elapsed years at least d as of 2008

Average per customer net savings in each lag year were combined with the number of trainees in each year to get a total UAS for each lag year, for each project class o (O&M and one-time projects). Once again, the O&M projects will only have savings in lag year one.

For each savings year y of interest, the savings that occur in that year due to training d years earlier is

$$\hat{S}_{oyd} = N_{y-d}\hat{S}_{od}$$

Where

$\hat{S}_{oyd}$ = UAS in for project class o implemented in year y due to training d years earlier

N_{y-d} = Number of trainees in year y-d

Total UAS for each project class are a combination of the four lag years.

$$\hat{S}_{oy} = \sum_{d=1}^{4} \hat{S}_{oyd}$$

3.1 OUR ESTIMATES OF E&T PROGRAM UNTRACKED ATTRIBUTABLE SAVINGS

Table 3-1 shows Untracked Attributable Savings (UAS) for year 2008 by project type (one-time vs. O&M projects) and savings type.

Table 3-1. Untracked Attributable Savings (UAS) for 2008 by Project Type and Savings Type

Project Type	Savings Type	2008
One-Time	kWh	6,149,181
One-Time	kW	751
One-Time	therms	3,268,883
O&M	kWh	2,799,165
O&M	kW	1,695
O&M	therms	549,388
All	**kWh**	**8,948,346**
All	**kW**	**2,447**
All	**therms**	**3,818,271**

To illustrate how these UAS estimates for 2008 were derived, we can use the 6,149,181 kWh savings for one-time projects as an example. Figure 3-1 represents graphically the per-trainee average kWh savings for one-time projects over time. Multiplying the average per-trainee savings in Figure 3-1 by the number of trainees in Table 3-2 produces the total kWh estimates that appear in Table 3-2.

Figure 3-1. Per-Trainee Average kWh Savings for One-Time Projects

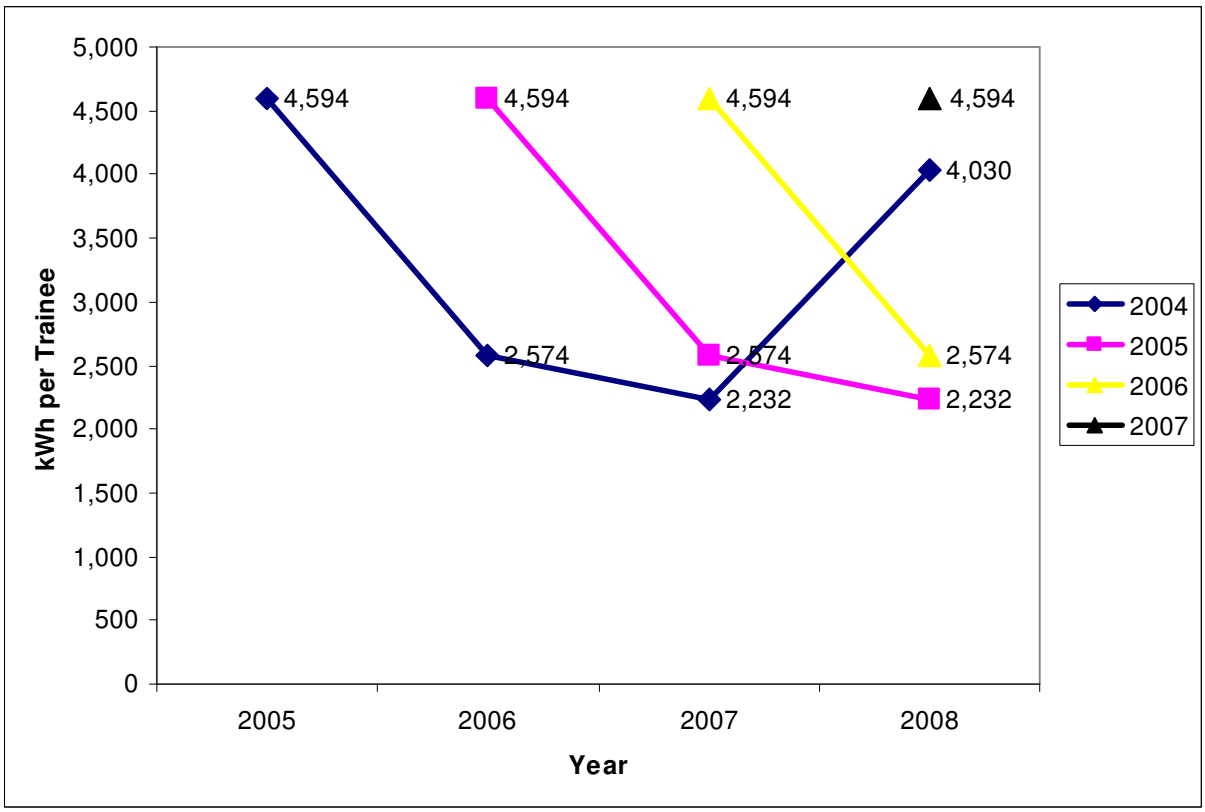


Table 3-2. Total Trainee kWh Savings for One-Time Projects

Program Year	Trainees	Year			
		2005	2006	2007	2008
2004	436	2,002,881	1,122,141	973,144	1,757,262
2005	554		2,544,945	1,425,840	1,236,518
2006	637			2,926,227	1,639,459
2007	330				1,515,942
					6,149,181

This methodology can also be used to project future UAS based on the number of trainees in a given program year.

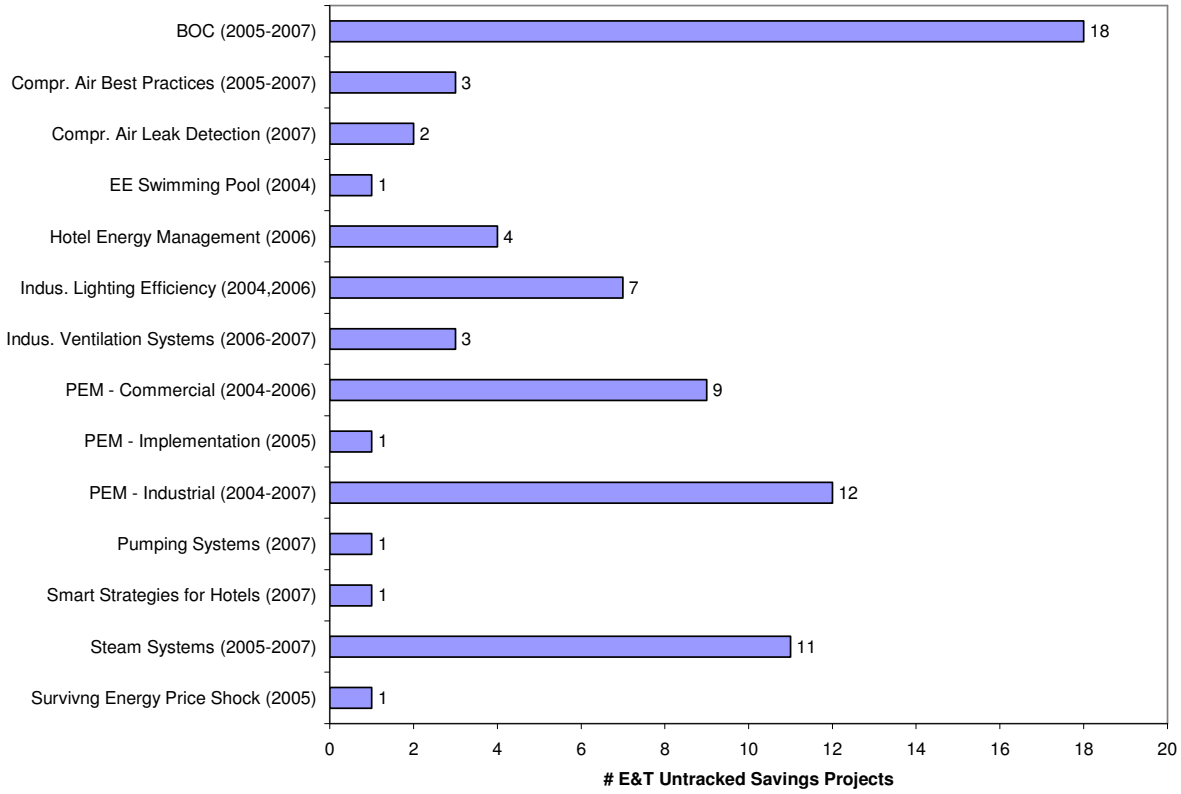
3.2 E&T PROGRAM UNTRACKED ENERGY-SAVING PROJECTS BY TRAINING COURSE

We looked at how the E&T Program untracked energy-saving projects were distributed by training course. This information is useful to know, not only for the sake of projecting future untracked energy savings, but also to help identify sectors or technologies where more education about the availability of Focus incentives may be needed.

