PROCESS EVALUATION

Workforce Development Program

Final Report

Prepared for

The New York State
Energy Research and Development Authority

Todd French
Project Manager

Prepared by

Research Into Action, Inc.
P.O. Box 12312
Portland, Oregon 97212
503 / 287-9136

Project Staff:
Jane S. Peters
Ryan Bliss
Nathaniel Albers

Project Number 9835

NOTICE

This report was prepared by Research Into Action, Inc., in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (hereinafter the "Sponsor"). The opinions expressed in this report do not necessarily reflect those of the Sponsors or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, the Sponsors and the State of New York make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. The Sponsors, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

ABSTRACT AND KEY WORDS

This document reports the results of a process evaluation of the NYSERDA Workforce Development Training Partnerships for Energy Efficiency (WFD) program, which is part the **New York Energy $mart**[SM] Program portfolio. WFD provides funds for career pathways (CP) training for underserved and underemployed populations, technical training (TT) to improve the skills of those already in the building industry, and internship, apprenticeship, and certification programs. The process evaluation relied on: in-depth interviews with 5 NYSERDA staff, 14 training partners, and 22 trainers; a pre- and post-training survey of 242 trainees; and follow-up interviews with 21 trainees. At the time of this report, the program was on target to meet training goals – with 728 CP and 1,280 TT confirmed trainees and an estimated additional 492 CP and 504 TT trainees not yet reported – but few internship and no apprenticeship programs had been established. Generally, training has filled market needs, providing training that is generally not available from other sources, and has met trainees' expectations. However, it is not clear that CP training is uniformly effective in guiding trainees on a career path in the building industry. Although qualified in their subjects, trainers had little or no formal training in evidence-based adult education techniques. In addition, both CP and TT training would benefit from incorporating more hands-on training.

Key Words: Career pathways (CP), Technical training (TT), internship, apprenticeship, certification, One-Stop Center.

ACKNOWLEDGEMENTS

The process evaluation team would like to thank the program staff of NYSERDA's WFD Program for their assistance with this evaluation. The NYSERDA evaluation manager, Gregory French, provided direction in designing and conducting the evaluation. Other members of the NYSERDA Energy Analysis department, notably Patricia Gonzales and Jennifer Meissner, also provided input and helped shape the evaluation to respond to changing circumstances. Several staff members of the WFD Program gave generously of their time in in-depth interviews and follow-up phone calls and emails. Certain specific staff members – Kim Lenihan, Rebecca Sterling, and Kelli Herndon – provided guidance and assistance throughout the process.

We also wish to thank the training partners and trainers who took time to describe the contracting process from their perspective, the training services they provide, and their experience interacting with trainees. Finally, we thank the trainees who responded to the evaluation's surveys and follow-up interview requests, providing indispensable information on their training needs and experiences.

TABLE OF CONTENTS

NOTICE ..... **I**

ABSTRACT AND KEY WORDS ..... **III**

ACKNOWLEDGEMENTS ..... **IV**

TABLE OF CONTENTS ..... **V**

LIST OF TABLES ..... **VIII**

SUMMARY **1**
Summary of Findings 2
Program Progress 2
Implementation Experience 2
Reporting and Tracking 2
Trainer Selection and Credentialing 3
Marketing, Trainee Recruitment, and Training Implementation 3
Training Approach 3
Meeting Trainee Needs 4
Career Pathway "Next Steps" 4
Conclusions and Recommendations 5

SECTION 1: INTRODUCTION **1-1**
1.1 Program Description 1-1
1.2 Evaluation Focus on PON 1816 1-2
1.3 Purpose of the Evaluation 1-3
1.4 Evaluation Methodology 1-4
1.4.1 In-Depth Staff Interviews 1-4
1.4.2 Training Partner Interviews 1-5
1.4.3 Trainer Interviews 1-5
1.4.4 Trainee Surveys and Follow-Up Interviews 1-7
1.5 Report Contents 1-9

SECTION 2: NYSERDA PROGRAM AND CONTRACT STAFF **2-1**
2.1 Overall Program Progress 2-1
2.1.1 Training Progress 2-1
2.1.2 Certification 2-8
2.2 Program Implementation 2-8
2.2.1 Contracting Process 2-9
2.2.2 Recruitment 2-10
2.2.3 Train-the-Trainer, Apprenticeships, and Internships 2-10
2.2.4 Marketing and Outreach 2-11
2.2.5 Tracking and Reporting 2-11
2.2.6 Key Topics for Evaluation 2-12

SECTION 3: TRAINING PARTNERS 3-1
3.1 Description of Respondents 3-1
3.2 Working with NYSERDA 3-2
3.1.1 How Partners Learned about NYSERDA EEPS-Funded Workforce Funding 3-2
3.1.2 PON 1816 Application Process 3-2
3.1.3 Program Reporting Requirements 3-3
3.1.4 Distribution of Pre- and Post-Training Surveys 3-3
3.3 Recruitment, Marketing, and Outreach 3-3
3.1.5 Recruitment Channels 3-4
3.1.6 Collaboration and Coordination 3-5
3.1.7 Enrollment Progress 3-5
3.1.8 Barriers to Recruitment 3-6
3.1.9 Improving Recruitment 3-6
3.4 Training Implementation 3-6
3.1.10 Recruiting Trainers 3-6
3.1.11 Use of Contract Training Staff 3-6
3.1.12 Use of Experiential Training 3-7
3.1.13 Student Prerequisites 3-7
3.1.14 Student Assessment 3-8
3.1.15 Challenges to Carrying Out Training 3-8
3.5 Additional Training Needs 3-9
3.6 Career-Pathways-Specific Topics 3-10
3.1.16 National Workforce Readiness Credential (NWRC) 3-10
3.1.17 Internships 3-10
3.1.18 Assistance with "Next Steps" 3-11

SECTION 4: TRAINERS 4-1
4.1 Course Design and Planning 4-1
4.2 Training and Certification Requirements 4-1
4.3 Types of Students Taking the Course 4-6
4.4 Teaching Approaches 4-7
4.5 Support of Attendees in Job Placement 4-8
4.6 Course Attrition 4-13
4.7 Student Assessments 4-14
4.8 Suggestions for Course improvement 4-15

SECTION 5: CAREER PATHWAYS (CP) TRAINEES 5-1
5.1 CP Trainee Characteristics 5-2
5.2 Trainees' Job Search Strategies 5-3
5.3 Trainee Expectations about the Training 5-5
5.4 Perceived Training Success 5-7
5.4.1 Training Expectations, Appropriateness, and Preparation for Employment 5-8
5.4.2 Suggested Training Improvements 5-9
5.4.3 Expected Next Steps 5-9
5.5 Summary of CP Pre- and Post-Training Survey Findings 5-11
5.6 Follow-Up Telephone Surveys 5-12
5.6.1 Characteristics of Interviewed CP Trainees 5-12
5.6.2 The Training's Place in the Market 5-13

5.6.3 Reasons for Training 5-13
5.6.4 The Training's Value 5-13
5.6.5 Overall Satisfaction with the Training and Instructors 5-14
5.6.6 Recommendations for Improving Training 5-14
5.6.7 Next Steps Post Training 5-15
5.6.8 Impact on Employment 5-16

SECTION 6: TECHNICAL TRAINING (TT) TRAINEES 6-1
6.1 TT Trainee Characteristics 6-2
6.2 TT Trainees' Job Search Strategies 6-3
6.3 Trainee Expectations about the Training 6-3
6.4 Training Success 6-5
6.4.1 Training Expectations, Appropriateness, and Preparation for Employment 6-5
6.4.2 Suggested Training Improvements 6-6
6.4.3 Expected Next Steps 6-6
6.5 Summary of TT Pre- and Post-Training Survey Findings 6-8
6.6 TT Trainee Telephone Follow-UP Survey Findings 6-8
6.6.1 Respondent Characteristics 6-9
6.6.2 Awareness of Other Training Opportunities 6-9
6.6.3 Satisfaction with and Perceptions about the NYSERDA-Funded Training 6-10
6.6.4 The Training's Impact on Employment 6-11
6.6.5 Post-Training Plans and Additional Training Taken 6-11

SECTION 7: CONCLUSIONS AND RECOMMENDATIONS 7-1
Conclusions and Recommendations 7-1

APPENDIX A: NYSERDA INTERVIEW GUIDE FOR WFD STAFF A-1

APPENDIX B: NYSERDA WFD INTERVIEW GUIDE FOR TRAINING PARTNERS B-1

APPENDIX C: NYSERDA WFD INTERVIEW GUIDE FOR TRAINERS C-1

APPENDIX D: NYSERDA WFD PRE- AND POST-TRAINING SURVEYS D-1

APPENDIX E: NYSERDA WFD FOLLOW-UP INTERVIEW GUIDE FOR TRAINEES E-1

APPENDIX F: ANALYSIS OF ADDITIONAL TRAINEE SURVEYS F-1

LIST OF TABLES

Table 1-1. PON 1816 Summary 1-3
Table 1-2. Distribution of Sampled and Interviewed Trainers by Region and Training Type 1-6
Table 2-1. Summary of Program Progress Metrics 2-2
Table 2-2. Courses and Trained Students by Course Category 2-5
Table 2-3. Summary of Progress Metrics by Training Partner 2-6
Table 2-4. Program-Funded Certification Support 2-8
Table 3-1. Characteristics of Respondents 3-1
Table 3-2. Trainee Recruitment Channels 3-4
Table 3-3. Suggested Additional Training Activities 3-9
Table 3-4. Internship Component to Training 3-11
Table 3-5. Assistance Provided with CP Trainee "Next Steps" 3-11
Table 4-1. Course Origin and Development 4-2
Table 4-2. Trainer Experience and Certification 4-4
Table 4-3. Characteristics of Attendees 4-6
Table 4-4. Course Teaching Approach 4-8
Table 4-5. Job Placement Support 4-10
Table 4-6. Dropouts 4-13
Table 4-7. Course Assessment Approaches 4-14
Table 5-1. Career Pathway Trainees' Education Level and Employment Status 5-2
Table 5-2. Career Pathway Trainees' Self-Reported Skill Levels 5-3
Table 5-3. Job Search Strategies and Role of One-Stop Centers 5-5
Table 5-4. CP Trainees' Reasons for Taking Training (Multiple Responses Allowed) 5-6
Table 5-5. CP Expected Accomplishments from the Training 5-7
Table 5-6. How Well CP Training Fit Experience and Goals 5-7
Table 5-7. CP Training Expectations, Appropriateness, and Preparation for Employment 5-8
Table 5-8. Suggested Training Enhancements (Multiple Responses Allowed) 5-9
Table 5-9. CP Trainees' Post-Training Expectations (Multiple Responses Allowed) 5-10
Table 5-10. Career Pathways Trainees' Certification Plans 5-11
Table 5-11. CP Trainee Characteristics 5-12
Table 5-12. Post-Training Next Steps 5-15
Table 5-13. Employment Status 5-17
Table 6-1. TT Trainees' Education Level and Employment Status 6-2
Table 6-2. Technical Trainees' Self-Reported Skill Levels 6-3
Table 6-3. TT Trainees' Reasons for Taking Training (Multiple Responses Allowed) 6-4
Table 6-4. TT Expected Accomplishments from the Training 6-4
Table 6-5. How Well TT Training Fit Experience and Goals 6-5
Table 6-6. TT Training Expectations and Appropriateness 6-6
Table 6-7. Suggested Training Enhancements (Multiple Responses Allowed) 6-6
Table 6-8. TT Trainees' Post-Training Expectations (Multiple Responses Allowed) 6-7
Table 6-9. Technical Trainees' Certification Plans 6-8
Table 6-10. Summary of Respondent Characteristics 6-9

SUMMARY

The **New York Energy $mart[SM]** programs are funded by an electric distribution System Benefits Charge (SBC) paid by customers of Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc. (Con Edison), New York State Electric and Gas Corporation, National Grid, Orange and Rockland Utilities, and Rochester Gas and Electric Corporation. The programs are available to all electricity distribution customers that pay into the System Benefits Charge (SBC). The New York State Energy Research and Development Authority (NYSERDA), a public benefit corporation established in 1975, began administering the SBC funds in 1998 through NYSERDA's **New York Energy $mart[SM]** Program.

In 2010, NYSERDA began its Workforce Development Training Partnerships for Energy Efficiency (WFD Program), funded through the Energy Efficiency Portfolio Standard (EEPS), to provide technical training, internship and apprenticeship programs, and specific certification programs that support state energy efficiency goals. Through two solicitations, PON 1816 and PON 1817, the program estimated it would train some 1,797 workers through Career Pathways (CP) training, designed for disadvantaged workers without construction or building experience, and 2,225 workers through Technical Training (TT), targeting those that are currently in the building industry; in addition, it would support certification efforts for another 2,215 workers. PON 1816 was expected to fund the majority of the training – 1,097 CP and 1,425 TT trainees – while PON 1817 was expected to fund CP training for 700 workers and TT training for 800.[1]

The evaluation plan for NYSERDA's 2010-2011 **New York Energy $mart[SM]** Program portfolio includes a process evaluation of NYSERDA's Workforce Development (WFD) Program to assess the program's overall implementation success, address specific researchable issues contained in the program logic model, and generate recommendations for continued or increased success. Research Into Action Inc. conducted the process evaluation of the WFD Program.

The process evaluation focused on trainings funded by PON 1816, as trainings funded by PON 1817 did not begin early enough to generate sufficient data for the evaluation. The evaluation relied on: two rounds of in-depth interviews with NYSERDA program and contracts staff, training partners, and trainers; immediate pre- and post-training surveys of trainees; and follow-up interviews with a sample of trainees several months after completion of training. The process evaluation team has: completed in-depth interviews with 5 program and contracts staff, 14 training partners, and 22 trainers; received pre- and post-training survey data for 242 trainees; and conducted follow-up interviews with 21 trainees.[2]

Note that only about half the CP training partners and a small proportion of the TT training partners returned pre- and post-training survey data in time to be included in this report. Moreover, many of those

[1] Throughout this report, the expected, targeted, and actual counts of trainees or trained workers do not necessarily refer to numbers of unique individuals but to numbers of course registrants. Program staff have estimated that 30% of CP students have taken more than one course but that none of the TT trainees have done so. Evaluators did not have access to data to confirm the amount of repeat participation across all trainings covered in this evaluation.

[2] After this report was completed and submitted in June 2012, the evaluators analyzed surveys from an additional 604 trainees, received too late to be included in the report. The results of those analyses, included in an addendum to this report (Appendix F), confirm and extend the findings of this report.

training partners returned surveys for only a portion of their courses. This limits the generality of the survey results, which should be interpreted with caution.[3]

SUMMARY OF FINDINGS

This section briefly summarizes: the program's progress, in terms of contracting with training partners and training workers; data reporting and tracking issues; training partners' selection and credentialing of trainers; training marketing and implementation; the training approaches employed; how well trainees' needs are being met; and what is being done to advance CP trainees on a career pathway.

Program Progress

Program tracking data showed that PON 1816 training partners with contracts in place had targeted 4,286 TT trainees and 1,875 CP trainees. At the of report preparation the program was on track to exceed the goals for trained workers. Program documents showed 2,008 confirmed trainees (728 CP and 1,280 TT), with an estimated 996 additional trainees (492 CP and 504 TT) for other completed courses without confirmed counts. Adding estimates for courses for which attendee counts have not yet been reported results in an estimated total of 3,004 trainees, well beyond the original goal of 2,522.

Three internships and no apprenticeship programs had been established. The contracts for eight of the 13 CP training partners specified some type of internship, so the number of internships established is fewer than anticipated.

The program had supported certification for a total of 1,058 workers, just under half the program goal. For about three-fifths of those workers, the support was in the form of reimbursement for expenses, such as course and exam fees, related to taking the Building Performance Institute (BPI) Home Performance certification, for which there was no NYSERDA-supported course. About one-quarter of the supported workers had passed a certification exam after taking a NYSERDA-supported course. At the time of report preparation, NYSERDA had only recently begun collecting data from training partners on the number of students who took and passed certification exams after attending a NYSERDA-supported training, and so the evaluators were not able to calculate the pass rate.

Implementation Experience

In initial interviews, program staff noted that the contracting process and initial implementation took longer than expected, as the introduction of some types of training organizations and training that were new to the program staff created some challenges. Most training partners said the application process was easy, while a few found it unclear or burdensome. Those who found the application difficult were able to complete applications with staff assistance. All applications underwent revisions prior to final acceptance, and all training partners reported that the requested revisions were reasonable.

Reporting and Tracking

Generally, training partners found program reporting requirements reasonable. While staff reported minimal challenges in obtaining required data from training partners, they did report that training partners varied in their ability to track and report data in a timely fashion and with consistent detail. Moreover, it

[3] The analyses of additional surveys, described in the addendum (Appendix F), improves the generality of the findings, but those analyses were still based on a minority of training partners and courses.

had been difficult getting training partners to provide such post-training data as students' employment information and additional training. Some training partners reported difficulty in maintaining contact with CP students after course completion.

Trainer Selection and Credentialing

Most interviewed training partners contracted with trainers to deliver their training; they reported that they meet regularly with trainers to monitor the training delivery. WFD staff reported that trainers were vetted by NYSERDA during the proposal review process. All interviewed trainers reported extensive practical experience and years of energy training experience, and half of them reported specific training certification or coursework. While about one-quarter of the interviewed trainers had taken a train-the-trainer course that incorporates instruction in using interactive exercises, none of them reported extensive formal training in specific evidence-based adult education techniques; this may help account for the observation (reported below) that training did not consistently employ hands-on training.

Marketing, Trainee Recruitment, and Training Implementation

The partners reported a range of channels for recruiting trainees, most frequently using existing networks, New York State Department of Labor One-Stop Centers (for CP training),[4] and advertisements placed in local media. The most common area of collaboration with external organizations was in recruiting CP trainees. In pre-training surveys, CP trainees indicated they rely heavily on One-Stop Centers for information on job opportunities, so training partners' use of One-Stop Centers for CP trainee recruitment is appropriate. Program staff reported that few training partners had taken advantage of cooperative marketing funds offered to partners through NYSERDA funding (described below).

Some training partners offering CP training reported greater involvement with One-Stop Centers (such as operating shared facilities, shared grant administration, provision of internship stipends, and delivery of examinations). In addition, some partners sent trainees to local community colleges for part of their training or for continued training. Partners generally did not indicate any difficulties in finding eligible students.

Some training partners and trainers cited barriers to enrollment or successful completion of training. Two contacts said that the potential loss of unemployment benefits posed a barrier to recruitment. In some New York counties, students may keep benefits only so long as they are enrolled full-time in training. Some training partners have responded to this by increasing the number of hours of training to meet the criterion for full-time study. Other training partners and trainers reported that challenges relating to students' personal backgrounds (e.g., childcare needs, addiction issues) resulted in some attrition from classes.

Training Approach

Interviews with the training partners, as well as those delivering the actual training, found that hands-on training, which is considered best practice in adult education, was not used consistently across CP courses and was used in few TT courses. About two-thirds of the CP trainees and half of the TT trainees said that more hands-on experience would have enhanced the training. Almost all the partners offering TT training require trainees to pass final examinations. Few of those offering CP training required final examinations,

[4] The New York State Department of Labor One-Stop Career Centers are a collaboration of agencies, departments, and organizations that are responsible for helping individuals find and keep a job. For more information, go to http://www.labor.state.ny.us/workforcenypartners/osview.asp. Accessed on October 25, 2011.

but instead assessed students on a mix of class participation, project work, demonstrated proficiency, and quizzes throughout the course.

Meeting Trainee Needs

Several findings provide evidence that, apart from insufficient use of hands-on training, the training that was offered was appropriate, given the trainees' and the market's needs. Training partners and trainers generally reported that most students' skill levels were appropriate for the classes in which they were enrolled. Pre-training surveys show that trainee characteristics were as anticipated and consistent with training partner and trainer reports.

Both CP and TT trainees reported in the pre-training survey that the training was a good fit for them and that they believed it would teach them new skills; both groups generally reported in the post-training survey that the training met or exceeded expectations. Trainees' reasons for taking the training – CP trainees to obtain employment and TT trainees because of employer recommendation and for job advancement – were consistent with the program's goals and expectations. The findings that all TT trainees were employed and that most worked for large companies and reported plans to pursue some industry-related certification after training were similarly consistent with program goals.

Information from the follow-up interviews with CP trainees suggests that the NYSERDA-funded training is meeting market needs for this group, as respondents generally were not aware of where they could have gotten the training they received if not through the NYSERDA-funded course. In those follow-up interviews, CP trainees also confirmed that the training provided them new and useful job skills, as well as interpersonal and job-search skills. However, while several CP students had found employment since graduating from training, none were doing construction or energy efficiency work.

In follow-up interviews, TT trainees confirmed that the training was practical and had clear application to the work they did. In some cases, students in TT courses were already well skilled in the course topic and expected the course to be a refresher of things they had learned before. WFD staff expected this, as not all courses were designed to introduce wholly new material. For example, one course updated trainees on changes to New York building codes.

Feedback from one group of TT trainees provided a potentially valuable lesson. A course on *eQUEST* modeling included students a wide range of existing skill level, and the students already familiar with *eQUEST* reported frustration that the training did not advance their knowledge of the tool as much as they had hoped. This finding suggests that too much variability in the skill level of attendees may impede course effectiveness.

Career Pathway "Next Steps"

CP trainees expected training to help them change their field of employment, and most of them planned to pursue further training, mainly in energy efficiency. These findings suggest that CP trainees understand their training to be a "first step" in their preparation for employment in the energy efficiency and renewable energy fields, consistent with CP goals.

Most interviewed CP training partners and trainers reported providing some type of guidance or assistance to trainees in pursuing a career path. The most commonly mentioned were forms of assistance seeking employment, including job referrals and career counseling. Other types of assistance included referrals to additional training and certification, and post-training follow-up. Lack of accurate trainee contact information and trainee reticence to cooperate, however, posed a barrier to successful follow-up efforts. Feedback from follow-up interviews with a sample of trainees confirms that they received some level of career path assistance, but the sample was small and thus provided limited data. Few trainees reported

registering with One-Stop Centers. Collecting additional follow-up data with a larger sample of trainees would be valuable.

A sub-group of CP trainees have lower job-search skills than other trainees and are less likely to plan additional training to improve their skills. These trainees may particularly benefit from career counseling and related forms of assistance. The evaluation was not able to conduct enough follow-up interviews with CP trainees to determine whether this subgroup received and benefited from the particular assistance they needed. It may be valuable to conduct follow-up with additional CP trainees over the next few months to explore this issue.

CONCLUSIONS AND RECOMMENDATIONS

The evaluation team identified the following conclusions and recommendations:

***Conclusion 1*:** Unemployed CP trainees appear to understand that the training they are taking under the WFD Program is preparatory for additional training and may not lead directly to employment post training, but it is not clear that the training is uniformly effective in guiding trainees on a career path through additional training, certification, and employment in the building industry. Difficulty maintaining contact with CP students after course completion contributes to the challenge of providing career path guidance.

> ***Recommendation*:** NYSERDA should work with CP training partners to clearly identify and define the "career path" that each course fits into, to ensure that trainers and trainees understand how the course fits into that career path, and to incorporate consistent and comprehensive job-search skill training and post-training support into their curricula. At a minimum, this should include emphasizing that students should register with local One-Stop Centers and helping them do so if they have not done so already. The support should also include providing trainees with more detail on the various types of additional training, certifications, and employment options they would be eligible for after completing any given CP training.

> ***Recommendation:*** NYSERDA should continue to facilitate meetings to bring together employers, training organizations, unions, and other stakeholders, and use those meetings to identify and develop a concrete career pipeline for CP trainees based on existing career pathways best practices and to facilitate connections between training partners and union apprenticeship programs.[5]

***Conclusion 2*:** TT training supports people already employed in an energy efficiency field by providing them with training that is generally not available from other sources. The skill levels of students in some classes may be too heterogeneous, however, which may impede training effectiveness.

> ***Recommendation:*** NYSERDA should work with its training partners to identify TT courses (e.g., *eQUEST* modeling) that should be taught at beginning and intermediate-advanced levels.

***Conclusion 3*:** Although course instructors were qualified in their subject matters and typically were experienced trainers, some may lack knowledge of or experience in specific evidence-based adult education techniques.

---

[5] Maguire, S., J. Freely, C. Clymer, M. Conway, and D. Schwartz. 2010. *Turning In To Local Labor Markets: Findings from the Sectoral Employment Impact Study*. Philadelphia, Penn.: Public Private Ventures.

***Recommendation*:** NYSERDA should work with its training partners to ensure that all trainers be given training in evidence-based adult education techniques.

***Conclusion 4*:** Both TT and CP training partners and trainees value hands-on training, but the amount of hands-on training is restricted by limited equipment budgets.

***Recommendation*:** NYSERDA may consider providing training partners with some assistance to support additional hands-on training, such as by paying for a teaching assistant in a classroom, who could assist students as they work on hands-on activities and by helping training partners identify sources of funds to purchase equipment (e.g., hand-held digital tools for data collection or analysis, or energy efficiency tools such as blower doors) or local firms or organizations that may be able to provide access to needed equipment (e.g., local weatherization companies to provide access for blower doors). Discussions on how training organizations might work with firms or organizations should be incorporated into NYSERDA-facilitated meetings among employers, training organizations, unions, and other stakeholders.

Section 1:

INTRODUCTION

The **New York Energy $mart**[SM] programs are funded by an electric distribution System Benefits Charge (SBC) paid by customers of Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc. (ConEdison), New York State Electric and Gas Corporation, National Grid, Orange and Rockland Utilities, and Rochester Gas and Electric Corporation. The programs are available to all electricity distribution customers that pay into the System Benefits Charge (SBC). The New York State Energy Research and Development Authority (NYSERDA), a public benefit corporation established in 1975, began administering the SBC funds in 1998 through NYSERDA's **New York Energy $mart**[SM] Program.

During 2008, several changes arising from the New York State Public Service Commission's (PSC's) Energy Efficiency Portfolio Standard (EEPS) proceeding have affected NYSERDA's **New York Energy $mart**[SM] Program portfolio and evaluation efforts. The PSC's June 23, 2008, EEPS Order called for an increase in SBC collections and a ramp-up of program efforts by NYSERDA and the state's six investor-owned electricity transmission and distribution utilities to meet New York's "15-by-15" electricity reduction goal. NYSERDA complied with the PSC's order by submitting a Supplemental Revision to the SBC Operating Plan, incorporating approximately $6.6 million per year in additional funds for workforce development efforts. In the past, NYSERDA provided workforce training largely on a per-program basis, with training funds contained within efficiency program budgets. The additional funds available by the EEPS allowed training to be available outside of specific program budgets.[6]

This additional funding is in line with actions taken by other public administrators to start or enhance training programs to increase the size of the energy efficiency workforce to meet the demand for skilled workers in energy efficiency created by increases in funding for energy efficiency work.[7]

1.1 PROGRAM DESCRIPTION

The Workforce Development Training Partnerships for Energy Efficiency (WFD Program) began in 2010; it is funded through the Energy Efficiency Portfolio Standard. The WFD Program funds eligible training entities to deliver technical training, internship and apprenticeship programs, and specific certification programs that support state energy efficiency goals.

NYSERDA offered PON 1816 and PON 1817 to support workforce training efforts. PON 1816 made available $3.8 million dollars to training organizations around New York between October 2009 and May 2012. The initial goal of the WFD Program is to significantly expand the existing energy efficiency training infrastructure. The WFD Operating Plan[8] states that the program would train and certify 6,237 workers to

---

6 *Order Authorizing Workforce Development Initiatives*. State of New York Public Service Commission. Session held in Albany, New York, on June 18, 2009. Issued and effective on June 22, 2009.

7 Goldman, C. et al. (2010). *Energy Efficiency Services Sector: Workforce Size and Expectations for Growth*. Lawrence Berkeley National Laboratory. Accessed on July 28, 2011, from http://eetd.lbl.gov/ea/ems/reports/lbnl-3987e.pdf .

8 http://www.getenergysmart.org/Files/GreenJobs/WFDOperatingPlan.pdf for a copy of the Operating Plan. Accessed on October 25, 2011.

serve the needs of the portfolio of programs funded through the EEPS.[9] The WFD Operating Plan: sets forth the strategies and initiatives that will be used to achieve the WFD Program goals; summarizes how NYSERDA will administer, evaluate, and report on each program component; identifies the funds allocated to each program component and corresponding metrics; and discusses program delivery and collaboration activities for this initiative.

The WFD Program is designed to quickly increase the number of energy efficiency training opportunities that are currently being delivered by many established workforce training organizations in many venues across New York. Funding for new training initiatives with innovative programs and new training organizations is also available.

Training organizations funded through WFD include nonprofits, Boards of Cooperative Education Services (BOCES), community colleges, and private training organizations. These organizations submitted proposals to NYSERDA to provide training to increase the number of credentialed individuals supporting energy efficiency work in the state. Each organization that received funding was called a training partner.

Training partners could receive funding for one of two activities: Career Pathways (CP) or Technical Training (TT). CP training is designed for disadvantaged workers without construction or building experience. This training provides basic job skills and introductory information about the energy efficiency field. Examples of CP training include basic math, worker readiness skills training, and basic green construction techniques. CP trainings are designed to provide attendees with a foundation upon which they can prepare a career path in the energy efficiency field. Successful completion of CP trainings prepares students for entry-level positions (e.g., in weatherization), which, in turn, can lead to additional training and higher-paying jobs.

As a complement to CP, TT targets those currently in the building industry. TT aims to expand the skill sets of building professionals – such as architects, contractors, and building inspectors – by exposing them to techniques, software, or tools that will allow them to better incorporate energy efficiency into their work. Examples of TT include Builder Operator Certification training and how to use *eQUEST* energy modeling software.

Of the estimated 6,237 workers to be trained and certified under the EEPS WFD initiative, an estimated 1,797 were expected to receive CP training and 2,225 to receive Technical Training (TT). The remaining 2,215 workers were expected to receive funds to help them offset the cost of taking certification exams.

1.2 EVALUATION FOCUS ON PON 1816

Since the deadline for completing the evaluation and submitting a final report was spring 2012, this evaluation examined only EEPS-funded trainings completed in 2011, which excludes those funded under PON 1817. An estimated 1,500 workers were to be trained under PON 1817, 700 to receive CP training and 800 to receive TT training. NYSERDA initially released PON 1816 in January 2010, with revisions in July, September, and December 2010; each revision included specific modifications. The January, July, and September releases of PON 1816 were funded solely through EEPS. The December release included funds

[9] This figure is meant to represent 6,237 training session participants, some of whom may be repeat participants.

from the Green Jobs – Green New York (GJGNY) Program;[10] the GJGNY funds were allocated such that some trainings received both EEPS and GJGNY funds, while some received only EEPS funds. Table 1-1 shows the number of contracts awarded in each PON funding round.

Table 1-1. PON 1816 Summary

PON Round	Release Date	Number of Contracts Awarded
PON 1816 v1.0	January 2010	11
PON 1816 v2.0	July 2010	5
PON 1816 v3.0	September 2010	6
PON 1816-GJ	December 2010	12
Total		**34**

In addition to excluding training funded by PON 1817, this evaluation excludes GJGNY-funded training under PON 1816-GJ. The evaluation covers all trainings funded by PON 1816, rounds one, two, and three, and all trainings funded by PON 1816-GJ that received only EEPS funds.

PON 1816 funding is awarded through two channels: 1) through Training Partnership Agreements (TPAs) with eligible training organizations; and 2) through direct incentives for individuals successfully completing certifications in energy efficiency related programs. Funds granted through approved TPAs include up to $1,250,000 for *Career Pathways for Disadvantaged Workers* training to help develop the necessary basic skills to prepare new and displaced workers for more technical energy efficiency classes/courses (such as building analyst or building operator). PON 1816 also makes available up to $2,562,410 for technical energy efficiency training, internships, apprenticeships, limited cooperative advertising, and certification reimbursements for technicians, building operators, and other professionals supporting the building efficiency trades.

Based on the WFD Operating Plan, WFD staff expected PON 1816 to fund over 60% of the CP and TT training and all of the certification reimbursement.

1.3 PURPOSE OF THE EVALUATION

The goals of the process evaluation are to:

1. Assess the overall implementation experience of the WFD Program across training providers, trainers, and trainees.

2. Assess the experience of Training Partners with the program selection and implementation process.

[10] Under the Green Jobs – Green New York (GJGNY) Program, NYSERDA funds energy-efficiency workforce training. Some overlap exists between EEPS-funded and GJGNY-funded training (e.g., GJGNY funds weatherization training and EEPS funds training for insulation installation). However, the two funding sources differ in their distribution across market sectors, with GJGNY targeted to the residential and small commercial sectors, while EEPS has a greater focus on the multifamily, large industrial, and large commercial sectors.

3. Assess relevant researchable issues (mainly short and intermediate term) contained in the WFD Program Logic Model Report including:

    a. Are the outreach efforts, marketing materials, and educational materials effective in increasing the awareness and enrollment in WFD Program opportunities? What methods are most effective to target the different market actors?

    b. What types of information, tools, training, and incentives do participants want or need in order to be more effective in the energy efficiency market place? How does this vary by market segment?

    c. What types of coordination and leveraging methods, with other state, regional, national programs, are most effective for the EEPS WFD Program?

    d. What are the most effective ways the EEPS WFD participants differentiate themselves in the market?

1.4 EVALUATION METHODOLOGY

The evaluation relied on the following data collection activities:

1. In-depth interviews with NYSERDA staff
2. In-depth interviews with training partners
3. In-depth interviews with trainers
4. Analysis of pre- and post-tests of trainees

The evaluation team conducted two rounds of in-depth interviews. The first round occurred between May and August 2011. The evaluators conducted a second round of interviews in November and December 2011 to obtain follow-up information on program progress, as well as to explore topics and issues that emerged during the initial round of data collection and in discussions following submittal of the interim evaluation report in October 2011.

The following sections outline the data collection methods.

1.4.1 In-Depth Staff Interviews

The evaluation team conducted interviews with three members of the NYSERDA WFD Program staff in May 2011. These interviews covered topics such as roles and responsibilities, training implementation, types of training, marketing, tracking, and training progress. The interviews also were designed to provide the evaluation team with an in-depth understanding of how the WFD Program is implemented, what challenges, if any, program staff have experienced, and to learn what program staff would find most useful to from the evaluation.

