

# State of Wisconsin Public Service Commission of Wisconsin

Focus on Energy Evaluation

Process Evaluation of the Education and  
Training Program

*Program Area: Business Programs*

Final Report: November 20, 2008

Evaluation Contractor: PA Consulting Group

Prepared by: Shawn McNulty, KEMA, Inc.  
Christopher Dyson, KEMA, Inc.

Contributions by: Claire Palmgren, KEMA Inc.

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## TABLE OF CONTENTS

<b>1.</b>	<b>Executive Summary</b>	<b>1-1</b>
1.1	Background and Scope	1-1
1.2	Participation in Training Courses—Drivers and Barriers	1-2
1.3	Training Alternatives and Out-of-State Trainees	1-2
1.4	Training and Project Implementation	1-3
1.5	Specific Course Effects	1-4
1.6	Effects of Program and Training on Trade Allies	1-5
1.7	Consistency with Prior Training Evaluations	1-5
1.8	Summary, Conclusions, and Recommendations	1-5
1.9	Detailed Findings	1-8
<b>2.</b>	<b>Introduction</b>	<b>2-1</b>
2.1	Background and Purpose	2-1
2.2	Methodology	2-2
<b>3.</b>	<b>Findings</b>	<b>3-1</b>
3.1	Participation in Training Courses—Drivers and Barriers	3-1
3.2	Training Alternatives and Out-of-State Trainees	3-6
3.3	Project Implementation—Drivers and Barriers	3-10
3.4	Specific Course Effects	3-16
3.5	Effects of Program and Training on Trade Allies	3-19
<b>4.</b>	<b>Summary, Conclusions, and Recommendations</b>	<b>4-1</b>
<b>Appendices</b>		
	<b>APPENDIX A: Survey Instrument</b>	<b>A-1</b>

## 1. EXECUTIVE SUMMARY

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

### 1.1 BACKGROUND AND SCOPE

The main purpose of the 2008 evaluation of the Focus on Energy (Focus) Business Programs Education and Training (E&T) Program, as described in the Detailed Evaluation Plans<sup>1</sup>, was to estimate program-attributable untracked energy savings. However, since we were planning a Computer-Aided Telephone Interview (CATI) survey of about 300 trainees anyway for the impact evaluation, we decided to use this opportunity to also collect information from E&T Program trainees on some process-related issues that were of interest to the Wisconsin Public Service Commission (PSC) and program implementers. The process-related issues covered by this CATI survey included:

- Drivers for and barriers to participation in training courses
- What non-Focus training alternatives were available to participants in the E&T Program
- Why non-Wisconsin-based trainees were taking E&T Program courses and to what degree they applying their learning in Wisconsin locations
- How the E&T Program training as well as other Focus assistance (e.g., financial incentives) influenced the implementation of post-training energy-saving projects
- The level of trainee awareness of Focus bonus incentives available for quick post-training project implementation
- Barriers to post-training project implementation
- How post-training project implementation varied with the type of training course.

This process evaluation report summarizes the survey responses of the E&T Program trainees to questions on these topics.

The CATI survey was completed with 309 past participants in E&T Program training courses. Past participants were people who had registered for one or more training events between 2004 and 2007. These 309 respondents represented 285 companies.<sup>2</sup> The sample was designed to reflect the range of courses offered through Focus and is described in more detail below. The surveys were completed in May and June of 2008.

In addition to this process evaluation report there is a companion report: *Focus on Energy Evaluation: Impact Evaluation of Education and Training Program*. This second report

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<sup>1</sup> Focus evaluation team, *Focus on Energy Evaluation Contract Period One Detailed Evaluation Plans*, July 23, 2007.

<sup>2</sup> Our analysis found that having multiple respondents from the same company did not change the results to any significant degree.

presents our estimates for untracked attributable savings (UAS) for the E&T Program and describes our methodology for deriving these UAS estimates.

## 1.2 PARTICIPATION IN TRAINING COURSES—DRIVERS AND BARRIERS

The most commonly cited reason for enrolling in a Focus on Energy training course was to gain new skills and knowledge. Other commonly cited drivers were increasing the energy efficiency of the attendee's organization and reducing energy costs. Each of these three was cited as the most important driver by roughly a quarter of attendees. Lowering energy costs was a particularly important driver for agricultural and institutional customers, as well as those who occupied space that they owned.

Other drivers mentioned by trainees included helping them sell energy-efficient products, learning about the program and available rebates, gaining accreditation certification, professional development, and networking.

One-fifth of attendees had taken more than one course through Focus on Energy. When asked their reasons for taking multiple courses they talked about needing information on multiple technologies, a current organizational focus on energy efficiency, and simply enjoying the classes. The degree of overlap between specific classes varied from zero to 60 percent. Attendance in some pairs of courses were negatively correlated (i.e., those who attended on of these courses were significantly less likely to be among the attendees for the other). This was especially true of courses targeted at commercial versus industrial audiences (e.g., Building Operator Certification versus Compressed Air). Only one pair of courses showed a significant positive correlation between attendance – Steam System Best Practices and Energy Efficient Swimming Pool Operation and Maintenance.<sup>3</sup>

Lack of time and money were the most commonly cited barriers to attending training courses. Lack of time is compounded by lean staffing at the trainee organizations/companies, which in some cases makes it virtually impossible to cover for someone while they are attending a class. Respondents indicated that the costs that pose a barrier to attendance include travel costs and fees, as well as the cost of making up for lost work time (or not, and eating the lost productivity).

## 1.3 TRAINING ALTERNATIVES AND OUT-OF-STATE TRAINEES

Roughly a third (32 percent) of attendees believed that they could have found similar training opportunities outside of the Focus on Energy program. This was especially true for the Industrial Best Practice courses on lighting (where 37 percent said alternatives were available) and steam systems (55 percent). Industrial respondents in general were more likely to believe that they had other training options (40 percent) than were commercial or institutional respondents (both at 21 percent).

Those who believed other training sources were available cited specific utilities, manufacturers, vendors, universities and colleges, industry associations, and consultants. We

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<sup>3</sup>  $r = .29$ ;  $p < .05$ . At first blush, this correlation seems surprising because these courses are not marketed to the same audiences. The majority of the overlap, however, was accounted for by school districts—who must often deal with both steam heating systems and swimming pools.

did not examine whether these alternative training opportunities were comparable to the E&T Program offerings or even whether they were still being offered. Furthermore, Focus has historically co-branded training sessions with utilities and provided the content for some industry association trainings. Therefore, the program may in fact facilitate some of the training alternatives respondents mentioned.

In addition, although we did not explicitly ask why they chose to seek training through Focus on Energy, a handful of respondents spontaneously noted that the other available training opportunities were either inconvenient or too expensive.<sup>4</sup> As a result, it is not obvious that many attendees would have obtained training from other sources even if it were available.

Another issue we explored is the question of whether out-of-state firms are taking advantage of Wisconsin training courses but then not using their new skills to help Wisconsin businesses. Four percent of the course attendees we surveyed were from outside of Wisconsin. Most (85 percent) of these non-Wisconsin attendees plan to use the knowledge they gained in other states with only 39 percent expecting to use it to make Wisconsin businesses more energy efficient. The major reasons cited for coming from out of state to attend a Wisconsin class were that the class is not offered in their home state or that the timing of the non-Wisconsin class was inconvenient.

## **1.4 TRAINING AND PROJECT IMPLEMENTATION**

### **1.4.1 Energy Efficiency Projects Following Course Attendance**

More than 80 percent of course attendees reported that their organization had completed one or more energy saving projects since the course, with the average being roughly two projects per respondent. The majority of these projects (62 percent) were equipment replacements, but modifications of existing equipment (25 percent), new construction (eight percent), and building expansions (two percent) were also represented. Industrial customers were more likely than average to mention modifying existing equipment to make it more efficient (29 percent). Commercial customers were more likely than average (78 percent) to cite equipment replacement projects.

The types of equipment involved in these projects varied widely, but lighting was by far the dominant technology, being named in 49 percent of projects. Lighting projects were more common among commercial customers (62 percent), while ventilation and compressed air projects were more common among industrial customers (three percent and twenty percent, respectively) and boiler projects were more commonly undertaken by institutional customers (nine percent).

### **1.4.2 Impact of Training on Subsequent Projects**

Most course attendees (71 percent) said that their training had an impact on these post-training energy-saving projects and 68 percent said that they used the knowledge they gained in these projects. For the most part, however, the training courses do not appear to have been the cause of subsequent projects; only five percent thought the projects would have

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<sup>4</sup> Focus on Energy typically subsidizes the cost of training fairly substantially, both to increase participation and strengthen relationships with customers.

been very unlikely to occur without the class. The commercial sector is something of an exception, with 27 percent saying that their projects would have been very unlikely to occur if they had not attended training.

The most frequently mentioned ways in which the training courses had an influence on subsequent projects were by providing the knowledge of how to estimate savings that convinced management to go forward, providing awareness of energy efficiency options, and providing awareness of Focus on Energy rebates and other forms of assistance.

### **1.4.3 Program Support for Projects**

Two-thirds of the projects that occurred after training course attendance received financial assistance of some form. For 90 percent of these projects the bulk of the assistance came from Focus on Energy. Just under half of these projects also benefited from non-financial assistance through Focus on Energy, according to respondents. This took the form of information on technologies and savings, assistance with rebate forms, feasibility studies, and general advice.

Only half (52 percent) of the training course attendees we interviewed realized that Focus on Energy offers course fee reimbursement and other financial incentives for energy efficiency projects conducted within a few months of course attendance. Awareness was higher among institutional customers (71 percent) and lower among commercial customers (39 percent) and those in leased space (34 percent).<sup>5</sup>

And only half of those who knew these incentives were available (52 percent) reported making use of them. Some of those who chose not to take advantage of these incentives were located out of state or did not have a project that they believed would qualify. Others claimed that the incentive amounts were not worth the effort of applying for them.<sup>6</sup>

### **1.4.4 Barriers to Applying Training to Projects**

According to respondents the main barriers to using their newly gained knowledge to implement projects include management's lack of focus on energy efficiency, bureaucracy within their own companies, lack of time, lack of funding, and leasing space.

## **1.5 SPECIFIC COURSE EFFECTS**

We asked attendees of several specific courses whether their company had made an energy efficiency improvement to the type of systems covered by the course since they completed their training. The courses with the most frequent "yes" responses were the Industrial Best Practice courses on compressed air systems, steam systems, and refrigeration (45 percent, 44 percent, and 44 percent respectively). Roughly one in five attendees of the Energy Efficient Swimming Pool course and the course on fans and ventilation systems reported technology-specific improvements following the class.

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<sup>5</sup> The fee reimbursement was not available to attendees of all courses.

<sup>6</sup> One of the program staff who reviewed the draft of this report claimed that these additional financial incentives primarily exist to encourage people to enroll in the courses.