We assumed that the BOC and PEM courses would generate the highest number of untracked projects. There were a number of reasons for this assumption. These courses had

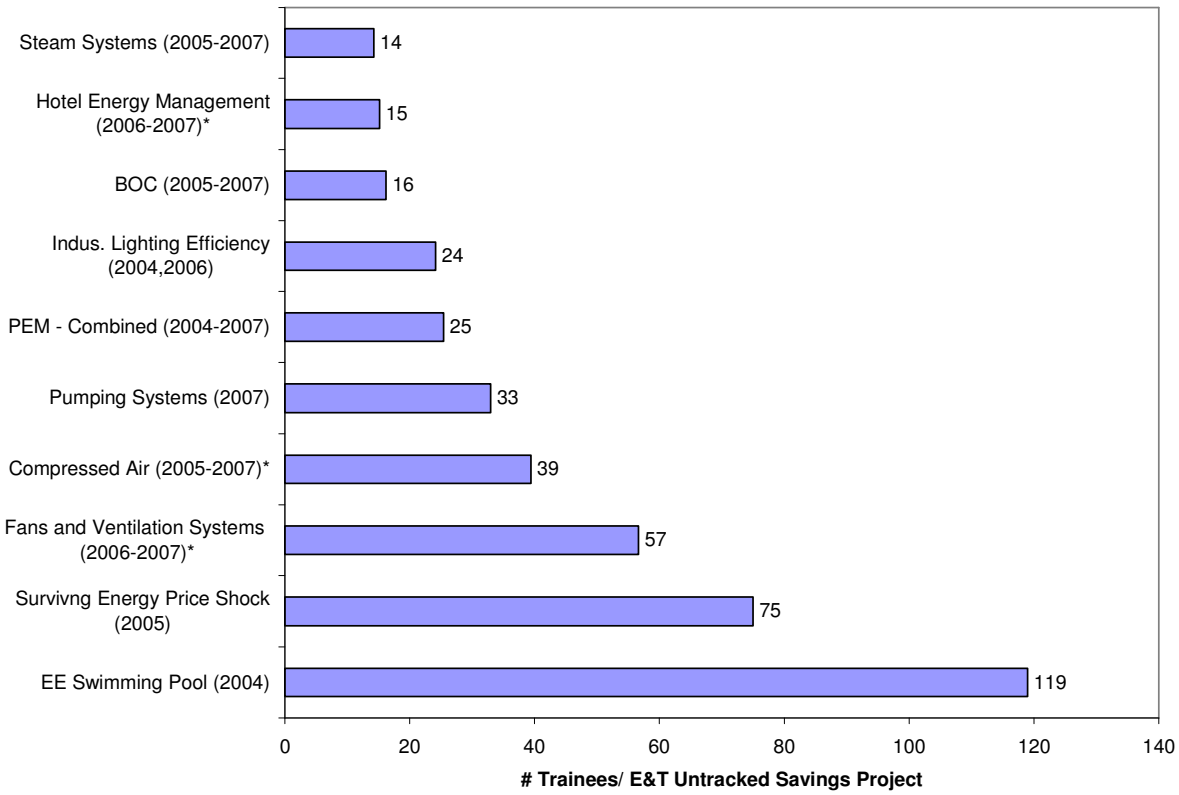
the largest attendance levels, were conducted nearly ever year during the 2004-2007 period, and encouraged changes in O&M procedures—which the Focus BP programs rarely offers financial incentives for. Figure 3-2 shows that this was indeed the case.

Figure 3-2. E&T Program Untracked Energy-Saving Projects by Training Course



However, when we normalized for the number of trainees who attended a given course category over the 2004–2007 period, the story changed slightly. Figure 3-3 shows the ratio of trainees to untracked energy-saving projects. It shows that the steam system, hotel energy management, and industrial lighting courses had trainee-to-untracked-project ratios that were similar to those of the BOC and PEM courses.

Figure 3-3. Number of Trainees Per Untracked Energy-Saving Project by Training Course



Note: * Indicates that similar courses were combined into a single stratum.

Of course, the untracked energy-saving projects were only a small proportion of the post-training energy-saving projects that the trainees identified. Table 3-3 shows that, on average, the untracked energy-saving projects accounted for 12 percent of the total post-training energy saving projects claimed by the trainees. Hotel energy management, steam systems, and BOC are training course categories for which the proportion of untracked energy-saving projects is much higher than average.

It is important to caution, however, that the count of "total post-training projects"—from which the count of "other post-training projects was also derived—is based solely on the information provided by trainees in the CATI survey. The engineering survey found out that many projects that the trainees had identified as post-training energy-saving projects in the CATI survey had been misidentified. For example, of 136 projects reviewed in the engineering survey, 22 (16 percent) were deemed by the engineers to not be energy-saving projects and 15 (11 percent) were found to have been implemented before the training course.

Table 3-3. Untracked Energy-Saving Projects as a Percentage of Total Post-Training Energy-Saving Projects

Training Course	Untracked Savings Projects	Other Post-Training Projects	Total Post-Training Projects	Untracked as % of Total
BOC (2005-2007)	18	77	95	19%
Bottom Line Results	0	2	2	0%
Compressed Air (2005-2007)*	5	62	67	7%
EE Swimming Pool (2004)	1	35	36	3%
Fans and Ventilation Systems (2006-2007)*	3	55	58	5%
Hotel Energy Management (2006-2007)*	5	15	20	25%
Indus. Lighting Efficiency (2004,2006)	7	40	47	15%
Industrial Refrigeration Best Practices	0	12	12	0%
PEM - Combined (2004-2007)	22	155	177	12%
Pumping Systems (2007)	1	8	9	11%
Steam Systems (2005-2007)	11	38	49	22%
Survivng Energy Price Shock (2005)	1	20	21	5%
Total	**74**	**519**	**593**	**12%**

Note: * Indicates that similar courses were combined into a single stratum.

Another limitation of the count of total projects in Table 3-3 is that it includes all post-training projects, whether they were influenced by the course or not. Table 3-4 is similar to Table 3-3 except that it looks at the subset of post-training energy saving projects that the trainees said were influenced by the training course in some way. The table shows that untracked energy-saving projects account for, on average, a fifth of the training-influenced post-training projects. For the steam system training courses, the untracked energy-saving projects accounted for nearly two-thirds of the training-influenced projects.