In November 2011, the evaluators re-interviewed two members of NYSERDA WFD program staff and interviewed an additional WFD staff member to obtain information on program progress and to clarify issues raised in initial data collection from training partners and trainers. The evaluators also interviewed the NYSERDA contracts administrator responsible for WFD training partner agreements to obtain additional information on the contracting process.

The interview guide for NYSERDA staff, combining round one and round two questions, is included as Appendix A.

1.4.2 Training Partner Interviews

In June and July 2011, the evaluation team carried out the first round of interviews with training partner contacts. Training partner interviews covered topics such as the application process, the needs of the workforce, training implementation, and marketing the training. The training partner interview guide was created in consultation with NYSERDA evaluation and program staff.

NYSERDA program staff provided the evaluation team with contact information for 22 training partners funded under PON 1816. Of the 22 partners, seven were ineligible for interviewing because they had not started training, or had not progressed very far in training, under their contract with NYSERDA. Of the 15 remaining training partners, nine were funded under PON 1816 v. 1.0 and three each were funded under v. 2.0 and 3.0. With a goal of interviewing 10 training partner contacts, the evaluators prioritized contact efforts to focus on those training partners that had progressed furthest in NYSERDA-funded training (i.e., those funded under the earliest PON versions) and to achieve a balance of CP and TT training partners. Evaluation staff completed interviews with nine contacts – seven that offered CP training and three that offered TT training (one offered both), six funded by PON 1816 v 1.0 and three funded by v. 2.0.

None of the six training partners that were not interviewed explicitly refused to be interviewed. One repeatedly rescheduled the interview and never completed it, and one could not be reached after at least five contact attempts. One training partner was also a trainer was interviewed as a trainer. Three other training partners could not be contacted, scheduled, and interviewed in time to be included in the initial round of interviews. (All three were included in the second round of interviews.)

Each interview lasted approximately one hour. The evaluation team generally spoke with the person responsible for coordinating and submitting the application to NYSERDA. However, in two cases the training partner representative was also a trainer.

In November and December 2011, evaluators re-interviewed eight of the nine training partner contacts, as well as contacts for five of eight additional training partners that began training after July 2011. One of the previously interviewed training partners and three of the additional training partners could not be reached for an interview after at least five contact attempts.

The follow-up interviews with the eight previously interviewed training partners provided additional information on four key topics: 1) what “next steps” are communicated to CP trainees; 2) what certification examinations, if any, the training prepares trainees to take; 3) what challenges training partners faced in delivering the training; and 4) how training partners promoted the training. The interviews with the five new training partner contacts covered all the topics addressed in both rounds of interviews with the original nine training partners.

The interview guide for training partners, combining round one and round two questions, is included as Appendix B.

1.4.3 Trainer Interviews

In July and August 2011, the evaluation team conducted the first round of interviews with trainers. Trainer interviews covered topics such as the background and experience of the trainer, the trainer’s perspective on the needs of the trainees, and what feedback the trainers received from trainees. The trainer interview guide was created in consultation with NYSERDA evaluation and program staff.

From a data file of approved courses provided by the WFD Program staff, the process evaluation team created a list of 44 unique trainers who conducted or were to conduct training funded by PON 1816. From this list, the team drew a sample of 26 trainers distributed across New York that included CP as well as TT

instructors. To ensure that the interviewed trainers had had sufficient time conducting training sessions to provide detailed responses, the sample included only trainers whom the program data file indicated had already begun delivering their specified training. During the interview scheduling process, the evaluators discovered that six trainers had not begun training and therefore removed those trainers from the sample, leaving a sample of 20.

With a goal of completing interviews with as many of the 20 trainers as possible, the evaluators completed interviews with 14 trainers. One trainer refused to be interviewed, and the evaluators could not contact five of them after at least five attempts. The 14 completed trainer interviews represented nine TT partners and five CP partners. Each interview lasted about 25 minutes.

In November and December 2011, evaluators re-interviewed 10 of the 14 previously interviewed trainers, as well as eight additional trainers from a group of 12 that began training after August 2011. In total, the evaluators interviewed 22 trainers from a sample of 32. Table 1-2 shows that more than half the trainers taught courses statewide, and the others were well distributed across the state. Similarly, trainers that taught courses statewide accounted for about three-fifths of all targeted students. Sampled trainers were also well split between CP and TT courses, although TT trainers accounted for about two-thirds of the targeted students.

Table 1-2. Distribution of Sampled and Interviewed Trainers by Region and Training Type

Region / Training Type	In Sample			Interviewed		
	Number of Trainers	Number of Courses	Number of Targeted Students	Number of Trainers	Number of Courses	Number of Targeted Students
Statewide	14	15	1,044	11	12	766
NYC	2	5	50	2	5	50
West Central	7	12	330	5	9	280
Downstate	3	8	163	2	8	133
North-East	6	8	60	2	3	36
Career Pathways (CP)	16	28	553	9	20	449
Technical Training (TT)	16	20	1,094	13	17	816
Total	**32**	**48**	**1,647**	**22**	**37**	**1,265**

The follow-up interviews with the 10 previously interviewed trainers provided additional information on four key topics: 1) course design and development; 2) trainers' adult education credentials; 3) trainers' understanding of the program's overall training goals, particularly for CP students, what types of "career pathways" assistance they provide to students, and their perceptions of what "next steps" their CP training prepares students for; and 4) personal issues that challenge students' ability to enroll in or complete training. The interviews with the 8 new trainers covered all the topics addressed in both rounds of interviews with the original 14 trainers. The interview guide for trainers, combining round one and round two questions, is included as Appendix C.

1.4.4 Trainee Surveys and Follow-Up Interviews

The evaluation team developed brief paper surveys to be distributed by course instructors to both TT and CP trainees immediately before the start of, and after, completion of training, as well as more detailed follow-up interviews to be conducted by telephone several months after training completion. The paper surveys were distributed to all trainees, while the telephone interview was conducted with a sample of trainees.

The purpose of the brief paper surveys was to obtain information on trainee characteristics, motives, and expectations for the course prior to undertaking training, and to capture the trainees' perceptions of a course immediately after completing it. The follow-up telephone interviews were had multiple purposes: 1) to provide greater depth of information about trainees' background, motives, and perceptions of their training experience than could be obtained through the brief paper surveys; 2) to provide information on new topics that were not addressed in the initial paper surveys, but arose during the analysis of the interim results, such as how trainees learned about the training, who paid for it, awareness of other training options in the market, and post-training assistance received; and 3) to assess intermediate-term training outcomes for the interviewees – additional training taken, certifications achieved, changes in employment status or the nature of employment, and TT trainees' judgments of what impact the training had had on their work skills.

Pre- and Post-Training Paper Surveys

The pre-training survey asked about education level, employment status, type of employer, reasons for taking the training, familiarity with New York State Department of Labor One-Stop Centers (One-Stop Centers), information sources used to find job opportunities, level of skills or experience across several energy-related employment areas, expectations for the training, and perceived "fit" of the training to the trainee's experience and career goals.

The post-training survey assessed the trainees' reactions to their training. It asked: how well the course they took matched their expectations; the appropriateness of the level of training; whether the training prepared the trainee to enter employment; areas where the training could be made more effective; the trainee's expected next career step; plans for further training, certification, and employment; registration with a local One-Stop Center; and awareness of incentives for energy efficiency and renewable energy training and certification.

Both surveys also asked for the trainee's name, contact information, and other identifying information, and included a statement, which, if signed by the trainee, authorized NYSERDA to use the survey data and contact information for evaluation purposes.

The brief paper surveys were completed and ready for distribution by April 2011. WFD program staff distributed the surveys to training partners, with instructions for the partners to distribute the pre-training survey to all trainees at the start of each new class and the post-training survey to all trainees at the end of the final module of each class (for classes with multiple modules) and to return the completed surveys to the WFD Program contact. WFD program staff forwarded PDF copies of each returned survey to the evaluation team.

Allowing the trainers to distribute and collect the post-training surveys creates a reasonable concern that respondents may feel pressured to provide positive ratings, which might bias results. The evaluation team considered two possible alternatives: having evaluation staff distribute and collect the surveys or asking students to return the surveys by mail. However, the former would have required excessive evaluation resources and the latter would have risked an unacceptably low return rate.

The evaluation staff had received and analyzed pre-training and/or post-training survey forms from a total of 129 CP trainees and 113 TT trainees in time to be included in this report. Of the 129 CP trainees, 102 provided pre-training responses and 86 provided post-training responses (59 provided both pre-training and post-training responses). Of the 113 TT trainees, 102 provided pre-training responses and 80 provided post-training responses (69 provided both).

Some caution should be exercised in generalizing from the results of the pre- and post-training surveys. The course trainers distributed and collected the pre- and post-training surveys, which could potentially bias trainees' responses. Further, survey responses were not returned for about two-thirds of the courses, and the return rate for the remaining third of the courses was somewhat below half. This return rate seems low for surveys distributed and collected by the trainers immediately before and after training. NYSERDA may wish to explore ways to increase return rates and reduce bias. Possible approaches may include: 1) making payment of training partners' invoices contingent on returning either completed surveys or a signed statement from trainees stating that they declined to complete the survey; 2) having program staff or a contractor make reminder calls to each instructor just before the beginning of and just after the end of each course session; 3) providing each trainee with a "privacy" envelope for returning the completed survey, which may give trainees a greater sense of confidentiality; and 4) establishing an on-line version of the survey that trainees can complete during class, which also would protect the confidentiality of their responses.

The pre-training and post-training survey instruments are included as Appendix D.

Follow-Up Telephone Interviews

The evaluators conducted the follow-up telephone interviews of trainees in November and December of 2011. The evaluators compiled a list of trainees from returned pre- and post-training surveys that included trainee contact information (telephone number(s) and/or email address). At the time the interviews were to be conducted, the list included 36 CP trainees that had completed training at least five months previously and 25 TT trainees that had completed training at least six months previously. The initial intention was to contact CP trainees as well as TT trainees six months after training completion, to ensure sufficient time passage for the trainees to know whether or not the training had assisted them in their careers. However, feedback from trainers suggested that CP trainees often are difficult to reach more than a few months out from training. Therefore, the evaluation team agreed to interview CP graduates who had completed training as little as five months prior.

Evaluation staff randomized the list of trainees and attempted to contact each trainee, with a goal of completing interviews with 15 to 20 CP trainees and at least five TT trainees. Most trainees provided at least one telephone number as well as an email address, but eight CP trainees provided a telephone number but no email address and four TT trainees provided an email address but no telephone number.

The interviewer attempted to reach each trainee initially by telephone if possible. If the interviewer could not reach the trainee or if the trainee provided an email address but no telephone number, the interviewer sent an email to the trainee to explain the purpose of the interview and ask the trainee to contact the interviewer.

Of the 36 CP trainees, four provided incorrect contact information. Of the remaining 32 CP trainees, the interviewer was able to interview 11 (34%), while two refused an interview and 19 could not be reached. The interviewer made at least four contact attempts for all but for two trainees, for whom contact attempts had to be stopped after three attempts to prepare the report.

The contact information proved to be incorrect for none of the 25 TT trainees. The interviewer was able reach and interview 10 TT trainees (40%). Two refused to be interviewed. Since the number of completed

interviews was more than double the minimum goal of five and the 10 interviewed trainees provided generally consistent responses, the evaluators did not attempt to reach more trainees.

The follow-up interview guide for trainees is included as Appendix E.

1.5 REPORT CONTENTS

The purpose of this report is to update the interim report, submitted in October 2011, with additional information collected through January 2012 from NYSERDA staff, training partners, trainers, and trainees. This report will provide NYSERDA staff with a somewhat more detailed and complete picture of the evaluation results than was provided in the interim report. Section 2 provides an overview of staff interviews. Section 3 summarizes results of the training partner interviews. Section 4summarizes results of the trainer interviews. Section 5summarizes results of the pre- and post-training surveys and follow-up telephone interviews of CP trainees, and Section 6 summarizes those results for TT trainees. Section 7 provides the conclusions and recommendations.

Section 2:

NYSERDA PROGRAM AND CONTRACT STAFF

This section summarizes the information gathered through two rounds of interviews with NYSERDA staff, held in August and November 2011. The majority of the information comes from the initial round of interviews. The second round of interviews largely provided updates on program progress and some additional details on the contracting process, and on reporting and tracking.

The program staff interviews addressed a variety of topics. After obtaining information on overall program progress, the interviews covered key aspects of program implementation, including contracting with training partners, perspectives on trainee recruitment, implementation of specific program elements, marketing and outreach, and tracking and reporting. Finally, the interviewer solicited the staff for key evaluation topics. Information gleaned from the interviews is summarized below.

2.1 OVERALL PROGRAM PROGRESS

When interviewed in May 2011, program staff reported that the program had generally been implemented as they expected, albeit with some unexpected challenges (Section 2.2, below). By the second round of interviews in November, staff reported that most training partner contracts had been fully executed.

WFD program staff provided the evaluators with program tracking data that included budget data, targeted and actual participants for each funded training course, and certifications achieved. The evaluators analyzed the tracking data (current as of April 14, 2012) to identify progress on a range of training metrics.

2.1.1 Training Progress

The evaluators analyzed progress in terms of training targets and actual numbers of workers trained. As detailed below, the number of trainees targeted by the 30 PON 1816 training partners with contracts in place exceeds the original program goal. At the time of this report, about 41% of the committed funds had been spent[11], but it is not yet possible to calculate the percentage of targeted trainees that have actually been trained, as several training partners have not yet reported data on attendance of courses that appear to have been completed.

Training Targets

Of 30 PON 1816 training partners with contracts in place and offering EEPS-funded training, 12 offered CP training and 22 offered TT training (four offered both types). Table 2-1 (next page) summarizes key progress metrics. The 30 training partners offered a total of 84 courses in 309 separate sessions, starting as early as April 6, 2010 and ending as late as August 31, 2012. At the time of report preparation, 11 course sessions had been cancelled because of low enrollment. The total duration of each course ranged from three hours to 322 hours. Through those courses, training partners initially targeted 6,161 CP and TT participants (1,875 CP and 4,286 TT). Actual trainee counts are discussed in the following section.

[11] A total of $1,050,829.60 had been invoiced for the 30 PON 1816 training partners, out of $2,545,636.29.

Table 2-1. Summary of Program Progress Metrics

Program Process Metric		All Courses	Career Pathways (CP)	Technical Training (TT)
Number of Course Sessions Scheduled	# Courses	84	42	42
	# Sessions	309	131	178
	Mean # Sessions / Course	4	3	4
	Range Sessions / Course	1 to 40	1 to 12	1 to 40
Earliest Start Date of Course Session	# Course with Start Date	79	41	38
	Range	6-Apr-10 to 30-Jun-12	7-Sep-10 to 30-Jun-12	6-Apr-10 to 9-Apr-12
Latest End Date of Course Session	# Course with End Date	55	28	27
	Range	20-Oct-10 to 31-Aug-12	12-Mar-11 to 30-Jun-12	20-Oct-10 to 31-Aug-12
Hours per Course	# Courses	76	37	39
	Mean	38	53	24
	Range	3 to 322	3 to 322	3 to 211
Number of Targeted Students	# Courses	84	42	42
	# Targeted Students	6,161	1,875	4,286
	Mean	73	45	102
	Range	2 to 2,000[a]	10 to 331	2 to 2,000[a]
Number of Actual Students	# Courses	39	19	20
	# Actual Students	2,008	728	1,280
	Mean	52	38	64
	Range	6 to 242	7 to 174	6 to 242

Continued

Program Process Metric		All Courses	Career Pathways (CP)	Technical Training (TT)
Actual Students as a Percentage of Targeted Students (If Actual Number Students Reported)	# Courses	39	19	20
	Mean	82%	79%	85%
	Range	12% to 160%	35% to 160%	12% to 110%
Student-hours per Course (Based on Actual Number of Students Reported)b	# Courses	37	17	20
	Sum	56,163	38,604	17,550
	Mean	1,518	2,271	878
	Range	48 to 10,791	128 to 10,791	48 to 4,420

[a] One TT course targeted 2,000 students. The next-highest number targeted was 364 students. The course that targeted 2,000 students eventually enrolled 242 students. Excluding that course, the overall mean is 51 targeted students and the TT mean is 57 targeted students.

[b] Of the 39 courses that reported actual number of students, two did not report the number of hours; therefore, the student-hours per course are based on only 37 courses.

Actual Workers Trained

The program tracking data showed a confirmed count of 2,008 actual CP or TT trainees that had participated so far – one-third of the total target number but 80% of the original program goal of 2,522 students.[12] This may underrepresent the true number of actual trainees, however, as training partners had not yet reported counts of students trained for 29 courses (15 CP and 14 TT) that appear to have ended well before the enrollment were recorded.[13] Those courses accounted for an additional 1,214 targeted trainees (620 CP and 594 TT) – more than half again the reported count of actual students for all other courses.

The trainee count averaged about 82% of the targeted number of students (79% for CP and 85% for TT) in courses for which the actual trainee counts were reported. If the same percentages are found in the completed courses that have not yet reported the trainee counts, the result will be an additional 996 trainees (492 CP and 504 TT). That would result in a total of 3,004 actual trainees so far – about half of the current targeted total of 6,161 but more than the original goal of 2,522. Applying the above percentages also to planned but not-yet-completed courses yields an estimated count of 3,818 actual trainees – about half again more than the original program goal. Given that the yet-to-be-reported counts of students may represent a lower percentage of targeted trainees than those already reported; these can be considered only provisional estimates that should be updated when all training partners have reported trainee counts.

Trainee Counts by Course Category

The evaluators analyzed course attendance by course category and subcategory, as identified in program tracking data. While similar numbers of TT courses addressed the commercial and residential markets, about two-thirds of those trainees studied commercial energy efficiency (Table 2-2, next page). Nearly half of the TT students took courses for which no subcategory was identified. Most of the others were about evenly split between *Commercial/Institutional* and *Home Performance* or *NY Energy Smart Homes Training*, with fewer than 10% taking a course identified specifically as *HVAC. Basic Skills/Worker Readiness* accounted for about half of the CP courses and about four-fifths of the CP students, while most of the rest were classified as *Introductory to Clean Energy Training*. The distribution of students across the above categories remains very similar when the estimated final totals of trained students are substituted for the current totals.

---

[12] The Operating Plan states overall program goals of 1,797 CP and 2,225 TT trainees, of which PON 1817 is expected to fund 700 CP and 800 TT, leaving PON 1816 to fund 1,097 CP and 1,425 TT.

[13] The evaluation team identified all courses for which the end date preceded the spreadsheet date by at least 90 days or, if no end date was recorded, for which the beginning date preceded the spreadsheet date by at least 120 days. The long intervals were selected to account for possible lags between completion of a course and submittal of course metrics with an invoice to NYSERDA.

Table 2-2. Courses and Trained Students by Course Category

Category / Subcategory	# of CP Courses	# of TT Courses	Total # of Courses	# of CP Students	# of TT Students	Total # of Students
Commercial/Industrial Energy Efficiency	**0**	**14**	**14**	**0**	**719**	**719**
Home Performance	0	4	4	0	60	60
Commercial/Institutional	0	1	1	0	195	195
No subcategory specified	0	9	9	0	464	464
Residential Energy Efficiency	**3**	**16**	**19**	**12**	**181**	**193**
Home Performance	0	9	9	0	146	146
HVAC	0	1	1	0	20	20
No subcategory specified	3	6	9	12	15	27
Introductory Clean Energy Training	**11**	**3**	**14**	**114**	**99**	**213**
HVAC	0	1	1	0	70	70
No subcategory specified	11	2	13	114	29	143
Basic Skills/Worker Readiness	**22**	**1**	**23**	**563**	**0**	**563**
No category specified	**6**	**6**	**12**	**39**	**6**	**45**
NY Energy Smart Homes Training	**0**	**1**	**1**	**0**	**33**	**33**
Contractor/Partner Business Training	**0**	**1**	**1**	**0**	**0**	**0**
Sum	**42**	**42**	**84**	**666**	**967**	**1,633**

Summary of Progress Metrics by Training Partner

Table 2-3 (next page) summarizes key progress metrics for each of the 30 PON 1816 training partners. As expected, training partners varied in terms of number of courses, sessions, and targeted students. This table also shows, however, that training partners varied considerably in how fully they have reported the actual number of trainees for courses. Nine of the 30 training partners did not report actual trainee counts for a total of 38 course sessions. Since those training partners did not report total actual trainee counts, the percentage of targeted trainees that became actual trainees is not meaningful for them.

Among those training partners that reported actual counts for all course sessions, the count of actual trainees represented anywhere from 0% to 100% of targeted trainees, with a mean of 34%. That group includes the training partner that had originally targeted 2,000 trainees but trained a total of 242. Program staff noted that the targeted number of trainees often is modified in training partners' contracts when the training partners have difficulty enrolling students. In this case, however, the program did not modify the targeted counts.

Table 2-3. Summary of Progress Metrics by Training Partner

Training Partner	Training Type	Total # Courses	Total # Sessions	Total # Targeted Students	Total # Actual Students	Actual As Pct of Target	Student-Hours	# Sessions Missing Actual Student Counts
Resarch Foundation for SUNY[a] Morrisville	CP	1	11	88	0	0%	0	0
Tompkins Cortland Community College	CP	10	10	100	15	15%	0	2
Northeast Parent and Child Society, Inc.	CP	2	11	351	146	42%	6,684	2
Osborne Association	CP	2	18	280	174	62%	2,175	6
Clinton Essex Warren Washington BOCES[a]	CP	1	4	48	40	83%	3,200	0
Altamont Program	CP	1	10	100	99	99%	10,791	0
Capital Region BOCES[b]	CP	2	3	36	36	100%	4,728	0
Outsource Center	CP	1	3	24	24	100%	4,320	0
Alfred State College	CP/TT	13	36	562	0	0%	0	15
Erie Community College	CP/TT	5	14	140	0	0%	0	0
Erie 1 BOCES[b]	CP/TT	5	12	130	73	56%	4,508	0
Ulster BOCES[b]	CP/TT	6	17	213	170	80%	8,010	0
Building Commissioning Association	TT	1	11	165	0	0%	0	2
Green University Inc.	TT	1	1	40	0	0%	0	1
Home Energy Team, LLC	TT	4	22	197	0	0%	0	0
Hudson Valley Community College	TT	2	4	100	0	0%	0	0
NYSBA[c] Research & Education Foundation	TT	4	4	50	0	0%	0	4

Continued

Training Partner	Training Type	Total # Courses	Total # Sessions	Total # Targeted Students	Total # Actual Students	Actual As Pct of Target	Student-Hours	# Sessions Missing Actual Student Counts
SUNY[a] Stony Brook	TT	2	4	120	0	0%	0	0
International Union of Operating Engineers	TT	2	3	54	6	11%	48	0
Association for Energy Affordability	TT	1	48	2000	242	12%	847	0
International Brotherhood of Electrical Workers	TT	2	2	120	48	40%	1,920	1
Karpman Consulting	TT	1	7	145	73	50%	584	0
Northwest Energy Efficiency Council	TT	1	14	364	195	54%	1,560	5
Workforce Development Institute	TT	1	12	180	146	81%	365	0
Association of Energy Engineers	TT	1	1	40	36	90%	1,440	0
Stargate International Inc.	TT	1	6	78	70	90%	630	0
Building Performance Contractors Association	TT	5	11	286	268	94%	2,522	0
City Univ. of NY Building Performance Lab	TT	1	2	50	47	94%	423	0
RPI[d] Lighting Research Center	TT	1	2	40	40	100%	600	0
Urban Green Council	TT	4	6	60	60	100%	808	0
Sum		**84**	**309**	**2,008**	**6,161**	**N/A**	**56,163**	**38**
Mean		**3**	**10**	**67**	**205**	**48%**	**1,872**	**N/A**
Range		**1 to 13**	**1 to 48**	**0 to 268**	**24 to 2,000**	**0% to 100%**	**0 to 10,791**	**N/A**

[a] SUNY = State University of New York
[b] BOCES = Boards of Cooperative Educational Services
[c] NYSBA = New York State Builders Association
[d] RPI = Rensselaer Polytechnic Institute

2.1.2 Certification

As of this report's preparation, the program had supported certification for a total of 1,058 workers, just under half the program goal; this percentage is on par with the percentage of contracted funds that have been invoiced. As Table 2-4 shows, most of the certification support (766 of 1,058 workers) was in the form of direct program reimbursement to workers for certification-related expenses. In addition, 292 individuals received certification after taking a program-funded course.

Table 2-4. Program-Funded Certification Support

Type of Certification	Number of Workers Receiving Certification Support		
	Reimbursed for Certification Expenses	Certified after Taking NYSERDA-suppported Course	Total
Building Performance Institute (BPI) Home Performance	608	0	608
BPI Building Operations	4	5	9
Association of Energy Engineers (AEE) and Building Commissioning Association (BCA)	59	26*	85
U.S. Green Building Council (USGBC) LEED	74	31	105
Building Operator	12	80	92
National Council on Qualifications for the Lighting Professions (NCQLP) Lighting Certification and International Brotherhood of Electrical Workers (IBEW) Advanced Lighting and Controls	6	150	156
North American Technical Excellence (NATE) HVACR Certification	3	0	3
Total	**766**	**292**	**1,058**

* 16 AEE and 10 BCA.

Some workers may have been counted in both categories of certification support if they received reimbursement for the cost of attending one of the NYSERDA-supported certification preparation courses. However, as seen in Table 2-4, more than three-quarters of the workers who received reimbursements had taken the Building Performance Institute (BPI) Home Performance certification, for which there was no NYSERDA-supported course.

The evaluators were not able to determine, from program records, the number of students who took but did not pass certification exams after attending a NYSERDA-supported training and so could not calculate the pass rate.

2.2 PROGRAM IMPLEMENTATION

This section summarizes program staff perspectives on how the WFD Program is being implemented. This includes the contracting process, coverage of the various workforce training needs that the program has

identified, interaction with training partners, implementation of specific program elements (train-the-trainer programs, apprenticeships, and internships), marketing and outreach, and tracking and reporting. This discussion includes any challenges that staff experienced while implementing the program.

2.2.1 Contracting Process

Training partners selected for funding engaged in a contracting process with NYSERDA. The resulting contract specified the work the training partner would conduct and the required reporting. All three staff reported the contracting process had challenges. Specific comments described the process as "onerous," resulting in "one of the slowest contracting processes in 10 years," which needed to be streamlined. One informant thought the process was particularly difficult for small organizations with little administrative infrastructure.

One reported reason for the slow and burdensome contract process was that there was some difficulty in understanding the range of training provided by PON 1816. Staff had not historically worked with many of the training organizations, especially those that work with disadvantaged populations. By contrast, contracting with technical training partners was easier because they are "delivering training [NYSERDA] is familiar with."

In particular, it took time to fully understand the gaps that can exist between basic skills and technical training. Initially the program expected to fund partners that already had relevant trainings in place. Instead, some potential training partners had good connections with their communities, but did not have curricula in place to meet NYSERDA goals. Therefore, it took longer for program staff to understand each proposal and work with the partner organization to ensure that the training was appropriate for the region and aligned with the partner organization's expertise. Staff stated that their experience with the initial proposals made evaluating the more recent proposals easier.

The second round of interviews in November provided additional information on the contracting process. The contracting department contact said that, compared to other programs, the WFD application process generally went fairly quickly. This was partly because much of the negotiation between the applicant and the WFD project manager is typically completed, and the application is signed (indicating that applicants had already accepted the terms), by the time the application reached the contracts department.

Nevertheless, the contact reported that two factors caused the process to slow down after the application was passed to the contracts office. First, although the statement of work (SOW) for training partnerships was supposed to be standardized, in reality, each one was different enough that they had to be reviewed individually, which added time. Second, applications often could not be approved by the contracting office as submitted. Sometimes required forms were not attached. In some cases, comments made during the initial application review were not addressed on the revised application, suggesting imperfect communication between the person who made the comments and the person who finalized the documents. This second factor resulted in much "back and forth" between the contracts office and the WFD staff. There was more back and forth for some project managers than others.

The amount of back and forth may have decreased over time as program staff have become more experienced with the process. A possible lesson to be learned is the need to establish consistent application preparation procedures within program staff and to conduct more intra-program review before passing applications to the contracts department.

By November 2011, one of the re-interviewed WFD staff members reported that the contracting process had been completed with that member's training partners, but another reported that two contracts had not yet been executed because they were still trying to work out details of venues and training dates. The newly

interviewed contact reported that the contracting process with her training partners was "coming along," but confirmed that some of the training organizations required help in responding to the PON.

2.2.2 Recruitment

Training partners were required to carry out their own enrollee recruitment efforts. Partners were allowed to recruit through any activity deemed appropriate to reach potential enrollees, such as tapping into existing networks or advertising in trade publications.

Staff reported in August 2011 that enrollment was not meeting expectations in some regions and for certain training classes. Information collected in the second round of interviews in November indicated that recruiting remained a challenge for at least some training partners. (For details of recruiting challenges, see Section 3.1.8.)

Staff contacts suggested several possible reasons for slow recruitment. First, informants reported that the partners "do not have a large marketing budget" and the success of marketing these programs is "very much dependent on the training partners' efforts." Furthermore, partners appeared to be satisfied with their existing approaches to publicizing their training, which primarily involves listing courses on their websites and in course catalogues, and soliciting referrals from other programs, such as prison-release programs.

Staff informants in both rounds of interviews cited the sluggish economy as a possible reason for the slower-than-expected recruitment. In addition, one informant cited the slow start-up of other programs, such as GJGNY and on-bill financing, which should spur demand for energy efficiency workers.

2.2.3 Train-the-Trainer, Apprenticeships, and Internships

PON 1816 made available over $600,000 for such activities as train-the-trainer programs, apprenticeships, and internships. However, training partners to date have only sought minimal funding for these activities.

Train-the-Trainer Programs

Program staff reported that a few train-the-trainer programs had been funded by PON 1816. NYSERDA helped organizations expand the number of trainers that were offering recognized energy efficiency training, such as LEED Green Associate training and Certified Energy Manager training. Train-the-trainer trainings were done only by TT partners.

Apprenticeships and Internships

Apprenticeships were expected to be an important part of the CP offerings of the program. The contracts for seven of the 13 CP training partners explicitly called for the partner to establish an internship. Nevertheless, at the time of report preparation, only three training partners had established internships and no apprenticeship programs had yet been funded.

WFD staff contacts noted that the internship portion of PON 1816 was intended to support the creation of a strong infrastructure for internships by underwriting the cost of job coaches and other organizational staffing needed rather than paying stipends for interns or providing other forms of direct support. Contacts maintained that supporting development of an internship infrastructure would have a longer-term impact than paying intern stipends. Although NYSERDA funds cannot be used to pay intern stipends directly, however, they can be used to reimburse employers for costs for training and mentoring the internship participants, which could include a stipend. Therefore, it is not clear that the issue of a stipend *per se* is a barrier to developing internships.

Based on their interactions with training partners, staff contacts reported that the main barrier to greater uptake of internships was convincing employers to pay the insurance and other costs related to hiring an intern, rather than to any issues regarding trainees' qualifications. According to staff informants, this was a key reason that most training partners were not utilizing NYSERDA funding for internships.

WFD staff contacts noted that a criterion for establishing a training partnership is that the training organization has established relationships with employers or an established path to additional training, both of which are important for internship development. The program has hosted regional group forums to bring together employers, training partners, and unions to support interactions among those groups. It may be valuable to collect data to assess the impact of these forums on training success.

2.2.4 Marketing and Outreach

Training partners are eligible to receive up to $2,500 in cooperative marketing assistance from NYSERDA. Training partners can use these funds to promote their trainings online, in print, or any other format acceptable to NYSERDA.

Staff reported that only five organizations had used coop funds. One of those was a newly established organization with a new facility, and therefore coop funds would serve the need to help it gain entry into the market. Two were long-standing organizations that provided other services and needed funds to customize their advertising to address the new workforce training. Staff did not provide details about what the other two partners did with coop funds.

Most training partners reportedly are content to market through their website, course catalog, and referrals through their existing network of organizations. For example, the Veterans Administration may refer a homeless veteran to a training partner for job training. According to staff contacts, most partners do not see value in cooperative marketing funds, even though some have complained about not getting enough students in their classes and program staff members think there is an opportunity to boost enrollment by using coop funds.

2.2.5 Tracking and Reporting

As part of their contract with NYSERDA, training partners are required to submit progress reports with information about the number of trainees enrolled, challenges training partners may be encountering, and other relevant information. Partners must submit these reports when invoicing NYSERDA for training costs.

Program staff suggested reporting requirements were not generally a problem for training partners. According to one staff informant, only one training partner experienced difficulties complying with reporting requirements.

However, program staff did report that training partners varied in their capacity to track and report required data. For instance, some larger organizations had grant writing departments and sophisticated databases to track their programs. Other smaller organizations did not have that same degree of sophistication. Contracted trainers often did not follow the same reporting mechanisms larger organizations did. At least one training contractor reported numbers to program staff over the phone rather than submitting reports on paper. The program received the necessary data, but it took more time or effort to collect those reports from partners with less experience working with large state or federal grant reporting requirements. During the November interviews, a staff contact expanded on the variability in the detail of contractors' reports, indicating that some reports often lacked complete address data for trainees.

In addition, two staff contacts said in second-round interviews that it had been difficult getting training partners to provide post-training data on students, such as their employment information and whether they took or were taking additional training. One of those contacts suggested that contracting language should be revised in the future to include this requirement. The other indicated that getting students to register at One-Stop Centers would help, as that would provide information on employment status.

2.2.6 Key Topics for Evaluation

Program staff members were asked what they wanted to learn from the evaluation. Staff identified the following issues for investigation:

- The perspective of training partners regarding the contracting process; specifically, what NYSERDA could do differently to better meet the planning and funding needs of training partners.
- The sustainability of the NYSERDA-funded training – what actions training partners are taking, if any, to ensure that the training they are providing would persist beyond NYSERDA funds?
- What ancillary services might help trainees succeed in training, such as reimbursing transportation costs?
- Whether trainees are able to turn the training they are taking into jobs – what are the key elements in helping trainees find and maintain jobs?
- Related to the above, what is the best way to connect training partners with employers? Are there specific tools that could be provided to employers (such as sample MOUs) that would make it easier for employers to work with training partners?