Almost all of those who had attended the PEM course (93 percent) subsequently inventoried their company's energy costs. Approximately half reported assessing energy use at the equipment level and setting energy savings goals (57 percent and 45 percent respectively), while a third created (36 percent) and implemented (30 percent) an energy management plan after receiving training. Small sample sizes for PEM attendees precluded us from assessing the impact of having implemented an energy management plan as a result of course attendance on subsequent project activity.

Half or more of the respondents who had attended a BOC course also reported that their firm subsequently took related efficiency measures. These ranged from developing maintenance checklists (68 percent) to developing an electrical system maintenance plan (42 percent).

## **1.6 EFFECTS OF PROGRAM AND TRAINING ON TRADE ALLIES**

A small fraction of course attendees reported that their real motivation in attending was to sell energy efficient products rather than to lower their own energy costs. On average these trade allies reported that 27 percent of the energy-efficient products and services they sold in Wisconsin receive rebates from Focus on Energy. Fifty-eight percent of the trades said that the training they received helped their company sell energy-efficient products in Wisconsin, though most (87 percent) believed their Wisconsin sales volumes for energy efficient equipment would have been the same without the training.

## **1.7 CONSISTENCY WITH PRIOR TRAINING EVALUATIONS**

To determine how consistent this study's findings on the relationship between course attendance and energy efficient projects were with the results of prior evaluations, we compared our findings with those from a 2003 evaluation of training events.<sup>7</sup>

Where direct comparisons were possible, the findings of the two studies were quite similar. The 2003 study found that 69 percent of attendees said that they had subsequently started or completed an energy efficiency project that used the skills they had learned in training. By way of comparison, 82 percent of respondents in the current study said they had completed an energy efficiency project since taking their course, with 68 percent of these saying they used their new skills in this project.

## **1.8 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

The results of this survey reveal that while business customers attend Focus on Energy training courses for a variety of reasons, the barriers to increased attendance are fairly consistent—lack of time and lack of money. Not surprisingly, these are also two of the main barriers that prevent attendees from applying what they learned to improve the energy efficiency of their organizations.

Barriers notwithstanding, course attendees state that these courses have had a considerable impact on their organization. They have helped to implement, and in some cases prompt,

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<sup>7</sup> Kimberly Bakalars, Lark Lee, and Laura Schauer, PA Consulting Group. *State of Wisconsin Department of Administration Division of Energy, Focus on Energy Statewide Evaluation, Cross-cutting Function: Education and Training Year 1 Evaluation Report—Final Report*. March 3, 2003.



energy efficiency projects. These projects have ranged from simple lighting retrofits to major upgrades of HVAC, compressed air, and steam systems.

The impact of training course attendance on projects takes the form of increased knowledge of technology options, increased ability to demonstrate payback, and increased awareness of the assistance available through Focus on Energy. The program's assistance—financial and otherwise—is credited by respondents with making a quarter of the projects that their organizations have done happen.

That said, not all of the assistance the program makes available is used. A prime example are the financial incentives available for training course attendees whose firms complete an energy efficiency project shortly after their course. Only half of attendees are aware these incentives exist, and only a quarter make use of them. Besides lack of awareness, the main obstacles to these incentives being used are the perception that they are too small to be worth the effort, failure to implement a qualifying project, and being outside the state of Wisconsin.

The latter points to a relatively small issue with the training courses that surfaced during this study: not all of the attendees come from Wisconsin or—more importantly—plan to use their training to make Wisconsin businesses more efficient. Indeed, most of the out-of-state attendees plan to use their training back home, but not in Wisconsin. Whether this is a big enough issue to worry about is unclear; the data indicated that only four percent of attendees are from out of state.

A related issue this study examined is the question of alternatives to E&T training events. That is, how many course attendees could have found comparable training outside of the program? Survey responses indicate that many attendees believe there are alternative sources of training, but that they are often viewed as much more expensive or otherwise inconvenient. As a result, it is not obvious that many attendees would have obtained training from other sources even though it might be available.

When we look at specific training courses we see that the impact of training (defined here as the number of related energy efficiency measures adopted by attendees' organizations) varies widely. PEM and BOC courses show the highest level of specific impacts (e.g., energy cost assessments, goal setting, and the development of maintenance checklists and other tools for managing energy use). For more technology-specific courses the rate of related measure adoption ranges from 45 percent for compressed air training to 21 percent for best practices in ventilation and zero percent for pump training. Direct comparisons, however, are likely to be misleading. Many of the measures reported by attendees of the PEM and BOC courses, for example, are quite a bit less costly than the measures associated with an industrial best practices course. And the payback for specific technology measures can vary dramatically, making the differential implementation rates coming out of different courses quite rational. Finally, some courses (like those focused on pumps) deal more with system assessment than specific energy efficiency measures.

It is important to note that not all energy efficiency projects implemented after training courses were influenced by the training courses. The question of which projects were driven by training course attendance will be taken up in the impact evaluation report.

Finally, Focus on Energy training is helping to sell energy efficient equipment as well as encouraging its adoption by end-users. The few trade allies in our sample who took their

courses more to become effective sellers than to improve their own energy efficiency are engaged with the program in myriad capacities. And the majority is putting what they learned to use in marketing and selling high efficiency goods and services in Wisconsin.

As noted, the main purpose of the 2008 evaluation of the Focus on Energy Business E&T Program was to estimate program-attributable untracked energy savings and therefore the scope of this process evaluation report is limited to the findings from the CATI survey of 309 trainees. We did not attempt a comprehensive process evaluation of the program as was done in 2003. Yet despite this limited scope, we do have a few recommendations for program improvements. Some of these originate from the CATI survey findings while others are based on our experiences with the impact evaluation trying to find matches between organizations and companies who took training sessions and the project activities of these companies in the Focus on Energy WATTS and WISEERTs program tracking databases.<sup>8</sup> Our recommendations for program improvements include:

- *Do more proactive advertising of the bonus incentives linked to program training.* As noted the CATI survey only found that about half of the E&T Program participants were even aware that Focus on Energy will reimburse training course costs and offer other financial incentives if they complete energy efficiency projects within a few months after they take the course. Although we do not know to what extent these bonus incentives are advertised orally at the training sessions, our review of the training brochures indicated that many did not mention these incentives.
- *Better tracking of the bonus incentives.* We believe that there should be clear flags/variables in the WISEERTS program tracking database indicating whether an implemented project received a bonus incentive due to its link with an E&T Program training course. This will make it easier not only for program evaluators but also E&T Program implementers to more easily identify energy-saving projects that may have been influenced by training courses.<sup>9</sup>
- *Track course attendance in the registration database.* The E&T Program tracking database does record which individuals registered for a given course, but does not indicate which of these individuals actually attended the course.<sup>10</sup>
- *Link the webinar and course registration databases.* We found that there was no link between the new program webinar registration system that was introduced in late 2007 and the standard course registration database. A link between these databases

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<sup>8</sup> See the companion report: *Focus on Energy Evaluation: Impact Evaluation of Education and Training Program* for more information on the purpose of these company-matching activities.

<sup>9</sup> Recent changes to the WISEERTS database have addressed this issue.

<sup>10</sup> Conversations with E&T program staff indicated that trainees who provide advanced notification that they would not be attending the training course were marked as cancellations, although this was not done consistently. In addition, starting in late 2007, the E&T Program webinar registration database did record online connection times for trainees. To guard against the possibility that our CATI survey would be administered to individuals who had registered for the course but never attended, we removed all cancellations from our sample frame and then used a screening question (R3) to insure that the trainees recalled the course before proceeding with the survey.

would make it easier for the E&T Program to track which courses and how many courses a given individual was taking.

- *Better identification of trainee objectives.* We found it difficult to distinguish, from the course lists alone, trainees who were taking the courses to improve the energy-efficiency of their organization's/company's facilities from trade allies who were taking the courses to better sell energy-efficient products and services. This is a useful distinction for program planning purposes as well for helping to identify energy-saving projects that may have been influenced by training courses. One possible solution for this would be to ask trainees, when they register, to identify their objectives for taking the course. For example, they might use a simpler, multiple-choice variation of the questions that we used in the CATI survey for this purpose.<sup>11</sup> We also found that trainers who were listed on the course registration lists were usually not clearly identified as trainers.
- *Use a consistent method for identifying organizations/companies in the tracking databases.* As indicated in the impact evaluation report, we found it very difficult to match companies or organizations listed in the E&T Program registration databases with the same companies or organizations in the WATTS/WISEERTS program tracking databases due to spelling variations. We understand that the core Focus on Energy program is moving towards using the tax identification number as the unique identifier for companies and organizations and we recommend that the E&T Program do the same for its own databases. Although it may not be realistic to request that trainees supply their tax identification number when they register, this could be something that the E&T Program staff could add when they are doing post-coding for attendance, as recommended above.

## 1.9 DETAILED FINDINGS

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

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<sup>11</sup> These included: 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? and P4. 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?

## 2. INTRODUCTION

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### 2.1 BACKGROUND AND PURPOSE

The main purpose of the 2008 evaluation of the Focus on Energy (Focus) Business Programs Education and Training (E&T) Program, as described in the Detailed Evaluation Plans<sup>12</sup>, was to estimate program-attributable untracked energy savings. However, since we were planning a Computer-Aided Telephone Interview (CATI) survey of about 300 trainees anyway for the impact evaluation, we decided to use this opportunity to also collect information from E&T Program trainees on some process-related issues that were of interest to the Wisconsin Public Service Commission (PSC) and program implementers. The process-related issues covered by this CATI survey included:

- Drivers for and barriers to participation in training courses
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In addition to this process evaluation report there is a companion report: *Focus on Energy Evaluation: Impact Evaluation of Education and Training Program*. This second report presents our estimates for untracked attributable savings (UAS) for the E&T Program and describes our methodology for deriving these UAS estimates.

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<sup>12</sup> Focus evaluation team, *Focus on Energy Evaluation Contract Period One Detailed Evaluation Plans*, July 23, 2007.

<sup>13</sup> Our analysis found that having multiple respondents from the same company in a few cases did not change the results to any significant degree.

## 2.2 METHODOLOGY

The research approach for this study consisted of a telephone survey of past training course attendees. The survey was designed and analyzed by KEMA and conducted by The Leede Research Group.

### 2.2.1 Sampling

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.<sup>14</sup>The courses spanned eleven content areas plus one marketing area.

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

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<sup>14</sup> 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 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.

designated Level of certification and then further aggregated for reporting purposes. BOC Renewals, which do not involve additional training, were excluded from this study.

**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%
<b>Total</b>	<b>1957</b>	<b>100%</b>	<b>300</b>	<b>309</b>	<b>100%</b>

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 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.

### 2.2.2 Survey Design and Administration

The survey instrument, which is included in the appendix, was designed to address the following issues:

- **Drivers for training.** The survey gathered information on why they took the course, the relative importance of some of these reasons, their company's/organization's involvement in the decision for them to take the training, and the importance of training for their company. If they took multiple training courses, we asked them why.