Table 3-4. Untracked Energy-Saving Projects as a Percentage of Total Program-Influenced Post-Training Energy Savings Projects

Training Course	Untracked Savings Projects	Other Training-Influenced Post-Training Projects	Total Training-Influenced Post-Training Projects	Untracked as % of Total Training-Influenced
BOC (2005-2007)	18	61	79	23%
Bottom Line Results	0	0	0	#DIV/0!
Compressed Air (2005-2007)*	5	24	29	17%
EE Swimming Pool (2004)	1	16	17	6%
Fans and Ventilation Systems (2006-2007)*	3	24	27	11%
Hotel Energy Management (2006-2007)*	5	10	15	33%
Indus. Lighting Efficiency (2004,2006)	7	21	28	25%
Industrial Refrigeration Best Practices	0	7	7	0%
PEM - Combined (2004-2007)	22	97	119	18%
Pumping Systems (2007)	1	6	7	14%
Steam Systems (2005-2007)	11	7	18	61%
Survivng Energy Price Shock (2005)	1	16	17	6%
Total	**74**	**289**	**363**	**20%**

3.3 E&T PROGRAM UNTRACKED ENERGY-SAVING PROJECTS BY PROJECT CATEGORY AND COMPANY SIZE

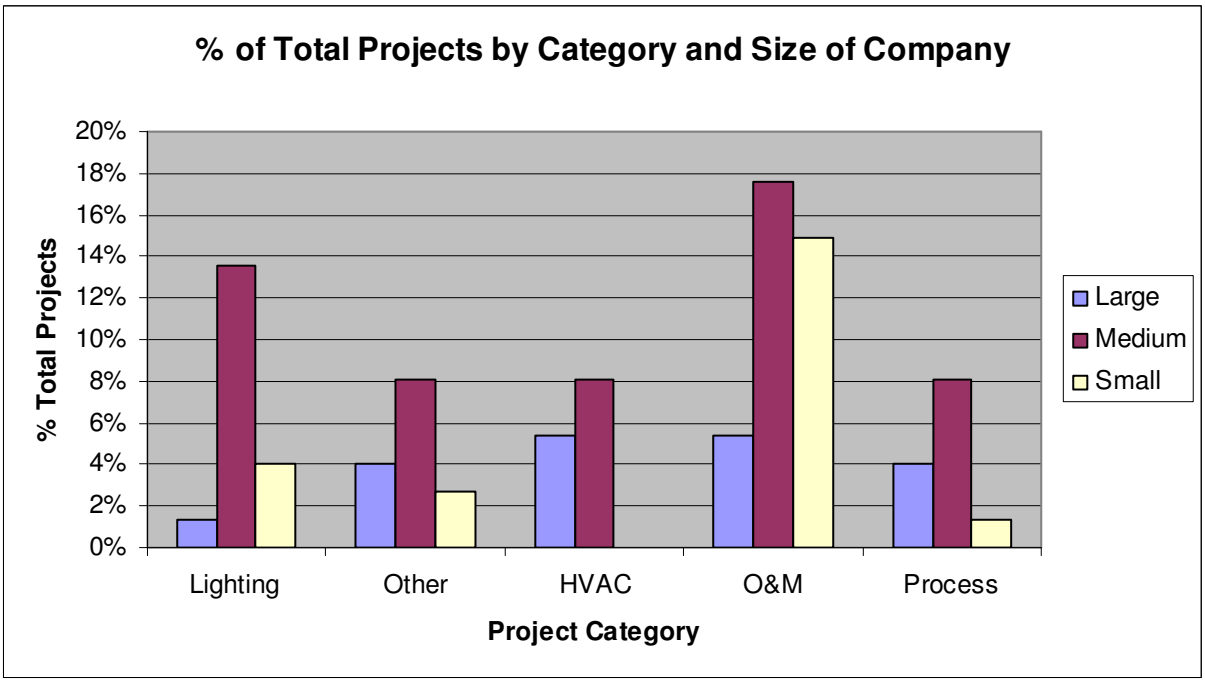
Another way to look at untracked energy savings projects is to look at the size of the companies that are implementing them. As noted, we defined large companies as having 500 employees or greater, medium companies as having 50–499 employees, and small companies as having fewer than 50 employees. Table 3-5 shows that the mix of company sizes for the trainees that implemented untracked savings projects was similar to that of the trainee population at large.

Table 3-5. Distribution of Trainees by Company Size Those with Untracked Savings vs. Total CATI Sample

Company Size	Trainees with Untracked Savings Projects (n = 55)	All trainees in CATI sample (n = 309)
Large	20%	19%
Medium	55%	50%
Small	23%	31%

Figure 3-4 looks at how the untracked energy-saving projects themselves are distributed across project categories and company sizes. It shows that for the small companies the O&M projects accounted for most of the untracked energy-saving projects. For the medium-sized companies lighting and O&M projects accounted for the bulk of the untracked energy-saving projects. For the large companies there is a fairly even distribution of project types. One possible explanation for this is that since O&M projects usually do not require a large capital expenditure, these projects are more appealing for companies of smaller size. Another possibility is that the larger companies already are following good O&M procedures due to their larger economies of scale and the greater likelihood that they will have energy managers. The fact that almost 40 percent of the untracked projects were O&M is likely because Focus does not offer financial incentives for most such projects.

Figure 3-4. Untracked Energy Savings Projects by Company Size and Project Category



3.4 THE TIMING OF POST-TRAINING PROJECTS

One question of interest is: How long after the training event were the untracked energy savings projects completed? Table 3-6 shows project completion dates (including estimates) for “one-time” untracked energy-savings projects. As noted, “one-time” projects were defined in the CATI survey as “discrete” projects that had “a defined beginning and end date.” It shows that most of the project activity occurs within four years of the training course (including the training year) although there are some lingering training effects.

Table 3-6. Completion Dates (Including Estimated) for "One-Time" Untracked Energy-Saving Projects by Year of Training Course

Year of Training	Year of Project Completion (or Planned Completion)										Total
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
2004			1	2			1				**4**
2005		3	3	1	5					1	**13**
2006			5	8	2	1	1				**17**
2007				3	2						**5**
Total	**0**	**3**	**9**	**14**	**9**	**1**	**2**	**0**	**0**	**1**	**39**

.

APPENDIX A: SURVEY INSTRUMENT

1. Reaching the Trainee

R1.
Hello, may I please speak with [<TRAINEE>]?

[IF THEY TRANSFER YOU TO <TRAINEE>] ..... 1 [SKIP TO R3]

[IF THEY ASK PURPOSE OF CALL] .....2 [GO TO R1A]

[Contact still at phone number but currently unavailable] ..... 3 [Schedule a callback]

[Contact not at phone number]..... 4 [SKIP TO R2]

R1A.
Hello, my name is _____ and I'm calling from The Leede Research Group on behalf of the Wisconsin Public Service Commission. According to our records, in <TRAINING_YEAR> <TRAINEE> took a <TRAINING_COURSE> training course that was administered by the Wisconsin Focus on Energy Program. I was hoping to ask <TRAINEE> some questions about this training course. May I please speak with <TRAINEE>?

[IF THEY TRANSFER YOU TO <TRAINEE>] ..... 1 [SKIP TO R3]

[Contact still at phone number but currently unavailable] ..... 2 [Schedule a callback]

[Contact not at phone number].....3

[Refusal] ..... 4 [THANK AND TERMINATE]

R2.

Did [<TRAINEE>] leave [<COMPANY_ORG>]?
[Yes] 1
[No] .....2 [SKIP TO R2C]
[Don't know] ..... -97 [THANK AND TERMINATE]
[Refused] ..... -98 [THANK AND TERMINATE]

R2A.
Do you know what company or organization that [<TRAINEE>] is working for now?
[Yes] 1
[No] ..... 2 [THANK AND TERMINATE]
[Don't know] ..... -97 [THANK AND TERMINATE]
[Refused ..... -98 [THANK AND TERMINATE]

R2B.
Please tell me the name of the company or organization and which state this is located in.
[RECORD COMPANY/ORGANIZATION & STATE] [THANK AND TERMINATE]
Don't know ..... -97 [THANK AND TERMINATE]
Refused ..... -98 [THANK AND TERMINATE]

R2C.
Do you have an alternative phone number for this person?
[Yes] ..... 1[RECORD PHONE NUMBER, Control End & schedule a callback]
[No] ..... 2 [THANK AND TERMINATE]
[Don't know] ..... -97 [THANK AND TERMINATE]
[Refused ..... -98 [THANK AND TERMINATE]