Section 3:

TRAINING PARTNERS

3.1 DESCRIPTION OF RESPONDENTS

As can be seen in Table 3-1, the 14 respondents represented various PON rounds, training types, organization types, and stages of training.

Table 3-1. Characteristics of Respondents

Characteristics		Count (*n* = 14)
PON	1816 - 1st Round	8
	1816 - 2nd Round	3
	1816 – 3rd Round	2
	1816 – GJ[a]	1
Training type[b]	Career Pathways	7
	Technical Training	8
Organization type	Non-profit	5
	BOCES	4
	Private organization	2
	Trade association	2
	University	1
Stage of training	In process	8
	Complete	6

[a] PON 1816-GJ included both EEPS and GJGNY funding. The training partner referenced in this table received EEPS funding.

[b] In one case a respondent provided both career pathways and technical training, for a total of 14 actual respondents.

Respondents reported funding between one and six trainers that taught from 24 to 305 students over the course of their contract with NYSERDA.

As seen in Table 3-1, interviewed training partners mostly represented BOCES or non-profit organizations. BOCES programs offer a range of post-secondary training topics, including construction, automotive, and health care. The BOCES were all established organizations offering post-secondary training services for at least 20 years and up to 50 years; they have been offering energy-efficiency-specific workforce training in New York over the past two to three years. BOCES receive funds from a variety of local, state, and federal sources such as the U.S. Department of Labor and the State Department of Education, as well as tuition payments from students. NYSERDA funds represent less than 5% of the overall training budget of each BOCES funded under PON 1816.

Most of the non-profit and other non-BOCES organizations have been doing workforce training for the last seven to eight years, although one reported it had been providing services for 80 years; these organizations had been delivering energy-efficiency-related training in New York for anywhere from one to eight years. The non-profits offer training in a variety of other areas, such as hospitality service, food service, and

health care, and provide many services in addition to training. For example, they offer services to the homeless, at-risk youth, recently incarcerated individuals, and drug rehabilitation programs. The non-profit organizations receive funds from a variety of local, state, and federal sources, including the New York State Department of Social Services and the New York State Department of Corrections. Additionally, the non-profits receive donations to support their work. All non-profit respondents reported that most of their funding comes from sources other than NYSERDA: one reported that NYSERDA funding represents about 20% of their overall training budget, while the others did not give a specific percentage.

3.2 WORKING WITH NYSERDA

The evaluation team asked training partners about their experience with the application process and the program reporting requirements. Details about these experiences are presented below.

3.1.1 How Partners Learned about NYSERDA EEPS-Funded Workforce Funding

When asked how they learned about NYSERDA's EEPS workforce development funding, contacts cited colleagues (specifically, grant writers or a board member), an email notification of the funding opportunity, or contacts developed through some type of past experience with NYSERDA. Contacts who heard about the funding opportunity from colleagues could not say how those sources learned of it. Four TT partners and three CP partners learned about workforce funding via relationships with NYSERDA staff developed through past work with NYSERDA.

3.1.2 PON 1816 Application Process

The interviewer asked respondents to characterize the open enrollment, first-come, first-served application process for PON 1816. The majority (10 respondents) found it relatively easy, while four found it difficult. Three of the 14 contacts further said that it was typical of other applications. Partners' descriptions or assessment of the application process did not appear to be related to the type of training (CP or TT) they performed, the version of the PON they responded to, or their amount of experience delivering training.

Of the 10 respondents who characterized the process as easy, most did not go into detail, although two cited organized application paperwork and clear instructions, and two cited assistance from program staff.

Of the four who found the process difficult, two indicated the application itself was unclear: one reported wondering "what the heck [NYSERDA] is asking" in the PON and another said the application is "not written clearly and precisely to indicate what they needed." Even one of the respondents who reported that the overall process was easy mentioned that some of the forms were initially difficult to decipher.

One contact reported that the PON required greater specificity of budget information than could be provided in the generic budget form. Finally, one respondent reported difficulty finding and documenting fair market prices for training. That respondent reported he had to do a lot of research and work to find a fair market price, attain letters of support, identify specifically what could be funded, and find matching funds. This "was a lot of work for what amounted to not a lot of money."

In the first round of training partner interviews, all nine partner contacts reported that they made changes to their original proposal based on consultations with NYSERDA staff. All nine partners indicated the requested changes were reasonable. The evaluation team did not ask this question of respondents in the second round of interviews.

3.1.3 Program Reporting Requirements

The interviewer asked training partner contacts if they had experienced any challenges meeting NYSERDA's reporting requirements. Responses suggested no particular issues with program reporting requirements: two contacts made positive comments, two cited negatives, and five were neutral.

Among those commenting positively, one respondent described reporting requirements as "favorable" compared to other entities' requirements. Another respondent indicated it was very easy to work with program staff to meet reporting requirements.

One of those making negative comments described the reporting requirements as a "headache," further stating that NYSERDA should provide better data reporting forms that outline specific data needs. The other respondent stated that the process was "not bump-free." However, this respondent's concerns were specifically addressed to NYSERDA's requirement that his organization share trainee contact information, rather than to the requirements for monthly summary tracking data. The requirement to share contact information was not initially part of this respondent's understanding of the contract, and the respondent had to contact former trainees to ask their permission for NYSERDA to contact them at a later time. Finding former trainees and tracking them in this manner was difficult for this respondent.

The interviewer asked respondents to compare NYSERDA's reporting requirements to those of other funding agencies. The most common response, by six contacts, was that NYSERDA requirements were similar to those of other funders. Two respondents indicated NYSERDA had fewer requirements than others; and two respondents said NYSERDA required more data than other funders. Four could not say how NYSERDA compared with other entities.

3.1.4 Distribution of Pre- and Post-Training Surveys

The interviewer asked respondents if they had received the pre- and post-training surveys and distributed them to students in their courses. Eight of the nine respondents reported that they had received the surveys; the other respondent did not know and thought possibly the organization's administrative staff person may have received and distributed them.

The interviewer further asked whether there had been any challenges in completing the surveys. One respondent stated that while she initially did not like having to distribute the surveys, she came to see the value in them. That respondent's organization now uses the surveys as part of its internal evaluation.

Three respondents reported that the surveys had been delivered after the course had already begun or even been completed. One of those had received the surveys three-quarters of the way through their course – too late to distribute the pre-training survey. The other two received the surveys after course completion and mailed the post-training surveys to the students. One of those received only two completed surveys out of 55 students; the other respondent reported that mailing the surveys after course completion was a problem but did not provide details.

One respondent objected to the personal information requested in the survey forms, citing specifically the request for the last four digits of the respondent's Social Security number. This respondent stated that asking for such information was not a good way to build confidence among students.

3.3 RECRUITMENT, MARKETING, AND OUTREACH

The evaluators asked training partners about their experience with recruiting trainees. Specific topics included the recruitment channels used, barriers to recruitment that they identified, and suggestions for

improving recruitment. Recruitment often involved collaborating with other organizations. In discussing such collaboration, the interviewer asked respondents about other areas of collaboration.

3.1.5 Recruitment Channels

Respondents reported a variety of channels for recruiting trainees (Table 3-2). The most commonly mentioned approaches were mass mailings, cited by eight respondents, and recruiting students through an existing network, mentioned by seven.

Table 3-2. Trainee Recruitment Channels

Recruitment Channel	All Respondents (*n* = 14*)	CP Respondents (*n* = 7)	TT Respondents (*n* = 8)
Mass mailing	8	3	5
Existing network	7	5	3
One-Stop Centers	3	3	0
Advertised in local media (radio, newspaper)	3	2	2
Word-of-mouth	2	2	0

* One contact represented a training partner that offered both CP and TT training. Therefore, that contact's responses are counted toward CP and TT partners for "existing network" and "local media." That contact did not cite any other recruitment channels.

The range of training organization types that reported using mass mailings encompassed BOCES, trade associations, non-profits, and a private training organization. Only one respondent, however, said that sending mass mailings was its principal recruitment method. That respondent represented a private organization that trains architects and engineers.

By contrast, all seven of the contacts who reported trainee recruitment through an existing network said that it was their principal recruitment method. In some cases, this network may include other programs run by that same organization. For example, one CP partner runs a drug rehabilitation program and directs clients that successfully complete that program into their energy efficiency training program. In other cases, partners recruit from a broader network. For example, a BOCES respondent reported that counselors in other service areas direct students to the BOCES energy efficiency classes. A trade association respondent directly markets the trainings they offer to their membership using their website, newsletters, and direct mail.

Three of the four BOCES partners reported recruitment through New York State Department of Labor One-Stop Centers. Those BOCES respondents also used mass mailings, but said the mailings were secondary to the recruiting done at One-Stop Centers, and two explicitly said that the One-Stop Centers were their most useful source of trainee recruitment. This is consistent with the finding, reported below, that a high percentage of CP trainees are familiar with One-Stop Centers and use them to search for jobs.

Advertising in local media was not a major source of recruits. Three respondents reported using this source, but all used other sources as well and none reported this as a major source.

Two CP respondents also reported that word-of-mouth was an important recruitment tool. One said that recruitment was helped by former trainees telling acquaintances about their success, while another simply said that people in his community know his organization is a place for training and share that information with others.

3.1.6 Collaboration and Coordination

The evaluation team specifically asked training partners to identify how they coordinate with One-Stop Centers. Additionally, the evaluators learned about other collaborations partners developed to implement their NYSERDA EEPS-funded training. Details of those collaborations are presented here.

Coordination with One-Stop Centers

All seven respondents representing CP training partners reported working with One-Stop Centers. The relationships with One-Stops differed for those seven CP partners. The two respondents that represented TT-only partners did not report using this resource.

Three BOCES respondents reported in-depth collaboration with One-Stop Centers. Two contacts were specific about the nature of their relationship with One-Stops – one described the relationship as "symbiotic," sharing facilities and receiving grants together with a One-Stop Center. Two respondents reported sitting on the same Workforce Investment Board (WIB) committee with representatives from their local center. Two of the three BOCES contacts reported that they rely on One-Stops for trainee referrals, one saying that they list all of their trainings with their local One-Stop Center.

One non-profit respondent reported receiving funds from One-Stops that support his training programs, including funds to pay stipends for internships. Another non-profit respondent indicated the organization delivers the *National Workforce Readiness Exam* for the local One-Stop. The remaining non-profit respondent suggested his organization had a limited connection with One-Stops, but did not provide detail about the relationship.

Coordination with Other Agencies

Nine of the 14 interviewed training partner representatives reported three types of collaboration with agencies other than One-Stops.

Five of those nine partners reached out to local energy-efficiency-related organizations to help the partners recruit trainers, train the partners in aspects of energy efficiency, and provide at least part of the partner's energy efficiency training. For instance, one partner collaborated with a not-for-profit company that provides a range of energy efficiency services (e.g., energy audits, weatherization, and HVAC services). A representative of that company taught the entry-level energy efficiency portions of the CP training.

In three cases, training partners collaborated with local community colleges. One CP partner sent training graduates to additional training or certification available at a local community college; the other two sent students to a local community college for components of their CP training, such as basic construction math.

One CP partner informally solicited input from local energy efficiency and renewable energy organizations to help shape the curriculum.

3.1.7 Enrollment Progress

The interviewer asked the training partner contacts whether course enrollment had been meeting their expectations. Ten of the 14 respondents (split between CP and TT) reported that enrollment for their courses generally met expectations, while one reported that enrollment was about what was anticipated in one of three courses offered, but had not met expectations in the other two courses.

One CP respondent reported no difficulties recruiting attendees in the first round of training, but his decision to introduce a construction experience prerequisite was making it harder to fill seats for the second round of training. Another CP reported that it was initially difficult to get trainees to attend a day class, but switched to an evening class with NYSERDA's assistance and received more registrants.

3.1.8 Barriers to Recruitment

Four of the 14 respondents reported specific barriers to recruitment. Two CP partners reported that some potential students wanted to take training but could not because they would lose their unemployment benefits. These respondents reported that some counties do not provide unemployment benefits to trainees who are not full-time students (defined as at least 380 hours of class work per quarter). According to one of those contacts, the policy of denying unemployment to part-time students is a barrier to their goal of creating self-sustaining taxpayers with the NYSERDA-funded training. At least one training partner responded to this barrier by increasing the number of class hours so that the training met the criterion for full-time training.

A TT partner said that registration costs were a barrier for trainees despite the assistance NYSERDA provided.

Finally, the primary recruitment barrier for another TT partner was obtaining a good mailing list of architects and engineers. Current lists, purchased and developed through experience in the field, had proven inadequate and the respondent hoped to work with NYSERDA's network of professionals to market training offerings to more architects and engineers.

3.1.9 Improving Recruitment

When asked what NYSERDA could do to improve marketing of courses, five respondents offered suggestions. Three thought NYSERDA could do more to familiarize the general public with NYSERDA, thereby acquainting people with the training organization's mission and making it easier to recruit trainees. One respondent representing a CP program suggested that NYSERDA could help in developing partnerships with energy efficiency employers so clients could see the type of work that is done in the field. This respondent did not provide specific suggestions about what NYSERDA could do to make this happen, however. A TT partner wanted NYSERDA's assistance with finding accurate lists of architects and engineers to use in marketing trainings (previous subsection).

No respondent reported using NYSERDA's cooperative marketing funds. As mentioned above, most respondents do not rely on traditional advertising approaches. Therefore, cooperative marketing funds do not appear particularly relevant to these training partners.

3.4 TRAINING IMPLEMENTATION

3.1.10 Recruiting Trainers

The interviewer asked respondents how they recruited trainers and what challenges they may have faced in recruiting them. Most respondents reported no difficulty in finding qualified trainers for their courses, either finding them through existing local affiliations or using trainers already on staff. One respondent, representing a non-profit, reported difficulty in finding trainers. That non-profit advertised for instructors through Department of Labor websites and attempted to obtain lists of Building Science students from a local community college, neither of which helped that partner find trainers. Ultimately, the non-profit found instructors through referrals from colleagues in the training profession and by attending conferences, but finding instructors through these methods took longer than anticipated.

3.1.11 Use of Contract Training Staff

Ten of the interviewed training partner contracts (five CP and five TT) reported that they use contract instructors to deliver training. To investigate how the training partners ensure training quality, the

interviewer asked respondents how they work with contract staff for training and ensure that program objectives are met.

All 10 of the partners who use contract trainers reported some kind of reporting and check-in mechanism is in place to make sure the training meets expectations. These mechanisms typically involved regular (e.g., weekly) in-person meetings between a training partner staff person and contract trainers to make sure the curriculum is being followed and to ascertain whether each class session is receiving the same information. Two of the BOCES partners used contract trainers they had used and trusted in the past so they were comfortable with these contractors taking on new training through the WFD Program.

3.1.12 Use of Experiential Training

In addition to classroom training, five CP partners and one TT partner incorporated some type of experiential activity into their trainings. Examples included hands-on activities in the classroom and field exercises. Among the hands-on activities were:

- Operating a blower door in the classroom
- Creating a model with energy modeling software
- Performing air sealing in a building
- Working with HVAC equipment in a classroom
- Teaching students *MS Excel* in a computer lab

Two respondents reported conducting field exercises with local energy efficiency organizations and vendors to both show trainees real-world applications of energy efficiency equipment as well as introduce students to potential employers.

Most respondents could not provide a precise estimate of how much time was devoted to hands-on activities versus other activities, although one respondent estimated that about 80% of his classes are hands-on training. Most respondents reported that the amount of hands-on training was appropriate, although two CP partners suggested they would like to incorporate more hands-on activities in their training courses. They found that hands-on activities are more likely to engage their particular students – recently released prisoners and recently homeless people – in the overall training.

3.1.13 Student Prerequisites

The interviewer asked respondents about the experience or prerequisites that trainees need to be successful in their classes, as well as the degree to which students' backgrounds fit with expectations. Responses differed for trainees entering TT or CP programs.

TT training partners generally require specific skill sets or experience prior to the training, such as construction experience or even training as an architect or engineer.

In contrast, all CP partners but one reported that trainees were required to meet minimum standards. Six of the seven CP respondents either cited specific "hard" competencies or indicated recruitment or selection criteria that would select for trainees with such competencies. Three of those mentioned basic math and literacy levels, basic reasoning skills, or decision-making skills, while another respondent required a high school diploma (which presumes those competencies), and a fifth said that building trades knowledge was required. One respondent who did not report any specific required skill set recruited trainees who had graduated from other trainings or worked for local businesses, suggesting that those trainees already possessed at least a minimum level of skill and experience.

Three CP respondents cited such "soft" skills as communication or teamwork competency, eagerness to get into the green economy, or, simply, "entry level skills." The latter respondent pointedly stated that NYSERDA should not need to provide "soft-skill" training.

Several contacts for CP training partners offered additional comments that reveal special training challenges faced by students from disadvantaged populations. One indicated that some women students have had trouble finding childcare during classes, which suggests a possible need for "wraparound" services (services outside the classroom to support the students' ability to attend). A contact also noted that some students coming from drug addiction programs have experienced addiction relapses during the course, requiring a return to treatment before resuming training. At the least, this indicates the potential value of training instructors who work with this population to help relapsing students return to treatment.

Most contacts – TT as well as CP – reported that the students enrolling in their courses generally matched their expectations. The one exception was a CP partner who was surprised to have three to four women enroll in classes.

The interviewer specifically asked about "transitional workers" – those moving into the building industry from another field or moving from a less technical or "hands-on" job within the building industry (e.g., an administrative job). None of the respondents reported transitional workers in TT courses. Not surprisingly, three respondents reported transitional workers in CP courses, all of whom cited the poor economy as a factor.

3.1.14 Student Assessment

The interviewer also asked respondents how they and their trainers evaluate student performance in their classes. Six of the seven CP partners reported that students are required to take exams as part of their coursework. These exams test students' grasp of the course curriculum, such as competency in construction math. CP partners that also offer training in "soft skills" (such as work readiness) evaluate students on such indices as regular attendance and classroom behavior. Only one CP partner did not require any exams of students and instead relied on teacher assessments.

One of the three TT partners requires an exam for its "Green Verifier" training and issues a certificate of completion for all students that receive a passing grade. Students who fail the exam may retake it. However, students who fail the exam twice must retake the class and pass the exam to receive a completion certificate. The other TT partner does not require exams, but instead requires students to complete a complex energy modeling project to the instructor's satisfaction at the end of training.

3.1.15 Challenges to Carrying Out Training

The most common challenge respondents faced in delivering their NYSERDA-funded training was getting trainees to attend class. Two CP partners mentioned that overcoming trainee's personal problems was a constant challenge to delivering training. As one contact put it, "If you are sitting in class and your brother was shot to death… or your day care center shut down for the day, or your car broke down…these are challenges [my] students face." Another partner said that transportation to class and childcare can be an issue for some students; this partner reported that his organization refers students to social service agencies that can address these types of issues.

For two respondents, the chief challenge had to do with access to tools. This contact suggested there should be a more basic BPI certification for CP trainees. One respondent found it difficult to acquire equipment and tools for his classes. He would like NYSERDA to support acquisition of demonstration equipment for classes, a suggestion that several trainers also made. Another respondent who delivers CP training was unable to offer students sufficient access to tools used in the field to prepare them to take the BPI

certification exam. That contact suggested that there should be a more basic BPI certification for CP trainees.

Two other challenges were each mentioned by one informant. One respondent reported that he covered topics the first time he taught his class that he probably would omit in favor of other, more important, topics that he neglected the first time through. Another trained his students on a specific that works best when the ambient temperature is above 60° F. However, the temperature was far colder when he conducted the training.

3.5 ADDITIONAL TRAINING NEEDS

To identify possible gaps in workforce training, the interviewer asked respondents if there were any additional types of training they thought NYSERDA should offer. Seven respondents identified four topics (Table 3-3). Note that inclusion of these suggestions does not imply that NYSERDA does not already offer the training, as respondents may not be aware of all of NYSERDA's offerings. However, this section presents all suggestions, as information on perceived gaps may be valuable to NYSERDA.

Table 3-3. Suggested Additional Training Activities

Training Category	Count (n = 7)
Renewable energy*	3
Emerging technologies*	2
Advanced energy efficiency training (e.g., building science) for CP	2
Business training for small energy efficiency companies	1

* NYSERDA already supports training in the renewable energy and emerging technologies areas through GJGNY or SBC.

Three respondents suggested that NYSERDA offer additional renewable energy training. Two of these respondents, both BOCES contacts, reported that solar training would be a helpful complement to their current electrical trades program. Note that NYSERDA does offer renewable energy training through GJGNY and SBC. Given that most of the suggestions for renewable energy training came from CP respondents, it may be valuable to explore whether existing NYSERDA renewable energy training is geared toward the CP population.

Two other respondents indicated NYSERDA should offer emerging technology training. For one respondent, that means offering training on modeling software such as the *TREAT* and *TIPS* programs NYSERDA uses to calculate rebates. Software training would allow people that are not able to perform fieldwork, such as weatherization, an opportunity to work in energy efficiency. Another respondent suggested NYSERDA should offer more training in emerging technologies that would better prepare contractors for long-term needs. According to WFD staff, NYSERDA plans to fund *TREAT* training with GJGNY funds under upcoming PON 2032.

Two respondents suggested that NYSERDA might offer more advanced weatherization and energy efficiency training than what is currently available through CP courses. One of these respondents described a course very similar to the *Building Analyst* course currently offered, but targeted at the CP population.

In addition to the above technology-oriented suggestions, one TT respondent recommended that NYSERDA provide business skills training to small businesses entering the energy efficiency field. According to that respondent, some of those businesses may have the technical skills, but not the business skills, needed to succeed.

3.6 CAREER-PATHWAYS-SPECIFIC TOPICS

The evaluation team explored four issues pertinent only to CP respondents: 1) the role of the National Workforce Readiness Credential (NWRC); 2) internships and apprenticeships; 3) providing information on "next steps"; and 4) post-training follow up with trainees.

3.1.16 National Workforce Readiness Credential (NWRC)

The NWRC provides a national standard for defining, assessing, and certifying that individuals can meet the demands of entry-level work. It is used by training organizations to assess the skills and knowledge of trainees to ensure they have the tools necessary to do entry level work in a variety of fields. Therefore, interviews with training partners addressed whether and how the training partners use the NWRC to assess trainees' readiness for work.

All seven CP respondents reported being familiar with the NWRC. Five of the seven reported administering the NWRC at the conclusion of their NYSERDA-funded training program. Four of those five partners administer the exam to their NYSERDA-funded students, as well as for other trainings they offer. The two CP respondents that do not use the NWRC said they are both familiar with the credential. One was planning to offer the NWRC at his institution; the other partner opted to use a different, but similar, certification because of prior experience with the other certification.

3.1.17 Internships

During the second round of interviews, the interviewer asked the six re-interviewed CP respondents about internships associated with their NYSERDA-funded training. (The remaining CP respondent was not reached when the evaluation team conducted its second round of interviews.) Of the six respondents, four indicated their contract with NYSERDA had an internship component. Table 3-4 (next page) includes a summary of responses.

The BOCES respondents reported difficulty getting employers to participate in an internship program, mostly because employers had financial concerns about supporting interns, even on an unpaid basis. Responses suggest that all respondents value the idea of an internship program, but recognize there are hurdles and expenses to launching a successful one.

None of the respondents reported they have pursued collaboration with apprenticeship programs. Two suggested they considered collaborating with apprenticeship programs, but they determined that apprenticeship programs are too different from what they do to have a meaningful collaboration.

Table 3-4. Internship Component to Training

Respondent Type	Internship Component	Successful Internship	Comments
BOCES	Yes	Yes	Having difficulty getting employers to participate and take time to train interns; therefore, program uses job coaches on an actual job site with three to four trainees.
BOCES	Yes	No	Companies do not have the revenue to support interns, even on an unpaid basis.
BOCES	Yes	No	Employers are concerned about training someone who might then compete with them for weatherization work. Students ran risk of losing unemployment benefits by participating in internship.
BOCES	No	N/A	Internships did not fit well with the training organization's goal of getting adult students trained and into the job market quickly. Also, concern that students would not be interested in internships, which are perceived as unpaid work.
Nonprofit	Yes	Yes	Provides 120-hour internship with companies; some of these interns have been hired by the company that provided the internship.
Nonprofit	No	N/A	In process of creating internship program.

3.1.18 Assistance with "Next Steps"

The interviewer asked CP respondents to identify what "next steps" were offered to trainees during and at the conclusion of class and how partners engaged with trainees after training. Five of the seven respondents described some combination of referrals to additional training or certification, assistance with job search, or post-training follow-up (Table 3-5).

Table 3-5. Assistance Provided with CP Trainee "Next Steps"

Training Partner	Referrals to Additional Resources			Post-Training Follow-Up
	Additional Training	Certification	Job Sources	
BOCES 1	✓	✓	✓	✓
BOCES 2			✓	
BOCES 3			✓	✓
BOCES 4				
Nonprofit 1		✓	✓	✓
Nonprofit 2	✓		✓	✓

Two of the seven CP respondents said their instructors provide students with information on additional training. One of these partners directs students to the Association of Energy Affordability (AEA) and the Consortium for Workforce Education. These organizations offer BPI, weatherization, and EPA-related training. The other partner directs students to BPI training and also refers students to solar photovoltaic

installation training. One other partner reported referring students to seek BPI certification at the conclusion of the training.

Several contacts reported that they direct students to job resources in their community. Two (both BOCES) were more specific than the others: one directs students to the local One-Stop and the local SUNY College for more information about other training and certification opportunities, while the other provides a career fair for trainees.

Most respondents indicated that following up with CP respondents after training is a struggle. Problems include maintaining accurate contact information for trainees, convincing trainees to inform the partner organization about their employment status, and convincing trainees to participate in surveys or other feedback mechanisms.

Despite the struggles, respondents reported trying various methods to engage trainees after training. Four respondents said they attempt to have someone from their organization hold in-person meetings with students after training. These respondents offer career counseling to trainees after training completion. The trainees can meet with a counselor to identify possible employers and revise their resumes. Furthermore, the partner organizations can use this time with trainees to understand how many trainees have found employment or pursued additional training.

One respondent tries to survey their respondents and another reported trying to keep in touch with trainees via emails and texts. However, none of these methods appeared to provide the partner organizations with reliable data about how many trainees found jobs or sought additional training or certification.

Section 4:

TRAINERS

This section summarizes the results of interviews with 22 trainers involved in the WFD program. Thirteen of the interviewees taught TT classes and nine taught CP classes. The interviews covered course characteristics, training and certification requirements, student characteristics, instruction methods used, and job placement support.

The courses varied in terms of length. Two of the courses, taught at local BOCES locations, totaled more than 350 hour courses taught over a long period. These courses, though for adults, had curricula similar to vocational education courses taught to high-school-aged students. While many of the others were multiday courses, a few were only one day or less in length.

All of the EEPS-funded courses that the interviewed trainers were teaching had been developed prior to the initiation of PON 1816. All of the instructors had previously taught these courses before the current NYSERDA contract was in place. In many cases, the instructors had been teaching these courses for several years.

4.1 COURSE DESIGN AND PLANNING

The evaluators used the interviews with trainers to investigate the design and planning of the various NYSERDA-supported courses. The goal was to determine what the training organizations and trainers did, if anything, to ensure that the courses fit into the broad objectives of NYSERDA's WFD Program.

Table 4-1 (next page) lists the course topics that were taught by the interviewed trainers. In general, the TT courses are standard courses, taught by outside trainers. In most cases, these courses are taught using a prescribed curriculum, often connected to a specific certification exam. To suit the interests of the specific audience, instructors may vary the emphasis given to specific topics. TT respondents generally reported that they did not receive any guidance from their training organizations about how these courses fit into the objectives of the WFD Program. The only exception was one trainer, who reported that the training organization reviewed the attendee list ahead of time and suggested minor course modifications.

By contrast to TT courses, the CP courses are more likely to be new courses or ones modified specifically to fit into a workforce development strategy. Most of the CP courses are part of a series of courses that are offered to students seeking entry-level employment. Several of the CP courses are adapted from similar courses taught to vocational-technical (vo-tech) students. These courses tend to be longer in length than the other CP and TT courses, involving more than 200 hours of instruction. Instructors in these courses have modified the vo-tech curricula to make the courses more suitable for adult attendees. Such modifications include speeding up the pace of instruction to cover the subject in one course and adding supplemental math and computer training, and job acquisition skills.

4.2 TRAINING AND CERTIFICATION REQUIREMENTS

The interviewer asked trainers about their qualifications and whether the training organizations required any specific certification. Most trainers have extensive practical and training experience. On average, instructors had taught for about eight years, with a range of one to 30 years. The CP trainers on average had about five more years' experience than the TT trainers – four of the nine CP trainers had at least 14 years' experience, while no TT trainer had more than 10 years' experience.

Table 4-1. Course Origin and Development

Technical Training Courses – Existing		
Course Subject	**Modifications**	**Training Organization Guidance**
Advanced Green Building	None	Minor modifications based on review of attendees
Advanced Green Building	None	None
Building Operator	Added information and discussion on energy-saving ideas and issues	None
Building Operator	None	None
Building Operator	None	None
Building Operator	None	None
Benchmarking	Tailored to New York City Local Law 84, which requires benchmarking	None
Certified Energy Manager	None	None
Certified Energy Manager	None	None
Energy Star V3	Gave HVAC training to raters who need skill to rate using Energy Star V3	None
Energy Modeling	None	None
Train-the-Trainer	None	None
Train-the-Trainer	None	None
Career Pathways Courses – Existing		
Course Subject	**Modifications**	**Training Organization Guidance**
Basic Construction	Added training to meet OSHA/DOL work readiness: EPA Repair, Renovate Paint certifications, and Air Sealing	Course was preparing adults for entry-level employment in the weatherization and residential rehab industry; training organization informed trainers about the BPI levels of certification and related courses at community college level
HVAC	Adapted vo-tech course for adults; needed to supply supplemental training	Unknown – was unable to re-contact this trainer in round two, when this information was collected
Work Readiness	Adapted vo-tech course for adults; course moves faster	Unknown – was unable to re-contact this trainer in round two, when this information was collected
Work Readiness	Adapted for adults	Course should move unemployed students to work readiness; course is the first step in progression that includes skill courses that follow this

Continued

Career Pathways Courses – Existing (Continued)		
Course Subject	**Modifications**	**Training Organization Guidance**
Introduction to a Green Environment	None	Attendees are part of a two-year program; course needed to fit into existing curriculum
Insulation, Air Sealing	None	Unknown – was unable to re-contact this trainer in round two, when this information was collected
Career Pathways Courses – New		
Course Subject	**Modifications**	**Training Organization Guidance**
Green Basic Skills	N/A	Course teaches computer skills, which are a requirement for most future jobs
Green Basic Skills	N/A	How to deal with students with personal challenges and how to build basic skills; additional emphasis on computer applications and personal skills
Green Basic Skills	N/A	Unknown – was unable to re-contact this trainer in round two, when this information was collected

Table 4-2 (next page) summarizes information on the instructors' qualifications and experience. Of the 22 interviewed trainers, 14 were independent contractors and eight were regular employees of the training organizations that offered their assigned courses. As part of the training partner contracting process, NYSERDA staff vetted the qualifications of the proposed instructors. All interviewed trainers appear to have sufficient technical experience and certification to teach their assigned courses. When asked if their training organizations required them to have any specific training, none of the trainers reported that any specific training had been required.

While all of the trainers appear to have technical training and experience in their area of expertise and experience in training others, it is not clear how many have undergone specific training in adult education techniques. When asked about any training received on how to teach and, more specifically, in adult education principles and techniques, 11 of the 22 reported some specific training certification or coursework. Seven of those 11 specified either a general teaching certificate, a certification to teach some specific course, or, in one case, history as a teacher at a vo-tech school. Such certification does not necessarily imply training in the use of evidence-based adult training methods. Three trainers had taken the Train-the-Trainer course offered by the National Association of Home Builders (NAHB) and three had taken another unspecified train-the-trainer class. The NAHB Train-the-Trainer course is a single-day event designed to prepare building professionals to train other adults, and incorporates instruction in how to use interactive exercises.[14] None of the trainers reported having had any extensive formal training in adult education; this may help account for the observation (reported below) that training did not consistently employ hands-on training.

[14] http://www.nahb.org/generic.aspx?genericContentID=357. Accessed on October 25, 2011.

Table 4-2. Trainer Experience and Certification

Technical Training Trainers				
Course	**Years of Teaching Experience**	**Professional Degrees, Certification(s) & Licensure(s)**	**Training-Specific Training or Certification**	**Other**
Certified Energy Manager	10	Two engineering degrees, CEM certification		31 years related work experience
Building Operator	10	BPI certification		30 years related work experience
Train-the-Trainer	10		Master trainer, NAHB Train-the-Trainer	
Energy Modeling	8	BPI certification		
Building Operator	8	HERS Rater, NAHB Master Builder, Cert. Green Prof.		
Energy Star V3	8	B.A. (EE), M.B.A., Licensed PE, BPI certifications (5)	Train-the-Trainer (unspecifed)	
Advanced Green Building	8	Licensed PE	NAHB Train-the-Trainer	
Building Operator	6	Licensed Master Electrician		
Benchmarking	5	LEED AP certification	Train-the-Trainer (unspecifed)	
Certified Energy Manager	5			Teacher, mentor to other course instructors
Train-the-Trainer	4	Licensed Architect, LEED AP certification, BPI certifications (4)		
Advanced Green Building	2	HERS Rater, NAHB Master Builder, Certified Green Prof., Certified Green New Homes Sales Prof.	NAHB Train-the-Trainer	
Building Operator	2	HERS Rater, BPI certifications (4), LEED AP		

Continued

Career Pathways Trainers				
Course	**Years of Teaching Experience**	**Professional Degrees, Certification(s) & Licensure(s)**	**Training-Specific Training or Certification**	**Other**
HVAC	30	Certified NATE Trainer, ARI certification,	BPI Certified Trainer, DOE Certified Solar Trainer, Train-the-Trainer (unspecifed)	
Green Basic Skills	20	BPI certifications (4)		33 years related work experience
Basic Construction	17	BPI certification	Teaching Certificate	Member, Carpenters Union
Work Readiness	14	BPI	14 years vo-tech high school teaching	
Green Basic Skills	3	BPI	Retired federal hazmat trainer	
Insulation, Air Sealing	2	BPI certifications		
Intro. to a Green Environ.	4	BPI certifications (2)		
Workforce Readiness	4		Teaching certificates	
Green Basic Skills	<1		Teaching certificates	

4.3 TYPES OF STUDENTS TAKING THE COURSE

The interviewer asked trainers to characterize the types of students taking their classes. As expected, the descriptions of TT trainees and CP trainees differed.