- **Training alternatives.** The survey asked the trainees whether they thought they would have been able to receive similar training somewhere else if Focus on Energy had not offered the training course.
- **Out-of-state trainees.** We noticed a number of trainees had out-of-state registrations so we tried to determine whether they were planning to use their training knowledge in Wisconsin or not and why they had taken a Wisconsin training course instead of one in the state listed in their registration information.
- **Identifying potential untracked savings from end users.** The survey asked the trainees to identify any energy saving projects that their companies/organizations have implemented since their training course. It asked them whether they received any Focus on Energy assistance (financial or non-financial) for these projects. It also asked about the relative importance of this Focus assistance or the training course itself on the likelihood of them implementing the project as well on the timing of the project and the amount of energy savings resulting from this project.
- **Identifying energy-saving changes in routine operations or equipment maintenance that could represent untracked savings.** This question sequence was very similar to the one described in the previous bullet only addressing energy-saving changes in O & M procedures as opposed to discrete one-time energy efficiency projects.
- **Awareness of bonus incentives.** The survey asked the trainees whether they were aware that Focus on Energy will reimburse training course costs and offer other financial incentives if they complete energy efficiency projects within a few months after they take the course.
- **Identifying effects of training on trade allies.** This question sequence, which was only administered to trade allies taking training courses, is very similar to the one we use in the survey that we administer to trade allies when a BP sector manager identifies them as the best source of information on program attribution for a particular project.
- **Specific course effects.** For the more popular and time-intensive courses (at least one day in length) we also included questions that probed for course-specific training course effects not previously identified as well as the barriers to implementing the knowledge they gained from these courses.
- **Firmographic information.** To better characterize the trainees we collected information about their company or organization.

### 2.2.3 Data analysis

Once the data were collected and survey weights applied, we examined frequencies and cross-tabulations by various segments. These included:

- Course Type
  - BOC, Compressed Air, Industrial Lighting, Practical Energy Management (PEM), Steam Systems, Ventilation, and Other<sup>15</sup>
- Number of Courses Taken
  - Single or multiple
- Sector
  - Agriculture, Commercial, Industrial, Institutional, and Other
- Ownership Status
  - Own at least some of their space vs. lease all space
- Project Activity Since Course Attendance
  - Diverse Activity: At least one energy efficiency project and one change in O&M procedures
  - Single Category Activity: At least one project without a change in O&M, or one O&M change without a project
  - No Activity: No project and no O&M change
- Course Influence
  - Those who said they had done a project or made an O&M change that they would probably not have made without the training course vs. all others.

In reporting differences between segments, we used a 90 percent confidence interval threshold. That is, if the responses within two categories (e.g., own space vs. lease space) were not statistically significant at the 90 percent confidence level, we have not mentioned them in this report.

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<sup>15</sup> The “other” category included all other courses from the sample plan (Table 2-1).

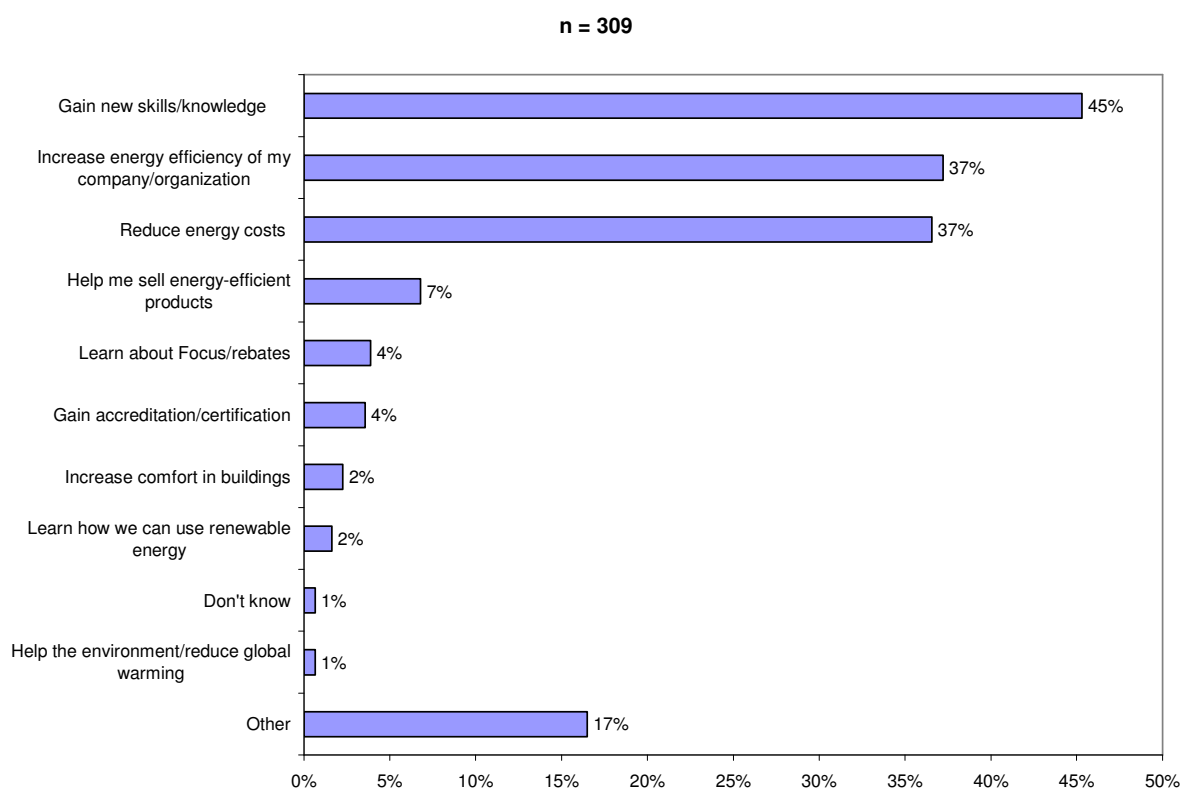


### 3. FINDINGS

#### 3.1 PARTICIPATION IN TRAINING COURSES—DRIVERS AND BARRIERS

We began by asking trainees why they took a particular training course. We asked this as an open-ended question and coded similar responses into categories. Figure 3-1 shows the percent of trainees who mentioned various categories of reasons for participating in training. The percents do not sum to 100 because we allowed multiple responses.

**Figure 3-1. Reasons for Attending Training Course (all mentions)**

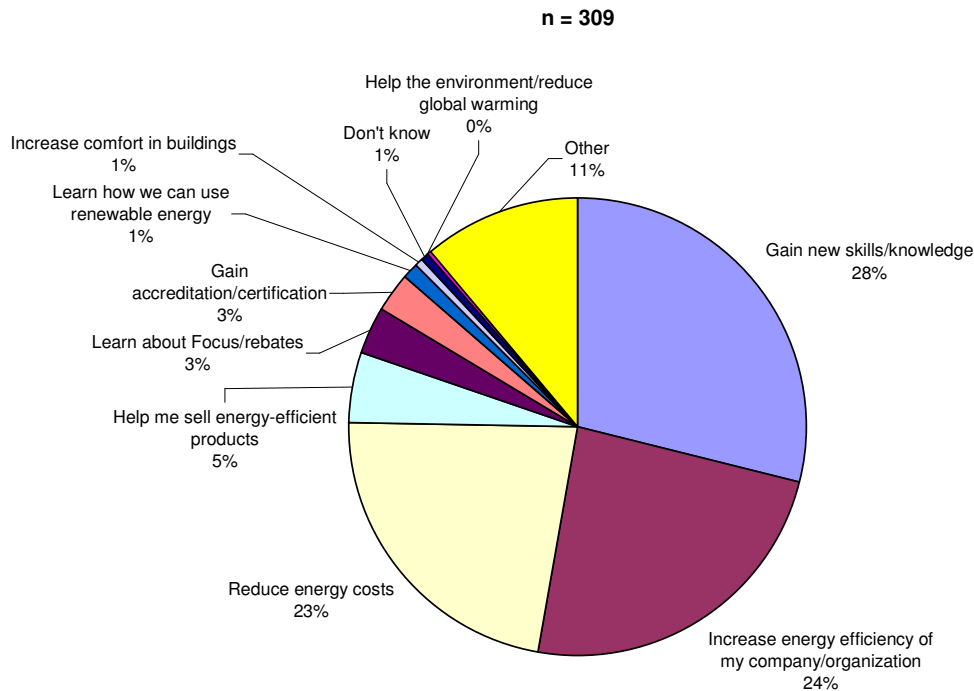


The most commonly cited reasons for taking a Focus on Energy training course were to gain new skills or knowledge, to reduce energy costs, and to increase the energy efficiency of their company or organization. Seven percent of respondents mentioned helping them to sell energy-efficient products as a motivation for taking the course. Less frequently mentioned drivers included learning about the program and available rebates, gaining accreditation or certification, making their facility more comfortable, helping the environment or reducing global warming, and learning to use renewable energy.

The “other” category consisted of a variety of infrequently mentioned motivations. These included professional development and networking, learning to improve energy efficiency for a particular application, and generally finding the topic interesting.<sup>16</sup>

Figure 3-2 shows how many trainees cited each of the categories from Figure 3-1 as the *main* reason they attended a course. The basic pattern is the same; gaining new skills, increasing energy efficiency, and reducing energy costs were viewed as the primary motivation by roughly equal numbers of trainees.<sup>17</sup>

**Figure 3-2. Main Reason for Attending Training Course**



Next, we asked respondents to rate the importance of learning how to reduce their company’s energy costs as a reason for taking the course. They rated the importance on a five-point scale, with “1” meaning “Not at all Important” and “5” meaning “Very Important.”

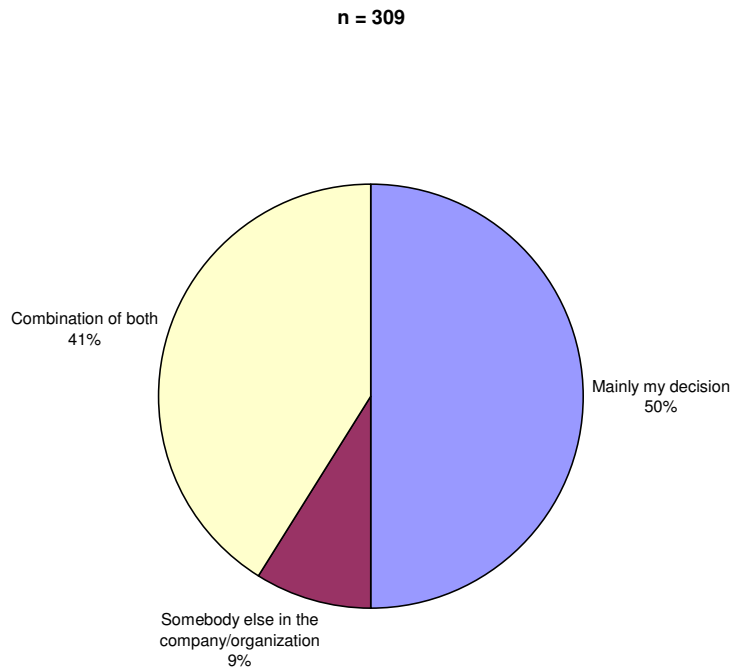
<sup>16</sup> The “other” category initially contained several responses that we ultimately reassigned to more specific categories. By this point in the analysis weighted cross-tabulations had already been generated. Rather than rerunning the weighted tables for this question after reassigning cases, we chose to present unweighted results in Figures 1 and 2. This decision was bolstered by the fact that the results for these two questions under the original classification of responses did not differ meaningfully between weighted and unweighted tables.