R3.
Hello, my name is _____ and I'm calling from The Leede Research Group on behalf of the Wisconsin Public Service Commission for the Focus on Energy Program. According to our records, in <TRAINING_YEAR> you took a <TRAINING_COURSE> training course that was administered by the Wisconsin Focus on Energy Program. Do you recall taking this training course?
[Yes] 1
[No] ..... 2 [SKIP TO R6]
[Don't know] ..... -97 [SKIP TO R6]
[Refused] ..... -98 [SKIP TO R6]

R4.
We are calling to find out why you took the <TRAINING_COURSE> training course and how it may have influenced your workplace activities. Do you have a few minutes to answer some questions? Your responses will be kept confidential. [IF TRAINEE ASK HOW LONG THE SURVEY WILL TAKE, SAY ABOUT 10 MINUTES]
[Yes] ..... 1 [SKIP TO R6]
[No] ..... 2[Schedule a callback]
[Don't know] ..... -97[Schedule a callback]
[Refused] ..... -98 [SKIP TO R5]

R5.
Thank you very much for your time today. Those are all the questions I have.
[Trainee no longer available/Refused] ..... 1[END INTERVIEW]

R6.
What's your current job title?
[RECORD JOB TITLE] _____
[Don't know] ..... -97
[Refused] ..... -98

R7.
How many years have you worked for <COMPANY_ORG>?
[RECORD JOB TITLE] _____
[Don't know] ..... -97
[Refused] ..... -98

R8.
Do you have regular access to data on the energy consumption in your facility?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

R9. [IF R4=1 SKIP TO P1]
Thank you very much for your time today. Those are all the questions I have.

[Trainee does not recall course][END INTERVIEW]

2. Reasons for Taking Training Course, Training Options, Company Training Practices

P1.

What was your main reason for taking <TRAINING_COURSE> in <TRAINING_YEAR>?

[DO NOT READ RESPONSES, ONLY ALLOW ONE RESPONSE]
[To increase the energy efficiency of my company/organization].....1
[To reduce the energy costs of my company/organization].....2
[To get an accreditation/certification].....3
[To get new skills/knowledge working with equipment.....4
[To help me sell energy-efficient products].....5
[To increase the comfort levels in the buildings of my company/organization].....6
[To learn how my company/organization can use renewable energy] 7
[To help the environment/reduce global warming].....8
[Other] [RECORD] _____.....10
[Don't know].....-97
[Refused] .....-98
[To increase my knowledge for my energy consulting practice]……9

P2.

What were other reasons for taking this training course? [DO NOT READ RESPONSES, ALLOW MULTIPLE RESPONSES]
[No other reasons] 1
[To increase the energy efficiency of my company/organization].....2
[To reduce the energy costs of my company/organization].....3
[To get an accreditation/certification].....4
[To get new skills/knowledge working with equipment.....5
[To help me sell energy-efficient products].....6
[To increase the comfort levels in the buildings of my company/organization].....7
[To learn how my company/organization can use renewable energy] 8
[To help the environment/reduce global warming].....9
[Other] [RECORD] _____.....10
[Don't know].....-97
[Refused] .....-98

P3.

A common reason why people take these training courses is to learn how to reduce their company's or organization's energy costs. Using a scale of 1 to 5 where 5 means "Very Important" and 1 means "Not Important At All," please tell me how important this was as a reason for taking the <TRAINING_COURSE> course. [REPEAT REASON IF NECESSARY]
[Not important at all].....1
.....2
.....3
.....4
[Very important] 5
[Don't know].....-97
[Refused] .....-98

P4. [IF P1 = 5 OR P2 = 6 ELSE SKIP TO P5]
Another possible reason why people take these training courses is to learn how to better sell energy-efficient products. Using a scale of 1 to 5 where 5 means "Very Important" and 1 means "Not Important At All," please tell me how important this was as a reason for taking the <TRAINING_COURSE> course. [REPEAT REASON IF NECESSARY]
[Not important at all].....1
.....2
.....3
.....4
[Very important] 5
[Don't know].....-97
[Refused] .....-98

P5.
If Focus on Energy had not offered this training course, do you think you would have been able to receive similar training from somewhere else?
[Yes] 1
[No] .....2 [SKIP TO P7]
[Don't know]..... -97 [SKIP TO P7]
[Refused] ..... -98 [SKIP TO P7]

P6.
From where do you think you would have been able to receive training that was similar to what you received from Focus on Energy?
[RECORD RESPONSE]_____
[Don't know].....-97
[Refused] .....-98

P7.
Was the decision to take this <TRAINING_COURSE> course mainly your decision, mainly the decision of somebody else in your company or organization, or a combination of both?
[Mainly my decision].....1
[Mainly the decision of somebody in my company/organization] 2
[A combination of both] 3
[Don't know].....-97
[Refused] .....-98

P8.
How important do you think energy efficiency training is for your company or organization, would you say it's ….. [READ EACH UNBRACKETED RESPONSE]
Very important 1
Somewhat important 2
Neither important nor unimportant 3
Somewhat unimportant 4
Very unimportant 5
[Don't know] .....-97
[Refused] .....-98

P8A.
What kinds of things make it difficult for companies or organizations like <COMPANY_ORG> to send their staff to training programs?
[RECORD]_____
[Don't know] .....-97
[Refused] .....-98

P9. [IF <MULTIPLE> > 0 ELSE SKIP TO P10]

According to our information you have taken multiple energy efficiency training courses with Focus on Energy. What were your reasons for taking multiple courses? [ALLOW MULTIPLE RESPONSES]
[Multiple courses were needed for my certification/accreditation] 1
[My company/organization required multiple courses] 2
[I needed to refresh my knowledge] 3
[The training information was useful/interesting] 4
[I needed information on multiple technologies] 5
[I needed more in-depth knowledge] 6
[Other] [RECORD] _____ 7
[Other] [RECORD] _____ 8
[Don't know] .....-97
[Refused] .....-98

P10. [IF <STATE> ≠ "WI" ELSE SKIP TO P14]
I noticed that the address listed in your training registration information was not a Wisconsin address. Will the knowledge that you learned from this <TRAINING_COURSE> training course in Wisconsin be used for any Wisconsin facilities or operations?
[Yes] 1
[No] .....2[SKIP TO P11]
[Don't know] .....-97[SKIP TO P11]
[Refused] .....-98[SKIP TO P11]

P10A.
Where are these Wisconsin facilities or operation located?
[RECORD TOWN/CITY NAME] _____
[Don't know] .....-97
[Refused] .....-98

P11.
Do you plan to use the knowledge from the training course in any other states besides Wisconsin?
[Yes] 1
[No] .....2 [SKIP TO P13]
[Don't know] .....-97 [SKIP TO P13]
[Refused] .....-98 [SKIP TO P13]

P12.
In what other states do you plan to use this knowledge?
[RECORD STATES] _____
[Don't know] .....-97
[Refused] .....-98

P13.

Why did you travel to Wisconsin to take this training course instead of taking it in the state listed in your registration information? [ALLOW MULTIPLE RESPONSES]
[This course was not available in my state] 1
[This course was not ***conveniently*** available in my state] 2
[It was easier for my company/organization to send many employees to a single training location] 3
[The address on the registration form is a company address and not mine] 4
[Other] [RECORD] _____ 5
[Other] [RECORD] _____ 6
[Don't know] .....-97
[Refused] .....-98

P14.

IF P3 > P4 OR P3 = P4 THEN SKIP TO QUESTION ES1_A

IF P4 > P3 THEN SKIP TO QUESTION T1

3. End Users Identifying EE Spillover Projects

ES1_a.