For the TT courses, almost all of the attendees were employed and had the skills and experience to succeed in the course. One subgroup of TT trainees deserves note, however. WFD supports a number of building operator training and certified energy management training classes. Generally, the attendees who take these classes have jobs, but the interviewed trainers noted that many of the attendees are workers with lower skill and education levels (compared to most TT trainees), who are looking for jobs with greater responsibility. One BOC instructor estimated that one-third of his attendees were custodial staff that were learning skills in order to be able to run a building. Another third were operators who were learning how to run their buildings more efficiently, and the last third were supervisors who were attending the course to make better energy efficiency decisions in operating the buildings they oversee. One Certified Energy Manager trainer noted that his classes contained engineers who may be out of work or underemployed and are seeking energy efficiency expertise to establish a new career path.

The trainers for the CP classes did not report any specific required skills, though the attendees generally had some experience or interest in using tools. (Note that the interviewed CP training partners reported some prerequisites; see Section 4.2.) All CP trainers reported that most of the course attendees were unemployed. The work readiness classes were at a very basic level and primarily prepared attendees to succeed in a job interview or to take the next sequence in the job development program at a career path organization. None of the interviewees noted any unusual trends in attending students; that is, respondents indicated that the attending students were similar to ones that had attended similar classes they had taught. Table 4-3 summarizes information on the attendees taking the various classes.

Table 4-3. Characteristics of Attendees

Technical Training Courses		
Course Subject	**Types of Students**	**Trainees Have Advanced Technical Background (Yes/No)**
Advanced Green Building	Builders, material suppliers, architects, and subcontractors	No
Advanced Green Building	Builders, architects, lawyers, and mortgage lenders	Yes
Building Operator	Most are supervisors and non-electricians	No
Building Operator	Already doing building operating	Yes
Building Operator	Already doing building operating	Yes, already skilled
Building Operator	Already doing building operating	No
Energy Star V3	90% already are HERS raters	Yes
Benchmarking	College architects and engineering students	No
Certified Energy Manager	Some seeking career advancement and some displaced engineers and others looking to enter energy field	Did not know

Continued

Technical Training Courses (Continued)		
Course Subject	**Types of Students**	**Trainees Have Advanced Technical Background (Yes/No)**
Certified Energy Manager	Some seeking career advancement and some displaced engineers and others looking to enter energy field	No
Energy Modeling	Architects and engineers	Yes, typically engineers and architects
Train-the-Trainer	Minimum five years in trade	No
Train-the-Trainer	Minimum five years in trade	Yes
Career Pathways Courses		
Course Subject	**Types of Students**	**Trainees Have Advanced Technical Background (Yes/No)**
Basic Construction	Adult unskilled laborers	No
Green Basic Skills	Disenfranchised, substances abusers, formerly incarcerated, and veterans	No
Green Basic Skills	Disenfranchised, substances abusers, formerly incarcerated, and veterans	Some construction
Green Basic Skills	Disenfranchised, substances abusers, formerly incarcerated, and veterans	No
HVAC	Long-term unemployed	No
Insulation, Air Sealing	Adult unskilled laborers	No
Introduction to a Green Environment	Adult unskilled laborers	No
Work Readiness	Adult unskilled laborers	No
Work Readiness	Adult unskilled laborers	No

4.4 TEACHING APPROACHES

The courses offered as part of WFD vary in teaching style. Most depend almost entirely on lectures using *PowerPoint* slides; this appears to be particularly the case for the TT training courses. The use of this instruction technique should be of concern to NYSERDA, as this method is thought to be less effective in promoting long-term retention of material by attendees. Adult best practices suggest that courses should be interactive with many hands-on opportunities.[15] As Table 4-4 (next page) indicates, a few TT courses use these best practices in the classrooms, while nearly all CP courses use best practices.

[15] Wright, J.C., S. Millar, S. Kosciuk, and D. Penberthy. 1997. "Does Active Learning Cause Credible Differences in Student Competence?" *Focus on Calculus, 13*, Fall 1997; Knowles, M.S. 1970. *The Modern Practice of Adult Education: Andragogy Versus Pedagogy*. New York: Association Press; Galbraith, M.W. 2004. *Adult Learning Methods: A Guide for Effective Instruction*: Third Edition; Vella, J. 1994. *Learning to Listen, Learning to Teach: The Power of Dialogue in Educating Adults*. San Francisco: Jossey-Bass, Inc.

Table 4-4. Course Teaching Approach

Technical Training Courses		
Course Subject	**Type of Presentation**	**Use of Adult Education Principles**
Advanced Green Building	Lecture with *PowerPoint*	
Advanced Green Building	Lectures and hands-on	Some individual and group activities
Benchmarking	Interactive teaching	Problem solving, role playing
Building Operator	Lecture with *PowerPoint*	
Building Operator	Lecture with *PowerPoint*	
Building Operator	Lecture with *PowerPoint*	Some hands-on work, use of Socratic method
Building Operator	Lecture with *PowerPoint*	
Certified Energy Manager	Lecture with *PowerPoint*, workbooks, in-class problems	
Certified Energy Manager	Lecture with *PowerPoint*, workbooks, in-class problems	
Energy Modeling	Lecture with *PowerPoint*	
Energy Star V3	Lecture with *PowerPoint*	
Train-the-Trainer	Lecture with *PowerPoint*	
Train-the-Trainer	Lecture with *PowerPoint*	Work on presentation abilities
Career Pathways Courses		
Course Subject	**Type of Presentation**	**Use of Adult Education Principles**
Basic Construction	Lectures (25%) and hands-on	Lecture a little, but use tools, then build structure
Green Basic Skills	Lecture with *PowerPoint*	
Green Basic Skills	Lectures and computer use	Practice using computers
Green Basic Skills	Some *PowerPoint*	Group activities and problem-solving, computer hands-on, resume writing
HVAC	Lectures and hands-on	Test conducted on real equipment
Insulation, Air Sealing	Lectures (25%) and hands-on	Built house inside to test applications
Introduction to a Green Environment	Lectures and hands-on	Two days hands-on
Work Readiness	Lectures and hands-on	Classroom with equipment test lab
Work Readiness	Lectures, group discussions, on-line exercises	Writing of resume

4.5 SUPPORT OF ATTENDEES IN JOB PLACEMENT

Another adult education principle suggests that classes should provide resources and support for attendees after formal classes are finished. This is particularly important in workforce development, where gaining access to businesses that need workers may be at least as important as the instruction itself.

The interviewer asked respondents about specific activities to support attendees' career development during and after course completion. All of the CP trainers described some type of post-training support. Most of these respondents were not involved in this function and could not provide much detail about what had been accomplished. Only one of the 13 TT trainers described any post-training assistance (a business management course). This finding is not surprising, given the audience that TT courses served. Table 4-5 (next page) shows the types of steps the various trainers and their organizations are taking to help attendees find employment, including whether programs made use of internships or employment services such as One-Step.[16]

The trainers who were part of the CP organizations, including BOCES and other community-based outreach organizations, described a series of courses and other activities designed to take unemployed and disadvantaged adults and train them for careers in energy efficient industries. In almost all cases, the respondent was able to describe how his or her course fit into the broader career development process that the organization has implemented. One of these CP organizations draws its attendees from New York Department of Labor One-Stop Centers. They provide tuition support and career counseling, help trainees create resumes, provide internships with government and non-profit organizations (liability issues limit this organization's ability to secure internships with private firms), and provide post-training follow-up support.

One of the CP courses builds an internship into its curriculum. While not describing a formal internship option, another CP instructor reported that the training organization provides an employment counselor, who meets with entering trainees and maintains contact with them for one year after completion of training. Note that the use of an employment counselor is one of the types of services that the program will fund as part of an internship program (Section 2.2.3). A third CP trainer described less formal post-training support in the form of guiding students toward community colleges for further training and to labor unions for assistance with employment.

Instructors' comments indicated they would like to see more internships established to strengthen the workforce development effort. It was not clear whether they realized that NYSERDA funds internship programs through the WFD Program. The evaluation will investigate training partners' and trainers' awareness of NYSERDA support for internship programs. As part of this investigation, evaluators will assess whether interest exists for such services as funding employment counselors, offered as a standalone service (i.e., offered separately from other elements of an internship program).

The CP organizations more successful in finding employment for attendees have established networks of contacts, but in some cases, their reach is limited. For example, one successful training organization that also does weatherization has been able to hire some of the trainees. The BOCES trainers also have developed some connections associated with their placement efforts for graduating vocational tech students. In light of the value of having established relationships with employers, it is noteworthy that one suggestion was for NYSERDA to assist training organizations in developing such relationships.

[16] The first round of interviews did not find much support for attendees either in career counseling or in internship and job placement. The second round of interviews included several programs where these types of services are part of the training package. In most cases, the complexity of these types of programs delayed the start of the courses, so they were not included in round one.

Table 4-5. Job Placement Support

Technical Training Courses					
Course Subject	**Prerequisites**	**Next Steps after Class**	**Intern-ships**	**One-Stop Referral**	**Post-Training Guidance Provided**
Advanced Green Building		Earn Certified Green Professional (CGP) designation	No	No	Business management course provides guidance to those that have not been in business or need refinement
Advanced Green Building		Same jobs	No	No	
Benchmarking		Same jobs	No	No	
Building Operator		Same jobs, but more responsibility in managing building, or more expertise to manage it more efficiently	No	No	
Building Operator		Same jobs, but more responsibility in managing building, or more expertise to manage it more efficiently	No	No	
Building Operator		Same jobs, but more responsibility in managing building, or more expertise to manage it more efficiently	No	No	
Building Operator		Same jobs, but more responsibility in managing building, or more expertise to manage it more efficiently	No	No	
Certified Energy Manager	Basic algebra	New job opportunities for engineers; work for ESCOs, facility managers, jobs in industry; "Kind of course that actually gets you a job"	No	No	
Certified Energy Manager	Basic algebra	Historically 70% pass CEM exam; work for ESCOs, facility managers, jobs in industry	No	No	Encourage networking, job posting, AEE membership & chptr. involvement
Energy Modeling	Computer skills	Same jobs, but expanded skill set	No	No	
Energy Star V3		Same jobs, but expanded skill set	No	No	
Train-the-Trainer		Same jobs, but serve as Trainer	No	No	
Train-the-Trainer		Same jobs, but serve as Trainer	No	No	

Continued

Career Pathways Courses					
Course Subject	**Prerequisites**	**Next Steps after Class**	**Intern-ships**	**One-Stop Referral**	**Post-Training Guidance Provided**
Basic Construction	GED, admission exam, 8th-grade reading and 6th-grade math, driver's license, and transport	Jobs in construction, getting basic jobs.	No	Yes	Employment counselor visited classroom; training coordinator discussed the full-time HVAC and electrical programs as options along with community college; potential employers visited the classroom and a job fair was conducted; employment counselor continues to contact students for 12 months post completion
Green Basic Skills		Work with organization placement service, receive job counseling, or continue training	Yes	Yes	Job placement, counseling, support assistance for disabilities
Green Basic Skills		Jobs or more classes	Yes	Yes	Organization supplies post-training services; trainer does not have anything to do with that
Green Basic Skills	Sobriety and desire	Employment, organization places about 30%; jobs in solar, weatherization, lighting audits	Yes	Yes	Work readiness, counseling, job placement services; loop with community colleges in areas and Labor International Union of North America (LIUNA w/145 unions)
HVAC		Jobs in HVAC industry; there is an internship that follows; take EPA exams	Yes	Not known	All trainees get internship, then return to class and receive career counseling and help developing resumes and with job searches
Insulation, Air Sealing		The organization hires from class for own weatherization agency; they also stock class with their own new hires	No	No	No job placement other than hiring some students for the organization's own weatherization work; do get requests, but do not actively look to be a job agency

Continued

Career Pathways Courses (Continued)					
Course Subject	**Prerequisites**	**Next Steps after Class**	**Intern-ships**	**One-Stop Referral**	**Post-Training Guidance Provided**
Introduction to a Green Environment		Some construction, some other things, work for GED	Not known	Not known	This course is first step in series that the organization offers
Work Readiness		Employment, two hired prior to end of course; 11 of 12 students passed at least one HVAC certification; all got OSHA 10 card.	Yes	Yes	Brought in math tutor, brought in HVAC companies; trainer would like to see internships, as with vo-tech students
Work Readiness		Entry HVAC after completing series of courses	No	No	This course is the first step in series that the organization offers; trainer helps students develop career plan and provides post-course follow-up

4.6 COURSE ATTRITION

Interviewees were asked if there were large numbers of dropouts in the classes. As Table 4-6 illustrates, in general, there were no more than one or two in any class, with many having none. The reasons given for dropping out did not relate to technical difficulties, but instead tended to result from medical, cost, or time management issues.

Table 4-6. Dropouts

Technical Training Courses		
Course Subject	**Dropouts**	**Reason for Dropping Out**
Energy Modeling	None	
Building Operator	None	
Energy Star V3	None	
Advanced Green Building	10%	Medical
Building Operator	<5%	Personal reasons
Benchmarking	<5%	Personal reasons
Train-the-Trainer	None	
Advanced Green Building	None	
Building Operator	Not done	
Certified Energy Manager	None	Some did not pass though
Building Operator	1 per class	
Train-the-Trainer	Not sure	
Certified Energy Manager	None	Some did not pass though
Career Pathways Courses		
Course Subject	**Dropouts**	**Reason for Dropping Out**
HVAC	1%	Costs
Basic Construction		Pre-screened to avoid these issues; course entry required physical ability to lift, valid driver licenses, and dependable transportation; course in evenings
Work Readiness	15%	Personal reasons
Green Basic Skills	15%	“Issues they came in with” (e.g., drug abuse)
Insulation, Air Sealing	15%	Attendance requirement strict, only miss 5% of clock hours
Introduction to a Green Environment	None	
Work Readiness	None	No dropouts for course, but tuition requirements prevent some attendees from completing career pathway
Green Basic Skills	None	
Green Basic Skills	Does not know	

4.7 STUDENT ASSESSMENTS

Interviewees were asked to describe the methods used to assess attendees' performance and to determine whether attendees were able to keep up with material. Table 4-7 shows the results.

Table 4-7. Course Assessment Approaches

Technical Training Courses	
Course Subject	**Assessment**
Energy Modeling	No test
Building Operator	Test at end
Energy Star V3	Take certificate test at end
Advanced Green Building	At end take certification tests
Building Operator	End of class evaluation, homework, written exam
Benchmarking	Three projects, share results
Train-the-Trainer	Exam for instructors; training organization is working on recruiting and qualifying trainers from non-academic backgrounds with trade experience; they evaluate subjectively whether they can teach, requiring five years' experience and a passion for "green"
Advanced Green Building	Open-book test at end, 40 questions
Building Operator	End of class evaluation, homework, written exam
Certified Energy Manager	Final certification exam
Building Operator	End of class evaluation, homework, written exam
Train-the-Trainer	Give five-minute presentation and then certified to teach
Certified Energy Manager	Final certification exam
Career Pathways Courses	
Course Subject	**Assessment**
HVAC	Quiz every day, lab assessments, and multiple choice tests; lab tests – teacher explains procedures and students then do written part
Basic Construction	Regular quizzes, and observation of work students do
Work Readiness	National assessments only, no course-specific tests, although practice tests are used; trainer inspects hands-on work, reviews performance, and has students do again if needed
Green Basic Skills	Active participation and attendance
Insulation, Air Sealing	No written exam; trainees work until they "get it" (i.e., demonstrate ability to perform tasks)
Introduction to a Green Environment	Demonstrate proficiency with tools, multiple choice test, class participation
Work Readiness	National Work Readiness Credential
Green Basic Skills	No tests
Green Basic Skills	No tests

It should be noted that assessment approaches varied significantly. Some had extensive testing, while others had none. Some had assessments throughout the training course, while others waited until the end of the course.

4.8 SUGGESTIONS FOR COURSE IMPROVEMENT

Instructors were asked about the attendee evaluations that were part of the post-evaluation process. All of the instructors reported that attendees were very pleased with the courses. Only two instructors were able to articulate on any concrete suggestions from attendees about improving the class. In both cases, the comments suggested that courses have more hands-on activities.

Instructors were asked if there was anything that would help them teach the classes. Several mentioned a need for some equipment: blower doors and other similar equipment. Career path instructors noted the need for additional financial support for attendees. Instructors were also asked if there was anything they would change about the curriculum. Almost all would leave the course just as it is. A few wished the course was longer. One instructor wanted to try to get more hands-on training, another wanted more speakers from industry to come, and a third wished to build a closer tie to BPI. One instructor in career path commented that, “My overall impression is that people are working hard to get into jobs, but with low job prospects it is hard to keep their hopes up.”

Section 5:

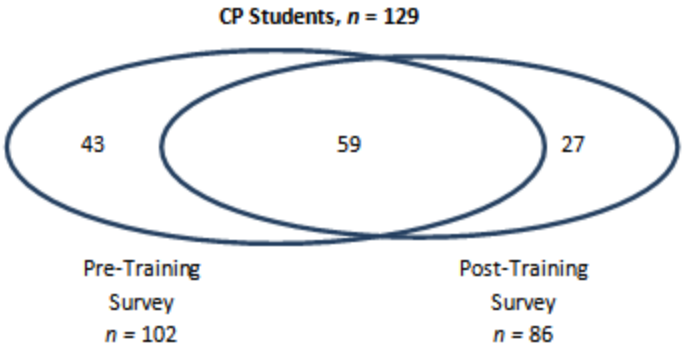
CAREER PATHWAYS (CP) TRAINEES

This section summarizes feedback gathered from CP trainees. This includes CP trainees' responses to the completed pre-training and post-training questionnaires that were returned to the process evaluation team in time to be included in this report, as well as responses to follow-up telephone interviews conducted with 11 CP trainees approximately five to six months after they completed training.[17]

The CP pre- and post-training responses came from five of the 12 CP training partners: Altamont Program (31), Ulster BOCES (12), Osborne Association (58), Capital Region BOCES (9), and Tompkins Cortland Community College (19). Of the seven training partners that did not provide data, one had already completed all its training before the evaluation began and cannot contribute data. The fact that fewer than half of the CP training partners provided data for this report limits the generality of the findings. Additional data could yet be collected for six CP training partners, which would improve the generality of the results.

In total, 129 CP students provided pre-training and/or post-training data. Of those, 59 students provided both pre- and post-training data, while 43 provided only pre-training and 27 provided only post-training. This resulted in a total of 102 pre-training and 86 post-training questionnaires. The overlap is illustrated in Figure 5-1.

Figure 5-1. Counts of Returned Pre-Training and Post-Training Surveys



The sample sizes provide better than 90% confidence/10% precision for pre-training and post-training survey items when all respondents are included. In some cases, responses are examined separately for different subsets of respondents (e.g., reasons for taking the training are examined separately by education level and work status). This necessarily reduces the confidence and precision of the responses for each subset.

[17] After this report was completed and submitted in June 2012, the evaluators analyzed surveys from an additional 79 CP trainees, received too late to be included in the report. The results of those analyses, included in an addendum to this report (Appendix F), confirm and extend the findings described in this section.

5.1 CP TRAINEE CHARACTERISTICS

Of the 102 CP trainees who completed the pre-training survey, two-thirds had a high school education or had received a GED, with the rest mainly split among those with less education and those with college or vocational or technical school experience. As anticipated, a large majority of the CP trainees (80%) were unemployed, about three-quarters of whom had been unemployed more than six months. About one-third of the employed respondents described themselves as self-employed or independent contractors (Table 5-1).

Table 5-1. Career Pathway Trainees' Education Level and Employment Status

Education Level	Percent (*n* = 102)	Employment Status	Percent (*n* = 102)
Less than high school	9%	Employed 6 months or less	6%
High school or GED	66%	Employed more than 6 months	12%
College or vocational school	23%	Unemployed 6 months or less	20%
Post-graduate degree	2%	Unemployed more than 6 months	60%

To determine whether CP courses were attracting workers with minimal construction-related experience, the survey asked trainees to self-rate their skill level across several related work categories. Respondents could indicate that they had no skill or could rate their skill level as introductory (basic experience, requiring significant supervision), general (some working experience, requiring some supervision), or advanced (capable of performing job independently).

The results suggest that most CP respondents had some experience in the construction industry – about three-quarters reported at least introductory level skills in one or more area. Moreover, just over half reported at least general skills in some area, and about one-quarter reported advanced skills in at least one area. As Table 5-2 (next page) shows, respondents reported the greatest skill levels in general residential and general commercial construction, where just over one-third of respondents reported either general or advanced levels.

Table 5-2. Career Pathway Trainees' Self-Reported Skill Levels

Category (*n* = 102)	No Skill	Intro-ductory	General	Advanced	No Response
General Residential Construction	32%	24%	20%	19%	6%
General Commercial Construction	43%	17%	19%	16%	6%
Building Shell Improvements	47%	23%	12%	13%	6%
Plumbing	51%	25%	16%	5%	4%
Electrical	53%	26%	15%	4%	2%
Architecture, Engineering, or Related	61%	12%	8%	8%	12%
HVAC Installation/Technician	71%	17%	7%	0%	6%
Other*	3%	1%	4%	16%	76%
Highest Skill Level Reported	25%	21%	28%	25%	1%

* Other category includes a variety of building-related skill areas (building maintenance, carpentry, masonry, carpet and tile, welding, and drywall/painting) mentioned by 11 respondents, plus various non-building-related skill areas (clerical, administrative, automotive, food service, water treatment, electronic media, and sales) also mentioned by 11 respondents.

The fact that half the respondents indicated general or advanced skill levels raises the question of whether such individuals may better benefit from more advanced levels of training while still receiving the worker readiness and other job-related skills provided in CP classes. To investigate whether differences in pre-training skill level suggest different training needs, survey responses were cross-tabulated by skill level (low-skill = none or introductory, and high-skill = general or advanced). In addition, since respondents who were employed when they entered training may perceive different needs or expectations from training, survey responses also were cross-tabulated by pre-training employment status (employed or unemployed). The number of employed trainees was small, so any differences reported between employed and unemployed trainees should be considered suggestive rather than definitive until they can be repeated with larger samples. This is particularly the case for post-training responses, as only about half the CP respondents provided both pre- and post-training data.[18]

In general, the survey responses described below generally suggest that most trainees fit within the target audience, which is consistent with the trainers' reports (Section 4.3). Nevertheless, there were some differences between low-skill and high-skill respondents that may have training implications.

5.2 TRAINEES' JOB SEARCH STRATEGIES

WFD Program staff view New York State Department of Labor One-Stop Centers as having an important role to play in finding employment for CP trainees; consistent with that view, several CP training organizations emphasized coordination with One-Stop Centers (Section 3.1.5). To seek confirmation of that emphasis, the pre-training questionnaire asked respondents whether they had heard of the One-Stop Centers, understood their function, and intended to register with one. The questionnaire also asked what sources respondents used (including One-Stop Centers) to seek employment.

[18] A total of 18 respondents reported being employed at pre-training. Of those, only nine provided post-training data.

Of the 102 CP trainees, about three-fifths (62%) had heard of the One-Stop Centers and a large majority of those (half of all respondents) reported that they understood the centers' function. About one-third of respondents already had registered with a One-Stop Center and another third said they planned to register (Table 5-3, next page).

The above findings partly validate the emphasis that NYSERDA and its training partners place on One-Stop Centers, but other results show room for increasing the centers' role. As the above table shows, One-Stop Centers were cited much less frequently than "help wanted" advertisements, employment web sites, and "networking." In fact, of the 35 respondents who had registered with a One-Stop Center, nearly one-third *did not* cite it as a source for seeking job opportunities. Moreover, fewer than half of the respondents who had not heard of the One-Stops said they planned to register.[19]

An additional finding worth noting is that, compared to respondents who were familiar with the One-Stop centers, the 37 respondents who were not familiar with the centers were less likely to say they used *any* of the other job search sources. This finding suggests that trainees unfamiliar with the centers are in general less well prepared than other trainees to seek employment. Although familiarity with One-Stop Centers was not related to education level, familiarity was lower among low-skill respondents than it was among high-skill respondents, supporting the picture of a subgroup of trainees who may need additional preparation in job search skills.

As described in Section 4.5, most interviewed CP trainers reported some type of job-search assistance or skills training. The limited sample of CP trainees interviewed several months post-training was not large enough to assess whether the training improved the job-search skills of the less-well-prepared CP trainees. This would be a valuable research question to explore in a follow-up evaluation.

[19] The percentage that planned to register was higher among unemployed than employed respondents (48% vs. 22%). Because of the small sample size (n = 37), however, this difference may not be very reliable.

Table 5-3. Job Search Strategies and Role of One-Stop Centers

Category	All Respondents (*n* = 102)	Familiar with One-Stops (*n* = 62*)	Not Familiar with One-Stops (*n* = 37*)
Familiarity with One-Stop Centers			
Had heard of One-Stop Centers	61%	—	—
Understood centers' function	50%	82%	—
Did not understand centers' function	11%	18%	—
Had not heard of One-Stop Centers	36%	—	—
No information provided (did not respond to question)	3%	—	—
Registration with One-Stop Centers			
Had registered with One-Stop Center	34%	56%	—
Planned to register	36%	34%	43%
No plans to register	25%	13%	49%
No information provided (did not respond to question)	5%	—	—
Job Search Sources			
Employment websites	66%	81%	46%
Networking	56%	63%	49%
"Help wanted" ads	53%	61%	43%
One-Stop Centers	26%	44%	0%
Training provider	19%	21%	16%
Guidance counselor	11%	13%	8%
Other	18%	18%	19%

* Some respondents did not report their familiarity with One-Stop Centers. Therefore, the subtotal of *Familiar* and *Not Familiar* does not sum to the sample total.

5.3 TRAINEE EXPECTATIONS ABOUT THE TRAINING

One purpose of the pre-training survey was to ascertain whether trainees' motives and goals regarding the training aligned with the program's purposes. To address this, the survey included questions on trainees' reasons for attending a training session, what they expected the training to accomplish for them, and their perceptions of how well the course fit their experience and goals. In general, the responses to these questions are consistent with what would be expected from the program's target audience.

Trainees were allowed to indicate more than one reason for attending a training session. As Table 5-4 (next page) shows, the most common reasons by far for taking the training were to help get a job in a construction or energy-efficiency field, for job or career advancement in general, and for personal interest. These findings are generally consistent with the program's purpose of preparing workers to enter the construction and energy-efficiency fields rather than to advance in those fields. Not surprisingly, employed respondents were less likely than unemployed ones to have chosen the training because it would help them enter the construction or energy efficiency field.

Table 5-4. CP Trainees' Reasons for Taking Training (Multiple Responses Allowed)

Reason for Taking Training	All Respondents (*n* = 102)	Unemployed (*n* = 81*)	Employed (*n* = 18*)
Help you get a job in construction/energy efficiency field	64%	70%	39%
Job/career advancement	62%	64%	50%
Personal interest	58%	57%	61%
Help you get a better job than the one you have	23%	21%	33%
Maintain a license or certification (required professional CEU)	20%	20%	11%
Required prerequisite for other training you want to take	19%	21%	6%
Prepare for an apprenticeship/trades program	17%	19%	11%
Certification required to participate in utility program	12%	14%	0%
Prepare for an internship	8%	10%	0%
Part of a legally mandated program	7%	7%	6%
Employer recommended it	6%	4%	17%
Meet client or customer needs	4%	4%	6%
Other	7%	7%	6%

* Three respondents did not report employment status. Therefore, the counts of unemployed and employed do not sum to the count of all respondents.

Somewhat surprisingly, on the other hand, one-fifth of the respondents said they were taking the course to maintain professional certification. Similar proportions of trainees across all skill levels reported this reason for taking the training. Further analysis showed that citing professional certification reflected plans to take a certification exam (stated in the post-training survey) rather than current certification. Of the CP respondents who provided both pre-training and post-training data, and who said they took the course to maintain professional certification (*n* = 11 respondents), only two reported that they had some relevant certification, but 10 said they planned to take a certification exam.

As Table 5-5 (next page) shows, large majorities of the CP respondents expected the training to help them acquire new skills and obtain employment, and about one-third said that they expected to be able to change their field of employment. Employed respondents expected less to obtain employment and more to improve job skills; high- and low-skill trainees reported similar expectations. Again, these findings – that most trainees believe they are acquiring new skills and expect to move into a new employment field – are consistent with the program's goal of preparing trainees from this population to enter the energy efficiency workforce, but they also indicate a subset of trainees with somewhat different expectations.

Table 5-5. CP Expected Accomplishments from the Training

Expected Accomplishment	All Respondents (*n* = 102)	Unemployed (*n* = 81*)	Employed (*n* = 18*)
Acquire new skills	77%	78%	78%
Obtain employment	73%	79%	39%
Change field of employment	33%	35%	33%
Improve skills for promotion	32%	30%	50%
Other	12%	10%	22%

* Three respondents did not report employment status. Therefore, the counts of unemployed and employed do not sum to the count of all respondents.

Finally, the survey assessed each respondent's perception of how well the course fit their experience and goals. More than 80% of the CP respondents said the course they took was a good fit to their experience and career goals, primarily because it would teach them new things they wanted to learn. Employed and unemployed trainees responded similarly to this question, although employed respondents appeared more likely to say that the training would provide a refresher on things they had learned before rather than teach entirely new material (Table 5-6). High- and low-skill trainees responded similarly (not shown in the table).

Table 5-6. How Well CP Training Fit Experience and Goals

Response	All Respondents (n = 102)	Unemployed (n = 81*)	Employed (n = 18*)
Course will teach new things	73%	81%	61%
Course will provide a refresher	9%	6%	22%
Course may be over my head	3%	2%	6%
Course may be below my level	4%	4%	6%
Course definitely is over my head	1%	1%	0%
Course definitely is below my level	0%	0%	0%
Not sure	4%	4%	6%

* Three respondents did not report employment status. Therefore, the counts of unemployed and employed do not sum to the count of all respondents.

5.4 PERCEIVED TRAINING SUCCESS

Successful CP training is delivered at a level that is appropriate to the trainees' level of experience and prepares them to enter the energy efficiency workforce. To provide feedback on how well the program may be advancing its CP goal, the post-training survey asked respondents how well their recent class fit with their expectations and their experience level, how the training could be enhanced, and how well it had prepared them to enter the workforce. In addition, since a given course may be merely the first step in a career pathway that may include additional training, the survey asked respondents what their immediate post-training plans were and specifically what plans they had, if any, for additional training.

Again, responses were examined separately for employed versus unemployed and high- versus low-skill trainees. The very small number of trainees who both reported being employed at pre-training and who

provided post-training responses (n = 9 respondents) severely limits interpretation of the post-training responses for that group; the responses for the unemployed trainees are more reliable.

As seen below, respondents' perceptions of training success and post-training plans are largely consistent with the program's goals.

5.4.1 Training Expectations, Appropriateness, and Preparation for Employment

Most indices pointed to perceived training success. Of the 86 CP trainees providing post-training data, just over half reported that the course exceeded their expectations and nearly all others said that it met their expectations (Table 5-7). About two-thirds of the respondents said that the training level was appropriate for their experience, and most others said it was either somewhat too high (the respondent needed more time or hands-on experience) or somewhat too low (the respondent was already familiar with most concepts). A large majority of respondents said that the training "definitely" or "probably" had prepared them to enter employment.

Table 5-7. CP Training Expectations, Appropriateness, and Preparation for Employment

Response	All Respondents (n = 86)	Unemployed (n = 48*)	Employed (n = 9*)	Low Skill (n = 23*)	High Skill (n = 35*)
Learning and Achievement, Compared to Expectations					
Far exceeded	28%	35%	0%	43%	17%
Somewhat exceeded	26%	21%	33%	26%	26%
Met	43%	38%	67%	22%	54%
Fell somewhat short	2%	4%	0%	4%	3%
Fell far short	0%	0%	0%	0%	0%
Appropriateness of Level of Training to Employment Goals and Experience					
Far too low	2%	2%	0%	4%	0%
Somewhat too low	10%	8%	22%	0%	14%
Appropriate	69%	73%	67%	74%	71%
Somewhat too high	16%	15%	11%	13%	14%
Far too high	1%	2%	0%	4%	0%
Training Prepared Respondent to Enter Workforce					
Definitely	52%	56%	11%	40%	65%
Probably	28%	23%	44%	34%	17%
Not sure	15%	19%	33%	23%	17%
Probably not	2%	0%	11%	3%	0%
Definitely not	0%	0%	0%	0%	0%

* Employment status was assessed at pre-training; 59 respondents provided both pre- and post-training data, of whom 57 reported employment status, and 58 reported skill level at pre-training.

There was no consistent pattern of relationships between employment status or skill level and these various indices of training success. Unemployed and low-skill respondents tended more to say the course "far

exceeded" expectations, compared to employed and high-skill respondents, who tended more to say the course met expectations. However, rated level of appropriateness did not vary much by employment status or skill level; and while unemployed respondents were (not surprisingly) somewhat more likely to say that the training prepared them to enter the workforce, there were no clear difference between low-skill and high-skill respondents on that question.

5.4.2 Suggested Training Improvements

Even though most respondents reported that the training level was appropriate, about two-thirds of them indicated that enhancing the hands-on experience with equipment and tools would make the training more effective (Table 5-8). In addition, about half said that enhanced supervised field experience would improve the training class. Employed respondents appeared somewhat less interested in additional hands-on or field experience. In addition, low-skill respondents appeared more interested than others in having CP courses provide improved literacy and job-search skills – they were nearly as interested in such training enhancements as most other groups were in enhancing their math skills.

Table 5-8. Suggested Training Enhancements (Multiple Responses Allowed)

Response	All Respondents (*n* = 86)	Unemployed (*n* = 48*)	Employed (*n* = 9*)	Low Skill (*n* = 23*)	High Skill (*n* = 35*)
Supervised field experience	48%	48%	33%	39%	49%
Hands-on experience	65%	65%	44%	65%	60%
Applied math skills	22%	29%	33%	30%	29%
Literacy/reading skills	7%	8%	11%	22%	3%
Interviewing and resume preparation	14%	15%	11%	26%	9%

* Employment status was assessed at pre-training; 59 respondents provided both pre- and post-training data, of whom 57 reported employment status, and 58 reported skill level at pre-training.