<sup>17</sup> The “other” category represents the same mix of reasons as it did in Figure 3-1.

The average importance rating was 4.3, with 82 percent of attendees rating the importance as a four or five. Reducing their organization’s energy costs was a more important driver of attendance for those who stated that the course influenced their organization to make energy efficiency improvements (mean of 4.6) than for those who did not attribute any subsequent efficiency measures to the course (mean of 4.2).<sup>18</sup> Attendees whose firms owned at least part of their space rated lowering their energy costs as a more important driver than attendees who worked in leased space (mean of 4.3 vs. 3.8). Finally, attendees from the agricultural and institutional sectors<sup>19</sup> were more likely to say that lowering energy costs was an important reason for attendance than were attendees from other sectors. The mean importance rating for agricultural and institutional respondents was 4.9 and 4.6 respectively; while mean ratings for other sectors ranged from 4.0 to 4.3.

Half of the attendees surveyed said that it was primarily their decision to take a course; less than 10 percent said that someone else in their company told them to go (Figure 3-3).

**Figure 3-3. Who Made the Decision to Send the Respondent to Training?**



Eighty-three percent felt that energy efficiency training is very important to their company. Agricultural and institutional respondents rated were even more likely to say that energy

<sup>18</sup> Unless otherwise noted, all numerical differences mentioned in the text of this report are statistically significant at the 90 percent confidence level.

<sup>19</sup> Assignment of trainees to sectors was based on their self-report of the principal activities of their company or organization at their location.

efficiency training is important to their organization (100 percent of agricultural respondents and 94 percent of institutional respondents rated it as “very important.”). Virtually all attendees (99 percent) said that training is at least somewhat important to their organization. It is important to remember, however, whom we were surveying—past attendees at Focus on Energy training courses. The high importance ratings for energy efficiency training may or may not be reflective of the beliefs of all commercial and industrial customers in Wisconsin.

### **3.1.1 Barriers to Training**

When asked to identify the things that make it difficult for companies like theirs to send their staff to training programs, respondents overwhelmingly mentioned two themes—time and money.

Most attendees cited difficulty in getting time off from work (and then making the time up) as a major barrier to training. Respondents indicated that their organizations are staffed so thinly that finding someone to cover for an employee while they are away at training is extremely difficult. As one respondent put it, “at the same time companies are downsizing manpower they also find it necessary to try and become more efficient which doesn’t provide a lot of time for attending classes.” Others said that time away from work equals lost productivity and thus lost money for the company.

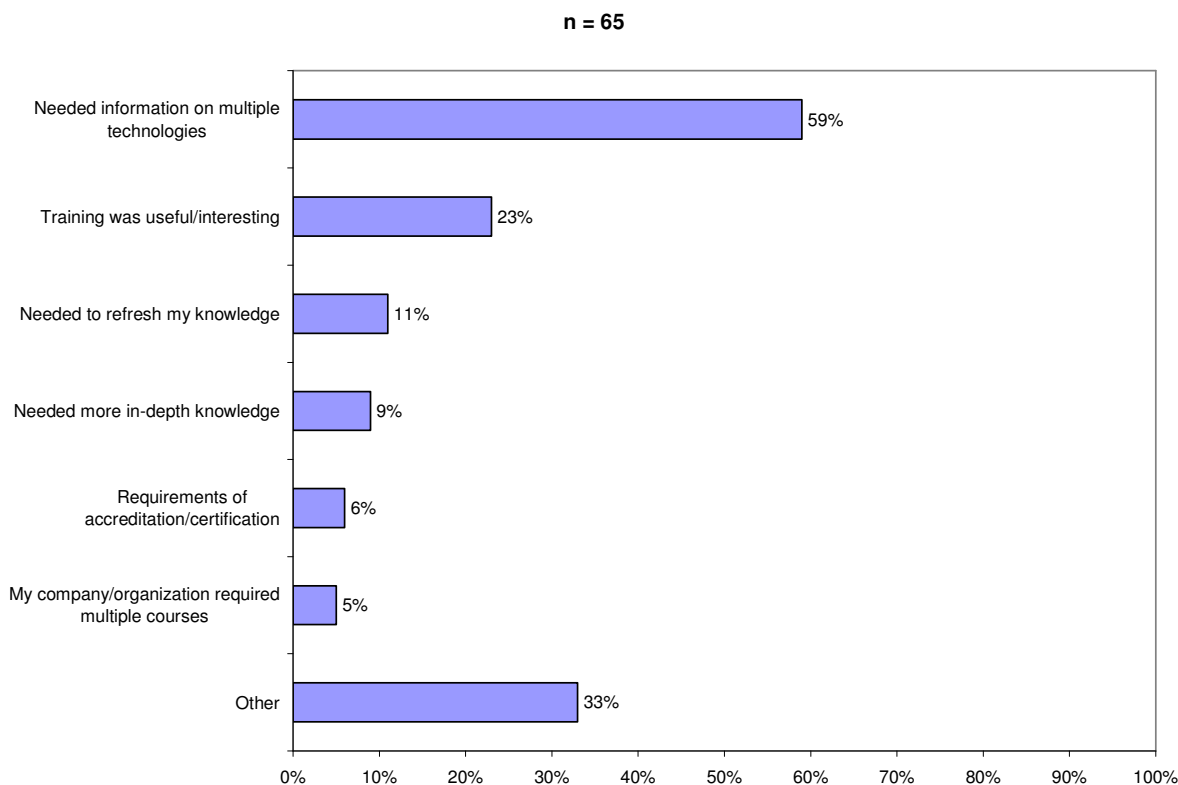
Many respondents explicitly made the point that time and money are largely the same thing to their organization, which means that lost time at work is factored in with the course fees in deciding whether a company can afford to send someone. Travel costs were also frequently cited as an issue, making the location of a training course especially important.

Less frequently mentioned barriers included course availability, scheduling (e.g., is it available during the “off” season for a particular business), management that is not focused on energy issues, and even the credibility of training courses (e.g., how can management be sure that they will benefit from sending someone to a class).

### **3.1.2 Reasons for Taking Multiple Courses**

Roughly one out of every five attendees we surveyed had taken more than one course offered by Focus on Energy. Although they cited several reasons for taking more than one course (Figure 3-4), the most common reason was that they needed energy efficiency information on more than one technology. The “other” category in Figure 3-4 reflects a variety of responses mentioned by only one or two respondents. These included the suggestion of additional courses by Focus on Energy staff, a desire to send one employee who could come back and teach others in the company about multiple topics, and a recent organizational focus on energy management. As one trainee observed, “we had created an energy management team and wanted to learn the most we could about energy savings.”

**Figure 3-4. Reasons Cited for Taking Multiple Courses**



The degree of overlap between specific classes varied from zero to 60 percent. As shown in Table 3-2, attendance in some pairs of courses were negatively correlated (i.e., those who attended on of these courses were significantly less likely to be among the attendees for the other). This was especially true of courses targeted at commercial versus industrial audiences (e.g., Building Operator Certification versus Compressed Air).

Only one pair of courses showed a significant positive correlation between attendance—Steam System Best Practices and Energy Efficient Swimming Pool Operation and Maintenance. At first blush, this correlation seems surprising because these courses are not marketed to the same audiences. The majority of the overlap, however, was accounted for by school districts—who must often deal with both steam heating systems and swimming pools.

**Table 3-2. Pairs of Courses Where Attendance is Significantly Correlated**  
n = 65

Course Pair		Correlation Coefficient (r)
<b>Negative Correlations</b> (those attending one course are less likely to attend the other)		
Compressed Air Energy Management	Building Operator Certification	-.59
Industrial Lighting Best Practices	Building Operator Certification	-.38
Industrial Lighting Best Practices	Swimming Pool Energy Management	-.32
Practical Energy Management	Ventilation Systems	-.25
<b>Positive Correlations</b> (those attending one course are more likely to attend the other)		
Steam System Energy Management	Swimming Pool Energy Management	.29

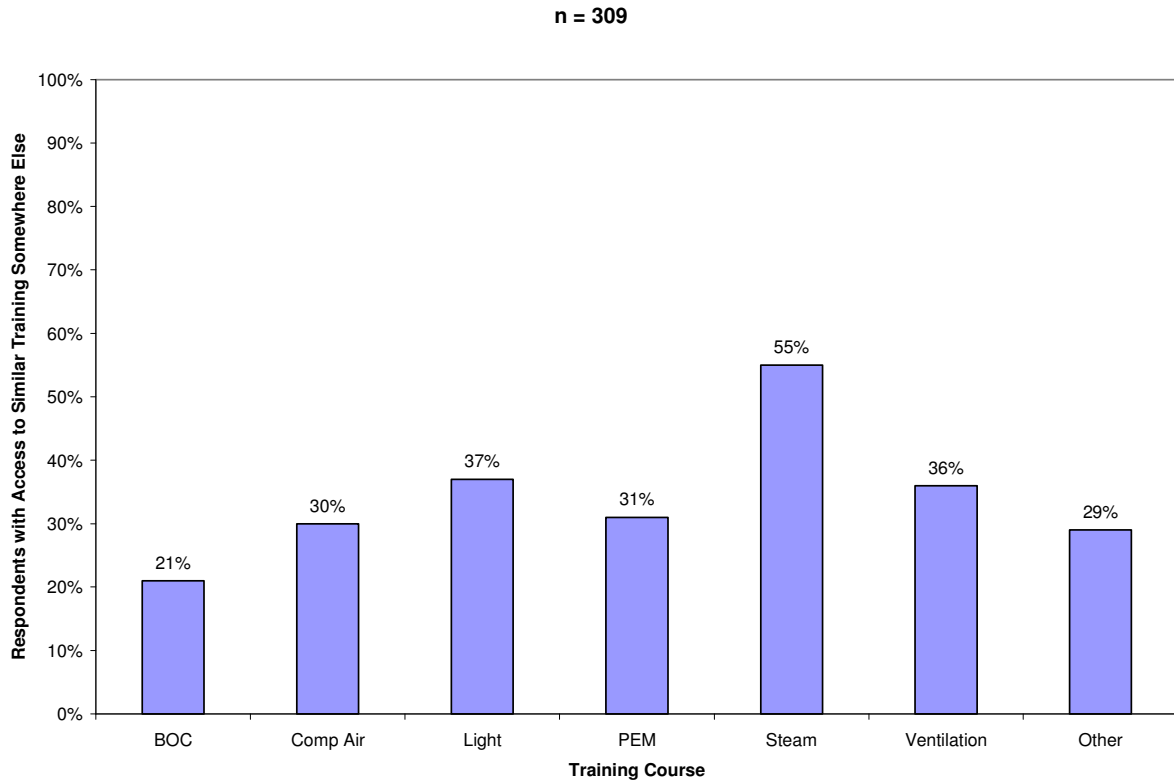
Note: All correlation coefficients shown are statistically significant at the 95% confidence level.