Since you took the Focus on Energy <TRAINING_COURSE> training course in <TRAINING_YEAR> has <COMPANY_ORG> completed any energy-saving projects in your Wisconsin buildings? By energy-saving projects I mean something like the installation of energy-saving equipment or a new construction or retrofit project that saves energy?
[Yes] 1
[No] ..... 2 [SKIP TO ES19_a]
[Don't know] ..... -97 [SKIP TO ES19_a]
[Refused] ..... -98 [SKIP TO ES19_a]

ES1A_a.
Which of the following best describes this energy-saving project? Would you say it involves: [READ UNBRACKETED RESPONSES ONLY. ONLY ALLOW ONE RESPONSE. REPEAT CHOICES IF NECESSARY]

[IF THEY MENTION MULTIPLE PROJECTS, SAY: "OK, LET'S TAKE THEM ONE AT A TIME," THEN ASK ES1_A – ES17_A FOR THE FIRST PROJECT AND THEN REPEAT QUESTIONS FOR SECOND PROJECT, ETC.]

A replacement of existing equipment? 1
A modification of existing equipment? 2
A new construction project? 3
A building expansion project? 4
[Other] [RECORD RESPONSE] _____ 5
[Don't know] ..... -97
[Refused] ..... -98

ES1B_a.
What type of energy-using equipment did the project involve? [DO NOT READ. ALLOW MULTIPLE RESPONSES]
[Lighting] 1
[Heating/Cooling/HVAC] 2
[Motors/Variable Speed Drives (VSDs)/ Pumps] 3
[Fans/Ventilation] 4
[Compressed Air] 5
[Steam Systems] 6
[Refrigeration] 7
[Changes in Manufacturing Processes] 8
[Swimming Pool Motors] 9
[Other] [RECORD RESPONSE] _____ 10
[Other] [RECORD RESPONSE] _____ 11
[Don't know] ..... -97
[Refused] ..... -98

ES2_a.

Please provide a very brief summary description of this project.

[IF THEY MENTION SOMETHING THAT DOESN'T SOUND LIKE A DISCRETE PROJECT, BUT INSTEAD SOUNDS LIKE A CHANGE IN THEIR ROUTINE OPERATIONS OR MAINTENANCE PROCEDURES, SAY: "THAT SOUNDS LIKE A CHANGE IN YOUR ROUTINE OPERATIONS OR MAINTENANCE AND I'LL ASK YOU ABOUT THAT LATER. RIGHT NOW I'M ASKING ABOUT ENERGY EFFICIENCY PROJECTS WITH A DEFINED BEGINNING AND END DATE."]

[RECORD DESCRIPTION] _____ [SKIP TO ES2A]
[Don't know] ..... -97 [SKIP TO ES3]
[Refused] ..... -98 [SKIP TO ES2A]

ES2A_a.
Are you familiar enough with the project to answer some questions?
Yes Skip to ES4
No Continue to ES3
[Don't know] Continue to ES3
[Refused] Continue to ES3

ES3_a.

Who at <COMPANY_ORG> would be familiar with this project?

[RECORD NAME AND PHONE #] _____ [SKIP TO ES18]
[Don't know] ..... -97 [SKIP TO ES18]
[Refused] ..... -98 [SKIP TO ES18]

ES4_a.

About what year was this project completed?

[RECORD YEAR] _____ ..... [SKIP TO ES5]

[PROJECT IS STILL ONGOING] 1
[Don't know] ..... -97 [SKIP TO ES5]
[Refused] ..... -98 [SKIP TO ES5]

ES4B_a.
About what year do you expect this project to be completed?

[RECORD YEAR] _____ .....
[Don't know] ..... -97
[Refused] ..... -98

ES5_a.

In what city and state were the facilities located where this project was completed? [IF PROJECT IS ONGOING ASK INSTEAD: "IN WHAT CITY AND STATE ARE THE FACILITIES LOCATED WHERE THIS PROJECT WILL BE COMPLETED?"]

[RECORD ADDRESS(ES)] _____
[Don't know] ..... -97
[Refused] ..... -98

ES5A_a.

Did you use any of the information you learned in the <TRAINING COURSE> course in planning this project?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

ES6_a.
Do you think you received a rebate, a price discount, or any other financial assistance to help with this energy-saving project?
[Yes] 1
[No] ..... 2 [SKIP TO ES8]
[Don't know] ..... -97 [SKIP TO ES8]
[Refused] ..... -98 [SKIP TO ES8]

ES7_a.
Do you think the rebate, price discount, or the majority of any other financial assistance was paid for by Focus on Energy?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

ES8_a.
Do you think you received any assistance, other than financial, from Focus on Energy to make this energy efficiency improvement?
[Yes] 1
[No] ..... 2 [SKIP TO ES9A]
[Don't know] ..... -97 [SKIP TO ES9A]
[Refused] ..... -98 [SKIP TO ES9A]

ES9_a.
What was the nature of this assistance? [DO NOT READ. ALLOW MULTIPLE RESPONSES]
[Energy savings information] 1
[Project cost information] 2
[Technology information] 3
[Helping sell the project to management] 4
[Helping find a vendor/contractor] 5
[Other] [RECORD RESPONSE] _____
[Don't know] ..... -97
[Refused] ..... -98

ES9A_a [IF E7 = 1 OR E8 = 1, ELSE SKIP TO ES10]
If you had not received help from the Focus on Energy Program, how likely would you have been to undertake the energy efficiency improvements? …Would you say you would have been …[READ UNBRACKETED RESPONSES]
Very likely 1
Somewhat likely 2
Not very likely 3
Or very unlikely 4
[Don't know] ..... -97
[Refused] ..... –98

ES10_a.
Did the Focus on Energy <TRAINING_COURSE> training course that you took in <TRAINING_YEAR> influence the implementation of this project in any way?
[Yes] 1
[No] ..... 2 [SKIP TO ES12]
[Don't know] ..... -97 [SKIP TO ES12]
[Refused] ..... -98 [SKIP TO ES12]

ES11_a.
How did this training course influence this project?
[RECORD RESPONSE] _____
[Don't know] ..... -97
[Refused] ..... -98

ES12_a.
If you had not taken the <TRAINING_COURSE> training course, how likely would you have undertaken this energy-saving project? Would you say you would have been …[READ UNBRACKETED RESPONSES]
Very likely 1
Somewhat likely 2
Not very likely 3
Or very unlikely ..... 4 [SKIP TO ES18]
[Don't know] ..... -97 [SKIP TO ES18]
[Refused] ..... –98 [SKIP TO ES18]

ES13_a
If you had not taken this training course, how different might the timing have been for this energy-saving project? Would you say you would have undertaken them at the same time, earlier, or later?
[Same time] ..... 1 [SKIP TO ES16]
[Earlier] ..... 2 [SKIP TO ES16]
[Later] 3
[Don't know] ..... -97 [SKIP TO ES16]
[Refused] ..... –98 [SKIP TO ES16]

ES14_a
How many months later?
[RECORD # OF MONTHS]_____
[Don't know] ..... -97
[Refused] ..... –98

ES15_a.
Why do think that you would have undertaken this energy-saving project later if you had not taken this training course?
[RECORD RESPONSE] _____
[Don't know] ..... -97
[Refused] ..... -98

ES16_a
If you had not taken the <TRAINING _COURSE> training course, how different would have been the amount of energy savings that you got from the project? Would you say that the project would have achieved the same amount of energy savings, less energy savings, or more energy savings without the training course?
[The same amount of energy savings] ..... 1 [SKIP TO ES18]
[Less energy savings] 2
[More energy savings] ..... 3 [SKIP TO ES18]
[Don't know] ..... -97 [SKIP TO ES18]
[Refused] ..... –98 [SKIP TO ES18]

ES17_a.
Why do you think the project would have had less energy savings if you had not taken the training course?
[RECORD RESPONSE] _____
[Don't know] ..... -97
[Refused] ..... -98

ES18_a.
Has <COMPANY_ORG> implemented any other energy-saving projects in its Wisconsin locations since you took the Focus on Energy <TRAINING_COURSE> training course in <TRAINING_YEAR>?
[Yes] ..... 1 [REPEAT QUESTIONS ES1_a-ES18_a FOR NEW PROJECT]
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

Energy Saving Changes in Operations and Maintenance

ES19_a.