5.4.3 Expected Next Steps

The most commonly reported post-training plan was to seek additional training, followed by finding new employment, while a large minority reported plans to enter on-the-job training or an internship (Table 5-9, next page). Most respondents said they planned to take additional training in energy efficiency, with about a third also mentioning renewable energy training. The responses for the respondents who reported being unemployed at pre-training differed little from the overall results, while employed respondents were most likely to say that they would remain in their current job.

Table 5-9. CP Trainees' Post-Training Expectations (Multiple Responses Allowed)

Response	All Respondents (*n* = 86)	Unemployed (*n* = 48*)	Employed (*n* = 9*)
Post-Training Plans			
Seek additional training	62%	67%	44%
Find new employment	51%	56%	0%
Enter on-the-job training or internship	28%	29%	11%
Enter apprenticeship or trades program	19%	19%	0%
Remain in current job	17%	10%	78%
Seek advancement with current employer	5%	4%	22%
Additional Training Plans			
Energy efficiency	64%	65%	56%
Renewable energy	31%	33%	22%
Other	27%	21%	44%
No plans for additional training	10%	8%	11%

* Employment status was assessed at pre-training; 59 respondents provided both pre- and post-training data, of whom 57 reported employment status at pre-training.

The two skill level groups were generally similar in their post-training plans, except that the high-skill trainees were somewhat more likely than the less skilled ones to report planning more training; this applied to both energy efficiency training (69% vs. 52%) and renewable energy training (37% vs. 22%). Although these differences were not statistically significant ($p = .21$), they suggest a trend that should be examined with a larger sample.

The survey also asked about trainees' plans for pursuing various energy-efficiency-related certifications, as well as what certifications they already possessed. Responses are shown in Table 5-10 (next page). Three-quarters of respondents reported that they either already had or planned to take the examination for at least one certification. This percentage did not vary markedly by employment or skill level.

Table 5-10. Career Pathways Trainees' Certification Plans

Certification* (*n* = 86)	Certified	Plan / Interested
BPI Building Analyst, Building Envelope Professional, Heating Professional, etc.	2%	52%
USGBC LEED Green Associate	5%	31%
ASHRAE energy-related certifications	3%	30%
AEE Certified Energy Auditor (CEA)	6%	26%
NARI Green Certified Professional	2%	26%
NAHB Green Building	5%	26%
NATE HVAC Installation Technician, Service Technician, or Senior Technician	2%	24%
AEE Certified Energy Manager (CEM)	3%	22%
NABCEP Solar Thermal–Entry Level**	3%	21%
NABCEP PV- Entry Level**	3%	17%
NABCEP Certified PV Installer**	3%	16%
RESNET/HERS Rater	3%	14%
USGBC LEED Accredited Professional (AP)	5%	14%
Other	3%	3%
At least one certification	10%	67%

* BPI = Building Performance Institute; USGBC = US Green Building Council; AEE = Association of Energy Engineers; NAHB = National Association of Home Builders; NATE = North American Technician Excellence; NARI National Association of the Remodeling Industry; ASHRAE = American Society of Heating, Refrigerating, and Air-Conditioning Engineers; NABCEP = North American Board of Certified Energy Practitioners.

**EEPS does not fund training that leads to the following certifications: NABCEP Solar Thermal–Entry Level, NABCEP PV- Entry Level, and NABCEP Certified PV Installer. They are included to illustrate interest in continuing a related career path.

5.5 SUMMARY OF CP PRE- AND POST-TRAINING SURVEY FINDINGS

In general, the above responses suggest that the CP training generally is attracting unemployed workers with no more than a high-school education, which is consistent with program goals and expectations. Trainees' reasons for taking the training and their expectations from the training (acquire new skills, get a job, or advance in their job) generally aligned with program expectations. Training generally was considered at the appropriate level, met or exceeded expectations, and was perceived to have prepared the trainees for employment, although trainees generally wanted more hands-on experience and about half wanted more supervised field experience. Most CP trainees understand the basic skills training they are taking to be a "first step" in their preparation for employment in the energy efficiency and renewable energy fields, as indicated by the fact that they planned to continue training.

The trainee sample was not homogeneous, however. Half of the respondents reported significant construction-related experience, and a relatively high percentage reported advanced skills. Compared to those high-skill respondents, the low-skill ones were less familiar with One-Stops, which appeared to be an indicator of lower job-search skills, and this subgroup wanted the training to help them overcome this weakness by providing enhanced literacy and job-search skills. Although low-skill respondents were more

likely than others to say the training far exceeded expectations, they were less likely to plan additional training, when they may be the ones who need it most.

5.6 FOLLOW-UP TELEPHONE SURVEYS

The evaluation team completed follow-up telephone interviews with 11 CP trainees. The interview covered several topics:

1. The training's place in the market, including how the trainee learned about it and what other similar training was available and under consideration, as well as additional details on trainees' reasons for taking the training (beyond the information given in the pre-training survey)
2. Trainee satisfaction with the course, including whether it was offered at a convenient time and place, and the instructor's skill at presenting the material
3. What the trainee learned and whether it had practical work applications, including how the training had affected the trainee's work and pay
4. Post-training guidance and assistance offered
5. Additional training and certification undertaken

5.6.1 Characteristics of Interviewed CP Trainees

As Table 5-11 shows, the interviewed CP trainees represented four of the five CP training partners that provided pre- and post-training survey responses. The only one not represented was Tompkins Cortland Community College, which began training later than the others and therefore did not have any graduates out of training long enough to be considered for interviews. The table also shows who the respondents said paid for the training.

Table 5-11. CP Trainee Characteristics

Training Partner Organization	
Characteristics	**Count (*n* = 11)**
Ulster BOCES	5
Osborne Association	2
Altamont	2
Capital Region BOCES	2
Funding Source for Training	
Characteristics	**Count (*n* = 11)**
Unspecified organization (don't know)	4
One-Stop Center	3
Training organization	2
Personal funds	2

The interviews indicated that trainees largely had their training paid for by an outside entity, although four respondents were not aware of where funding support came from to pay for their training.

The evaluators compared the 11 interviewed CP trainees with all other CP trainees on several of the items in the pre- and post-training surveys to provide some sense of the possible generality of the interview data. The interviewed and non-interviewed trainees were similar regarding their education levels, employment status, reasons for taking the training and what they expected from it, and their reactions to the training. However, those CP trainees interviewed by telephone were somewhat more likely than the other trainees to report having "general" or "advanced" skill levels in some construction-related subject (64% vs. 40%).

5.6.2 The Training's Place in the Market

Awareness of Training

Trainees reported learning about the training through a variety of sources: the Veterans Administration, a substance abuse program, the New York State Department of Labor, a parole officer, prior association with the training organization, a friend or relative, and an online search. To some degree, sources were specific to training organizations: the two trainees who cited the Veterans Administration were both Ulster BOCES trainees; and the two who cited a substance abuse program were both Altamont trainees.

Other Training Options

Generally respondents were not aware of alternative locations to get similar training to what they received. Only one respondent (a Capital Region BOCES trainee) reported a specific option (Hudson Valley Community College), saying it was more expensive. Three respondents reported nonspecific ideas: the local community college; local BOCES; and private companies in the energy efficiency field "that sometimes offer training." The other seven respondents did not know where they would have received training if not through the NYSERDA training partner.

Only one respondent said that he had been considering a course in a different topic area when he enrolled in the NYSERDA-funded training. That respondent took the course he did because it was offered at a more convenient time.

5.6.3 Reasons for Training

The telephone interview sought additional detail, beyond what was provided in the pre-training survey, about trainees' motives for undertaking the training. One finding, which was not clear from the pre-training surveys, was that nearly all respondents suggested they were looking for training that might lead to any job, not expressly energy-efficiency-specific opportunities. Only one CP trainee reported specifically seeking out training in energy efficiency. This respondent, a carpenter for much of his 20-year career who lost his job during the recession, had observed that "green" builders had stayed in business during the recession, and so he took "green" training to improve his employability in the construction field.

5.6.4 The Training's Value

Technical Skills Acquired

All interviewed trainees said that the training provided them new and useful job skills. Nearly all respondents said they learned something new in some specific building-related skill, but some also mentioned learning about computer tools (*MS Word* and *Excel*; four respondents), regulatory or legal issues (two respondents), more general market and job search skills (two respondents), and communication skills (one respondent).

The type of new information learned varied by course topic, encompassing weatherization, electrical, plumbing, and HVAC. Two respondents in particular commented on how the course focused on advances in heating and cooling, and the science and math behind them.

Seven CP respondents provided specific examples of things they liked about the training. Six reported that the hands-on experiences were the most useful parts of training, two of whom provided specific examples of its value. One appreciated working with a blower door and touring an old building where the instructor was able to point out the building's weaknesses. For the other respondent, the chief value of hands-on training was in having time to use certain complicated tools with supervision. Other respondents were not specific, but offered such observations as that the hands-on experience as "the quickest way to understand" topics.

Non-Technical Skills Acquired

While the interview did not systematically investigate the acquisition of non-technical skills among all trainees, some of the respondents who were unemployed at the time of their training (below) described assistance that their training provided with non-technical skills, such as job- search and interpersonal skills. In particular, one trainee course reported, "they help you with a resume [and] proper etiquette … get[ting] your act together. It is effective that way." Another already had a job, but reported that a friend in the class did not have any resume or interview skills before taking the class "and now he has that."

In addition, one respondent volunteered that learning how to work with others was the best part of the training. This observation is valuable as it also speaks to the subset of non-technical basic employment skills that CP training should address. Future evaluations should perhaps address this issue more directly.

5.6.5 Overall Satisfaction with the Training and Instructors

Respondents generally reported satisfaction with the training and the instruction. All said that the training was offered at a convenient time and location. Nearly all trainees had laudatory comments about the trainers – "very thorough," could "restate concepts if there was a problem with understanding," "can control and keep class going," "highly qualified," "excellent and he really stood out," and so forth – and no trainee had any overt criticism of the instructors.

5.6.6 Recommendations for Improving Training

Despite general satisfaction, several respondents identified things they did not like about the training or offered suggestions regarding the course or the instructor. Three Ulster BOCES and one Capital Region BOCES trainee suggested their trainings were too compressed.[20] However, the pace of instruction apparently was not a problem for all students, as one of the Ulster trainees noted that a couple of students were excelling in class, while others were rushing to keep up. That respondent, however, said that the instructor appeared rushed in presenting material, which the respondent thought made the topics appear out of sequence. The trainee suggested that the training could be organized better. Both this respondent and the one from Capital Region BOCES suggested lengthening the course – the latter suggested that the three-hour-per-day class should have been four hours to adequately cover such topics as heating.

Trainees provided a variety of other related recommendations, some of which also echo suggestions made in the paper survey administered immediately after training. Several respondents talked about incorporating more hands-on or "real world" experiences into training. Two trainees – one from Altamont and one from

[20] At the time this report was being prepared, the evaluators had not yet received post-training survey data for two of these three trainees, so it was not possible to see whether these responses, given several months after training ended, were consistent with the trainees' evaluation of the course immediately after completion. The third trainee indicated in the post-training survey that the level of training was somewhat too high – a response that is compatible with what he said in the follow-up interview.

Capital Region BOCES – explicitly suggested adding more hands-on experiences, such as time to use tools and meters. In a similar vein, an Ulster BOCES respondent suggested offering trainees the ability to job-shadow professionals in the field.

One Ulster BOCES respondent cited a useful "real world" exercise that one instructor used. That instructor required the class to solve a problem illustrated on an actual building blueprint. This respondent found these kinds of exercises helpful and say they should have been used more often. That sentiment was echoed by an Ulster BOCES trainee, who liked the fact that the instructor came from the business world and wanted to see the instructor bring more "real world" examples into the classroom.

Finally, an Ulster BOCES also recommended that the trainer should make sure that audio-visual equipment works prior to class. Training time was lost because of incompatibilities between the instructor's computer and the training room's audio-visual equipment.

5.6.7 Next Steps Post Training

Eight of the 11 CP respondents reported that the class instructor or the training organization had offered some guidance about what their "next steps" could be after training. Six respondents said they had been referred to potential employers, while five were referred to some type of certification, and two were directed to additional training. Information on trainee reports of guidance provided is summarized in Table 5-12.

Table 5-12. Post-Training Next Steps

Trainee	Training Organization	Guidance Reported by Trainee
Trainee 1	Altamont – Green Basic Skills	Referrals to employers
Trainee 2	Altamont – Green Basic Skills	Referral to additional training
Trainee 3	Osborne – SMART & Occupational Training	Directed to additional training and certification
Trainee 4	Ulster BOCES – Green CP	Referrals to employers
Trainee 5	Ulster BOCES – Green CP	Referrals to employers
Trainee 6	Ulster BOCES – Green CP	Referrals to employers
Trainee 7	Osborne – SMART & Occupational Training	(No response)
Trainee 8	Ulster BOCES – Green CP	Help with HVAC certification and internship
Trainee 9	Ulster BOCES – Green CP	Recommended certifications
Trainee 10	Capital Region BOCES – HVAC Excellence	Recommended certifications
Trainee 11	Capital Region BOCES – HVAC Excellence	Recommended certifications Referrals to employers

Employment Assistance

The six respondents that were provided with potential employers reported varying degrees of connection to employers; an Altamont trainee and a Capital Region BOCES trainee each indicated their instructors had personal connections to employers and would introduce the trainees to them; three Ulster BOCES trainees and an Osborne trainee indicated their instructors provided them with lists of possible employers, but it was

not clear how much of a personal connection the instructors in those cases had with the potential employers.

None of the trainees explicitly said that the training organization or trainer had advised them to register with the local New York State Department of Labor One-Stop Center. Two of the seven trainees who were unemployed at the time of training said that they registered with One-Stops, and one of those two said that doing so has not been valuable in terms of helping to find a job.

Additional Training

Only two respondents, one from Osborne and one from Altamont, reported learning from their instructor or the training organization about additional training opportunities. The Osborne trainee reported being told about weatherization training from the Association of Energy Affordability (AEA) and the Altamont trainee said he learned about *TREAT* software[21] training. The Osborne respondent indicated he took AEA training, but the Altamont participant had not yet received *TREAT* training and he did not have explicit plans to take it in the near future.

Two other respondents said that they took additional training after completing their NYSERDA-funded training, but did not say they had learned about that training from their instructor or training organization. A second graduate of the Osborne Association training took AEA weatherization training and one graduate of the Ulster BOCES program took Building Analyst (BA) certification training associated with the Building Performance Institute (BPI). In addition, one of the two AEA trainees reported that he had started taking basic electrical and plumbing training at a local college, but he recently suspended taking additional training because doing so was taking time away from job search efforts.

Certification

Two Capital Region BOCES respondents reported they were told to seek HVAC Universal Certification[22] and an Osborne respondent reported that he was advised to seek BPI-BA certification.

Three respondents said they took certification exams after completing their NYSERDA-funded training: two took BPI-BA certification and one indicated he received certification from the AEA. It was not clear what specific certification the respondent was referring to because AEA offers several certification exams, including BPI-BA.

Neither of the contacts advised to seek HVAC Universal Certification had yet scheduled a time to take the certification.

5.6.8 Impact on Employment

Of the 11 interviewed CP trainees, four were employed when they began training and seven were unemployed. At the time of the telephone interview, all four that were employed before training were still employed and four of the seven who were unemployed at pre-training had jobs.[23] None of the eight employed trainees, however, reported doing energy efficiency work, such as energy audits or insulation

---

[21] *Targeted Retrofit Energy Analysis Tool* (*TREAT*) software is designed for building energy analysis.

[22] One respondent could not recall the name of the HVAC certification.

[23] One of those who remained unemployed was enrolled as a regular student; and it is not clear whether that person was actively seeking employment.

work. However, five of those eight, including two who were unemployed before training, held jobs (carpentry, real estate, maintenance, remodeling) that could potentially apply energy efficiency concepts and could lead to careers in energy efficiency (Table 5-13).

Table 5-13. Employment Status

	Pre-Training Survey	Follow-Up Telephone Interview	
Trainee	**Employed**	**Employed**	**Employment Type**
Trainee 1	No	No	n/a
Trainee 2	No	No	n/a
Trainee 3	No	No	n/a
Trainee 4	No	Yes	Freelance rehab counselor and drives taxi
Trainee 5	No	Yes	Carpentry
Trainee 6	No	Yes	Office assistant, propane sales
Trainee 7	No	Yes	Maintenance
Trainee 8	Yes	Yes	Real estate
Trainee 9	Yes	Yes	Carpentry
Trainee 10	Yes*	Yes	Food service management
Trainee 11	Yes*	Yes	Subcontractor to remodeling contractor

* The evaluation team did not receive a pre-training survey for either of these respondents. However, in the telephone interview, both respondents indicated that they were employed when they took the training.

The three respondents that worked in construction reported working for general contractors (one as a carpenter and two as general laborers), and none reported a specialization in energy efficiency. The other respondents worked as a restaurant manager, taxi driver, propane salesperson, real estate agent, and maintenance worker. The maintenance worker was the only newly employed trainee who credited the training he received as integral to his attaining a job; the others found jobs through a friend or through on-line searches. All of those working outside the building industry said they were still seeking jobs in the energy efficiency field, but have been unsuccessful.

Section 6:

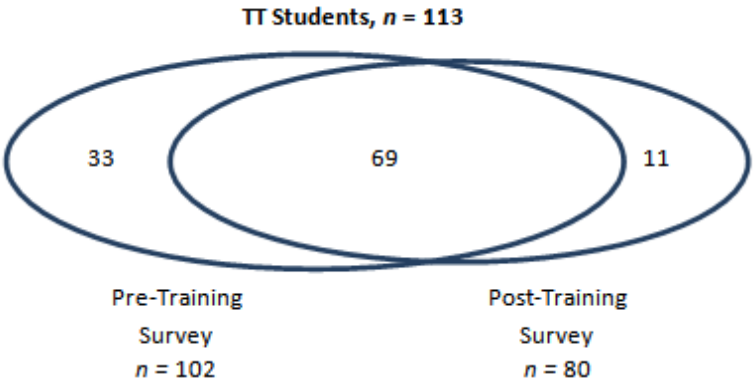
TECHNICAL TRAINING (TT) TRAINEES

This section summarizes feedback gathered from TT trainees; it includes their responses to the completed pre-training and post-training questionnaires that were returned to the process evaluation team in time to be included in this report, as well as responses to follow-up telephone interviews conducted with 10 TT trainees approximately six months after they completed training.[24]

The TT responses came from three of the 22 TT training partners: Karpman Consulting (66), Northwest Energy Efficiency Council (41), and Building Performance Contractors Association (6). Of the 19 training partners that did not provide data, three already had completed all their training before the evaluation began and cannot contribute data. The fact that so few of the TT training partners provided data for this report greatly limits the generality of the findings. Additional data could yet be collected for 13 TT training partners, which would improve the generality of the results.

In total, 113 TT students provided pre-training and/or post-training data. Of those, 69 students provided both pre- and post-training data, while 33 provided only pre-training and 11 provided only post-training; in total, the TT students provided 102 pre-training and 80 post-training questionnaires. The overlap is illustrated in Figure 6-1.

Figure 6-1. Counts of Returned Pre-Training and Post-Training Surveys



The sample sizes provide better than 90% confidence/10% precision for pre- and post-training survey items when all respondents are included. In some cases, responses are examined separately for different subsets of respondents (e.g., reasons for taking the training are examined separately by education level and work status). This necessarily reduces the confidence and precision of the responses for each subset.

[24] After this report was completed and submitted in June 2012, the evaluators analyzed surveys from an additional 525 TT trainees, received too late to be included in the report. The results of those analyses, included in an addendum to this report (Appendix F), confirm and extend the findings described in this section.

6.1 TT TRAINEE CHARACTERISTICS

Of the 102 TT trainees who completed the pre-training survey, all had at least a high school education or the equivalent, and the majority had a four-year college degree or better. Nearly all the TT trainees were employed, with most employed more than six months; over 80% said they work for a company that has more than 25 employees (Table 6-1).

Table 6-1. TT Trainees' Education Level and Employment Status

Education Level	
Response	**Percent (*n* = 102)**
High school or GED	17%
Two-year college or vocational school	20%
Four-year college	41%
Post-graduate degree	23%
Employment Status	
Response	**Percent (*n* = 102)**
Employed 6 months or less	9%
Employed more than 6 months	88%
Unemployed 6 months or less	3%
Unemployed more than 6 months	0%
Employer Type	
Response	**Percent (*n* = 102)**
Self-employed or independent contractor	7%
Work for a small company (25 or fewer employees)	8%
Work for a large company (more than 25 employees)	80%
Own a company that employs others	2%

The survey asked trainees to self-rate their skill level across several related work categories. The levels were: *no skill*, *introductory* (basic experience, requiring significant supervision), *general* (some working experience, requiring some supervision), and *advanced* (capable of performing job independently). The results show that most TT respondents had advanced experience in the construction industry (Table 6-2, next page).

Table 6-2. Technical Trainees' Self-Reported Skill Levels

Category (*n* = 102)	No Skill	Intro-ductory	General	Advanced	No Response
Architecture, engineering, or related	15%	19%	28%	31%	7%
Building shell improvements	10%	25%	37%	21%	8%
General residential construction	12%	25%	25%	28%	10%
General commercial construction	18%	29%	31%	14%	8%
HVAC installation/technician	27%	20%	24%	19%	11%
Electrical	22%	28%	28%	13%	9%
Plumbing	24%	27%	25%	15%	9%
Other*	5%	0%	0%	7%	88%
Highest skill level reported	1%	5%	25%	67%	0%

* Other category includes a variety of building management and energy-efficiency areas (e.g., building operator certification [BOC], certified healthcare facility management, energy modeling, GHG emissions) mentioned by seven respondents, plus one uncodable response ("government hack").

Respondents reported the greatest skill levels in specialized fields, such as architecture, engineering and related areas, and building shell improvements. However, at least 40% of respondents also reported general or advanced skills in general residential and general commercial construction, HVAC, electrical, and plumbing areas.

6.2 TT TRAINEES' JOB SEARCH STRATEGIES

The most commonly cited sources for seeking job opportunities were Internet job search cites (56%) and networking (48%), with relatively few relying on newspaper "help wanted" advertisements or other sources. Given that most TT trainees were highly skilled and stably employed, it is not surprising that they generally were not aware of or interested in the One-Stop Centers.

6.3 TRAINEE EXPECTATIONS ABOUT THE TRAINING

WFD training offerings for those already in the building and energy efficiency workforce should enhance their skills, making them more proficient at improving the energy efficiency of buildings. Trainees' reported reasons for attending a class, expectations for the training, and perceptions of the classes' appropriateness for them in general are in line with the program's expectations.

As Table 6-3 (next page) shows, the most common reason for taking the training was that their employer had recommended the training, followed by job or career advancement and personal interest.

Table 6-3. TT Trainees' Reasons for Taking Training (Multiple Responses Allowed)

Reason for Taking Training	Percent (*n* = 102)
Employer recommended it	64%
Job/career advancement	53%
Personal interest	45%
Meet client or customer needs	23%
Maintain a license or certification (required professional CEU)	16%
Certification required to participate in utility program	10%
Helps in getting a better job than the one currently held	9%
Required prerequisite for other training you want to take	5%
Helps in getting a job in the construction/energy efficiency field	1%
Prepare for an internship	1%
Prepare for an apprenticeship/trades program	0%
Part of a legally mandated program	0%
Other	2%

In response to the question about what they expected the course to accomplish for them, a large majority said that they hoped to acquire new skills from the training, and about half specifically said that they wanted to improve their skills for promotion (Table 6-4). Only one respondent reported that they expected to obtain employment and two expected to change their field of employment.

Table 6-4. TT Expected Accomplishments from the Training

Expected Accomplishment	Percent (*n* = 102)
Acquire new skills	86%
Improve skills for promotion	47%
Obtain employment	1%
Change field of employment	2%
Other	5%

As with the CP trainees, nearly all TT respondents reported that the course was a good fit to their experience and career goals, primarily because it would teach them new things they wanted to learn (Table 6-5, next page). About one-fifth of the TT respondents said that the course would provide a refresher on things they had learned before, although nearly half those also reported it would teach them new things. Six TT respondents reported that the training might be either over their head (four respondents) or below their level (two respondents) – these perceptions were unrelated to the respondents' education or skill level.

Table 6-5. How Well TT Training Fit Experience and Goals

Response	Percent (n = 102)
Course will teach new things	80%
Course will provide a refresher	13%
Course may be over my head	3%
Course may be below my level	1%
Course definitely is over my head	0%
Course definitely is below my level	0%
Not sure	1%

6.4 TRAINING SUCCESS

Successful TT training is delivered at a level that is appropriate to the trainees' level of experience and improves their energy-efficiency-related skills. To assess training success, the post-training survey assessed respondents' perceptions of how their recent class fit with their expectations and their experience level, and their suggestions for how the training could be enhanced. In addition, the survey asked respondents what their immediate post-training plans were and specifically what plans they had, if any, for additional training.

6.4.1 Training Expectations, Appropriateness, and Preparation for Employment

Most indices pointed to perceived training success. Of the 80 TT trainees providing post-training data, more than 40% said the course exceeded their expectations and nearly all others said that it met their expectations (Table 6-6, next page). About two-thirds of the respondents said that the training level was appropriate for their experience; most others said it was either somewhat too high (the respondent needed more time or hands-on experience) or somewhat too low (the respondent was already familiar with most concepts).

Table 6-6. TT Training Expectations and Appropriateness

Learning and Achievement, Compared to Expectations	
Response	**Percent (*n* = 80)**
Far exceeded	11%
Somewhat exceeded	30%
Met	53%
Fell somewhat short	5%
Fell far short	0%
Fell far short	0%
Appropriateness of Level of Training to Employment Goals and Experience	
Response	**Percent (*n* = 80)**
Far too low	0%
Somewhat too low	14%
Appropriate	66%
Somewhat too high	19%
Far too high	0%

6.4.2 Suggested Training Improvements

Despite reporting that the training level was appropriate, about half of the TT trainees said they would like more hands-on experience with equipment and tools (Table 6-7). In addition, about one in five wanted supervised field experience.

Table 6-7. Suggested Training Enhancements (Multiple Responses Allowed)

Response	**Percent (*n* = 80)**
Supervised field experience	18%
Hands-on experience	51%
Applied math skills	4%
Literacy/reading skills	1%
Interviewing and resume preparation	1%

6.4.3 Expected Next Steps

When asked in the post-training survey about their plans after completing their current course, nearly all respondents said they would remain with their current employer (Table 6-8, next page). Most of those said they would remain in their current job, while about one-third of them said they would seek advancement with their employer.

A large majority of the respondents reported they would seek additional training. Most of those said they would seek training in energy efficiency, while about half (44% of the sample) said they would seek renewable-energy-related training. In addition, some 15% of the sample said they would seek training in some other field. Examination of the specific areas of training they reported indicated that most of those were construction-related (e.g., LEED certification, combined heat and power, *eQUEST*, green design, systems applications and design).

Table 6-8. TT Trainees' Post-Training Expectations (Multiple Responses Allowed)

Post-Training Plans	
Response	**Percent (n = 80)**
Seek additional training	86%
Remain in current job	79%
Seek advancement with current employer	29%
Enter OTJ training or internship	3%
Find new employment	0%
Enter apprenticeship or trades program	0%
Additional Training Plans	
Response	**Percent (n = 80)**
Energy efficiency	78%
Renewable energy	44%
Other	15%
No plans for additional training	13%

The survey asked about plans for pursuing energy-efficiency-related certification. About one-third of TT respondents reported that they already had some certification, most frequently building performance related or U.S. Green Building Council (USGBC) LEED related (Table 6-9, next page). Two-thirds of the sample reported plans to take additional certification exams, most frequently ASHRAE certifications, USGBC LEED related, and AEE Certified Energy Manager (CEM).

Table 6-9. Technical Trainees' Certification Plans

Certification*	Certified (*n* = 80)	Plan / Interested (*n* = 80)
BPI Building Analyst, Building Envelope Professional, Heating Professional, etc.	16%	25%
USGBC LEED Accredited Professional (AP)	8%	33%
USGBC LEED Green Associate	6%	38%
RESNET/HERS Rater	4%	13%
AEE Certified Energy Manager (CEM)	4%	36%
NAHB Green Building	3%	13%
NARI Green Certified Professional	1%	10%
NATE HVAC Installation Technician, Service Technician, or Senior Technician	1%	9%
ASHRAE energy-related certifications	1%	43%
NABCEP PV- Entry Level**	1%	8%
AEE Certified Energy Auditor (CEA)	0%	25%
NABCEP Solar Thermal–Entry Level**	0%	11%
NABCEP Certified PV Installer**	0%	5%
Other	5%	5%
At Least One Certification	35%	69%

* BPI = Building Performance Institute; USGBC = US Green Building Council; AEE = Association of Energy Engineers; NAHB = National Association of Home Builders; NATE = North American Technician Excellence; NARI National Association of the Remodeling Industry; ASHRAE = American Society of Heating, Refrigerating, and Air-Conditioning Engineers; NABCEP = North American Board of Certified Energy Practitioners.

**EEPS does not fund training that leads to the following certifications: NABCEP PV- Entry Level , NABCEP Solar Thermal–Entry Level, and NABCEP Certified PV Installer. They are included to illustrate interest in continuing a related career path.

6.5 SUMMARY OF TT PRE- AND POST-TRAINING SURVEY FINDINGS

In general, the above responses suggest that the TT training generally is attracting workers in the building industry who want to improve their energy-efficiency- and renewable-energy-related skills. Training generally was considered at the appropriate level and met or exceeded expectations. About half the TT trainees wanted more hands-on experience.

6.6 TT TRAINEE TELEPHONE FOLLOW-UP SURVEY FINDINGS

The evaluation team spoke with four trainees that attended the Building Performance Contractors Association (BPCA) Implementing New York State Green training and six that attended the Karpman Consulting Energy Modeling in *eQUEST* Training. These trainings were designed for different audiences. Therefore, responses are described separately by training partner. All respondents were employed at the time of the training and at the time of their interview.

6.6.1 Respondent Characteristics

As expected, BPCA trainees and Karpman trainees differed on several counts. The BPCA respondents had anywhere from 11 to 40 years' experience in construction and energy efficiency. All BPCA respondents reported owning their own business – three did energy efficiency work such as weatherization and HERS rating and one respondent was a real estate agent who also did HERS ratings. All BPCA attendees learned of the training opportunity through their association with BPCA.

By contrast, all of the Karpman trainees had three years of experience or less and were employed as engineers or analysts for firms in the building industry. Table 6-10 provides a summary of the four BPCA and six Karpman respondents in terms of role, experience, business type and rationale for taking training.

Table 6-10. Summary of Respondent Characteristics

BPCA Trainees			
Job Title	**Years of Relevant Experience**	**Business Type**	**Reason for Taking Training**
Owner	35	Energy efficiency services such as weatherization and energy audits	Refresher Course in Green Building Programs
Owner and President	40	Insulation, air sealing, boiler replacement, AC replacement, window replacements	Interested in Being Certified as a Green Rater in NYS
HERS rater, Realtor	11 27	Independent contractor, HERS rater	To receive updates on direction of green building programs in New York; wanted updates on new green building standards
Owner and President	23	Whole house auditing, home performance installations	Wanted to stay abreast of green building programs in New York
Karpman Trainees			
Job Title	**Years of Relevant Experience**	**Business Type**	**Reason for Taking Training**
Energy Analyst	2	Non-profit energy efficiency firm	*eQUEST* training important for job
Energy Modeling Engineer	2	Engineering company that does energy efficiency upgrades in commercial buildings	*eQUEST* training important for job
Mechanical Engineer	3	Full service sustainability engineering firm	Energy modeling important for job
Green Building Analyst	2	Non-profit energy efficiency firm	Employer referred to training
Project Engineer	< 1	Design-build of HVAC systems	Employer referred to training
Senior Energy Engineer	< 1	ESCO	*eQUEST* training important for job

6.6.2 Awareness of Other Training Opportunities

When asked if there were other opportunities to receive training similar to what BPCA offered, three respondents indicated other options. One respondent reported that the New York State Builders Association

(NYSBA), local building associations, and community colleges have offered similar training. Another respondent hypothesized that SUNY Stony Brook and the Long Island Builders Institute offered training, but he was not sure. The third respondent reported NYSERDA offered similar training through the Weatherization Center in Syracuse.

Five of the six Karpman respondents were not aware of where they could receive *eQUEST* training other than through Karpman. One respondent reported there was some online training in *eQUEST* and he may have opted to take that training if the Karpman option was not available.

6.6.3 Satisfaction with and Perceptions about the NYSERDA-Funded Training

Timing and Location of Training

All BPCA respondents were generally satisfied with the location and timing of the training. Three of the respondents, while satisfied overall, would have preferred that the training be held closer to their location (two respondents) or at a different time of year (one respondent).

The timing of the training was not a problem for any of the Karpman respondents, but three of the six found the location inconvenient. Two Manhattan-based trainees found the LaGuardia airport training location inconvenient and an upstate respondent found the New York City location inconvenient because she had to travel four hours.

Quality of Instruction

All BPCA respondents were satisfied with the quality of the instruction. None reported any topics that were neglected and all reported they would recommend the training to others. Only one respondent made suggestions for the training: provide attendees with a copy of the Green Rater New York State Manual; and offer more classes on Long Island.

The Karpman respondents also were generally satisfied with the instruction. All reported recommending the training to others, but two qualified their recommendation saying the training was primarily good for people needing an introduction to *eQUEST*, not for experienced users.

Four of the six Karpman respondents reported the hands-on nature of training was what they liked best about training, and one respondent found the reference materials the most valuable aspect. One respondent did not specify what he liked best, but did value learning the "basic information needed to run *eQUEST*."

Diversity of Student Experience (Karpman Only)

Three of the Karpman respondents were somewhat experienced with *eQUEST* prior to training, while three were inexperienced. This range of experience within the same class frustrated both the experienced and inexperienced students.

The more experienced students said they had hoped to build on their existing skills, but having less experienced students in the class interfered with this goal. Two of the experienced students said that some students seem ill-prepared for the class – for example, some students did not have the *eQUEST* software loaded on their laptops when class started. One suggested that students be encouraged to take an *eQUEST* tutorial prior to training to provide basic familiarity with class concepts.