## 3.2 TRAINING ALTERNATIVES AND OUT-OF-STATE TRAINEES

### 3.2.1 Training Alternatives

We asked attendees whether they thought they would have been able to receive similar training from somewhere else if Focus on Energy had not offered their course. Roughly a third (32 percent) said “yes.” Figure 3-5 shows the percent of respondents who thought alternatives were available by course type. Note that none of the differences shown in Figure 3-5 are statistically significant given sample sizes. That being said, more of the attendees we interviewed believed that there were alternative sources for steam system training, and fewer believed that there were alternatives to the BOC courses.

Figure 3-5. Training Alternatives by Course



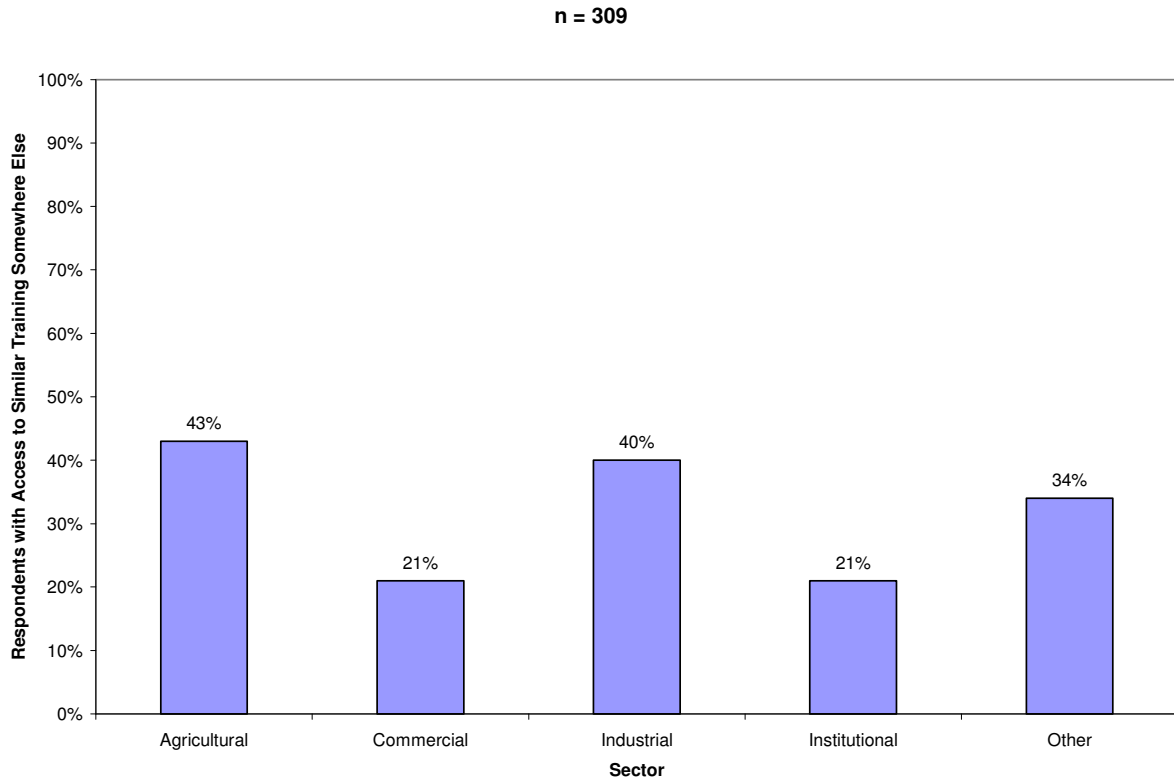
Note: None of the differences between bars are statistically significant at the 90% confidence level.

Respondents who subsequently claimed that course attendance was influential in getting their organization to do an energy efficiency project or O&M change were less likely to believe that they could have gotten the same training elsewhere than other respondents (15 percent vs. 35 percent).

Figure 3-6 shows the percent of attendees who believed that training alternatives were available by sector. Industrial respondents were more likely to believe they had alternatives than respondents in the commercial or institutional sectors.<sup>20</sup> This difference should not be surprising given that industrial respondents were more likely to have taken the steam system or industrial lighting best practices courses, which had the highest percentage of perceived alternatives. (Figure 3-5).

<sup>20</sup> Although the percent of agricultural respondents claiming that other sources were available was higher than any other sector, none of these differences were statistically significant.

**Figure 3-6. Training Alternatives by Sector**



Note: The difference between the industrial sector bar and the commercial and institutional bars is statistically significant at the 95% confidence level. None of the other differences between bars are statistically significant.

Those who said that equivalent training was available elsewhere cited numerous sources including individual utilities, equipment manufacturers or vendors, colleges and universities, industry associations, and consultants. We did not examine whether these alternative training opportunities were comparable to the E&T Program offerings or even whether they were still being offered. In addition, although we did not explicitly ask why they chose to seek training through Focus on Energy, a handful of respondents spontaneously noted that the other available training opportunities were either inconvenient or too expensive. As a result, it is not obvious that many attendees would have obtained training from other sources even if it were available.

### 3.2.2 Out-of-State Trainees

We asked the thirteen respondents whose registration address was outside of Wisconsin whether they planned to use the training they received through Focus on Energy for any Wisconsin facilities or operations, and whether they planned to use this training in any other state. Figure 3-7 summarizes the results.



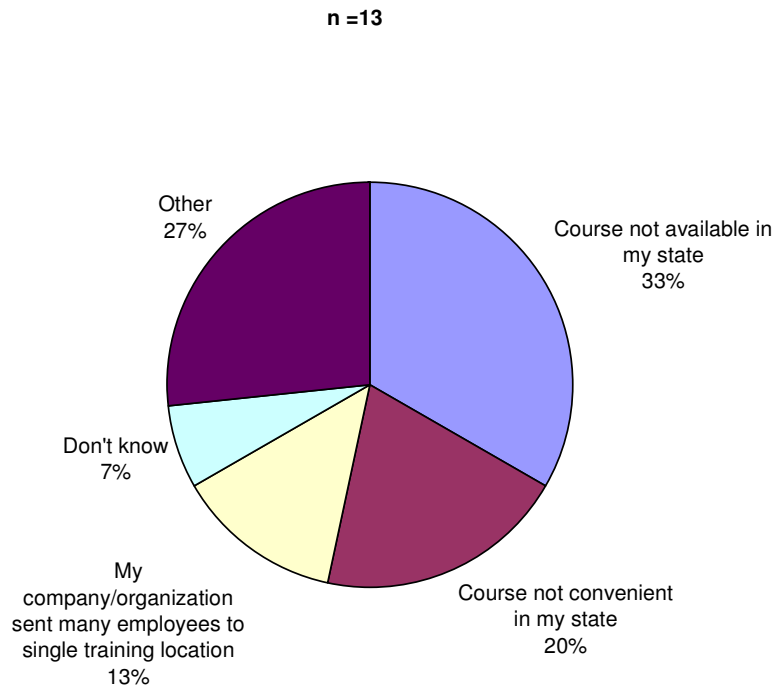
**Figure 3-7. Where Will Out-of-State Attendees Use Their Training?**  
n = 13



Less than half (39 percent) of attendees who came from outside Wisconsin expect to use their training to improve the energy efficiency of a Wisconsin business (the leftmost bar in Figure 3-7). In contrast, 85 percent expect to use what they learned from the course outside of Wisconsin (the sum of the lighter bars above). And 15 percent do not expect to use their training at all (the darker portion of the middle bar above).

Figure 3-8 shows how these out-of-state attendees responded when asked why they traveled to Wisconsin to take the course rather than take it in their home state. A third said that it was not offered in their state, while others spoke of it being more convenient to take it in Wisconsin or their organization wanting to send several people to one training location. The “other” category includes single-mention responses including “the course was online,” “because we liked the instructor,” and “I combined course attendance with a family vacation.”

**Figure 3-8**  
**Why Did You Come To WI For This Course?**



### 3.3 PROJECT IMPLEMENTATION—DRIVERS AND BARRIERS

#### 3.3.1 Extent of Project Implementation Following Training

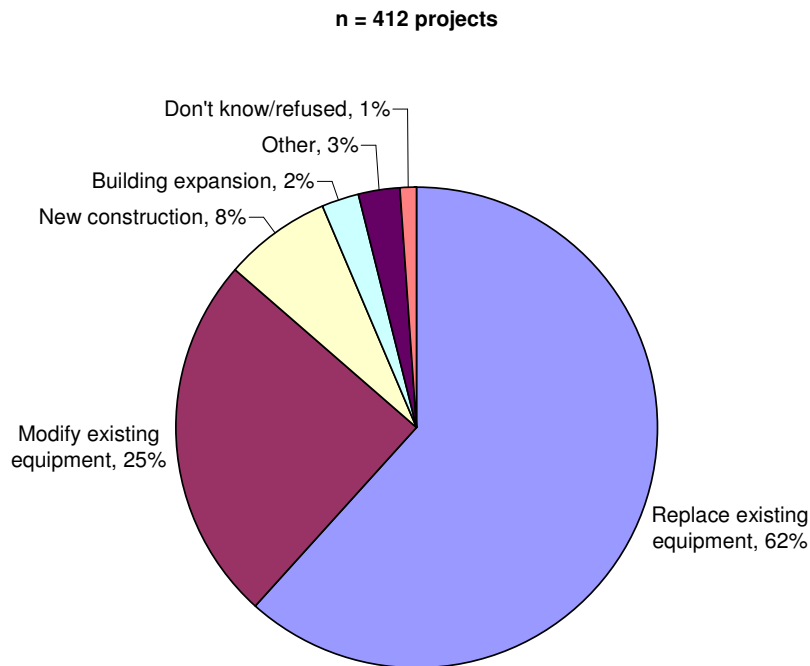
Eighty-two percent of attendees said that their organization had completed at least one energy-saving project at a Wisconsin building since they took the course. This percentage was higher for those who had taken multiple courses (91 percent), those who owned some or all of their space (85 percent), and agricultural and industrial customers (100 percent and 93 percent). On average each respondent reported 1.9 energy saving projects being completed since their training.

Figure 3-9 shows the proportion of these projects that were replacements or modifications of existing equipment, new construction, or building expansions. New construction and building expansions accounted for eight percent and two percent of the projects respectively. Almost two-thirds were equipment replacements, and a quarter involved modifications of existing equipment.