Has <COMPANY_ORG> made any energy-saving changes in its routine operations, building management practices, or equipment maintenance routines at its Wisconsin locations since you took the Focus on Energy <TRAINING_COURSE> training course in <TRAINING_YEAR>?

[Yes] 1
[No] ..... 2 [SKIP TO ES37]
[Don't know] ..... -97 [SKIP TO ES37]
[Refused] ..... -98 [SKIP TO ES37]

ES19B

How many changes did you make?

[If more than 3 changes, ask for the 3 changes that were most significant to their company/org]

ES19BB

Record first change

(If ES19B = 1, skip to ES20)

ES19CC

Record second change

(IF ES19B = 2, skip to ES20)

ES19DD

Record third change

ES20_a. *[also ES20BB & ES20CC, if needed for multiple projects, replaces ES36]**

Please provide a very brief summary of this [IF THIS IS NOT THE FIRST CHANGE, SAY "SECOND," "THIRD," ETC.] change in your routine operations, building management practices, or equipment maintenance routines?

[ASK ES20_A – ES35_A FOR THE FIRST CHANGE AND THEN REPEAT QUESTIONS FOR SECOND CHANGE, ETC]

[RECORD DESCRIPTION] _____ [SKIP TO ES20A]
[Don't know] ..... -97 [SKIP TO ES21]
[Refused] ..... -98 [SKIP TO ES20A]

ES20A_a.
Are you familiar enough with the project to answer some questions?
Yes Skip to ES23
No Continue to ES21
[Don't know] Continue to ES2
[Refused] Continue to ES21

ES21_a.

Who at <COMPANY_ORG> would be familiar with this change?

[RECORD NAME AND PHONE #] _____ [SKIP TO ES20BB]
[Don't know] ..... -97 [SKIP TO ES20BB]
[Refused] ..... -98 [SKIP TO ES20BB]

ES23_a.

In what city and state were the facilities located where this energy-saving change in your operations or maintenance routines was implemented?

[RECORD CITY AND STATE] _____
[Don't know] ..... -97
[Refused] ..... -98

ES23A_a.

Did you use any of the information you learned in the <TRAINING COURSE> course in planning this change in your operations or maintenance routines?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

ES24_a.
Do you think you received a rebate, a price discount, or any other financial assistance for this energy-saving change in your operations or maintenance routines?
[Yes] 1
[No] ..... 2 [SKIP TO ES26]
[Don't know] ..... -97 [SKIP TO ES26]
[Refused] ..... -98 [SKIP TO ES26]

ES25_a.
Do you think the rebate, price discount, or the majority of any other financial assistance was paid for by Focus on Energy?
[Yes] 1
[No] ..... 2]
[Don't know] ..... -97]
[Refused] ..... -98

ES26_a.
Do you think you received any assistance, other than financial, from Focus on Energy for this energy-saving change in your operations or maintenance routines?
[Yes] 1
[No] .....2 [SKIP TO ES27A]
[Don't know] .....-97 [SKIP TO ES27A]
[Refused] .....-98 [SKIP TO ES27A]

ES27_a.
What was the nature of this assistance? [DO NOT READ. ALLOW MULTIPLE RESPONSES]
[Energy savings information] 1
[Project cost information] 2
[Technology information] 3
[Helping sell the project to management] 4
[Helping find a vendor/contractor] 5
[Other] [RECORD RESPONSE] _____
[Don't know] .....-97
[Refused] .....-98

ES27A_a [IF E25 = 1 OR E26 = 1, ELSE SKIP TO ES28]
If you had not received help from the Focus on Energy Program, how likely would you have been to undertake the energy efficiency improvements? …Would you say you would have been …[READ UNBRACKETED RESPONSES]
Very likely 1
Somewhat likely 2
Not very likely 3
Or very unlikely 4
[Don't know] .....-97
[Refused] .....–98

ES28_a.
Did the Focus on Energy <TRAINING_COURSE> training course that you took in <TRAINING_YEAR> influence this change in your routine operations, building management practices, or equipment maintenance routines?
[Yes] 1
[No] ..... 2 [SKIP TO ES30][SKIP TO ES30_A]
[Don't know] ..... -97[SKIP TO ES30][SKIP TO ES30_A]
[Refused] ..... -98 [SKIP TO ES30][SKIP TO ES30_A]

ES29_a.
How did this training course influence this change?
[RECORD RESPONSE] _____
[Don't know] .....-97
[Refused] .....-98

ES30_a.
If you had not taken the <TRAINING_COURSE> training course, how likely would you have made this energy-saving change in your operations or maintenance routines? Would you say you would have been …[READ UNBRACKETED RESPONSES]
Very likely 1
Somewhat likely 2
Not very likely 3
Or very unlikely ..... 4 [SKIP TO ES20BB]
[Don't know] ..... -97 [SKIP TO ES20BB]
[Refused] ..... –98 [SKIP TO ES20BB]

ES31_a
If you had not taken this training course, how different might the timing have been for this change in your operations or maintenance routines? Would you say you would have undertaken it at the same time, earlier, or later?
[Same time] ..... 1 [SKIP TO ES34]
[Earlier] ..... 2 [SKIP TO ES34]
[Later] 3
[Don't know] ..... -97 [SKIP TO ES34]
[Refused] ..... –98 [SKIP TO ES34]

ES32_a
How many months later?
[RECORD # OF MONTHS]_____
[Don't know] ..... -97
[Refused] ..... –98

ES33_a.
Why do think that you would have undertaken this change in your operations or maintenance routines later if you had not taken this training course?
[RECORD RESPONSE] _____
[Don't know] ..... -97
[Refused] ..... -98

ES34_a
If you had not taken the <TRAINING _COURSE> training course, how different would have been the amount of energy savings from this change in your operations or maintenance routines? Would you say that this change would have produced the same amount of energy savings, less energy savings, or more energy savings without the training course?
[The same amount of energy savings] ..... 1 [SKIP TO ES36]
[Less energy savings] 2
[More energy savings] ..... 3 [SKIP TO ES36]
[Don't know] ..... -97 [SKIP TO ES36]
[Refused] ..... –98 [SKIP TO ES36]

ES35_a.
Why do you think the change would have produced less energy savings if you had not taken the training course?
[RECORD RESPONSE] _____
[Don't know] ..... -97
[Refused] ..... -98

*****ES36_a. *** This question has been replaced with ES20BB and ES20CC if needed**
Has <COMPANY_ORG> made any other changes in its routine operations, building management practices, or equipment maintenance routines at its Wisconsin locations since you took the Focus on Energy <TRAINING_COURSE> training course in <TRAINING_YEAR>?
[Yes] .....1 [REPEAT QUESTIONS ES20-ES35 FOR NEW CHANGE]
[No] 2
[Don't know] .....-97
[Refused] .....-98

ES37_a.
Were you aware that Wisconsin Focus on Energy will reimburse training course costs and offer other financial incentives to training course participants who complete energy efficiency projects within a few months after they take the course?
[Yes] 1
[No] ..... 2[SKIP TO ES40]
[Don't know] ..... -97[SKIP TO ES40]
[Refused] ..... -98[SKIP TO ES40]

ES38_a.
Did your company take advantage of these bonus financial incentives from Focus on Energy?
[Yes] ..... 1[SKIP TO ES40]
[No] 2
[Don't know] ..... -97[SKIP TO ES40]
[Refused] ..... -98[SKIP TO ES40]

ES39_a.
Why not? [ALLOW MULTIPLE RESPONSES]
[Too busy to deal with paperwork] 1
[Our project couldn't be completed that quickly] 2
[Just forgot about the bonus incentives] 3
[Didn't think our project qualified] 4
[Other] [RECORD] 5
[Don't know] .....-97
[Refused] .....-98

ES40_a.
What factors or barriers have made it difficult for your company or organization to implement some of these changes that you learned at the <TRAINING_COURSE> training course? [DO NOT READ. ALLOW MULTIPLE RESPONSES]
[No barriers/difficulties] 1
[Been too busy] 2
[Need more information/training] 3
[Financial barriers/cost considerations] 4
[Lack support from management] 5
[Other] RECORD _____ 6
[Other] RECORD _____ 7
[Don't know] .....-97
[Refused] .....-98

