

GREENHOUSE GAS EMISSIONS REDUCTION FUND
Final Project Report -- DRED/LRCC
Ending Date March 31, 2011

1. Program Title

Expanded Energy Efficiency and Renewable Energy Program (BPI Building Analyst, Energy Auditor Training Program Development and Delivery: Lakes Region Community College (LRCC), Laconia, NH and Program Management NH Department of Resources and Economic Development (DRED))

2. Program Type

Energy audits;

1. Weatherization of NH residential housing stock;
2. Energy efficiency work force training and development;
7. Compliance efforts;
8. Improve the electric and thermal energy efficiency of existing residences;
9. Programs to foster the retrofitting of highly efficient and affordable housing;
10. Education, outreach and information programs that promote energy efficiency and conservation to reduce greenhouse gas emissions generated within NH.

3. Summary of work completed through the duration of the grant.

1) LRCC worked with DRED to craft outreach activities, with reliance on web pages as the primary method of outreach to increase the number of participants in the Energy Auditor Training Program.

LRCC has collaborated with DRED to develop a joint marketing campaign including web site development, e-mail announcements, purchased media in select regional radio and newspapers, press releases and flyers. Campaign development 100% complete. During the grant period there was a higher than expected amount of advertising expenses in large part due to the need to generate awareness of, and increase demand for, the energy auditor trainings. In fact, LRCC devoted significant advertising dollars to the training program, in addition to amounts that have been submitted for reimbursement.

Even with extensive newspaper advertising, many classes were not filled to capacity. The Concord market was the most successful in terms of generating large class sizes. In 2011 the program relied on web marketing and expanded e-mail lists to key contacts and prospective students throughout the state, in addition to training alumni. While this all-electronic approach was less expensive, it also lead to generally smaller class sizes.

2) Solidify a Memorandum of Agreement between DRED and LRCC.

MOU 100% complete.

3) Market the new contractor training program in Building Analysis (BA) by offering scholarships sponsored via the PUC grant funds that will pay 50% of course tuition for students accepted into the program, as well as initial equipment costs.

The scholarship opportunity is promoted in all print media, through letters to Workforce Development and Employment Security Outlets throughout the state. Marketing has also been done through a number of professional organizations such as the Home Builders Association of New Hampshire, State Utilities, Community College campuses where training is to be conducted, and Civic Organizations such as the Plymouth Area Renewable Energy Initiative and Sustainable Energy Resource Group. The scholarship campaign is 100% developed and marketing and ongoing as sections are offered. See below for descriptions of specific courses.

Overall a total of 17 energy auditor training courses have been offered over the grant period, five more than the 12 budgeted training courses. Market demand information was collected from student class evaluations and alumni follow-up surveys. In both cases the research indicated a demand for an expansion of the course offerings. Considering this information, and in consultation with DRED and PUC, much of the December 2010 through March 2011 period was used to develop additional related training courses that match the overall goals of the training program. See below for specific courses developed.

4) DRED oversaw the contract for the training at LRCC. LRCC performed the following:

- Marketing and promoted the energy auditor training programs from September 2009 through March 2011.

- Delivered 13 BPI Building Analyst energy auditor training classes throughout the grant period and around the state, and provided written and field BPI Building Analyst certification testing.

- Delivered three BPI Envelope Professional energy auditor training classes in 2010 (two in combination with Building Analyst classes), and provided written and field BPI Envelope Professional certification testing. Each Envelope Professional class was in a different part of the state.

-In 2011, provided a BPI Intensive Prep class at LRCC January 2011 and provided written and field BPI certification testing. Also three additional energy auditor training classes were provided in February and March 2011 on more advanced topics.

– TREAT Energy Modeling (software modeling of energy improvements), and Infrared for Weatherization and Energy Audits, and an Installer workshop by PAREI. Infrared thermal imaging is rapidly becoming a popular diagnostic tool among energy auditors. The TREAT course was developed in conjunction with the BetterBuildings program, whose auditors will use TREAT to better quantify estimated energy savings.

– LRCC also worked with the Plymouth Area Renewable Energy Initiative as a partner organization to develop a one-day “Muddy Boots” workshop in March on the installation of energy efficiency measures at a house under construction in Plymouth.

– In addition a pilot Building Envelope Retrofit Mini Boot Camp was originally planned for February 2011 and rescheduled for April 2011. This course has been designed for weatherization installers as well as energy auditors, because successful energy efficiency efforts depend on professional weatherization installations as well as competent energy auditing.

All of these courses represent a bridge between the 2009-2010 grant program and the 2011-2012 grant program.

- Increased the number of workshop and conference presentations, in late 2010 through the end of the grant period. These included two “Button Up New Hampshire” presentations in Canterbury and Hopkinton, a booth with Manchester Community College and other UNH Cooperative

Extension and other Community Energy information providers at HBRANH's New Hampshire Home Show in March 2011. Two "Cool Tools: Energy Diagnostic Equipment" workshops for the general public were also presented at this NH Home Show. Communication with training contacts and other outreach efforts increased as a result of the energy efficiency training manager working more closely through the College.