Replacements were more frequently cited by commercial customers (78 percent of commercial projects), and modifications were more common among industrial customers (29 percent of industrial projects). New construction projects, interestingly, were more common among businesses that leased all of their space than among building owners (22 percent vs.

6 percent). This is likely accounted for by businesses that were moving from leased space to their own facility.

**Figure 3-9. Energy Saving Projects by Type**



Interestingly, there were no statistically significant differences between the types of projects that followed different course types.

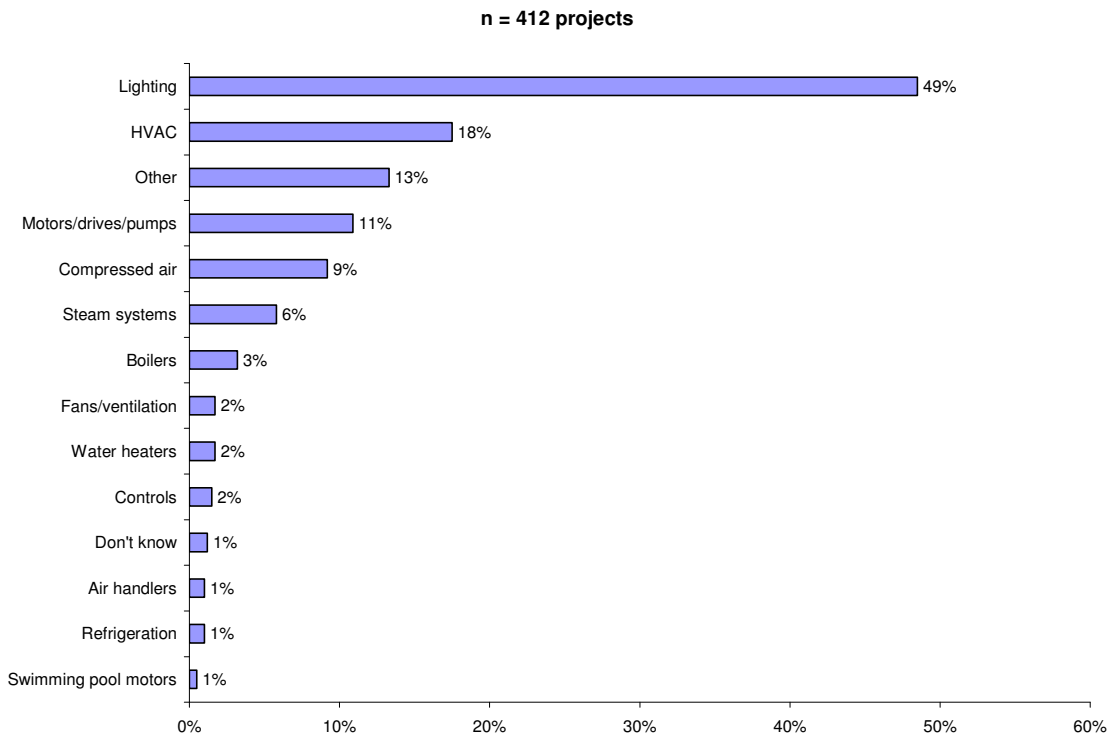
Figure 3-10 shows the percentage of projects that affected different types of equipment. Percentages do not sum to 100 because more than one type of equipment could be involved in a given project.

Lighting was by far the most commonly affected equipment type. This was not too surprising since shorter payback periods make lighting projects generally popular among commercial and industrial customers, regardless of whether they have received training.

HVAC and “other” types of equipment were the next most commonly affected by course attendance. The “other” category included everything from changes to the building envelope to process equipment and vending machines.

Commercial customers were more likely to have done projects that impacted lighting systems (62 percent) and less likely to have done projects involving motors (four percent). Industrial customers were more likely to report projects involving compressed air systems (20 percent) or ventilation (three percent). Projects affecting boilers were more common among institutional customers (nine percent).

**Figure 3-10. Equipment Affected By Energy Saving Projects**



### 3.3.2 Drivers of Project Completion

#### A. *IMPACT OF TRAINING COURSE ON PROJECTS*

Overall attendees credited the courses they took with having a substantial impact on the subsequent energy saving projects their organizations completed. Seventy-one percent said that the course impacted these projects in some fashion, and 68 percent said they used the knowledge gained from the training in the project. Commercial and institutional customers were especially likely to have used their knowledge (87 percent and 80 percent, respectively), while agricultural customers were less likely to have directly applied what they learned (44 percent).

The majority, however, (82 percent) believed that these projects would have been at least somewhat likely to occur even if they had not attended a course. Thirteen percent said the project would have been “not very likely” to occur and five percent said it would have been “very unlikely” to occur without their having attended the course. Commercial customers felt more strongly about the role their training played in making these projects happen; 27 percent of commercial customers said their projects would have been “very unlikely” to occur without training.

When asked specifically how training courses influenced their subsequent projects, attendees cited three main themes:

- Gained knowledge to estimate savings and convince management
  - “At the course I received the tools and knowledge to calculate payback and savings we could achieve.”
  - “Because of the course I was able to convince my superiors to go from a pneumatic to digital frequency drive.”
- Gained awareness of energy efficiency options
  - “Made me aware of the technology available”
  - “I obtained the ability to pick out the right equipment.”
- Gained awareness of Focus on Energy rebates and assistance
  - “The course brought attention to the rebates offered by Focus on Energy.”
  - “Reps from Focus on Energy came in and did the math for us and showed us the amount of money we could save.”

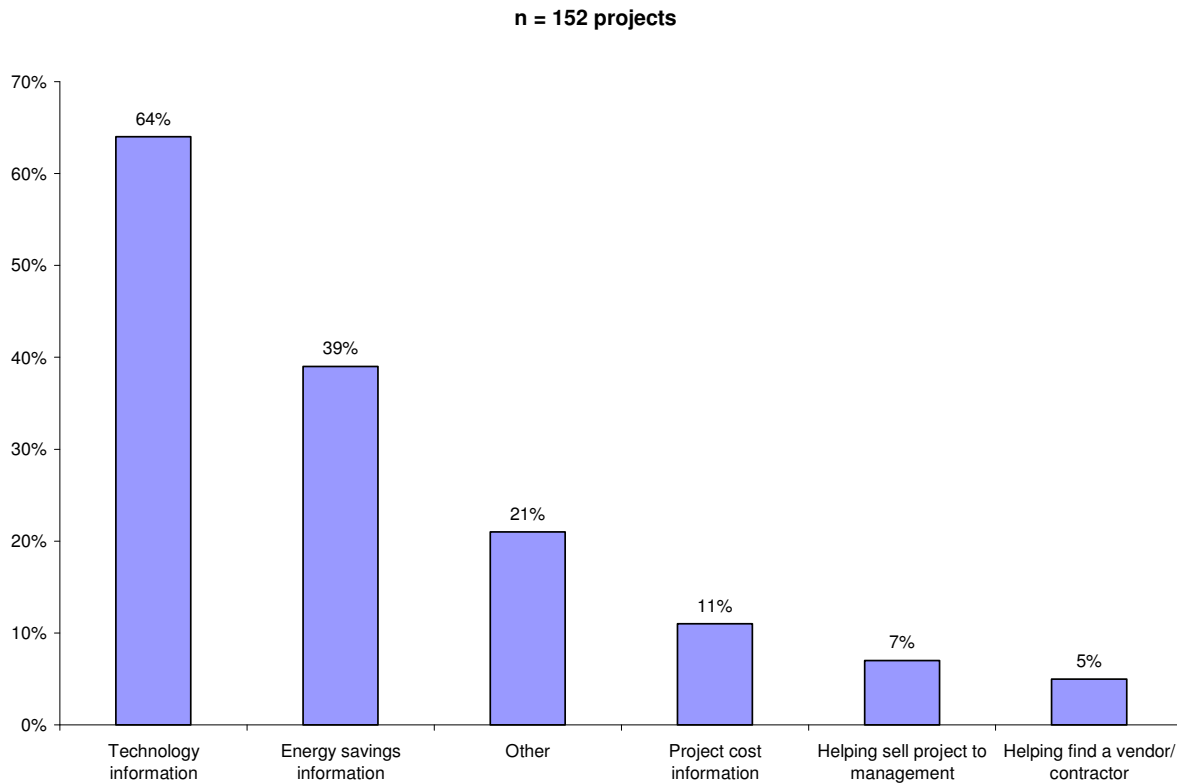
#### *B. IMPACT OF PROGRAM ASSISTANCE ON PROJECTS*

Attendees reported that 67 percent of the projects they did after receiving training received some form of financial assistance. This number was higher for commercial and institutional attendees (75 percent and 86 percent, respectively) and lower for agricultural attendees (40 percent). In ninety percent of these cases, the majority of the financial assistance came from Focus on Energy.

A little less than half of the projects reported by attendees benefited from non-financial assistance from Focus on Energy. Figure 3-11 shows the percent of projects that received various types of non-financial assistance from Focus on Energy. Percentages do not sum to 100 percent because multiple responses were allowed.

By far the most common types of non-financial assistance were technology information and energy savings information. The “other” category included doing the rebate and audit paperwork for the customer, being a sounding board for project advice, and doing a feasibility study at their facility.

**Figure 3-11. Types of Non-Financial Assistance Received from Focus on Energy**



Attendees reported that three-quarters of these projects would have been somewhat or very likely to occur even without assistance from Focus on Energy, but a quarter would have been not very likely or very unlikely to occur without this assistance. Given that respondents previously reported that roughly half of the energy efficiency projects they implemented after receiving training benefited financially or otherwise from the program, attendees seem to be saying that in many cases this assistance made the project easier but did not make it happen.

Only about half (52 percent) of course attendees were aware that Focus on Energy will reimburse training costs and offer other financial incentives to course participants who complete energy efficiency projects within a few months of taking the course. Institutional customers were more aware of these incentives (71 percent), while commercial customers and those who lease space were less aware of them (39 percent and 34 percent, respectively).<sup>21</sup> Of those who were aware of the incentives, only about half (52 percent) took advantage of them.

Why did course participants who knew about these incentives not take advantage of them? Commonly-cited included being too busy to deal with the paperwork, deciding that the amount of the incentive was not worth the effort, not doing any projects that would qualify (or that they

<sup>21</sup> The fee reimbursement was not available to attendees of all courses.

thought would qualify), and being out-of-state or the customer of an energy provider that does not participate in the program.

### C. *BARRIERS TO USING KNOWLEDGE GAINED FROM TRAINING*

Finally, we asked respondents what were the major barriers to implementing some of the changes they learned about in the course. They cited several issues:

- Management’s priorities
  - “Changing the mind set of users and management regarding compressed air”
  - “Upper level management; school board approval”
  - “It is a matter of priorities, and this is not our biggest problem right now.”
- Bureaucracy within their organization
  - “We need so many layers of approval from management.”
  - “Bureaucracy within [company name]”
- Lack of time
  - “Lack of time to make changes”
  - “Down time”
- Economics
  - “Payback”
  - “Return on investment”
- Leased space
  - “I rent the space for my company. It would not be my decision to make any changes in the building.”
  - “We are in leased space, so all changes need landlord approval.”