4. Training Influences on Trade Allies

T1. [IF P3 > P4 OR P3 = P4, SKIP TO QUESTION CO1]
You indicated that an important reason for taking this <TRAINING_COURSE> training course was to learn how to better sell energy-efficient products. What energy-efficient products or services do you sell? [ALLOW MULTIPLE RESPONSES]
[Energy-efficient heating and cooling/HVAC equipment] 1
[Energy-efficient water heating equipment] 2
[Energy-efficient lighting/lighting controls] 3
[Energy-efficient motors] 4
[Energy-efficient fans/ventilation equipment] 5
[Energy-efficient pumps] 6
[Energy-efficient compressed air systems] 7
[Energy-efficient appliances] 8
[Insulation] 9
[Steam traps] 10
[Other]_____ 11
[Other]_____ 12
[Don't know] ..... -97
[Refused] ..... –98

T1A. [IF <STATE> ≠ "WI" ELSE SKIP TO T2.]
Do you sell these energy-efficient products or services in Wisconsin?
[Yes] 1
[No] ..... 2[SKIP TO CO1]
[Don't know] ..... -97[SKIP TO CO1]
[Refused] ..... -98[SKIP TO CO1]

T1B.
Approximately what percentage of your energy-efficient products or services is sold in Wisconsin?
[RECORD %]
[Don't know] ..... -97
[Refused] ..... –98

T2.
How has your company been involved with Focus on Energy?
[RECORD RESPONSE]_____
[Don't know] ..... -97
[Refused] ..... –98

T3.

How long has your company been involved with Focus on Energy?

[RECORD # OF YEARS]
[Don't know] ..... -97
[Refused] ..... –98

T4.

Has your company sold products to customers that receive rebates or other financial incentives from the Focus on Energy program?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

T5.

Has your company received customer leads from Focus on Energy?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

T6.

Has your company used Focus on Energy marketing materials to help promote energy efficiency products and services?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

T7.

Has your company received technical assistance from Focus on Energy?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

T8.

Has your company been introduced to new energy-efficient technologies by Focus on Energy?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

T9.

Has your company received any other assistance from Focus of Energy not already mentioned?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

T10.

Has your company used any information from this <TRAINING_COURSE> training course for the materials that you use to promote your energy-efficient products and services in Wisconsin?

[Yes] 1
[No] .....2 [SKIP TO T12]
[Don't know] .....-97 [SKIP TO T12]
[Refused] .....-98 [SKIP TO T12]

T11.

What types of information have you used in these materials?

[RECORD] _____
[Don't know] .....-97
[Refused] .....-98

T12.

Did the information you learned from this training course help you or your company sell energy-efficient products and services in Wisconsin?

[Yes] 1
[No] .....2 [SKIP TO T14]
[Don't know] .....-97 [SKIP TO T14]
[Refused] .....-98 [SKIP TO T14]

T13.

How did information from the training course help you to sell energy-efficient products and services in Wisconsin?

[RECORD] _____
[Don't know] .....-97
[Refused] .....-98

T14.

If you had not taken this <TRAINING_COURSE> training course, would the products or services you provide customers in Wisconsin be different than they are today?

[Yes] 1
[No] .....2 [SKIP TO T16]
[Don't know] .....-97 [SKIP TO T16]
[Refused] .....-98 [SKIP TO T16]

T15.

How would your products or services be different if you had not taken this training course?

[RECORD] _____
[Don't know] .....-97
[Refused] .....-98

T16.

If you had not taken this <TRAINING_COURSE> training course, would your company's sales volume of energy efficient equipment or services in Wisconsin be higher, lower, or about the same as it is today?

[Higher] 1
[Lower] .....2 [SKIP TO T18]
[About the same].....3 [SKIP TO T19]
[Don't know].....-97 [SKIP TO T19]
[Refused] .....-98 [SKIP TO T19]

T17.
Why do you say that?
[RECORD RESPONSE]_____
[Don't know].....-97
[Refused] .....-98

T18. [IF T16 = 1 SKIP TO T19]

Please estimate by what percentage your company's volume of energy efficient equipment or services in Wisconsin would have been lower if you had not taken this training course?

[RECORD %] _____
[Don't know].....-97
[Refused] .....-98

T19.
About what percentage of the energy-efficient products or services that you sell in Wisconsin receive rebates or other financial incentives from Focus on Energy?

[RECORD %] _____
[Don't know].....-97
[Refused] .....-98

T20.
Are there any other ways, besides those already discussed, that taking this <TRAINING_COURSE> training course has affected your company's practices?
[Yes] 1
[No] 2
[Don't know].....-97
[Refused] .....-98

T21.
What other ways has this <TRAINING_COURSE> training course affected your company's practices in Wisconsin?
[RECORD RESPONSE] _____
[Don't know].....-97
[Refused] .....-98

T22.
What factors or barriers have made it difficult for your company to implement some of methods that you learned at the <TRAINING_COURSE> training course? [DO NOT READ. ALLOW MULTIPLE RESPONSES]
[No barriers/difficulties] 1
[Been too busy].....2
[Need more information/training].....3
[Financial barriers/cost considerations] 4
[Lack support from management].....5
[Other] RECORD _____ 6
[Other] RECORD _____ 7
[Don't know].....-97
[Refused] .....-98

5. The Effects of Specific Training Courses

Compressed Air

CO1. [IF <COURSE> = "COMPRESSED AIR" ELSE SKIP TO PO1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization made any changes to the design, operation or maintenance of your compressed air systems that you haven't already mentioned?
[Yes] 1
[No] .....2 [SKIP TO PO1]
[Don't know].....-97 [SKIP TO PO1]
[Refused] .....-98 [SKIP TO PO1]

CO2.
What changes are these? [ALLOW MULTIPLE RESPONSES]
[Leak detection and repair].....1
[Eliminating unnecessary uses].....2
[Minimizing pressure drops from supply to end use].....3
[Reducing unnecessary system pressure].....4
[Sizing and controlling compressors to match loads].....5
[Using outside air for cooling].....6
[Waste heat recovery].....7
[Improving routine maintenance].....8
[Other] RECORD _____ 9
[Other] RECORD _____ 10
[Don't know].....-97
[Refused] .....-98

Swimming Pools

PO1. [IF <STRATA> = "POOLS" ELSE SKIP TO PEM1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization made any changes to the design, operation or maintenance of your swimming pools that you haven't already mentioned?
[Yes] 1
[No] ..... 2 [SKIP TO PEM1]
[Don't know] ..... -97 [SKIP TO PEM1]
[Refused] ..... -98 [SKIP TO PEM1]

PO2.
What changes are these? [ALLOW MULTIPLE RESPONSES]
[Installing a high efficiency or solar pool heater] 1
[Using a pool cover] 2
[Regulating the pool temperature] 3
[Installing more energy-efficient pool pumps] 4
[Using pool pumps less frequently] 5
[Other] RECORD _____ 6
[Other] RECORD _____ 7
[Don't know] ..... -97
[Refused] ..... -98

Practical Energy Management

PEM1. [IF <STRATA > = "PEM" ELSE SKIP TO IV1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization set any energy savings goals?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

PEM2.
Since taking this training course, has your company or organization inventoried its energy costs?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

PEM3.
Since taking this training course, has your company or organization assessed the amount of energy used by its equipment?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

PEM4.
Since taking this training course, has your company or organization created an energy management plan?
[Yes] 1
[No] .....2 [SKIP TO IV1]
[Don't know] ..... -97 [SKIP TO IV1]
[Refused] ..... -98 [SKIP TO IV1]

PEM5.
Since taking this training course, has your company or organization implemented this energy management plan?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