The less experienced students reported feeling left behind by the pace of the class. One said he would have benefited from some general knowledge of things like R-value, U-value, and how those things affect an energy model, prior to taking the class. Another reported that "the speed of the training kept me guessing a few times…."

Recommendations for Training (Karpman Only)

All Karpman respondents made recommendations based on their experience with the training. Four recommended offering an advanced training to accommodate people experienced with *eQUEST*. Two suggested making the training more "lively," such as by having students submit questions to the instructor prior to class to encourage more class discussion. Another respondent suggested offering "more real world examples" during class. According to this respondent, the class spent time examining theoretical examples and looked at one piece of building equipment at a time. This respondent would have preferred class examples that used real buildings with multiple systems. Another respondent suggested having co-instructors that could provide more one-on-one support to students during class exercises.

6.6.4 The Training's Impact on Employment

All Karpman respondents were employed with the same employer at the time of training and at the time of the interview. The training did not provide respondents with a change in responsibilities and only one respondent reported an increase in pay that came from participating in the training. Rather, respondents tended to be relatively new employees that were being introduced to energy modeling through this training or had some limited exposure to energy modeling. Employers either directly referred respondents to this training or their employer told the respondents to look for energy modeling software training.

All Karpman respondents reported actively using the *eQUEST* training in their day-to-day roles. Two respondents provided examples of how they are using the training: One respondent reported using *eQUEST* to help a building become LEED-certified. Another respondent uses *eQUEST* to compare the baseline of existing building systems with proposed systems.

6.6.5 Post-Training Plans and Additional Training Taken

Three BPCA respondents reported taking additional training after the BPCA training: Two took ENERGY STAR® training and one took training on changes to the New York State Energy Code. The fourth BPCA respondent reported not taking any additional training. The same three respondents who took additional training also received certification: one was recertified as a BPI-BA, one received BPI's Heating Analyst certification, and one was certified by ENERGY STAR.

The BPCA Implementing New York State Green Building Programs for Verifiers and LEED H-Raters training helped prepare students for certification as a green rater. However, only one respondent suggested he was taking the training to recertify as a green rater, while the other three respondents stated they did not pursue certification. One of these three respondents was still deciding whether or not to pursue certification. Two of these three respondents did not see a need to take the certification exam. They were in the business of installing energy efficiency measures and installers are disallowed from rating their own work. Nevertheless, these two respondents did find value in taking the class to learn what raters are looking for.

Four of the six Karpman respondents reported not taking any additional training since they took the Karpman training. Two respondents did take additional training: one participated in a code compliance seminar and the other took HERS and CEM related training. Three respondents reported acquiring new certification: one received BPI Multifamily certification, one became LEED certified, and another received his CEM designation.

Section 7:

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS AND RECOMMENDATIONS

The evaluation team identified the following conclusions and recommendations:

***Conclusion 1*:** Unemployed CP trainees appear to understand that the training they are taking under the WFD Program is preparatory for additional training and may not lead directly to employment post training, but it is not clear that the training is uniformly effective in guiding trainees on a career path through additional training, certification, and employment in the building industry. Difficulty maintaining contact with CP students after course completion contributes to the challenge of providing career path guidance.

> ***Recommendation*:** NYSERDA should work with CP training partners to clearly identify and define the "career path" that each course fits into, to ensure that trainers and trainees understand how the course fits into that career path, and to incorporate consistent and comprehensive job-search skill training and post-training support into their curricula. At a minimum, this should include emphasizing that students should register with local One-Stop Centers and helping them do so if they have not done so already. The support should also include providing trainees with more detail on the various types of additional training, certifications, and employment options they would be eligible for after completing any given CP training.

> ***Recommendation:*** NYSERDA should continue to facilitate meetings to bring together employers, training organizations, unions, and other stakeholders, and use those meetings to identify and develop a concrete career pipeline for CP trainees based on existing career pathways best practices and to facilitate connections between training partners and union apprenticeship programs.[25]

***Conclusion 2*:** TT training supports people already employed in an energy efficiency field by providing them with training that is generally not available from other sources. The skill levels of students in some classes may be too heterogeneous, however, which may impede training effectiveness.

> ***Recommendation:*** NYSERDA should work with its training partners to identify TT courses (e.g., *eQUEST* modeling) that should be taught at beginning and intermediate-advanced levels.

***Conclusion 3*:** Although course instructors were qualified in their subject matters and typically were experienced trainers, some may lack knowledge of or experience in specific evidence-based adult education techniques.

> ***Recommendation*:** NYSERDA should work with its training partners to ensure that all trainers be given training in evidence-based adult education techniques.

***Conclusion 4*:** Both TT and CP training partners and trainees value hands-on training, but the amount of hands-on training is restricted by limited equipment budgets.

---

[25] Maguire, S., J. Freely, C. Clymer, M. Conway, and D. Schwartz. 2010. *Turning In To Local Labor Markets: Findings from the Sectoral Employment Impact Study*. Philadelphia, Penn.: Public Private Ventures.

***Recommendation*:** NYSERDA may consider providing training partners with some assistance to support additional hands-on training, such as by paying for a teaching assistant in a classroom, who could assist students as they work on hands-on activities and by helping training partners identify sources of funds to purchase equipment (e.g., hand-held digital tools for data collection or analysis, or energy efficiency tools such as blower doors) or local firms or organizations that may be able to provide access to needed equipment (e.g., local weatherization companies to provide access for blower doors). Discussions on how training organizations might work with firms or organizations should be incorporated into NYSERDA-facilitated meetings among employers, training organizations, unions, and other stakeholders.

APPENDIX A:

NYSERDA INTERVIEW GUIDE FOR WFD STAFF

ROUND ONE AND ROUND TWO QUESTIONS COMBINED

Name:
Interviewer:
Date:

SCHEDULE SCRIPTS

ROUND ONE INTERVIEWEE: Hello, My name is _____ and I am from Research Into Action. As part of our process evaluation of NYSERDA's Workforce Development (WFD) Program, I am conducting this interview to ask you some in depth information about your experience with the program. The interview will cover a variety of topics, including your role in the program, training planning and implementation, and progress to date. I'll ask some questions about program goals and information you receive to track those goals. Today, I'm just looking for general information, not detailed data. When we're finished talking, I'll compile and later send you a list of areas where I need some more detailed information. I estimate our conversation probably will last about an hour.

ROUND TWO NEW INTERVIEWEE: Hello, My name is _____ and I am from Research Into Action. As part of our process evaluation of NYSERDA's Workforce Development (WFD) Program, I am conducting this interview to ask you some in depth information about your experience with the program. The interview will cover your role in the program, training implementation, apprenticeships, and tracking and reporting issues.

ROUND TWO PREVIOUS INTERVIEWEES: Hello, this is _____ from Research Into Action. As you are aware, our process evaluation of NYSERDA's Workforce Development (WFD) Program has raised some issues that we would like to address in a few additional questions with you. After getting a brief update on program progress, I'll ask a few questions on apprenticeships and tracking and reporting issues.

I estimate our conversation probably will last about 15 to 20 minutes.

ROLE AND RESPONSIBILITIES

*Q*1 – *ALL NEW INTERVIEWEES, ROUNDS ONE AND TWO:*

1. I'd like to start by asking you to give me a detailed description of your role and responsibilities with the WFD program. [Probe to ensure response covers interactions with training partners and other key market actors]

GENERAL TRAINING IMPLEMENTATION

I'd like to ask a few questions about how the training has been planned and implemented so far.

*Q*2 *THROUGH Q*8 *– ALL INTERVIEWEES, ROUND ONE:*

2. We understand that you have [will fill in number] as of [date-we can fill in]. So far, how is the Training Partner contracting process going?
   [Probes: What is your impression of the response by potential training partners to the contracting

process? Has this taken longer than you anticipated? Any hurdles you did not expect in the process (TEP, certification issues, etc.)?]

3. I understand that trainings have been conducted since (fill in date [Todd]) .How do you ensure that the trainings offered by the various training partners cover the various workforce training needs you've identified and don't overlap too much?
[Probes: Is that all determined during the proposal review and selection processes and in contract negotiation?]

4. I understand that Pace University will be doing a training gap analysis as part of its contract under PON 2034. However, have you identified any gaps in the trainings that are currently being provided? [If needed: That is, any needed training areas/skills that are not covered?

   If identified: What are those gaps and how do intend to address them?

5. And how well are the various training needs being addressed around the state? Any substantial differences by geographical area that you have noticed in…

   Access?

   How far people have to travel to get to trainings?

   Number of trainings available relative to the size of the population?

   [If not adequately:] How might you address that issue?

6. Do any training topics have too much coverage? If so, what might you do to deal with that?

7. Do you know if the various training partners interact or collaborate with each other in any way – for example, on curriculum development, advertising, identifying targeted groups?

   [Probes:] Should they be interacting or collaborating more than they are? Less? Why or why not?]

8. How does the training funded under the current PONs 1816 and 1817 differ, if at all, from training that was ongoing before these PONs? [Probes: What new topics, if any, have been introduced?]

Q9 AND Q10 – ALL NEW INTERVIEWEES, ROUND TWO:

9. Which training partners do you manage?

10. How did the contracting process go with those training partners?
[Probes: Is the process complete? What is your impression of the response by potential training partners to the contracting process? Has this taken longer than you anticipated? Any hurdles you did not expect in the process (TEP, certification issues, etc.)?]

Q11 – RE-CONTACTED INTERVIEWEES, ROUND TWO:

11. Is the contracting process complete now with the training partners you manage?

    If not: How many training partners still do not have contracts? What is holding up the process?

TRAIN-THE-TRAINER, APPRENTICESHIPS, AND INTERNSHIPS

Now I'd like to make sure I understand some specific aspects of the program, specifically train-the-trainer, apprenticeships, and internships.

Q12 AND Q13 – ALL INTERVIEWEES, ROUND ONE:

12. My understanding is that train-the-trainer provides funds to colleges, BOCES[26] and technical high schools, and union training facilities to train the people who will provide the WFD Career Pathways and Technical Training – is that correct?

    [If not:] Please clarify:

    [If so:] How is that going so far?

I'd like to clarify the role of NYSERDA and its training partners in apprenticeships and internships.[27]

13. First, have any internships and apprenticeships been developed at this point?

    [If yes:] Can you clarify how the internships and apprenticeships are developed, including the role that NYSERDA, the training partners, and any other entities have in this process?

    [If no:] Can you explain in general how you anticipate the internships and apprenticeships will be developed, including the role that NYSERDA, the training partners, and any other entities will have in this process?

    [Probes:]

    Who actually offers these internships and apprenticeships? Unions? Businesses?

    What is the training partner's role – is it to work directly with businesses to establish apprenticeships or internships or unions or just to prepare trainees to enter existing ones?

    How many apprenticeships might a specific apprenticeship program establish?

    How do internships differ from apprenticeships?

    Can you give me an example of an internship that has been established or what one would look like?

    How about an apprenticeship? [Probe: if none, give best description of what one would look like]

Q14 AND Q15 – ONLY PROGRAM MANAGER, ROUND TWO:

I'd like to get a little better understanding about apprenticeships.

14. First, I'd like to clarify what the program's intentions or expectations were regarding apprenticeships. Can you start by explaining how an apprenticeship differs from an internship, and what kinds of apprenticeship-related activities the WFD program anticipated funding?

15. Previously, you said you thought one of the barriers to getting more apprenticeships in place was the fact that there was a lot of other funding going to apprenticeships right now, such as stimulus funding. Can you expand on this a bit – who is that funding going to? How would that compete

---

[26] Boards of Cooperative Educational Services

[27] The WFD Operations Plan talks about NYSERDA working with other entities to develop internships and apprenticeships for disadvantaged workers that have completed some basic skills and technical training. PONs 1816 and 1817 then discuss awarding contracts to training partners that can deliver internship/apprenticeship programs. Such other entities include the NYSDOL, unions and trade groups, the Workforce Development Institute, the Division of Housing and Community Renewal (DHCR), and the Office of Temporary and Disability Assistance (OTDA).

with or prevent the types of apprenticeship-related activities the WFD program anticipated funding?

Q16 – ONLY RE-CONTACTED PROJECT MANAGER, ROUND TWO:

16. Have there been any new internships or apprenticeships established by any of the training partners you manage? [PROBE about whether this exceeds or falls below expectations and any barriers identified]

Q17 – ONLY NEW PROJECT MANAGER, ROUND TWO:

17. Tell me about any internships or apprenticeships that the WFD program has funded for the training partners you manage. [PROBE about whether this exceeds or falls below expectations and any barriers identified]

MARKETING AND OUTREACH

Q18 THROUGH Q24 – ALL INTERVIEWEES, ROUND ONE:

I'd like to know about marketing, outreach, and education efforts undertaken by NYSERDA to promote the WFD program as well as efforts by training partners to promote individual courses.

18. First, what primary marketing, outreach, and education efforts have NYSERDA undertaken thus far to promote the WFD program?
    a. General activities directed toward all programs:
    b. Activities specifically targeted to underemployed and underserved populations:
19. Can you tell me how you track marketing, outreach, and education activities and how you assess their effectiveness?
20. What has proven successful so far?
21. What additional marketing, outreach, and education are planned for the WFD program?
    a. Activities by NYSERDA [probe about target populations]:
    b. By training partners [probe about target populations]:
    c. Do you think the training partners' outreach plans are adequate? If not, why not and what has been or might be done to improve outreach to these groups?
22. Tell me about the progress of the cooperative advertising that's available under PON 1816. [Probes: How many applications have been received? How much funded?]
23. Have you noticed any trends so far in terms of the training partners that have applied for coop advertising or the types or areas of training that it's been applied for?
24. How will the success of cooperative advertising be assessed? [Probes: What kinds of data will you collect, from whom and how? So far, have you gotten the type and amount of information you expected, in the format you expected and on time?]

TRACKING AND REPORTING

Q25 THROUGH Q28 – ALL INTERVIEWEES, ROUND ONE:

25. PON 1816 includes a detailed list of metrics to be tracked and reported by training partners. What changes, if any, have been made to the reporting requirements for the training partners – requirements added, dropped, or modified?

26. How, if at all, do the reporting requirements for training partners with contracts under PON 1817 differ from those with contracts under1816?

27. I realize it's still early in the process, but how have the training partners done so far in terms of providing you information on training efforts – in both formal reporting requirements and less formal channels? [Probes: What data are they required to submit? How are they transmitting it? Have they provided you the information you expected and in the format you expected? Is the information complete? On time?]

28. Have there been any issues or challenges in getting the required data? If so, what have you done about them? What else might you do?

Q29 THROUGH Q36 – ALL INTERVIEWEES, ROUND TWO:

PREVIOUS INTERVIEWEES: We previously asked some questions about tracking and reporting requirements for training partners. I'd like to follow up with some more detailed questions.

ALL INTERVIEWEES: PON 1816 includes a detailed list of metrics to be tracked and reported by training partners. These include several training metrics as well as data on employment.

First, I'd like to review the training metrics and ask about them. The training metrics are:

- Number of trainers trained under Train-the-Trainer (if applicable)
- Populations served (Career Pathways vs. Technical)
- Number of targeted participants in each population served
- Number of students who: start/complete program (by type), attempt and earn certification, and take further training

29. Do all of the training partners you manage provide you with all of these data on a monthly basis?

30. If not, what data are not being provided?

31. What is being done to make sure you get the data you need?

32. In what form are the data being provided? [By telephone, email, etc.]

In addition to the above training metrics, PON 1816 specifies that training partners track and report the following employment data:

- Number of students who are employed by the end of the training program and at 3, 6 and 12 months after the program
- Number of students who are enrolled in internship/apprenticeship
- Number of employers participating in apprenticeship

33. What challenges, if any, are training partners having in tracking and reporting employment at 3, 6, and 12 months post-training?

34. What is being done to address these challenges?

35. Are training partners having any difficulties tracking and reporting any of these other employment data? [That is, employment at end of program, enrollment and participation in internships and apprenticeships]

36. What is being done to address those challenges?

GOALS AND CURRENT PROGRESS

Q37 THROUGH Q45 – ALL INTERVIEWEES, ROUND ONE:

Let's move on to progress of the various types of training. Again, I know that it's still fairly early in the process, but I'd like to ask a few questions about how progress compares to program expectations.

37. My understanding is that some trainings already have gotten started – is that correct? [Probe: (you will get specifics, but I would perhaps ask: what are the primary areas covered and how do they fall between CP and TT-could be the latter is covered in next questions]

38. Based on what you've seen so far, how are training partners handling trainee registration?

39. The program targets underemployed and underserved populations. Are there any specific goals for reaching and training these groups?

    [If so:] How will you assess progress toward meeting those goals and how is the progress so far?

40. What challenges, if any, do you foresee in meeting the goals for the underemployed and underserved groups? [Probe about challenges in defining, assessing, and reporting metrics]

41. How will you assess the progress of the train-the-trainer initiative? [Probes: What data will you collect to assess progress, and who will you get it from and how? What data have you gotten so far? Has it been what you expected and, if provided by contractors, in the format you expected? Is the information complete? On time?]Are there specific goals for the number of apprenticeship and internship programs funded? How about for the number of individual apprenticeships and internships (i.e., the number of individuals awarded an apprenticeship or internship)?

42. How has the progress of the train-the-trainer initiative fit with your expectations?

43. What challenges, if any, do you foresee in meeting the train-the-trainer goals? What might you do to address those challenges?

44. What information do you receive on internships and apprenticeships and how do you get that? Have you been receiving it as expected? [Probes: Who do you receive that data from? Is the information complete? On time?]

45. How does the progress so far in establishing apprenticeships and internships fit with your expectations?

    [If lower:] Why might they be lower than expected? What might you do to increase the numbers? Do you think the program will eventually attain or come close to its goals for apprenticeships and internships?

    [If not:] What impact will that have for the program's overall goals of increasing the energy efficiency workforce?

    [Interviewer: repeat questions for apprenticeships and internships, as appropriate]

RELATIONSHIPS WITH EMPLOYERS

Q46 – ALL INTERVIEWEES, ROUND TWO:

46. A few training partner contacts and trainers suggested that NYSERDA's assistance in establishing relationships with employers would be useful in placing training graduates. In what ways could NYSERDA, and particularly the WFD program, provide this type of assistance? What might limit your ability to do so? Do you think it would help partners place graduates? If not, why not?

OTHER

Q47 THROUGH Q51 – ALL INTERVIEWEES, ROUND ONE:

Just a few final questions.

47. As you know, we'll be talking to training partners, trainers, trainees, and employers. I'd like to know what types of information you'd like to get from them. First, what do you want to learn from…

    a. Training partners?

    b. How about trainers?

    c. From trainees?

    d. And from employers?

48. In designing the interview and survey guides for the above groups, we probably will want to talk about the various types of jobs that exist in the energy efficiency industry. In the pre-training survey, we divided that world up into the following categories:

    - Architectural, engineering, or related services
    - General residential construction (home building and remodeling)
    - General commercial construction (new business construction and remodeling)
    - Building shell improvements (insulation, windows, air sealing)
    - HVAC installation/technician
    - Plumbing
    - Electrical

    Would you recommend any changes to that classification?

49. What challenges, if any, have there been in communicating with training partners or other stakeholders?

50. Beyond anything you've already mentioned, what other challenges, if any, have you experienced so far during implementation of the WFD program that you would like to share?

51. Similarly, what successes, if any, have you experienced during implementation of the WFD program that you would like to tell me about?

Q52 AND Q53 – ALL INTERVIEWEES, ROUND TWO:

Just a couple of final questions.

52. Aside from what you have told me already, what challenges, if any, have you experienced in implementing the WFD program?

53. Similarly, what additional successes, if any, have you experienced during implementation of the WFD program that you would like to tell me about?

APPENDIX B:

NYSERDA WFD INTERVIEW GUIDE FOR TRAINING PARTNERS

ROUNDS ONE AND TWO COMBINED

Name:
Interviewer:
Date:

SCHEDULING SCRIPTS

ROUND ONE: Hello, My name is _____ and I am calling on behalf of NYSERDA (New York State Energy Research and Development Authority). NYSERDA hired my company, Research Into Action, to evaluate its Workforce Development Program, which funds training to prepare people for work in the energy efficiency field. I would like to speak with you about your work as one of NYSERDA's training partners. The interview will last about 90 minutes. Can we schedule a time in the next week to speak?

ROUND TWO: Hello, My name is _____ and I am calling on behalf of NYSERDA (New York State Energy Research and Development Authority). NYSERDA hired my company, Research Into Action, to evaluate its Workforce Development Program, which funds training to prepare people for work in the energy efficiency field. I spoke with you last summer (June or July) about your involvement with the NYSERDA Workforce Development program and I have some follow-up questions for you. Do you have about 20 minutes now or can you suggest a time I can call you back?

INTRODUCTION AND OPENING QUESTIONS

*Q*1 *THROUGH Q*6 *– ALL INTERVIEWEES, ROUND ONE:*

I'd like to start with some general information about your organization.

1. How long has your organization offered Workforce Training – that is, training in worker readiness or job-specific skills? Have you specialized in any particular training area over that time? [PROBE on Basic Skills training, certification preparation, Technical Training in Career Tech Education (CTE) fields]

2. How long has your organization offered energy efficiency-related training in New York?

3. We'll be talking mainly about your training funded by NYSERDA PON 1816. [Review list from program sources: _____] Are there any other courses funded through the same contract?

4. In addition to those courses funded by PON 1816, what other training do you provide?

    a. Where do you get funding to offer these other types of training?

    b. About what percent of all your courses are funded by sources other than NYSERDA? [PROBE ON THIS QUESTION – GET A RANGE IF NOT A SPECIFIC NUMBER]

5. Do you partner (or subcontract) with any other organization to deliver basic skills or energy efficiency training? If so, in general, how does that partnership work? [PROBE FOR DETAILS]

6. In what ways do you work with U.S. Dept. of Labor One-Stop Centers? [PROBE FOR DETAILS]

TRAINING PARTNER APPLICATION PROCESS

Q7 THROUGH Q11 – ALL INTERVIEWEES, ROUND ONE:

I would like to ask a few questions about the process of applying to be a NYSERDA training partner.

7. How did you learn about the opportunity to become a NYSERDA training partner?

8. Please describe for me your experience with the application and contracting process – how much additional information or revisions NYSERDA requested, what assistance you needed from NYSERDA, and so forth

9. Overall, how would you characterize the application process? [Probe for differences between open enrollment solicitation (PON 1816) versus competitive solicitation (PON 1817)] [If they say it was similar to other organizations', probe for ways in which it was similar. Probe for level of difficulty.]

10. [IF NOT ANSWERED ABOVE] Were there any particular challenges to applying? [PROBES: Overly lengthy process, too much information to gather, bureaucratic?]

11. Did you ask NYSERDA program staff for assistance when completing your application to become a training partner?

    a. Did you get the assistance you needed? What was this like?

        i. If not, what assistance would have helped?

        ii. What specific suggestions do you have to make the process work more quickly/efficiently?

WORKFORCE NEEDS

Q12 THROUGH Q14 – ALL INTERVIEWEES, ROUND ONE:

12. Please describe for me what you see as the primary workforce needs in the energy efficiency field in New York? That is, what skills are lacking?

    [PROBES: What kinds of technical knowledge regarding energy efficiency are currently of most interest in your region or for your target customers or market segment? What types of preparatory or basic job skills are needed to prepare less experienced worker for entry into the energy efficiency fields, such as language or math skills? What other skills are needed?

13. Where do you get the information needed to determine workforce needs?]

14. Are there trainings or types of training that should be sponsored by NYSERDA that are currently not offered? Is so, what training areas do you think NYSERDA could support?

TRAINING DEVELOPMENT

Q15 THROUGH Q25 – ALL INTERVIEWEES, ROUND TWO:

15. How does your NYSERDA-funded training fit in with your overall training portfolio?
    a. How does your NYSERDA-funded training differ from training that you have offered in the past?
    b. How do the types of trainees that you are reaching or will reach through this contract differ from trainees you have served in the past?
    c. Would you still be offering your NYSERDA-funded course(s) if you didn't have the NYSERDA funding? IF YES: Would you have made any changes in the number, location, or timing of sessions or in the number or type of students you could have enrolled?
16. Is there a demand for more training than currently exists? If so, is more funding needed to expand and how would you expand your training to meet the demand?
17. How might your contract with NYSERDA affect your training programs in the future?
    a. How might it affect the portfolio of training courses you will offer?
    b. How might it affect the types of trainees you will reach out to?
18. <u>FOR CAREER PATHWAYS ONLY</u>: What role does the National Workforce Readiness Credential (NWRC) or other similar worker readiness certifications play in developing your training curricula?
    a. PROBE: Does your training lead trainees to take the National Workforce Readiness Credential exam or other similar exams?
    b. How important are these credentials in the continuum toward employment?
    c. Who recognizes the NWRC? Other similar credentials?
19. <u>FOR CAREER PATHWAYS ONLY</u>: What is your understanding of the types of support that NYSERDA provides for internship programs? [IF NEEDED: What types of internship-related services does NYSERDA fund?]
    a. What kinds of changes might be made, if any, to NYSERDA's support for internships?
    b. Does your organization already offer any of those services? If so, which ones?
    c. Do trainees use those services as much as they could? [probe for details]
20. FOR CAREER PATHWAYS ONLY: Does your contract with NYSERDA include developing or working with internship programs?
    a. If yes: Can you give me some details on how those are implemented?
        i. What challenges have you experienced in implementing internship programs?
        ii. How does your this experience compare to any other experience you have with internship programs?
    b. If no: Did your organization consider adding an internship component?
        i. If so, why did you elect not to add internships?

21. FOR CAREER PATHWAYS ONLY: Have you explored collaborating with any apprenticeship programs or with specific employers for internships or direct hiring? If so, please provide details.

22. Does your organization do any train-the-trainer programs or work with other organizations that offer them? If so, please describe

    a. Have you considered offering a Train-the-Trainer training? Why or why not?

23. Can you describe for me the amount and type of hands-on or skill-building training that's incorporated in your courses?

    a. In what ways might the amount of kind of hands-on training you offer be changed?

    b. What kinds of support would you need from NYSERDA to make such changes?

24. FOR CAREER PATHWAYS ONLY: We understand that training organizations like yours were required to demonstrate how their proposed training fits into a "career path," in their proposals to NYSERDA. What does your organization do to communicate that career path to the students in your courses and help them to move along it?

    [Follow-ups and probes to get more detail: No need to ask if information is provided in response to above question]

    a. How do you communicate to trainers how the course fits into a career path and what they should do to help students continue in that path?

    b. What specific "next steps" do you offer trainees post training?

    c. Do you direct trainees to specific certifications (National Workforce Readiness, BPI), employers, or additional training?

    d. Are trainees encouraged to seek additional training at conclusion of class to prepare them for a specific certification?

        i. Where do you direct your trainees?

        ii. Do trainees receive any support (financial, tutoring,…)from your organization to assist them in the next steps?

25. Does your training program lead to a specific certification?

    a. If so, what certification and how does your program lead to certification?

    b. Do your trainees take a certification exam at the conclusion of your class?

TRAINING IMPLEMENTATION

Q26 – ALL INTERVIEWEES, ROUND ONE:

I'd like to ask a few questions about the progress of training so far. [Refer back to what respondent said about what courses they are offering, and ask…]

26. Has enrollment begun for any of your courses? If so, how is that going?
    [PROBES: Are courses fully enrolled?]

    a. If courses not fully enrolled: Which ones are not fully enrolled?

    b. How do you recruit participants? Do you collaborate with local DOL One-stop centers? [PROBE - % registration from course catalog, % registration from Home Performance

contractors, % registration referred from DOL One-stop career centers/Employment Opportunity Centers, or other placement organization?]

c. How have enrollment numbers so far compared with expectations? [PROBE about difference among course types]

   i. If enrollment numbers are higher or lower than expected: Why do you think enrollment is [lower/higher] than expected?

   ii. If lower: What will you do to increase enrollment?

   iii. How could NYSERDA assist? [PROBE: website presence, cooperative advertising, etc.?]

Q27 THROUGH Q34 – ALL INTERVIEWEES, ROUND TWO:

27. What existing skills or qualities do trainees need to be successful in your trainings? [PROBE about different training types]

    a. How, if at all, do you screen potential trainees to make sure they have the required skills or qualities?

28. How does the background of enrollees compare so far with your expectations? [PROBE about difference among training types – PROBE EXPLICITLY ABOUT 'OVERQUALIFIED' TRAINEES – E.G., CP TRAINEES WITH ADVANCED BACKGROUNDS, TT TRAINEES WHO APPEAR TO BE TAKING TRAINING THEY DON'T NEED.]

    a. If level of preparation or experience is lower than expected: Will you screen enrollees to determine best level of training? Do you plan to adjust your trainings to deal with the lower levels of preparation – and again, how?

    b. If higher: Does this mean that there is less need for workforce training? If not, what does it mean? Do you plan to adjust your training to deal with higher levels of preparation/experience? [PROBE – DO THEY DISCOURAGE PEOPLE FROM SIGNING UP FOR COURSES THEY DON'T NEED? DO THEY TRY TO SHIFT OVERQUALIFIED CP TRAINEES TO TT?]

29. FOR CAREER PATHWAYS ONLY: Are you seeing the "transitional worker" – one moving from one field to another – attending training? If so, do you plan to adjust your training to deal with such workers?

30. Is the progress of training what you anticipated? [PROBE about the various courses or course types offered]

31. What challenges, if any, have you encountered so far in preparing for or carrying out any of the training you are contracted to do for NYSERDA? [PROBE about challenges relating to trainee characteristics or circumstances – e.g., specific trainee needs, personal issues, etc.]

32. FOR CAREER PATHWAYS ONLY: What assistance, if any, do you provide to trainees to help them attend and complete training? [PROBES: transportation, registering with One-Stops, etc.]

33. FOR CAREER PATHWAYS ONLY: What assistance might be valuable to help trainees attend and complete training? [PROBES: transportation, registering with One-Stops, tuition assistance, etc.]

34. The NYSERDA WFD program staff is providing training partners with pre- and post-training surveys to distribute to students. What challenges, if any, have you experienced in getting students to complete them?

MARKETING

Q35 AND Q36 – ALL INTERVIEWEES, ROUND ONE:

35. What has been the most useful marketing tool that has attracted to students to your training?

36. What could NYSERDA do, if anything, to help you market your trainings?

Q37 AND Q38 – ALL INTERVIEWEES, ROUND TWO:

37. How do you publicize the NYSERDA funded courses you offer? [PROBE for specific channels]

    a. What challenges, if any, do you have explaining the NYSERDA-funded training you provide? [Probe: Any issues explaining the concept of "green" training?

38. Have you applied for cooperative marketing assistance from NYSERDA to help you publicize your training?

    a. [If so:] What challenges, if any, did you experience in applying for this assistance?

    b. [If not:] Why not?

TRAINERS

Q39 AND Q42 – ALL INTERVIEWEES, ROUND ONE:

I'd like to focus now on the trainers you use for your NYSERDA-funded courses.

39. First, how many trainers do you employ that work for the NYSERDA funded courses you offer? How many are regular staff of your organization versus individuals you use on a casual or contract basis?

    a. Number of organization staff

    b. Number of contract staff

[IF TRAINING PARTNER USES CONTRACT STAFF]

40. I'd like to get a sense of how you work with contract staff.

    a. Can you describe the level of independence these individuals have during training?

        i. How often do you keep in touch with them during training and how do you do keep in touch? [PROBES: email, regular phone calls, meetings]

    b. How do you ensure the trainer is meeting the objectives of the program? [PROBE: Regular check-ins, forms to send during course, etc.]

41. Where do you recruit your trainers – those on your regular staff as well as those hired on a contract basis? [PROBES: Are they from unions, academia, trade associations, and/or community groups? PROBE for differences between staff and contractors]

42. Have you had difficulty recruiting trainers?

    a. If so, why do you think you have had trouble recruiting trainers? [PROBES: Not enough people with necessary type of training; Not enough people in my area with necessary training, technically qualified people often not good instructors]

STUDENTS

Q43 – ALL INTERVIEWEES, ROUND ONE:

The next few questions are about the students or trainees that have enrolled or will enroll in your NYSERDA-funded trainings.

43. How are students evaluated during a course?

    a. Do they need to pass in-class exams? If so, what is the passing criterion?

    b. Do they need to pass practical exams? [For example, do students have to conduct an energy audit upon conclusion of a class on energy auditing?]

Q44 THROUGH Q46 – ALL INTERVIEWEES, ROUND TWO:

44. What kind of follow-up, if any, do you do to find out what has happened students that complete your courses?

    a. Does the program track the "next steps" students take after completing your courses?

    b. What challenges exist to tracking your students post class?

        i. Is there a way NYSERDA could assist you in tracking students post class?

45. FOR CAREER PATHWAYS ONLY: [If not covered *above*] Have you noted any of the following challenges to trainees' ability to enroll in or complete your courses: If challenges noted: What, if anything, have you done to address those challenges?

    a. Lack of child care

    b. Medical problems

    c. Drug relapse

    d. Legal problems

    e. Other, please specify

46. Some counties allow students to collect unemployment only if enrolled full time. To your knowledge, has this affected anyone's ability to enroll in any of your NYSERDA-supported courses? If yes:

    a. What, if anything, have you done to address this issue?

EXPERIENCE WITH NYSERDA PROGRAM

Q47 THROUGH Q49 – ALL INTERVIEWEES, ROUND ONE:

47. What has been you experience with providing NYSERDA with the data that it requires to track training progress?

    a. How do you measure training success? [PROBE – do you track completion rate, job placement, success on the job, etc.?] If they track job placement or success on the job: What are you finding?

    b. What tools do you use for performance tracking – do you have any kind of specialized software?

    c. How does the performance data you track differ, if at all, from NYSERDA's expectations and reporting requirements?

    d. How does your reporting to NYSERDA compare to other publicly funded training programs?

        i. [If difficult or time-consuming] Can you give me an example of how it has been difficult or time-consuming?

    e. Are there any data submission expectations you don't fully understand? If so, what are they?

        i. [If any problems noted] Have you worked with NYSERDA staff to discuss reporting procedures and streamline reporting? If so, how did that go?

    f. Have any data submission requirements changed since program inception? Is so, do you know why those changes were made?