#### **3.3.3 Consistency with Prior Training Evaluations**

To determine how consistent this study’s findings on the relationship between course attendance and energy efficient projects were with the results of prior evaluations, we compared our findings with those from a 2003 evaluation of training events.<sup>22</sup>

Where direct comparisons were possible, the findings of the two studies were quite similar. The 2003 study found that 69 percent of attendees said that they had subsequently started or completed an energy efficiency project that used the skills they had learned in training. By way of comparison, 82 percent of respondents in the current study said they had completed an energy efficiency project since taking their course, with 68 percent saying they used their new skills in this project.

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<sup>22</sup> Kimberly Bakalars, Lark Lee, and Laura Schauer, PA Consulting Group. *State of Wisconsin Department of Administration Division of Energy, Focus on Energy Statewide Evaluation, Cross-cutting Function: Education and Training Year 1 Evaluation Report—Final Report*. March 3, 2003.

Moreover, it appears that the barriers to training and project implementation have not changed substantially in the past five years. The 2003 study found that schedule conflicts and time constraints were the major barriers to attending training, while financial issues and lack of knowledge were the main barriers to energy efficiency projects.

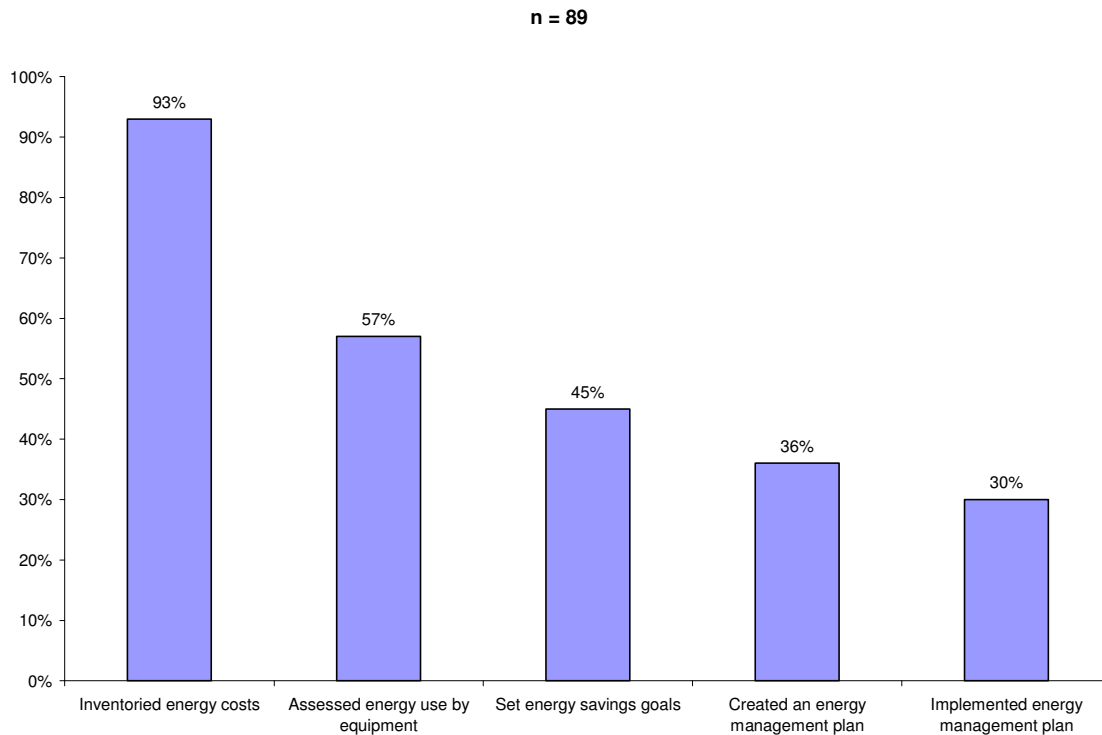
### 3.4 SPECIFIC COURSE EFFECTS

In addition to asking about post-training implementation in general, we asked attendees of several courses specific questions about the energy saving steps their organizations had taken since they completed their training.

#### 3.4.1 Practical Energy Management

Figure 3-12 shows the percent of Practical Energy Management attendees who reported their organization taking various steps since the course. Virtually all of them reported inventorying their organization’s energy costs, and more than half said they did an assessment of energy use by equipment. Forty-five percent said they had set energy saving goals. Roughly a third reported creating an energy management plan, which most of them said was implemented.

**Figure 3-12. Since Taking a Practical Energy Management Course Has Your Organization...**





### 3.4.2 Building Operator Certification

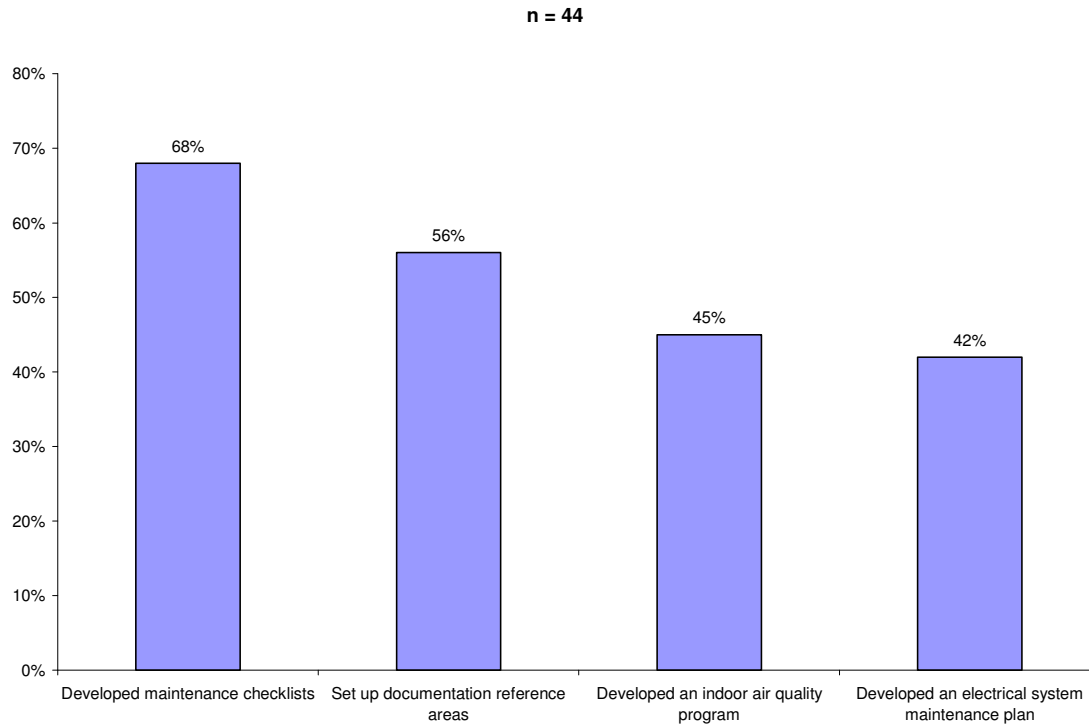
Figure 3-13 summarizes the post-training actions reported by attendees of a Building Operator Certification course.<sup>23</sup> Two-thirds reported developing a maintenance checklist, and a little more than half set up a documentation reference area for building systems such as mechanical, electrical, or lighting. Just under half said they had developed a basic indoor air quality program or an electrical system maintenance plan.

Developing a maintenance checklist as a result of attending a BOC course appears to have increased the odds of future O&M improvements being made. Among those who attended one of these classes, those who developed a maintenance checklist were more likely to report subsequent energy-saving changes in their routine operations, building maintenance practices, or equipment maintenance routines (75 percent of attendees who developed a maintenance checklist reported these subsequent actions versus 54 percent of attendees who did not create a maintenance checklist). Furthermore, when asked to rate how likely they would have been to make these energy-saving O&M changes if they had not attended a focus training, BOC attendees rated their likelihood lower than attendees in any of the other courses (mean rating of 2.4 on a 5-point scale; means for attendees of other courses ranged from 2.8 to 3.6).

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<sup>23</sup> All respondents who were counted as BOC attendees had registered for a series of BOC training events. The registration database, however, did not enable us to determine whether attendees in fact attended all of the events for which they had registered. As a result, no attempt was made to distinguish between BOC attendees on the basis of which specific events they attended.

**Figure 3-13. Since Taking a Building Operator Certification Course Has Your Organization...**



### 3.4.3 Energy Efficient Swimming Pools

Roughly one out of five attendees (22 percent) of the Energy Efficient Swimming Pools course reported that their organization had made a change to the design, operation, or maintenance of their swimming pools since they took the course. These changes ranged from upgrading motors and replacing pumps to beginning to use pool covers and ultraviolet light.

### 3.4.4 Industrial Course Offerings

#### A. COMPRESSED AIR SYSTEMS

Just under half of the attendees (45 percent) of the Industrial Best Practices in Compressed Air course said their organization had made a change to the design, operation, or maintenance of their compressed air systems since they took the course. Specific changes mentioned included leak detection and repair, more effectively sizing and controlling compressors to match loads, adding a mill drive, and adding extra air tanks.

#### B. STEAM SYSTEMS

Forty-four percent of the respondents who had taken the Industrial Best Practices in Steam Systems course reported that their company had made a change to the design, operation, or maintenance of their steam systems since the class. The majority of them said they had optimized the steam generation efficiency of their boilers, while others mentioned reducing steam leaks and losses.

### C. VENTILATION SYSTEMS

Twenty-one percent of respondents attending the Industrial Best Practices in Ventilation Systems course said that their firm made a change to the design, operation, or maintenance of their ventilation systems after they took the class. The changes they mentioned included using variable frequency drives (VFDs) or multistage burners for make-up air units and reversing ventilation fans to bring in cool air to warm areas of their plant.

### D. INDUSTRIAL REFRIGERATION

A little less than half of those taking the Industrial Best Practices in Refrigeration course (44 percent) said that their company had made a change to the design, operation, or maintenance of their refrigeration systems after they took the course. The only specific change described was changing over to aluminum fan blades in their condensers.

### E. PUMPING EFFICIENCY

None of the attendees of the course on Industrial Best Practices in Pumping Efficiency reported any changes to their pumping systems after attending the course. This may be due to the course's focus on system assessment rather than specific measures. This course was also first offered in 2007, so there may have simply not been enough time elapsed between course attendance and the survey to detect an impact.