Industrial Ventilation

IV1. [IF <STRATA> = "VENTILATION" ELSE SKIP TO ST1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization made any changes to the design, operation or maintenance of its ventilation systems that you haven't already mentioned?
[Yes] 1
[No] ..... 2 [SKIP TO ST1]
[Don't know] ..... -97 [SKIP TO ST1]
[Refused] ..... -98 [SKIP TO ST1]

IV2.
What changes are these? [ALLOW MULTIPLE RESPONSES]
[Optimizing current control system] 1
[Upgrading current control system] 2
[Recovering heat from processors for space heating or make-up air] 3
[Reducing make-up air needs by preheating combustion air] 4
[Reducing/controlling exhaust systems for machinery operation] 5
[Using variable speed/frequency drives (VSDs/VFDs) or multistage burners for make-up air units] 6
[Using energy-efficient filtration systems] 7
[Other] RECORD _____ 8
[Other] RECORD _____ 9
[Don't know] .....-97
[Refused] .....-98

Steam Systems

ST1. [IF <STRATA > = "STEAM" ELSE SKIP TO PU1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization made any changes to the design, operation or maintenance of its steam systems that you haven't already mentioned?
[Yes] 1
[No] ..... 2 [SKIP TO PU1]
[Don't know] ..... -97 [SKIP TO PU1]
[Refused] ..... -98 [SKIP TO PU1]

ST2.
What changes are these? [ALLOW MULTIPLE RESPONSES]
[Optimizing the steam generation efficiency of boilers] 1
[Steam system balancing] 2
[Incorporating/optimizing combined heat and power (CHP) systems] 3
[Reducing steam system leaks and losses] 4
[Other] RECORD _____ 5
[Other] RECORD _____ 6
[Don't know] ..... -97
[Refused] ..... -98

Pumping Efficiency

PU1. [IF <STRATA> = "PUMPS" ELSE SKIP TO IR1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization made any changes to the design, operation or maintenance of its pumping systems that you haven't already mentioned?
[Yes] 1
[No] ..... 2 [SKIP TO IR1]
[Don't know] ..... -97 [SKIP TO IR1]
[Refused] ..... -98 [SKIP TO IR1]

PU2.
What changes are these? [ALLOW MULTIPLE RESPONSES]
[Using adjustable/variable speed drives (VSDs/VFDs/ASDs)] 1
[Appropriately sizing pump] 2
[Optimizing pipe sizing] 3
[Purchasing new energy-efficient centrifugal pumps] 4
[Monitoring/maintaining efficiency of existing pumps] 5
[Other] RECORD _____ 5
[Other] RECORD _____ 6
[Don't know] ..... -97
[Refused] ..... -98

Industrial Refrigeration

IR1. [IF <STRATA> = "REFRIGERATION" ELSE SKIP TO BOC1]
Since taking the <TRAINING_COURSE> training course in <TRAINING_YEAR>, has your company or organization made any changes to the design, operation or maintenance of its refrigeration systems that you haven't already mentioned?
[Yes] 1
[No] ..... 2 [SKIP TO BOC1]
[Don't know] ..... -97 [SKIP TO BOC1]
[Refused] ..... -98 [SKIP TO BOC1]

IR2.
What changes are these? [ALLOW MULTIPLE RESPONSES]
[Reducing temperature differences between condenser and evaporator] 1
[Improving refrigeration part load performance] 2
[Increasing computer control of refrigeration systems] 3
[Using variable speed/frequency drives (VFDs/VSDs)] 4
[Other] RECORD _____ 5
[Other] RECORD _____ 6
[Don't know] ..... -97
[Refused] ..... -98

Building Operator Certification

BOC1. [IF <STRATA> = "BOC" ELSE SKIP TO F1]
Since taking the <TRAINING_COURSE> in <TRAINING_YEAR>, have you set up a documentation reference area for building systems such as mechanical, electric and lighting?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

BOC2.
Since taking this course have you developed maintenance checklists for your heating, ventilation, or air conditioning systems?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

BOC3.
Since taking this course have you developed a basic indoor air quality program?
[Yes] 1
[No] 2
[Don't know] ..... -97
[Refused] ..... -98

BOC4.
Since taking this course have you developed a maintenance plan for your facility's electrical system?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

6. Firmographics

F1.
Finally I would like to collect some information about your company or organization. What are the principal activities of your company or organization at your location? [DO NOT READ RESPONSES. ONLY ALLOW ONE RESPONSE]
[Agricultural: e.g., production crops, livestock, agricultural services] .....1 [SKIP TO F3]
[Water or wastewater treatment facility] .....2 [SKIP TO F3]
[Industrial: manufacturing/industrial process] 3
[Warehouse nonrefrigerated] .....4 [SKIP TO F3]
[Warehouse refrigerated] .....5 [SKIP TO F3]
[Education: including preschool, daycare] .....6 [SKIP TO F3]
[Food service: e.g., restaurant, bar, fast food, cafeteria] .....7 [SKIP TO F3]
[Food sales: e.g., grocery store] .....8 [SKIP TO F3]
[Enclosed mall] .....9 [SKIP TO F3]
[Strip mall] 10 [SKIP TO F3]
[Retail excluding enclosed or strip mall: e.g., auto dealership, showroom, store] ..... 11 [SKIP TO F3]
[Public order and safety: including courthouse, probation office, jail] .....12 [SKIP TO F3]
[Nursing home/Assisted living (Skilled nursing)] .....13 [SKIP TO F3]
[Lodging: e.g., hotel/motel/inn/resort, dormitory/fraternity/sorority] .....14 [SKIP TO F3]
[Lodging: residential] .....15 [SKIP TO F3]
[Health care inpatient: e.g., hospital] .....16 [SKIP TO F3]
[Health care outpatient: e.g., doctor/dentist office, clinic] .....17 [SKIP TO F3]
[Laboratory] .....18 [SKIP TO F3]
[Religious worship] .....19 [SKIP TO F3]
[Public assembly: incl. theater, nightclub, library, museum, gym, bowling alley] ..... 20 [SKIP TO F3]
[Service: e.g., auto service/repair, dry cleaner/laundromat, repair shop, post office] ..... 21 [SKIP TO F3]
[Office/Professional: including bank, government] .....22 [SKIP TO F3]
[Other] [SPECIFY]_____ ..... 23 [SKIP TO F3]
[Don't know] ..... -97 [SKIP TO F3]
[Refused] .....-98 [SKIP TO F3]

F2.
Briefly describe what kind of manufacturing is done at your location?
[Textile manufacturing].....1
[Wood manufacturing].....2
[Plastics manufacturing].....3
[Food manufacturing].....4
[Metal manufacturing] 5
[Goods manufacturing].....6
[Assembly]7
[Other] [SPECIFY] 96
[Don't know].....-97
[Refused] .....-98

F3.
How many full-time employees work for your organization at your location?
[RECORD NUMBER OF EMPLOYEES]_____
[Don't know].....-97
[Refused] .....-98

F4.
How many part-time employees work for your organization at your location?
[RECORD NUMBER OF EMPLOYEES]____
[Don't know].....-97
[Refused] .....-98

F5.
What is the total enclosed square footage of the space your organization occupies at your location? Your best estimate is fine.
[RECORD # SQ FT]..... _____
[Don't know].....-97
[Refused] .....-98

F6.
At your location, does your organization [READ LIST]…
Own all of the space it occupies?.....1
Lease all of the space it occupies? 2
Or own some and lease some of the space? 3
[Don't know].....-97
[Refused] .....-98

F7.
Does your organization operate at a single location, at multiple locations, or is it a franchise organization?
[Single location] .....1 [THANK AND TERMINATE SURVEY]
[Multiple locations—not including franchise organization] 2
[Franchise organization].....3
Don't know.....-97 [THANK AND TERMINATE SURVEY]
Refused .....-98 [THANK AND TERMINATE SURVEY]

F8.
Is your organization headquartered in Wisconsin?
[Yes] 1
[No] 2
[Don't know] .....-97
[Refused] .....-98

[THANK AND TERMINATE SURVEY]