48. What can NYSERDA do to make the process of being a training partner easier? [PROBE: Competitive versus Open Enrollment solicitation, provide access to information, other resources?

49. Aside from what you've told me, what other kinds of internal evaluation do you do of your training or trainers?

CONCLUSION

Q50 THROUGH Q52 – ALL INTERVIEWEES, ROUND ONE:

50. What aspects of the program do you think are going well?

51. What aspects of the program need improvement?

52. What recommendations do you have for the program?

APPENDIX C:

NYSERDA WFD INTERVIEW GUIDE FOR TRAINERS

ROUNDS ONE AND TWO COMBINED

Name:
Interviewer:
Date:

SCHEDULING SCRIPT

Hello, my name is _____calling from Research Into Action on behalf of the New York State Energy Research and Development Authority, or NYSERDA. NYSERDA is conducting an evaluation of its Workforce Development program, which funds the [course name(s)] course(s) you are teaching for [training partner name]. This evaluation will enable NYSERDA to better assess and improve its support for energy efficiency workforce training. I would like to schedule a time within the next week to talk about your role as a trainer for NYSERDA-funded courses. This discussion will take about 20 to 30 minutes. When would be a good time?

Note to Interviewer: If respondent indicates that course information we have is incorrect or incomplete, note that and get the correct information.

ROUND TWO ADDITIONS TO THE INTERVIEW SCRIPT ARE INDICATED WHERE RELEVANT.

TRAINER BACKGROUND QUESTIONS

1. How long have you worked as a trainer or instructor?
    a. How much of that has been as a trainer or instructor in the building or construction industry?
    b. [ROUND TWO] Did you teach the course(s) you are offering prior to NYSERDA funding?
        i. If so, for how long did you offer the training?
        ii. Did you conduct the training for the same organization or was it a different organization?
        iii. If different: What organization did you offer the training for?
    c. [ROUND TWO] If did not teach the course(s) before: How does/do the NYSERDA-funded course(s) differ from those you have taught in the past?
2. Are you a permanent employee of the training organization or do you work on a contract basis?
3. What kind of experience, preparation, or certification did the organization you work for require from you to work as a trainer?
   [PROBE: certifications, degree, experience, etc.]
4. What additional training-related degrees or certifications do you have?
    a. What certifications do you have that are specifically related to specific technical fields or to energy efficiency?

5. Did the organization you work for give you any preparation to work as a trainer? If so, what was this preparation?

    a. [ROUND TWO] [If not addressed:] How about training specifically in adult education?

6. Are you required to undertake any ongoing preparation ("continuing professional education") to provide training? If so, please describe it.
[PROBE about frequency, duration, content, testing, etc.]

7. [ROUND TWO] What explanation did the training organization give you about how the course(s) you are teaching fit within that organization's and NYSERDA's overall training goals?

8. What kind of ongoing contact do you have with the training organization?
[PROBE about frequency, types, and content of contact and who contact is with]

WORKFORCE TRAINING NEEDS

Now I'd like to get some information about the courses you teach and the students who are taking them.

9. First, I'd like to confirm the information I was given about the NYSERDA-funded course(s) you are teaching. The information I have is that you are teaching [COURSE_1] with [COUNT_1] students [and COURSE_2 with COUNT_2]. Is that information correct?

    [IF NOT CORRECT:] Can you give me the names of the courses you are teaching and the correct number of students in each?

    [NOTE TO INTERVIEWER: Some course registration titles may be different from the names given in the list provided by WFD. Even if the interviewee does not consider those "incorrect" names, try to get the course title they use]

10. Overall, what types of students are taking your course(s)? [PROBE about demographics, work background, number employed, college grads, women etc.]

11. Are you seeing any unusual trends in the students taking your course(s)?
[PROBES – a. all respondents; b. & c. only those teaching technical or certification classes:]

    a. Seeing any unusual demographics such as more women taking classes traditionally taken by men? Greater number of unemployed? Or more college grads taking entry level training? What has changed, specifically?

    b. Unusual number of people making lateral job changes? [IF NEEDED: That is, people who already have a fair amount of work experience, but in a different area. That could be a related but non-technical area or even a different profession.]

    c. Unusually large or small number of trainees with advanced technical background? [If so, clarify whether that "technical background" is in the building industry or energy efficiency field – if not, probe for where those trainees are coming from. If CP, are they finding people who should be in TT and, if so, are they encouraging them to move to TT courses? If TT, are they finding people who are taking training they don't need and what they are doing about it]

    d. Trainees with little to no work experience related to the training area?

IF NOT TEACHING TECHNICAL / CERTIFICATION CLASSES, SKIP Q12:

12. Are the students in your NYSERDA-funded technical skills course(s) adequately prepared for those courses?

    IF TRAINER TEACHES MULTIPLE COURSES, PROBE FOR DIFFERENCES AMONG THEM.

    IF TRAINEES ARE NOT PREPARED:

    a. Did they meet course pre-requisites in terms of education and work experience even though they were not adequately prepared?

    b. What types of preparation, skills, or experience are trainees lacking?
    [PROBES: Basic energy efficiency skills, job skills, specific technical experience, etc.]

    c. Have those students gotten any additional help, such as tutoring or mentoring, from you or other sources to help them get through the course(s)? If so, what assistance did they get and from whom?

    d. Would you recommend any additional assistance, such as tutoring or mentoring, that would enable such unprepared students to get through the course(s)?

    e. Have any students dropped out of courses you teach? If so,

        i. How many?

        ii. What were the reasons given, if any?

    f. Can you think of anything that could be done to get more adequately prepared trainees into your course?

    [PROBES: An issue of proper assessment and placement into the appropriate level of training? An issue of recruitment?]

IF NOT TEACHING CAREER PATHWAYS / BASIC SKILLS CLASSES, SKIP Q13, Q18 & Q16:

13. [ROUND TWO] What, if anything, did the training organization, tell you about how the course(s) you teach fit(s) into a larger "career path" for the students? [Optional follow-ups if needed:]

    a. After completing your course, what additional steps are students expected to take to obtain employment in the energy efficiency field?

    b. How were these steps communicated to you from the training organization?

    c. What direction did the training organization give you about how are these next steps should be communicated to trainees?

14. Can you suggest any specific technical or certification trainings that graduates of your career pathways course(s) might be adequately prepared to take? If so, what trainings would be most appropriate?

15. Would some students be better served by entering an internship or apprenticeship?

16. [ROUND TWO] CAREER PATHWAYS ONLY: What is your understanding of the types of support that NYSERDA provides for internship programs? [IF NEEDED: What types of internship-related services does NYSERDA fund?]

    a. What kinds of changes might be made, if any, to NYSERDA's support for internships?

    b. Does the training organization you work for already offer any of those services? If so, which ones?

c. Do trainees use those services as much as they could? [probe for details]

17. Are students adequately prepared to get a job in the construction and building industry that might allow them to develop energy efficiency-related skills? If so, would this be the best next step?

18. Do you provide students with any guidance in deciding on their next step?

    a. [ROUND TWO] Do you offer assistance to students post class in helping them…

        i. Identify additional training. How?
        ii. Identify potential employers. How?
        iii. Identify internships. How?
        iv. Other, please specify. How?

    b. [ROUND TWO] Do you refer them to One-Stop Centers or other Dept. of Labor resources?

19. [ROUND TWO] When the students in your classes complete your coursework, what are they best prepared to do?

    a. Take additional training. If so, what training?
    b. Attain an internship? If so, what kind of internship?
    c. Attain employment? If so, what kind of employment?
    d. Take a certification exam? If so, what certification?
    e. Other, please specify:

20. What training method do you use in your classes? [PROBES: Is it mostly lecture with a power point presentation? Hands-on work in lab setting? Something else?]

    a. [ROUND TWO] Do students get enough hands-on training? If not, why not? What could be changed to make sure they get enough?

21. [ROUND TWO] Have you noted any of the following challenges to trainees' ability to enroll in or complete your courses:

    a. Transportation
    b. Lack of child care
    c. Medical problems
    d. Drug relapse
    e. Legal problems
    f. Other, please specify

FEEDBACK FROM TRAINEES

22. How do you assess what your students are learning?
[PROBES:]

    a. How often do you assess your students?
    b. What types of assessments do you use?

c. Do assessments include demonstration of practical knowledge gained? How so?

23. What feedback, if any, have you heard from trainees about the courses?
[PROBE ABOUT:]

a. Feedback on content of course: [valuable, not valuable, as expected]

b. Level of course difficulty:

c. Proper balance of classroom instruction vs. hands-on training:

d. Mode of feedback: [Formal or informal? Do they read the pre/post-training surveys?]

24. Have any students yet completed any of the courses you are teaching for NYSERDA?

a. [IF YES:] What have you heard, if anything, about how the training has affected their job situation?

b. [PROBE:] Have currently employed trainees received promotions because of your training?

25. [ROUND TWO] What do students tell you they want to do after completing their training?

a. How do you respond?

b. What are the most common options?

SUMMARY

26. Are there additional tools you need to provide high quality training to your trainees? If so, what tools do you need?

27. Are there any changes you would make to the training curricula – in general or specifically for the course(s) you teach?

28. Is there anything that I have not asked about your experience providing NYSERDA-funded training that you think would be useful for me to know?

APPENDIX D:

NYSERDA WFD PRE- AND POST-TRAINING SURVEYS

WFD PRE-TRAINING SURVEY

Training Organization: _____

Course Title: _____

Trainer: _____

I authorize exchange of all information related to my participation in this training program between one or more of the following organizations: New York State Energy Research and Development Authority (NYSERDA), Center for Energy Efficiency and Building Science (CEEBS), New York State Department of Labor (NYDOL), United States Department of Labor (USDOL), Building Performance Institute (BPI), and Research into Action (RIA). I understand I may be contacted regarding future employment status and training plans for NYSERDA evaluation purposes.

Print First name: _____ Middle I. _____ Last Name: _____

Signature: _____

Home telephone number (for evaluation purposes only): _____

Cell phone number (for evaluation purposes only): _____

Email address (for evaluation purposes only): _____

Last four digits of Social Security Number (for evaluation purposes only): _____

Please Answer the Following Questions

1. What is the highest level of education you have completed, or are currently enrolled? (Select only one.)

   ( ) Less than High School
   ( ) High School (or GED)
   ( ) 2-Year College or Vocational/Technical School
   ( ) 4-Year College
   ( ) Post-Graduate Degree (such as Masters or Doctorate)

2. Please select the item that best describes your employment status.

   ( ) Employed less than six months
   ( ) Employed greater than six months
   ( ) Unemployed the last 6 months
   ( ) Unemployed greater than 6 months

3. Which of the following best describes your current employment?

( ) Self-employed or independent contractor
( ) Work for a small company (fewer than 25 employees)
( ) Work for a large company (more than 25 employees)
( ) Own a company that employs others (how many: _____)
( ) Unemployed

4. Why are you taking this training? (Select all that apply.)

( ) Certification required to participate in utility program (e.g. Home Performance with ENERGY STAR, Multifamily Performance Program, etc.)
( ) Maintain a license or certification (required professional CEU)
( ) Required prerequisite for other training you want to take
( ) Prepare for an internship
( ) Prepare for an apprenticeship/trades program
( ) Your employer recommended it
( ) Job/career advancement
( ) To meet specific needs indicated by a client or customer
( ) Personal interest
( ) Help you get a job in construction/energy efficiency field
( ) Help you get a better job than the one you have
( ) It is a part of a legally mandated program
( ) Other (please specify): _____

5. Have you heard of the NYS Department of Labor One-Stop Centers?

( ) Yes, I have heard of them
( ) Yes, I have heard of them, but don't really know what they are
( ) No, I have not heard of them

6. Have you registered with a local NYS Department of Labor One-Stop Center?

( ) Yes
( ) No, and I don't currently plan to
( ) No, but I plan to

7. What information source do you use to find job opportunities?

( ) One-Stop center
( ) Training provider
( ) "Help wanted" ads in a newspaper
( ) Internet (e.g. Monster.com)
( ) Guidance Counselor
( ) Networking
( ) Other sources – please list them here: _____

8. For each of the employment areas listed below, please check one of the boxes to indicate your level of skill or experience. Check only one box per employment area.

Employment Area	Level of Skills			
	No skill: No experience in this area	**Introductory: Basic level of experience but need significant supervision**	**General: Some working experience but need some supervision**	**Advanced: Capable of performing job independently**
Architectural, engineering, or related services	( )	( )	( )	( )
General residential construction (home building and remodeling)	( )	( )	( )	( )
General commercial construction (new business construction and remodeling)	( )	( )	( )	( )
Building shell improvements (insulation, windows, air sealing)	( )	( )	( )	( )
HVAC installation/technician	( )	( )	( )	( )
Plumbing	( )	( )	( )	( )
Electrical	( )	( )	( )	( )
Other (please specify):	( )	( )	( )	( )

9. Which of the following statements best describes what you hope to accomplish from this training? (Check all that apply)

( ) Acquire new skills
( ) Improve skills for promotion
( ) Change field of employment
( ) Obtain employment
( ) Other: _____

10. Do you believe you are attending the right course for you given your experience and career goals – why or why not? (Please read all responses and select only one answer)

( ) Yes – it will teach me new things I want to learn
( ) Yes – it will provide a refresher on things I've learned before
( ) Possibly – but it may be over my head
( ) Possibly – but it may be below my level
( ) No – it's definitely over my head

( ) No – it's definitely below my level
( ) I'm not sure

Your responses will help NYSERDA improve its programs supporting workforce training. Thank you for your assistance.

WFD POST-TRAINING SURVEY

Training Organization: _____

Course Title: _____

Trainer: _____

I authorize exchange of all information related to my participation in this training program between one or more of the following organizations: New York State Energy Research and Development Authority (NYSERDA), Center for Energy Efficiency and Building Science (CEEBS), New York State Department of Labor (NYDOL), United States Department of Labor (USDOL), Building Performance Institute (BPI), and Research into Action (RIA). I understand I may be contacted regarding future employment status and training plans for NYSERDA evaluation purposes.

Print First name: _____ Middle I. _____ Last Name: _____

Signature: _____

Home telephone number (for evaluation purposes only): _____

Cell phone number (for evaluation purposes only): _____

Email address (for evaluation purposes only): _____

Last four digits of Social Security Number (for evaluation purposes only): _____

Please take a few moments to answer the following questions.

1. Based on what you expected to learn and achieve, would you say that this course:

   ( ) Far exceeded your expectations
   ( ) Somewhat exceeded your expectations
   ( ) Met your expectations
   ( ) Fell somewhat short of your expectations
   ( ) Fell far short of your expectations.

2. Considering your employment goals and experience, how appropriate was the level of training?

   ( ) Far too low – I was too experienced for this course
   ( ) Somewhat too low – I already was familiar with most concepts
   ( ) Appropriate for my level of experience
   ( ) Somewhat too high – I needed more time or hands-on exercises
   ( ) Far too high – I should have had more preparation or experience before taking this course

3. Do you feel that this training has prepared you to enter employment?

   ( ) Definitely yes
   ( ) Probably
   ( ) Not sure

( ) Probably not
( ) Definitely not

4. What areas do you feel should be enhanced to make this training more effective? (Check all that apply)

( ) Supervised field experience
( ) Hands on experience with equipment and tools
( ) Applied math skills
( ) Literacy/reading skills
( ) Interviewing and resume preparation

5. What do you expect to do now that you have completed this training? (Check all that apply)

( ) Remain in current job
( ) Seek advancement with current employer
( ) Find new employment
( ) Seek additional training
( ) Enter on the job training or internship.
( ) Enter apprenticeship/trades program

6. Do you plan to pursue further training? (Please check all the areas that apply)

( ) Yes, in the field of energy efficiency (energy conservation, energy auditing, weatherization, etc.)
( ) Yes, in the field of renewable energy (solar thermal, geothermal, photovoltaic (PV) installation, fuel cells, etc.)
( ) Yes, in some other field – (please specify here: _____)
( ) No, I do not plan to pursue further training at this time

7. Do you plan to pursue or continue employment in an energy efficiency or renewable energy career?

( ) Definitely yes
( ) Probably
( ) Not sure
( ) Probably not
( ) Definitely not

8. After this training course, do you plan to pursue a certification from any of the following credentialing organizations?

Certification	**Have certification**	**Plan to take exam**	**Not interested**
a. Building Performance Institute (BPI) Building Analyst, Building Envelope Professional, Heating Professional, etc.	( )	( )	( )
b. RESNET/HERS Rater	( )	( )	( )
c. National Association of Home Builders (NAHB) Green Building	( )	( )	( )

Certification	Have certification	Plan to take exam	Not interested
d. National Association of the Remodeling Industry (NARI) Green Certified Professional	( )	( )	( )
e. North American Technician Excellence (NATE) HVAC Installation Technician, Service Technician, or Senior Technician	( )	( )	( )
f. ASHRAE energy-related certifications	( )	( )	( )
g. Association of Energy Engineers (AEE) Certified Energy Manager (CEM)	( )	( )	( )
h. AEE Certified Energy Auditor (CEA)	( )	( )	( )
i. North American Board of Certified Energy Practitioners (NABCEP) Solar Thermal – Entry Level	( )	( )	( )
j. NABCEP PV – Entry Level	( )	( )	( )
k. NABCEP Certified PV Installer	( )	( )	( )
l. US Green Building Council (USGBC) LEED Green Associate	( )	( )	( )
m. USGBC LEED AP (BD+C, ID+C, Homes, or O+M)	( )	( )	( )
n. Other, please specify:_____	( )	( )	( )

9. Have you registered with a local NYS Department of Labor One-Stop Center?

( ) Yes
( ) No, and do not currently plan to
( ) No but I plan to

10. Are you aware that NYSERDA provides incentives for Energy Efficiency and Renewable Energy training and certifications?

( ) Yes
( ) No
( ) Would like more information

Your responses will help NYSERDA improve its programs supporting workforce training. Thank you for your assistance.

APPENDIX E:

NYSERDA WFD FOLLOW-UP INTERVIEW GUIDE FOR TRAINEES

SCHEDULING SCRIPT

Hello, My name is _____. I am calling on behalf of NYSERDA (New York State Energy Research and Development Authority). My company, Research Into Action, is working with NYSERDA to evaluate its Workforce Development Program, which funds training such as the [INSERT TRAINING NAME HERE] with the [INSERT ORGANIZATION NAME HERE]. I would like to speak with you about your experience with the training. Specifically I would like to learn about you experience with enrolling in the training, if the training helped you on the job or to obtain a job, and if you have any suggestions for making the training better. The interview will last about 15 minutes. Do you have time now or can we schedule a time in the next week to speak?
Name:
Phone:
Training Partner:
Course:

INTRODUCTION AND OPENING QUESTIONS

I'd like to start with some general information.

1. I understand you took [Fill in courses from program data] with [Fill in organization name].
    a. Is this correct?.
    b. [*If not correct*]. Please tell me which classes you took and where?
    c. Did you pay for the training or was the cost of training paid by someone else, such as an employer or workforce investment board?

EMPLOYMENT

When you completed the pre-training survey, you provided some information about your work history. I'd like to get some more detail about that if you don't mind.

2. First, how many years of experience do you have working in the building or construction industries?

3. Do you do energy efficiency work? By this I mean, do you or the company you work for build or renovate homes or commercial buildings in New York State or otherwise support improvements in energy performance of buildings or products that consume energy?

    If yes:

    a. What specific types of energy efficiency work have you done?
    b. For how long?

4. Are you currently employed?

    a. If employed: What is your job title?

    b. What kind of work does your employer do?

*[IF EMPLOYED AT TIME OF PRE-TRAINING SURVEY ASK Q*5 *– Q*7*]*

5. Do you still work for the same employer as you did when you took the training?

    a. If yes: Has the training you received led to a change in responsibilities at work? ? If so, how do your current responsibilities differ from your previous ones?

        i. Did the training provide you with skills to do your job better?

    b. If no: Has the training you received led to a different job?

6. Has the training you took led to an increase in pay? If so, about how much has your pay increased as a percentage of what you were making before? [May need to provide examples or otherwise talk through this item.]

7. In what other ways does your current work differ, if at all, from what you were doing before you took the training?

*[IF UNEMPLOYED AT TIME OF PRE-TRAINING SURVEY BUT CURRENTLY EMPLOYED, ASK Q*8*–Q10]*

8. What industry are you working in? *[will attach list as check-box]*

9. How did you find your current job? [PROBES: Online listing, referral, etc.]

10. How long have you been in your current job?

[IF NOT CURRENTLY EMPLOYED (REGARDLESS OF WHETHER EMPLOYED AT TIME OF TRAINING), ASK Q11]

11. Have you looked for employment (since taking that training)? If yes:

    a. What types of work have you looked for? [PROBES: Construction, energy efficiency, any job]

    b. Where and how have you looked for work? [PROBES: Online listings, job agencies, etc.]

    c. [If One-Stops Mentioned:] Tell me about the assistance you have received at One-Stops – has it been valuable?

    d. How, if at all, has the training helped you with your job search?

    e. Do you know the right places to go to look for work you are trained for? *[will provide list]*

[ASK ALL RESPONDENTS Q12-Q28]

12. What additional training, if any, have you taken since you completed the [*NYSERDA funded training*]?

13. What certification examinations, if any, have you taken since then? [PROBES: National Workforce Readiness Credential, Building Performance Institute (BPI), etc.]

14. What additional training, if any, do you plan to take in the near future?

EXPERIENCE WITH TRAINING

Now I would like to ask a few questions about your experience with the training.

15. How did you learn about the course you took?
    a. If not answered already: Were you looking for training in energy efficiency specifically?
    b. [*If sought out EE training*] Why were you looking for EE training? (PROBES: Did someone tell you EE was a job growth area, personal/professional interest in EE, something else?]
16. Where would you have gone to get this training if it hadn't been offered through [*name of training partner*]?
17. Did you have any difficulties in enrolling in that course? If so, what were they?
18. Before you decided on the course you took, did you consider taking any other training instead? If yes:
    a. What other training did you consider?
    b. Why did you decide on the training you took?
19. Was the training you took offered at a convenient time for you? If not:
    a. In what ways were they inconvenient?
    b. What could have been done to make it more convenient?
20. Was the training offered in a convenient location for you? If not, do you have a suggestion for a more convenient location?
21. What <u>new</u> information or skills did you learn in the training?
22. In what ways have you, or will you, use that new information or skills in your work?
23. *[TT only, if not addressed above:]* Has the training changed the amount of time you spend in your job doing energy-efficiency-related work?
    a. If so, how has it changed? [PROBE for types of EE projects done, number of projects, etc.]
    b. About what percent of the work you do is devoted to energy efficiency?
24. Did you think the training was practical?
25. Did you think the training provided skills that would be useful on the job?
26. How could the training be made more practical?
27. How well did your instructor present the course material?
28. What suggestions do you have for the instructor to present the course material better?

[Q29 TT ONLY]

29. When you completed the training, did you feel prepared to use the training on the job?

    a. In what way did this training expand the range of energy efficiency work you are capable of?

    b. What could the trainer or program do to prepare you for the work you do or would like to do? [PROBES: Provide list of possible employers, list of places to receive training, etc.]

[Q30-Q32 CP ONLY]

30. In what ways did the training help you prepare for a job?

    a. [PROBE] What kind of job skills did the training provide you?

31. Did the trainer or training organization indicate what steps you should take after completing the training?

    a. How did they prepare you for the next steps?

        i. [*If directed to a training*] What training did they direct you to?

        ii. [*If directed to certification*] What certification?

        iii. [*If directed to an employer*] What employer?

        iv. Other*?*

    b. What else could the trainer or program do to prepare you for your next step? [PROBES: Provide list of possible employers, list of places to receive training, etc.]

32. Is there anything that would have made it easier for you to participate in the classes, such as help with child care or transportation? If so, what would have been helpful?

[Q33-Q39 all respondents]

33. [*If currently employed in energy efficiency*] What topics, if any, should have been covered in the training that were not covered?

CONCLUSION

34. Would you recommend the training you took to others? Why or why not?

35. What aspects of the training did you like the best?

36. What aspects of the training need improvement?

37. What recommendations do you have for the training?

38. *[If currently employed]* We would like to contact employers in your field to interview them about the value of the training and their workforce needs. May we have the name and phone number of your employer?

39. Do you have any other comments?

APPENDIX F:

ANALYSIS OF ADDITIONAL TRAINEE SURVEYS

As noted in the body of this report, only eight of the 34 training partners had returned completed pre- and post-training surveys in time to be included by the report's due date. Those returned surveys represented about one-third of the total courses offered and about one-quarter of the total number of trainees, limiting the generalizability of the findings. After the final report was submitted and approved, three additional training partners returned completed surveys and two that previously returned completed surveys provided surveys representing five courses not previously represented in the data set.

To provide greater generalizability of results, Research Into Action staff integrated the additional returned surveys into the previous dataset and analyzed the augmented sample. The results are presented in this addendum. Adding the new data not only increased the size and breadth of the sample, but also allowed the evaluators to examine subsample differences that could not previously be examined. Specifically:

- Most of the original CP sample came from courses focusing on basic skills training, while much of the added CP sample was from relatively more advanced courses representing an introductory level of technical training. This broader sample allowed the evaluators to examine differences between respondents in the basic courses and those in the more advanced courses.
- With the added TT sample, about two-thirds of the total sample come from a single training partner – the International Brotherhood of Electrical Workers (IBEW) – and a single course. The program staff were particularly interested in learning about this subgroup of trainees. Because of this interest and to prevent this large subgroup from dominating the overall TT results, the evaluators examined the IBEW responses separately from all other TT responses.

This addendum reports the results of analyses conducted on the augmented samples of CP and TT trainee survey data. Table F-1 (next page) summarizes information on returned surveys included in the June 2012 final report and those provided since then ("added sample").

Table F-1. Summary of Returned Surveys Included in the Final Report and the Added Sample

Career Pathway (CP) Training			
Source	**Training Partner**	**Course Title(s)**	**Number of Trainees**
Final report	Altamont	Green Basic Skills Training	31
Final report	Ulster BOCES	Workforce Readiness	12
Final report	Osborne	SMART & Occupational Training	58
Final report	Capital BOCES	HVAC Excellence	9
Final report	TCCC	Basic Computer/Math, REVIT Level 1	19
		Subtotal – Original CP Sample	***129***
Added sample	TCCC	Basic Construction Mgmt. & Regs	6
Added sample	TCCC	Leadership	7
Added sample	TCCC	Intro Green Bldg. Design	8
Added sample	TCCC	Clean Energy Entrepreneurship	3
Added sample	TCCC	REVIT Level 2	4
Added sample	Altamont	Green Basic Skills Training	51
		Subtotal – Added CP Sample	***79***
		Total Augmented CP Sample	**208**
Technical Training (TT)			
Source	**Training Partner**	**Course Title(s)**	**Number of Trainees**
Original sample	Karpman Consulting	eQuest modeling	66
Original sample	NEEC	BOC Level 1	41
Original sample	BPCA	Green Building for Verifiers	6
		Subtotal – Original TT Sample	***113***
Added sample	IBEW	Advanced Lighting Controls	413
Added sample	RPI – Lighting Research Center	Advanced Lighting Controls	22
Added sample	Urban Green Council	GPRO Fundamentals of Green Building	92
		Subtotal – Added TT Sample	***525***
		Total Augmented TT Sample	**638**

The overall findings in the augmented CP and TT samples were generally consistent with those reported in the main body of this report. One exception is that, with the added sample, a lower percentage of TT respondents reported that they already had some certification. The evaluators identified the following additional key findings for CP and TT trainees:

- **CP Trainees.** Trainees in the advanced CP courses were much more likely to be employed and to have advanced building-industry skill levels than those in the basic CP courses. In addition, advanced-course trainees responded differently from other trainees in several ways that were not explained by their greater education or employment levels, producing some differences in overall survey results:
  - Advanced-course trainees were more likely than other employed trainees to cite employer recommendation as a reason for taking the training.
  - Very few employed advanced-course trainees cited improved skills for promotion or changing the field of employment as an expected training outcome.
  - Advanced-course trainees were less likely to suggest that training incorporate more hands-on experience.
  - The advanced-course trainees were less interested than others in help improving their applied math skills and more interested in help with interviewing and resume preparation.
- **TT Trainees.** In the analysis of TT trainees' responses, the evaluators identified several differences between those who received their training through IBEW and those who were trained through other training partners. Specifically, the IBEW trainees:
  - Were less likely to have at least a college degree.
  - Had relatively greater electrical and general construction skills and lower skills in architecture, engineering, and related areas.
  - Were more likely to be unemployed or working for a small company and to say their goal in taking training was to help get a job or to prepare for an apprenticeship or trades program.
  - Were less likely to say the training was over their heads (although large majorities of both groups said the training was at the appropriate level).
  - Were more likely to be planning to take additional training in renewable energy and to obtain related certifications.
  - Were less likely to plan additional training in energy efficiency.

The following sections provide detailed summaries of the analyses conducted on the augmented samples of CP and TT trainee survey data. The two sections correspond, respectively, to sections 5 and 6 of the final report, and are organized similarly. Each is written so that it is not necessary to have read the corresponding section of the final report, although somewhat less context is provided for the surveys, and some details of the original results have been omitted. Therefore, the reader may wish to refer to the report for additional information.

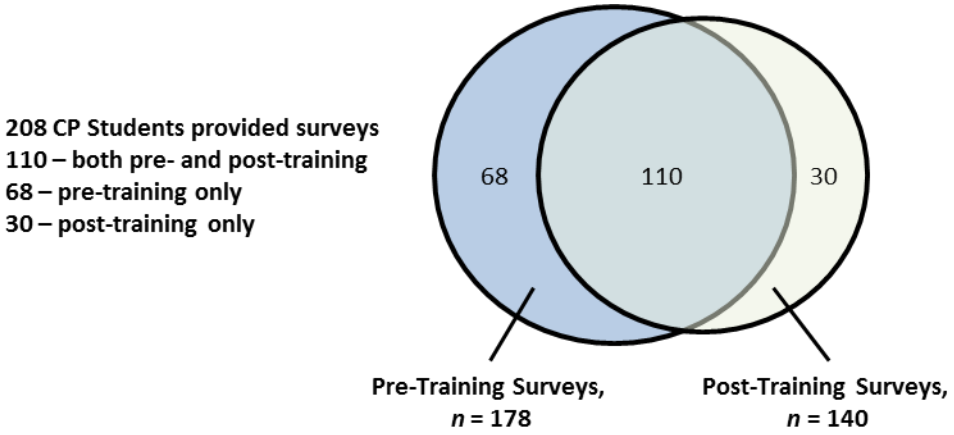
CAREER PATHWAYS (CP) TRAINEES

This section summarizes data from pre-training and post-training questionnaires completed by 208 CP trainees. It includes the 188 questionnaires, representing 129 students, returned to the process evaluation team in time to be included in the Workforce Development Program process evaluation final report submitted in June 2012 as well as an additional 130 questionnaires, representing 79 students, returned after the report was submitted.

All of the additional data included in this section came from two of the five training partners that provided data for the final report. Therefore, these data do not provide greater generalizability across training partners. However, most of the additional data come from courses that were not represented in the original dataset. Moreover, while most of the original CP sample came from courses that focused on basic skills training, much of the added CP sample was from relatively more advanced courses. The latter courses offer a basic level of technical education that would prepare someone for advanced technical training or entry-level employment. Thus, the augmented sample provided a broader representation of the CP courses offered.

In total, 208 CP students provided pre-training and/or post-training data. Of those, 110 students provided both pre- and post-training data, while 68 provided only pre-training and 30 provided only post-training. This resulted in a total of 178 pre-training and 140 post-training questionnaires. The overlap is illustrated in Figure F-1.

Figure F-1. Counts of Returned Pre-Training and Post-Training Surveys



The sample sizes provide better than 90% confidence/10% precision for pre-training and post-training survey items when all respondents are included. In some cases, responses are examined separately for different subsets of respondents (e.g., reasons for taking the training are examined separately by education level and work status). This necessarily reduces the confidence and precision of the responses for each subset.

CP Trainee Characteristics

The distribution of trainee characteristics in the augmented sample was very similar to that in the final report. Nearly two-thirds had a high school education or had received a GED and about one-quarter had college or vocational or technical school experience. About three-quarters of the CP trainees were unemployed, most of whom had been unemployed more than six months (Table F-2, next page). About one-fifth of the employed respondents described themselves as self-employed or independent contractors, a somewhat lower proportion than that reported in the final report..

Table F-2. Career Pathway Trainees' Education Level and Employment Status

Education Level	Percent (*n* = 178)	Employment Status	Percent (*n* = 178)
Less than high school	9%	Employed 6 months or less	6%
High school or GED	60%	Employed more than 6 months	19%
College or vocational school	28%	Unemployed 6 months or less	18%
Post-graduate degree	2%	Unemployed more than 6 months	55%
No information provided	2%	No information provided	3%

The survey asked trainees to self-rate their skill level (no skill, introductory, general, and advanced) across several related work categories. [28] The results are consistent with those in the final report: about three-quarters reported at least introductory level skills in one or more areas in the construction industry, and nearly one-third reported advanced skills in at least one area (a somewhat higher percentage than in the final report). Respondents reported the greatest skill levels in general residential and general commercial construction (Table F-3).

Table F-3. Career Pathway Trainees' Self-Reported Skill Levels

Category (*n* = 178)	No Skill	Intro-ductory	General	Advanced	No Response
General Residential Construction	34%	21%	19%	19%	7%
General Commercial Construction	45%	17%	16%	15%	6%
Building Shell Improvements	48%	18%	13%	12%	8%
Plumbing	50%	22%	15%	7%	6%
Electrical	52%	23%	15%	6%	5%
Architecture, Engineering, or Related	60%	12%	8%	9%	11%
HVAC Installation/Technician	67%	16%	7%	2%	8%
Other*	13%	2%	2%	15%	67%
Highest Skill Level Reported	25%	16%	21%	35%	2%

* Other category includes a variety of building-related skill areas (e.g., building maintenance, carpentry, masonry, carpet and tile, welding, and drywall/painting) mentioned by 14 respondents, plus various non-building-related skill areas (e.g., clerical, administrative, automotive, food service, water treatment, electronic media, and sales) mentioned by 23 respondents.