## 3.5 EFFECTS OF PROGRAM AND TRAINING ON TRADE ALLIES

Nine respondents were identified as "trade allies," which means that they placed greater importance on learning to sell energy efficient equipment than on reducing their own energy use when deciding to seek training. The products sold by these course attendees ranged from lighting to water heating to HVAC to motors and pumps. On average, these firms have been involved with Focus on Energy for just under six years

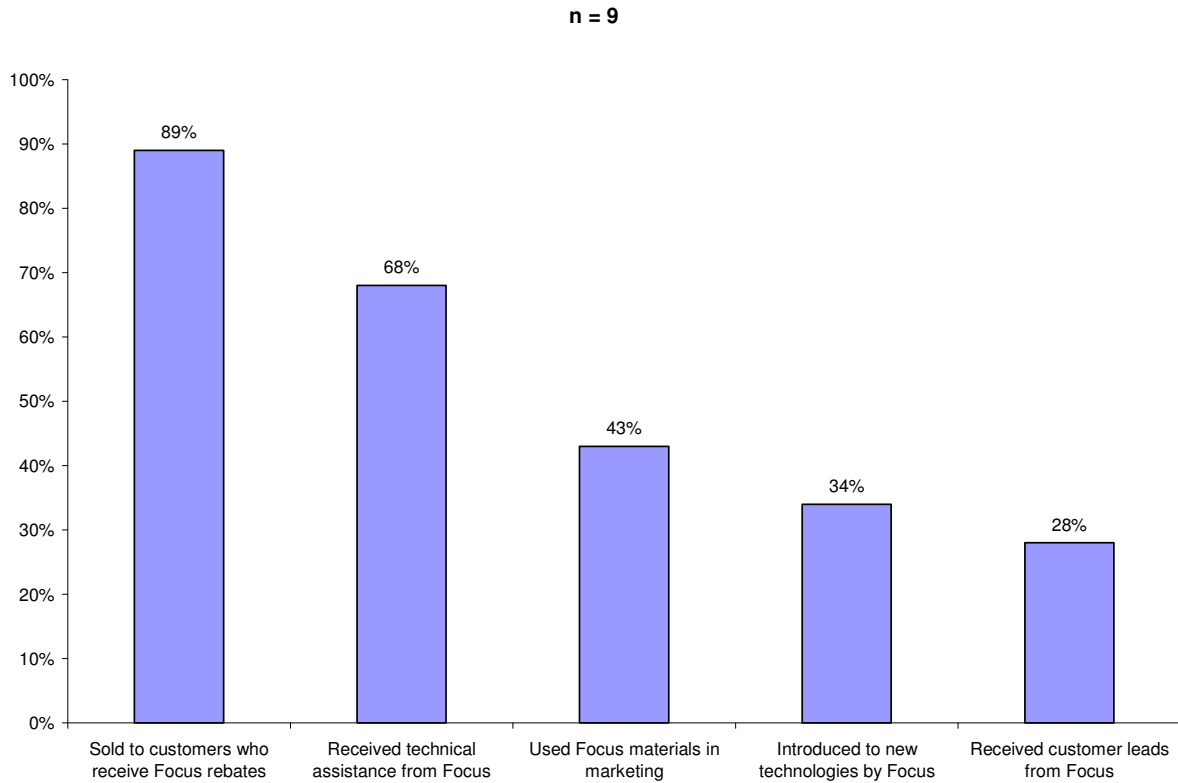
As shown in Figure 3-14, these companies have been engaged with the program in several ways. The majority sells to customers who receive Focus on Energy rebates and have themselves received technical assistance from the program. A little less than half have used program materials for marketing purposes and a third have been introduced to new technologies by the program. Finally, almost a third have received customer leads from Focus staff.<sup>24</sup>

On average trade ally respondents reported that 27 percent of the energy-efficient products and services they sell in Wisconsin receive rebates from Focus on Energy.

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<sup>24</sup> Considerations of survey focus and length precluded us asking follow up questions to determine how many of these leads turned into sales or how the leads affected the sales cycle.

**Figure 3-14. Percent of Trade Allies Engaged with Focus on Energy in Various Ways**



Fifty-eight percent of the trade ally respondents said that the information they learned in their training course helped their company sell energy-efficient products and services in Wisconsin, though the vast majority (87 percent) said that their Wisconsin sales volumes for energy efficient equipment would be roughly the same without the program. Of course, this only measures vendors' *perceptions* of whether the program has increased their sales; determining the program's actual impact on sales volumes would require a much more rigorous approach.

#### **4. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

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The results of this survey reveal that while business customers attend Focus on Energy training courses for a variety of reasons, the barriers to increased attendance are fairly consistent—lack of time and lack of money. Not surprisingly, these are also two of the main barriers that prevent attendees from applying what they learned to improve the energy efficiency of their organizations.

Barriers notwithstanding, course attendees state that these courses have had a considerable impact on their organization. They have helped to implement, and in some cases prompt, energy efficiency projects. These projects have ranged from simple lighting retrofits to major upgrades of HVAC, compressed air, and steam systems.

The impact of training course attendance on projects takes the form of increased knowledge of technology options, increased ability to demonstrate payback, and increased awareness of the assistance available through Focus on Energy. The program's assistance—financial and otherwise—is credited by respondents with making a quarter of the projects that their organizations have done happen.

That said, not all of the assistance the program makes available is used. A prime example are the financial incentives available for training course attendees whose firms complete an energy efficiency project shortly after their course. Only half of attendees are aware these incentives exist, and only a quarter make use of them. Besides lack of awareness, the main obstacles to these incentives being used are the perception that they are too small to be worth the effort, failure to implement a qualifying project, and being outside the state of Wisconsin.

The latter points to a relatively small issue with the training courses that surfaced during this study: not all of the attendees come from Wisconsin or—more importantly—plan to use their training to make Wisconsin businesses more efficient. Indeed, most of the out-of-state attendees plan to use their training back home, but not in Wisconsin. Whether this is a big enough issue to worry about is unclear; the data indicated that only four percent of attendees are from out of state.

A related issue this study examined is the question of potential training alternatives. That is, how many course attendees believe they could have found comparable training outside of the program? Survey responses indicate that many do believe there are alternative sources of training, but that they are often seen as much more expensive or otherwise inconvenient. As a result it is not obvious that many attendees would have obtained training from other sources even if it had been available.

When we look at specific training courses we see that the impact of training (defined here as the number of related energy efficiency measures adopted by attendees' organizations) varies widely. Practical Energy Management and Building Operator Certification courses show the highest level of specific impacts (e.g., energy cost assessments, goal setting, and the development of maintenance checklists and other tools for managing energy use). For more technology-specific courses the rate of related measure adoption ranges from 45 percent for compressed air training to 21 percent for best practices in ventilation and zero percent for pump training. Direct comparisons, however, are likely to be misleading. Many of the measures reported by attendees of the PEM and BOC courses, for example, are quite a

bit less costly than the measures associated with an industrial best practices course. And the payback for specific technology measures can vary dramatically, making the differential implementation rates coming out of different courses quite rational.

It is important to note that not all energy efficiency projects implemented after training courses were influenced by the training courses. The question of which projects were driven by training course attendance will be taken up in the impact evaluation report.

Finally, Focus on Energy training is helping to sell energy efficient equipment as well as encouraging its adoption by end-users. The few trade allies in our sample who took their courses more to become effective sellers than to improve their own energy efficiency are engaged with the program in myriad capacities. And the majority are putting what they learned to use in marketing and selling high efficiency goods and services in Wisconsin.

As noted, the main purpose of the 2008 evaluation of the Focus on Energy Business E&T Program was to estimate program-attributable untracked energy savings and therefore the scope of this process evaluation report is limited to the findings from the CATI survey of 309 trainees. We did not attempt a comprehensive process evaluation of the program as was done in 2003. Yet despite this limited scope, we do have a few recommendations for program improvements. Some of these originate from the CATI survey findings while others are based on our experiences with the impact evaluation trying to find matches between organizations and companies who took training sessions and the project activities of these companies in the Focus on Energy WATTS and WISEERTs program tracking databases.<sup>25</sup> Our recommendations for program improvements include:

- *Do more proactive advertising of the bonus incentives linked to program training.* As noted the CATI survey only found that about half of the E&T Program participants were even aware that Focus on Energy will reimburse training course costs and offer other financial incentives if they complete energy efficiency projects within a few months after they take the course. Although we do not know to what extent these bonus incentives are advertised orally at the training sessions, our review of the training brochures indicated that many did not mention these incentives.
- *Better tracking of the bonus incentives.* We believe that there should be clear flags/variables in the WISEERTS program tracking database indicating whether an implemented project received a bonus incentive due to its link with an E&T Program training course. This will make it easier not only for program evaluators but also E&T Program implementers to more easily identify energy-saving projects that may have been influenced by training courses.
- *Track course attendance in the registration database.* The E&T Program tracking database does record which individuals registered for a given course, but does not indicate which of these individuals actually attended the course.<sup>26</sup>

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<sup>25</sup> See the companion report: *Focus on Energy Evaluation: Impact Evaluation of Education and Training Program* for more information on the purpose of these company-matching activities.

<sup>26</sup> Conversations with E&T program staff indicated that trainees who provide advanced notification that they would not be attending the training course were marked as cancellations, although this was not done consistently. In addition, starting in late 2007, the E&T Program webinar registration database did

- *Link the webinar and course registration databases.* We found that there was no link between the new program webinar registration system that was introduced in late 2007 and the standard course registration database. A link between these databases would make it easier for the E&T Program to track which courses and how many courses a given individual was taking.
- *Better identification of trainee objectives.* We found it difficult to distinguish, from the course lists alone, trainees who were taking the courses to improve the energy-efficiency of their organization's/company's facilities from trade allies who were taking the courses to better sell energy-efficient products and services. This is a useful distinction for program planning purposes as well for helping to identify energy-saving projects that may have been influenced by training courses. One possible solution for this would be to ask trainees, when they register, to identify their objectives for taking the course. For example, they might use variations of the questions that we used in the CATI survey for this purpose.<sup>27</sup> We also found that trainers who were listed on the course registration lists were usually not clearly identified as trainers.
- *Use a consistent method for identifying organizations/companies in the tracking databases.* As indicated in the impact evaluation report, we found it very difficult to match companies or organizations listed in the E&T Program registration databases with the same companies or organizations in the WATTS/WISEERTS program tracking databases due to spelling variations. We understand that the core Focus on Energy program is moving towards using the tax identification number as the unique identifier for companies and organizations and we recommend that the E&T Program do the same for its own databases. Although it may not be realistic to request that trainees supply their tax identification number when they register, this could be something that the E&T Program staff could add when they are doing post-coding for attendance, as recommended above.

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record online connection times for trainees. To guard against the possibility that our CATI survey would be administered to individuals who had registered for the course but never attended, we removed all cancellations from our sample frame and then used a screening question (R3) to insure that the trainees recalled the course before proceeding with the survey.

<sup>27</sup> These included: 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? and P4. 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?

**APPENDIX A: SURVEY INSTRUMENT**

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**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]