As was done for the final report, the evaluators cross-tabulated survey responses by skill level (low-skill = none or introductory, and high-skill = general or advanced) and by pre-training employment status (employed or unemployed) to investigate whether differences in those variables suggest different training needs or expectations. With the additional sample, the number of employed trainees provides a more reliable analysis of possible differences between employed and unemployed trainees than was previously possible.

[28] The questionnaire provided the following definitions: *introductory* (basic experience, requiring significant supervision); *general* (some working experience, requiring some supervision); *advanced* (capable of performing job independently).

The evaluators also examined differences in education, employment, and skill level and other survey responses between respondents in the basic courses and those in the more advanced courses. CP trainees who took advanced courses reported higher education levels than those in basic courses (68% had a four year college degree or higher, compared to 5% among basic course trainees), were more likely to be employed (68% vs. 15%), and were more likely to have advanced skills (56% reported at least one advanced skill, compared to 31%). Note that most of the advanced CP trainees in this sample were enrolled in courses at a community college rather than community-based organizations or not-for-profit organizations, which may account in part for the higher levels of education and employment among those trainees. Without additional data, it cannot be concluded that these differences would exist or would be as great across the entire CP trainee population.

The above findings suggest that most cross-tabulations of survey responses by course type (advanced or basic) would be captured in the cross-tabulations of survey responses by employment and skill level presented in the final report and expanded upon in this addendum. The evaluators did find a few instances of differences between advanced and basic course trainees that were not completely explained by differences in the other variables. Those are highlighted below.

In general, the survey responses described below generally suggest that most trainees fit within the target audience. Nevertheless, there were some differences between low-skill and high-skill respondents that may have training implications.

CP Trainees' Job Search Strategies

The pre-training questionnaire queried respondents about sources used to seek employment. Since WFD Program staff view New York State Department of Labor One-Stop Centers as having an important role in finding employment for CP trainees (Section 5.2), the pre-training questionnaire asked respondents whether they had heard of the One-Stop Centers, understood their function, and intended to register with one.

Results from the augmented sample were highly consistent with those described in the final report. About three-fifths of CP trainees had heard of the One-Stop Centers and a large majority of those said they understood the centers' function. About one-quarter of respondents already had registered with a One-Stop Center and about one-third said they planned to register (Table F-4). The proportions registered or planning to register are slightly below those reported previously, which may reflect the addition of advanced CP respondents who are more likely to be employed, college educated, and highly skilled.

The above findings continue to validate in part the emphasis that NYSERDA and its training partners place on One-Stop Centers, but – as discussed in the final report – One-Stop Centers were cited much less frequently than "help wanted" advertisements, employment web sites, and "networking" and fewer than half of the respondents who had not heard of the One-Stops said they planned to register.[29] These findings continue to suggest room for improvement in the promotion and use of One-Stops.

[29] Among respondents that had not heard of the One-Stops, the percentage that planned to register was higher among unemployed than employed respondents (51% vs. 25%).This difference was marginally significant by Pearson Chi-square ($p = .07$).

Table F-4. Job Search Strategies and Role of One-Stop Centers

Familiarity with One-Stop Centers			
Category	**All Respondents (*n* = 178)**	**Familiar with One-Stops (*n* = 103*)**	**Not Familiar with One-Stops (*n* = 63*)**
Had heard of One-Stop Centers	58%	—	—
Understood centers' function	44%	77%	—
Did not understand centers' function	14%	23%	—
Had not heard of One-Stop Centers	35%	—	—
No information provided	7%	—	—
Registration with One-Stop Centers			
Category	**All Respondents (*n* = 178)**	**Familiar with One-Stops (*n* = 103*)**	**Not Familiar with One-Stops (*n* = 63*)**
Had registered with One-Stop Center	28%	49%	—
Planned to register	30%	29%	44%
No plans to register	33%	18%	52%
No information provided	9%	4%	3%
Job Search Sources (Multiple Responses Allowed)			
Category	**All Respondents (*n* = 178)**	**Familiar with One-Stops (*n* = 103*)**	**Not Familiar with One-Stops (*n* = 63*)**
Employment websites	62%	70%	54%
Networking	54%	58%	54%
"Help wanted" ads	46%	56%	33%
One-Stop Centers	21%	36%	2%**
Training provider	14%	18%	10%
Guidance counselor	8%	9%	5%
Other	14%	18%	10%

* Some respondents did not report their familiarity with One-Stop Centers. Therefore, the subtotal of *Familiar* and *Not Familiar* does not sum to the sample total.

** One respondent had not heard of One-Stop Centers and planned to register, but subsequently indicated the One-Stop Center is a source of finding job opportunities.

CP Trainee Expectations about the Training

The pre-training survey assessed trainees' reasons for taking training, expected accomplishments, and perceived fit with their experience and goals. The results from the augmented sample are consistent with those in the final report, generally indicating that trainees' purposes and expectations for the training are consistent with what would be expected from the program's target audience.

As Table F-5 (next page) shows, the most common reasons by far for taking the training continued to be to help get a job in a construction or energy-efficiency field, for job or career advancement in general, and for

personal interest, consistent with the program's purpose. Not surprisingly, employed respondents were less likely than unemployed ones to have chosen the training because it would help them enter the construction or energy efficiency field.

With the additional sample, the percentage of employed respondents who said they were taking the training on their employer's recommendation increased from 17% to 27%. It can be seen that this reflects the contribution of advanced courses to the additional sample: 38% of employed advanced-course students cited employer recommendation as a reason for taking training.

The addition of advanced-course CP students may also have clarified a surprising finding from the final report. In that sample, one-fifth of the CP respondents said they were taking the course to maintain professional certification. Further analyses indicated, however, that those responses likely reflected plans to take a certification exam since, of those respondents who provided both pre- and post-training data, most reported no relevant certification at post-training but said they planned to take a certification exam. The added sample supported that analyses. Further, with the added sample – largely advanced CP students – the percentage who cited professional certification actually *decreased*. One interpretation of that finding is that the advanced CP students were more likely to understand what "certification" referred to in the question, and to respond – correctly – that maintaining certification was not a reason for taking the training.

Table F-5. CP Trainees' Reasons for Taking Training (Multiple Responses Allowed)

Reason for Taking Training	All Respondents (*n* = 178)	Unemployed (*n* = 129*)	Employed (*n* = 44*)
Help you get a job in construction/energy efficiency field	52%	60%	30%
Job/career advancement	52%	58%	36%
Personal interest	50%	53%	43%
Help you get a better job than the one you have	21%	20%	27%
Maintain a license or certification (required professional CEU)	14%	14%	9%
Required prerequisite for other training you want to take	15%	17%	7%
Prepare for an apprenticeship/trades program	14%	18%	5%
Certification required to participate in utility program	10%	13%	0%
Prepare for an internship	6%	9%	0%
Part of a legally mandated program	11%	12%	7%
Employer recommended it	11%	5%	27%
Meet client or customer needs	7%	4%	16%
Other	6%	6%	5%

* Five respondents did not report employment status. Therefore, the counts of unemployed and employed do not sum to the count of all respondents.

Findings on what trainees expected to accomplish from training were largely unaffected by the added sample (Table F-6). CP respondents generally expected the training to help them acquire new skills and obtain employment.

Table F-6. CP Expected Accomplishments from the Training (Multiple Responses Allowed)

Expected Accomplishment	All Respondents (*n* = 178)	Unemployed (*n* = 129*)	Employed (*n* = 44*)
Acquire new skills	73%	72%	77%
Obtain employment	65%	76%	32%
Change field of employment	28%	32%	18%
Improve skills for promotion	31%	30%	34%
Other	12%	10%	18%

* Five respondents did not report employment status. Therefore, the counts of unemployed and employed do not sum to the count of all respondents.

However, the addition of advanced-course CP trainees resulted in two differences from the previous findings. One is that employed respondents were less likely to cite improved skills for promotion as an expected accomplishment – 50% gave this response in the original sample, while only 34% did so in the augmented sample. This reflects the fact that only one-fifth of the 21 employed advanced-course trainees gave that response. Similarly, the percentage of employed CP trainees who expected to change their field of employment decreased from 33% in the original sample to 18% in the augmented sample. Again, this reflected the fact that only one of the 21 employed advanced-course trainees indicated such an expectation. Together, these findings suggest that, among employed trainees, those in the advanced courses may be relatively more stably employed as they were less concerned about promotion or changing their field of employment.

As stated in the final report, these findings are generally consistent with the program's goal of preparing trainees from this population to enter the energy efficiency workforce, but they also indicate a subset of trainees with somewhat different expectations. In particular, these findings indicate that the CP component of the program is training some workers who are similar to the TT population in that they are already in the construction industry and are looking to improve their energy efficiency-related skills. In continuing evaluation of this program, it may be valuable to attempt to identify how this component of the CP population differs from the TT population and what their reasons are for enrolling in advanced CP courses rather than TT courses.

Finally, the survey assessed each respondent's perception of how well the course fit their experience and goals. Findings from the augmented sample differed little from those described in the final report. Most CP respondents said the course was a good fit because it would teach them new things they wanted to learn. (Table F-7, next page). High- and low-skill trainees responded similarly (not shown in the table).

Table F-7. How Well CP Training Fit Experience and Goals

Response	All Respondents (n = 178)	Unemployed (n = 129*)	Employed (n = 44*)
Course will teach new things	73%	74%	71%
Course will provide a refresher	10%	9%	16%
Course may be over my head	3%	2%	5%
Course may be below my level	3%	3%	2%
Course definitely is over my head	2%	2%	0%
Course definitely is below my level	0%	0%	0%
Not sure	6%	6%	5%
No information provided	5%	4%	2%

* Five respondents did not report employment status. Therefore, the counts of unemployed and employed do not sum to the count of all respondents.

Perceived CP Training Success

To provide feedback on how well the program may be advancing its CP goal, the post-training survey asked respondents how well their recent class fit with their expectations and their experience level, how the training could be enhanced, how well it had prepared them to enter the workforce, what their immediate post-training plans were, and what plans they had for additional training.

With the added sample, respondents' perceptions of training success and post-training plans continued to be largely consistent with the program's goals. However, as described above, the addition of advanced-course CP students provided clearer information that the CP population is not homogeneous.

Training Expectations, Appropriateness, and Preparation for Employment

Most indices continued to point to perceived training success. Nearly all trainees said that the training met or exceeded their expectations; the additional sample generally produced only slight shifts between the percentages saying "met" and "exceeded" (Table F-8, next page). With the added sample, the proportion of respondents who said that the training level was appropriate for their experience increased from about two-thirds to three-quarters, but few other changes were noted. A large majority of respondents continued to say that the training "definitely" or "probably" had prepared them to enter employment.

There continued to be no consistent pattern of relationships between employment status or skill level and these various indices of training success, except that unemployed respondents were (not surprisingly) more likely to say that the training prepared them to enter the workforce.

Table F-8. CP Training Expectations, Appropriateness, and Preparation for Employment

Learning and Achievement, Compared to Expectations					
Response	**All Respondents (*n* = 140)**	**Unemployed (*n* = 76*)**	**Employed (*n* = 30*)**	**Low Skill (*n* = 38*)**	**High Skill (*n* = 69*)**
Far exceeded	28%	32%	20%	42%	19%
Somewhat exceeded	26%	24%	23%	18%	29%
Met	42%	37%	57%	32%	48%
Fell somewhat short	4%	7%	0%	5%	4%
Fell far short	0%	0%	0%	0%	0%
No information provided	1%	1%	0%	3%	0%
Appropriateness of Level of Training to Employment Goals and Experience					
Response	**All Respondents (*n* = 140)**	**Unemployed (*n* = 76*)**	**Employed (*n* = 30*)**	**Low Skill (*n* = 38*)**	**High Skill (*n* = 69*)**
Far too low	4%	3%	3%	5%	1%
Somewhat too low	9%	4%	17%	3%	12%
Appropriate	74%	79%	73%	79%	77%
Somewhat too high	12%	12%	7%	8%	10%
Far too high	1%	1%	0%	3%	0%
No information provided	1%	1%	0%	3%	0%
Training Prepared Respondent to Enter Workforce					
Response	**All Respondents (*n* = 140)**	**Unemployed (*n* = 76*)**	**Employed (*n* = 30*)**	**Low Skill (*n* = 38*)**	**High Skill (*n* = 69*)**
Definitely	51%	57%	30%	66%	41%
Probably	26%	21%	37%	16%	30%
Not sure	16%	20%	20%	16%	23%
Probably not	3%	1%	7%	3%	3%
Definitely not	0%	0%	0%	0%	0%
No information provided	3%	1%	7%	0%	3%

* Employment status was assessed at pre-training; 110 respondents provided both pre- and post-training data, of whom 106 reported employment status, and 107 reported skill level at pre-training.

Suggested Training Improvements

The final report noted that about two-thirds of trainees indicated that more hands-on experience would make the training more effective and about half said that more supervised field experience would improve training. With the added sample, these continued to be the most highly endorsed training enhancements (Table F-9, next page). However, the proportion who suggested more hands-on experience decreased to just over half, reflecting less interest in that among the advanced-course trainees. That finding itself is not

surprising: in the original sample, employed respondents were less interested than others in additional hands-on, and the advanced-course trainees are more likely than others to be employed.

Table F-9. Suggested Training Enhancements (Multiple Responses Allowed)

Response	All Respondents (*n* = 140)	Unemployed (*n* = 76*)	Employed (*n* = 30*)	Low Skill (*n* = 38*)	High Skill (*n* = 69*)
Supervised field experience	46%	46%	43%	34%	51%
Hands-on experience	54%	54%	40%	50%	51%
Applied math skills	19%	26%	17%	26%	22%
Literacy/reading skills	6%	8%	3%	13%	4%
Interviewing / resume preparation	17%	14%	20%	26%	13%

* Employment status was assessed at pre-training; 110 respondents provided both pre- and post-training data, of whom 106 reported employment status and 107 reported skill level at pre-training.

Low-skill respondents continued to be more interested in improved literacy and job-search skills (i.e., interviewing and resume preparation) than were high-skill respondents. Interestingly, the advanced-course trainees were also more interested in help with interviewing and resume preparation, as reflected in a near-doubling in the percentage of employed trainees suggesting that enhancement.

Expected Next Steps

Expected next steps changed little with the added sample. The most commonly reported post-training plan continued to be to seek additional training, followed by finding new employment (except for those already employed) and entering on-the-job training or an internship (Table F-10, next page). Most respondents planned to take additional training in energy efficiency; about a third also mentioned renewable energy training.

The two skill-level groups were generally similar in their post-training plans, except that the high-skill trainees were more likely than the less skilled ones to report planning more training; this difference was statistically significant regarding energy efficiency training (70% vs. 26%, $p < .001$); it was marginally significant for renewable energy training (45% vs. 26%, $p = .06$).

Table F-10. CP Trainees' Post-Training Expectations (Multiple Responses Allowed)

Post-Training Plans			
Response	**All Respondents (n = 140)**	**Unemployed (n = 76*)**	**Employed (n = 30*)**
Seek additional training	54%	61%	40%
Find new employment	49%	58%	20%
Enter on-the-job training or internship	28%	33%	10%
Enter apprenticeship or trades program	17%	18%	10%
Remain in current job	21%	7%	70%
Seek advancement with current employer	8%	4%	27%
Additional Training Plans			
Response	**All Respondents (n = 140)**	**Unemployed (n = 76*)**	**Employed (n = 30*)**
Energy efficiency	57%	59%	47%
Renewable energy	37%	41%	33%
Other	23%	18%	30%
No plans for additional training	17%	13%	30%

* Employment status was assessed at pre-training; 110 respondents provided both pre- and post-training data, of whom 106 reported employment status at pre-training.

Finally, the additional sample produced few changes in trainees' claimed certifications or certification plans. One notable difference is that the proportion of respondents who reportedly planned or were interested in at least one certification dropped from two-thirds to somewhat less than half (Table F-11, next page). This may again reflect a more accurate understanding of certification among the advanced-course trainees.

Table F-11. Career Pathways Trainees' Certification Plans

Certification* (***n*** **= 140)**	**Certified**	**Plan / Interested**
BPI Building Analyst, Building Envelope Professional, Heating Professional, etc.	4%	41%
USGBC LEED Green Associate	4%	32%
ASHRAE energy-related certifications	2%	25%
AEE Certified Energy Auditor (CEA)	4%	21%
NARI Green Certified Professional	1%	25%
NAHB Green Building	3%	28%
NATE HVAC Installation Technician, Service Technician, or Senior Technician	3%	21%
AEE Certified Energy Manager (CEM)	2%	20%
NABCEP Solar Thermal–Entry Level**	2%	24%
NABCEP PV- Entry Level**	2%	20%
NABCEP Certified PV Installer**	2%	17%
RESNET/HERS Rater	2%	13%
USGBC LEED Accredited Professional (AP)	4%	16%
Other	4%	4%
At least one certification	9%	44%

* BPI = Building Performance Institute; USGBC = US Green Building Council; AEE = Association of Energy Engineers; NAHB = National Association of Home Builders; NATE = North American Technician Excellence; NARI National Association of the Remodeling Industry; ASHRAE = American Society of Heating, Refrigerating, and Air-Conditioning Engineers; NABCEP = North American Board of Certified Energy Practitioners.

**EEPS does not fund training that leads to the following certifications: NABCEP Solar Thermal–Entry Level, NABCEP PV-Entry Level, and NABCEP Certified PV Installer. They are included to illustrate interest in continuing a related career path.

Summary of CP Pre- and Post-Training Survey Findings

In general, the above responses from the augmented sample continue to suggest that the CP training largely is attracting unemployed workers with no more than a high-school education, which is consistent with program goals and expectations. However, the added sample from more advanced CP courses shows a more educated, better employed, and higher skilled subset of trainees. Trainees' reasons for taking the training and their expectations from the training remained aligned with program expectations. As described in the final report, training generally was considered at the appropriate level, met or exceeded expectations, and was perceived to have prepared the trainees for employment, although many trainees wanted more hands-on experience and supervised field experience. Most CP trainees understand the basic skills training they are taking to be a "first step" in their preparation for employment in the energy efficiency and renewable energy fields, as indicated by the fact that they planned to continue training. As noted in the final report, however, the trainee sample was not homogeneous, and the responses from the added sample made that clearer.

TECHNICAL TRAINING (TT) TRAINEES

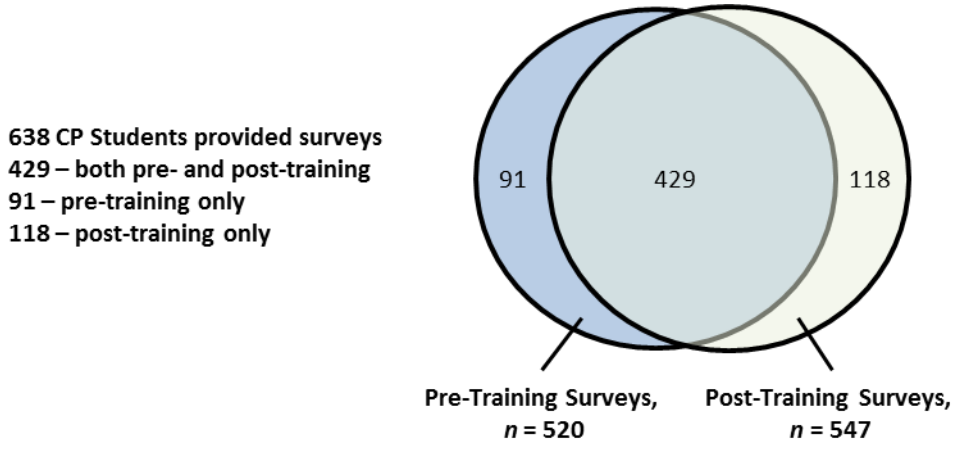
This section summarizes data from pre-training and post-training questionnaires completed by 638 TT trainees. It includes the 182 questionnaires, representing 113 students, returned to the process evaluation team in time to be included in the Workforce Development Program process evaluation final report submitted in June 2012 as well as an additional 985 questionnaires, representing 525 students, returned after the report was submitted.

With the additional returned questionnaires included, the TT responses came from six of the 22 TT training partners:

- International Brotherhood of Electrical Workers (IBEW) Joint Application Training Center (413 trainees).
- Urban Green Council (92 trainees).
- Karpman Consulting (64 trainees).
- Northwest Energy Efficiency Council (41 trainees).
- Rensselaer Polytechnic Institute's Lighting Research Center (22 trainees).
- Building Performance Contractors Association (6 trainees).

Of the 16 training partners that did not provide data, three already had completed all their training before the evaluation began and could not contribute data. The increased number of TT training partners represented in the following analyses improves the generalizability of the findings. A broader sample would nevertheless be preferred. In total, 638 TT students provided pre-training and/or post-training data. Of those, 429 students provided both pre- and post-training data, while 91 provided only pre-training and 118 provided only post-training; in total, the TT students provided 520 pre-training and 547 post-training questionnaires. The overlap is illustrated in Figure F-2.

Figure F-2. Counts of Returned Pre-Training and Post-Training Surveys



A large majority (65%) of the survey data comes from the IBEW training. To avoid having the overall survey results dominated by responses from this training partner, this section presents results separately for IBEW respondents and all others. The sample sizes provide better than 90% confidence/10% precision for pre- and post-training survey items when all respondents are included. In some cases, responses are examined separately for different subsets of respondents (e.g., reasons for taking the training are examined

separately by education level and work status). This necessarily reduces the confidence and precision of the responses for each subset.

TT Trainee Characteristics

Overall, the distribution of trainee characteristics is similar to that shown in the June final report. Of the 520 TT trainees who completed the pre-training survey, nearly all had at least a high school education or the equivalent, and the majority had a four-year college degree or better. A large majority was employed, with most employed more than six months and working for a company that has more than 25 employees. As Table F-12 shows, the IBEW trainees were less likely than the others to have a college degree or above and were more likely to be unemployed or working for a small company.

Table F-12. TT Trainees' Education Level and Employment Status

Education Level		
Response	**IBEW (n = 349)**	**Other (n = 171)**
High school or GED	37%	15%
Two-year college or vocational school	49%	21%
Four-year college	12%	42%
Post-graduate degree	<1%	22%
No information provided	1%	0%
Employment Status		
Response	**IBEW (n = 349)**	**Other (n = 171)**
Employed 6 months or less	13%	6%
Employed more than 6 months	68%	91%
Unemployed 6 months or less	10%	3%
Unemployed more than 6 months	8%	1%
No information provided	1%	0%

Continued

Employer Type		
Response	**IBEW (n = 349)**	**Other (n = 171)**
Self-employed or independent contractor	1%	5%
Work for a small company (25 or fewer employees)	17%	6%
Work for a large company (more than 25 employees)	63%	83%
Own a company that employs others	1%	3%
Unemployed	17%	0%
No information provided	2%	4%

The survey asked trainees to self-rate their skill level (no skill, introductory, general, and advanced) across several related work categories.[30] As described in the June report, most TT respondents had advanced experience in at least one area of the construction industry (final row of Table F-13, next page). In that report, the lowest overall skill levels among TT trainees were in HVAC, plumbing, and electrical areas. In the extended data set, HVAC and plumbing remain the areas with the lowest reported skill levels. IBEW trainees differed from other trainees in a few respects: they had relatively greater electrical and general construction skills, and lower skills in architecture, engineering, and related areas. (The most striking differences are noted in ***bold, italicized*** font in the table.)

[30] The questionnaire provided the following definitions: *introductory* (basic experience, requiring significant supervision); *general* (some working experience, requiring some supervision); *advanced* (capable of performing job independently).

Table F-13. TT Trainees' Self-Reported Skill Levels

Category	Sub-Sample	No Skill	Intro-ductory	General	Advanced	No Response
Architecture, engineering, or related	IBEW	*45%*	26%	15%	*2%*	13%
	Other	*29%*	15%	23%	*26%*	7%
Building shell improvements	IBEW	28%	28%	24%	10%	10%
	Other	18%	26%	30%	18%	8%
General residential construction	IBEW	3%	13%	42%	33%	9%
	Other	19%	23%	23%	24%	11%
General commercial construction	IBEW	*5%*	12%	*42%*	*32%*	10%
	Other	*27%*	22%	*27%*	*14%*	9%
HVAC installation/technician	IBEW	33%	37%	16%	3%	11%
	Other	36%	20%	22%	12%	10%
Electrical	IBEW	*1%*	*1%*	16%	*77%*	5%
	Other	*27%*	*27%*	25%	*11%*	10%
Plumbing	IBEW	28%	39%	19%	4%	10%
	Other	31%	25%	23%	12%	9%
Other*	IBEW	4%	1%	2%	4%	89%
	Other	9%	0%	1%	7%	83%
Highest skill level reported	IBEW	1%	<1%	14%	*81%*	4%
	Other	8%	8%	26%	*55%*	4%

* Other category includes a variety of building management and energy-efficiency areas (e.g., building operator certification, certified healthcare facility management, energy modeling, GHG emissions), plus one uncodable response.

TT Trainees' Job Search Strategies

The survey findings reveal that IBEW respondents typically use different sources when looking for work, compared to other trainees. As described in the June report, non-IBEW respondents cited internet job search sites (52%) and networking (47%) as their primary means of seeking employment opportunities. In contrast, The IBEW respondents most commonly cited union sources (56%) and their training provider (18%), with relatively few relying on other sources.

The final report noted that TT trainees generally were not aware of or interested in the One-Stop Centers. The results from the added sample did not change this finding.

TT Trainee Expectations about the Training

WFD training offerings for those already in the building and energy efficiency workforce should enhance their skills, making them more proficient at improving the energy efficiency of buildings. Trainees' reported reasons for attending a class, expectations for the training, and perceptions of the classes' appropriateness for them in general are in line with the program's expectations. However, the IBEW

trainees differed somewhat from other trainees in terms of reasons for taking, and expectations of, the training; as detailed below, the differences were consistent with the higher percentage of IBEW trainees that were unemployed.

For non-IBEW trainees, the reasons for taking the training were highly consistent with those cited in the final report, led by employer recommendation (Table F-14). However, while similar percentages of IBEW and other trainees cited job or career advancement and personal interest, the IBEW trainees were much more likely than others to say they were taking the training to help them get a job or to prepare for an apprenticeship or trades program.

Table F-14. TT Trainees' Reasons for Taking Training (Multiple Responses Allowed)

Reason for Taking Training	IBEW (n = 349)	Other (n = 171)
Employer recommended it	21%	65%
Job/career advancement	47%	43%
Personal interest	41%	38%
Meet client or customer needs	19%	18%
Maintain a license or certification (required professional CEU)	7%	13%
Certification required to participate in utility program	16%	6%
Helps in getting a better job than the one currently held	11%	7%
Required prerequisite for other training you want to take	8%	5%
Helps in getting a job in the construction/energy efficiency field	27%	1%
Prepare for an internship	3%	1%
Prepare for an apprenticeship/trades program	31%	0%
Part of a legally mandated program	8%	2%
Other	5%	9%

In terms of what they expected the course to accomplish for them, large majorities of both IBEW and other trainees said that they hoped to acquire new skills from the training. However, the IBEW trainees were less likely than other trainees to cite improved skills for promotion and, again, much more likely to indicate obtaining employment as an expectation (Table F-15).

Table F-15. TT Expected Accomplishments from the Training

Expected Accomplishment	IBEW (*n* = 349)	Other (*n* = 171)
Acquire new skills	85%	83%
Improve skills for promotion	35%	42%
Obtain employment	19%	1%
Change field of employment	3%	2%
Other	4%	6%

Nearly all TT respondents – IBEW and others alike – reported that the course they took was a good fit to their experience and career goals, primarily because it would teach them new things they wanted to learn (Table F-16).

Table F-16. How Well TT Training Fit Experience and Goals

Response	IBEW (*n* = 349)	Other (*n* = 171)
Course will teach new things	80%	74%
Course will provide a refresher	8%	9%
Course may be over my head	1%	5%
Course may be below my level	1%	4%
Course definitely is over my head	0%	0%
Course definitely is below my level	<1%	0%
Not sure	6%	5%
No information provided	3%	2%

TT Training Success

Successful TT training is delivered at a level that is appropriate to the trainees' level of experience and improves their energy-efficiency-related skills. The post-training survey assessed respondents' perceptions of how their recent class fit with their expectations and experience level and elicited their suggestions for how the training could be enhanced. The survey also asked respondents what their immediate post-training plans were and specifically what plans they had, if any, for additional training.

Training Expectations, Appropriateness, and Preparation for Employment

With the added sample, most indices continued to point to perceived training success. Nearly all TT trainees that provided post-training data – IBEW as well as others – reported that their course met or exceeded their expectations, and large majorities of both groups said that the training level was appropriate for their experience (Table F-17, next page).

Table F-17. TT Training Expectations and Appropriateness

Learning and Achievement, Compared to Expectations		
Response	**IBEW (*n* = 369)**	**Other (*n* = 178)**
Far exceeded	20%	14%
Somewhat exceeded	23%	34%
Met	50%	49%
Fell somewhat short	5%	3%
Fell far short	0%	0%
No information provided	1%	1%
Appropriateness of Level of Training to Employment Goals and Experience		
Response	**IBEW (*n* = 369)**	**Other (*n* = 178)**
Far too low	1%	1%
Somewhat too low	13%	14%
Appropriate	82%	69%
Somewhat too high	3%	16%
Far too high	<1%	1%
No information provided	1%	1%

The training level appeared to be particularly appropriate for the IBEW trainees: while about one in six of the non-IBEW trainees said the training level was somewhat too high, only 3% of the IBEW trainees said so.

Suggested Training Improvements

Despite reporting that the training level was appropriate, about half of the TT trainees said they would like more hands-on experience with equipment and tools, and between one-quarter and one-third wanted supervised field experience (Table F-18, next page). These responses were very similar for IBEW and other trainees.

Table F-18. Suggested Training Enhancements (Multiple Responses Allowed)

Response	IBEW (n = 369)	Other (n = 178)
Supervised field experience	32%	28%
Hands-on experience	50%	49%
Applied math skills	7%	12%
Literacy/reading skills	5%	2%
Interviewing and resume preparation	9%	2%

Expected Next Steps

Consistent with the findings from the final report, most respondents said they planned to remain with their current employer after completing their current course, either staying in their current job or seeking advancement (Table F-19). Large majorities of both the IBEW and other respondents reported they would seek additional training, although the IBEW trainees were more likely to report they would seek training in renewable energy, while the other trainees were more likely to plan additional training in energy efficiency.

Table F-19. TT Trainees' Post-Training Expectations (Multiple Responses Allowed)

Post-Training Plans		
Response	**IBEW (*n* = 369)**	**Other (*n* = 178)**
Seek additional training	24%	26%
Remain in current job	67%	76%
Seek advancement with current employer	28%	24%
Enter OTJ training or internship	2%	3%
Find new employment	8%	4%
Enter apprenticeship or trades program	1%	1%
Additional Training Plans		
Response	**IBEW (*n* = 369)**	**Other (*n* = 178)**
Energy efficiency	54%	73%
Renewable energy	64%	42%
Other	7%	14%
No plans for additional training	17%	12%

Note that while nearly one-third of IBEW respondents said at pre-training that they had enrolled in their course to prepare for an apprenticeship or trades program, very few identified entering such a program as a post-training plan. It is not clear why this is the case. One possibility is that many trainees had indefinite plans for entering an apprenticeship sometime in the future, but did not consider it part of their *immediate* post-training plans.

The survey asked about plans for pursuing energy-efficiency-related certification. With the added sample, a lower percentage of TT respondents reported that they already had some certification – 7% of IBEW and 19% of other respondents, compared to about one-third of those in the sample for the final report (Table F-20). The most common certifications continued to be building performance related or U.S. Green Building Council (USGBC) LEED related.

Similarly, a lower percentage of the augmented sample (half or less, compared to two-thirds) reported plans to take additional certification exams. While ASHRAE-related certifications continued to be among those most cited by both IBEW and non-IBEW trainees, certification plans differed in other particulars for the two trainee groups. Consistent with their greater interest in taking training in renewable energy, the IBEW trainees were more likely to state plans to obtain PV- and solar thermal-related certifications, while USGBC LEED related and AEE Certified Energy Manager (CEM) certification remained popular with non-IBEW trainees.

Table F-20. Career Pathways Trainees' Certification Plans

Certification*	Certified		Plan / Interested	
	IBEW (n = 369)	Other (n = 178)	IBEW (n = 369)	Other (n = 178)
BPI Building Analyst, Building Envelope Professional, Heating Professional, etc.	1%	8%	15%	24%
USGBC LEED Accredited Professional (AP)	1%	6%	17%	26%
USGBC LEED Green Associate	2%	6%	24%	33%
RESNET/HERS Rater	0%	2%	12%	7%
AEE Certified Energy Manager (CEM)	0%	3%	17%	21%
NAHB Green Building	1%	2%	21%	10%
NARI Green Certified Professional	0%	1%	19%	8%
NATE HVAC Installation Technician, Service Technician, or Senior Technician	0%	1%	17%	7%
ASHRAE energy-related certifications	<1%	1%	24%	29%
NABCEP PV-Entry Level**	2%	2%	34%	6%
AEE Certified Energy Auditor (CEA)	0%	1%	16%	19%
NABCEP Solar Thermal–Entry Level**	0%	1%	25%	8%
NABCEP Certified PV Installer**	1%	1%	34%	4%
Other	1%	4%	9%	3%
At Least One Certification	7%	19%	43%	49%

* BPI = Building Performance Institute; USGBC = US Green Building Council; AEE = Association of Energy Engineers; NAHB = National Association of Home Builders; NATE = North American Technician Excellence; NARI National Association of the Remodeling Industry; ASHRAE = American Society of Heating, Refrigerating, and Air-Conditioning Engineers; NABCEP = North American Board of Certified Energy Practitioners.

**EEPS does not fund training that leads to the following certifications: NABCEP PV-Entry Level, NABCEP Solar Thermal–Entry Level, and NABCEP Certified PV Installer . They are included to illustrate interest in continuing a related career path.

Summary of TT Pre- and Post-Training Survey Findings

With the added sample, responses continue to suggest that the TT training is generally attracting workers in the building industry who want to improve their energy-efficiency and renewable-energy-related skills. Training was largely considered at the appropriate level and met or exceeded expectations, but many TT trainees wanted more hands-on and supervised field experience. Results suggest that that the training offered by IBEW meets the specific needs of a subgroup of workers that differ somewhat from the general TT population.