4-a) Establish Learning Centers at five Community Colleges in NH (or other location favorable to demographics) with LRCC as the hub site that contracts with other colleges in the system.

Along with its home campus in Laconia, LRCC has established training sites at our sister campuses in Berlin, Pease, Lebanon, Nashua, and Claremont. We also offered training at the Society for Protection of New Hampshire Forests in Concord, Lebanon College, Home Builders and Remodelers in Concord, and the New Hampshire Electric Cooperative in Plymouth. Activity 100% complete

4-b) Apply for Building Performance Institute provider ship status.

LRCC has secured an affiliation relationship with BPI and has completed the faculty certification process for our instructor and five BPI field proctors in 2009. Affiliation has been renewed via College resources for FY11. Three additional BPI field proctors were trained by BPI staff in Fall 2010. Activity 100% complete.

4-c) Acquire and adapt curriculum, hire and train staff on selected BA curriculum, and develop a "train the trainer" model to increase the instructor pool across New Hampshire.

LRCC has purchased the nationally recognized NYSERDA Building Analyst Curriculum and our Instructor has reviewed and updated the curriculum for New Hampshire specific application. In addition to the lead instructor, a total of eight field instructors/ BPI test proctors have been trained through the program and certified as proctors by BPI. Several of these instructors have also conducted trainings with other civic and educational organizations in New Hampshire.

The curriculum resources of world-class specialized energy efficiency services were utilized for the Infrared training (The Snell Group) and TREAT energy modeling training (Performance Systems Development) in February – March 2011. The TREAT course was developed as a train-the-trainer model, with the lead LRCC instructor working closely with TREAT trainers in order to independently teach the TREAT course after the initial March 2011 course.

Particularly during the last six months of the grant period, LRCC has worked collaboratively with the Plymouth Area Renewable Energy Initiative (PAREI) as a partner organization to develop energy efficiency training opportunities, such as the Muddy Boots program in March 2011. In addition, during December 2010 the lead instructor visited with energy training personnel at Sustainable Energy Resource Group (Thetford Center, VT), Hudson Valley Community College (Troy, NY), New York State Weatherization Directors Association (Syracuse, NY) and Performance Systems Development (Ithaca, NY) to further improve the quality and scope of the training program. All of these efforts have widened the instructor pool as well as the breadth of energy efficiency training opportunities in New Hampshire. Activity 100% complete.

4-d) Establish internship sites for newly trained workers and, where applicable, coordinate student shadowing of weatherization experts when conducting expanded energy audits.

Informal mentoring, providing job opportunity information and related sharing of information was conducted on a more intensive basis during the last quarter of the program through an e-mail distribution list, one-on-one e-mail communications and telephone communications. To provide more opportunities to LRCC BPI training alumni a BPI Certification Intensive Review 1-day course in January 2011 was offered at no cost to all LRCC training alumni and LRCC Energy Services and Technology (EST) students. This course was particularly aimed at students who had not passed a previous BPI certification exam or EST students who had not had specific exposure to BPI certification tests. While the internship and job shadowing program has not been as implemented as originally proposed, during late 2010 and 2011 there has been preparation work for a mentoring program that would incorporate job shadowing in the continuing 2011-2012 grant program.

4. Summarize the overall project completed.

A summary table of training courses completed is below. Please also note the narrative discussion above.

Course	Location	Date	Students
BPI Building Analyst	Laconia	Sept. 2009	9
BPI Building Analyst	Littleton	Sept. – Oct. 2009	7
BPI Building Analyst	Nashua	Oct. 2009	8
BPI Building Analyst	Concord	Nov. 2009	22
BPI Building Analyst	Concord	Dec. 2009	20
BPI Building Analyst	Concord	Jan. – Feb. 2010	18
BPI Building Analyst	Concord	Mar. 2010	14
BPI Building Analyst & Envelope Professional	Lebanon	May – June 2010	14 & 14
BPI Building Analyst	Portsmouth	June – July 2010	8
BPI Building Analyst	Nashua	July – Aug. 2010	12
BPI Envelope Professional	Concord	Aug. – Sept. 2010	14
BPI Building Analyst & Envelope Professional	Plymouth	Sept. – Oct. 2010	13 & 12
BPI Building Analyst	Laconia	Nov. 2010	8
Intensive Review- BPI Building Analyst	Laconia	Jan. 2011	4
Infrared for Weatherization and Energy Audits	Laconia	Feb. – Mar. 2011	11
TREAT Energy Modeling	Laconia	Mar. 2011	12
Insulation and Air Sealing Muddy Boots Training (through PAREI)	Plymouth	Mar. 2011	22
BPI Building Analyst	Laconia	Mar. 2011	6

Total number of students enrolled: 222
(Some of these students were enrolled in multiple courses.)

In addition, December 2010 – March 2011 grant period there was preparatory work for courses and programs that will be offered in the follow-up grant period for the 2011- 2012 Efficiency Training

Program grant starting April 1, 2011. Courses and related events that are scheduled to be offered in April 2011 include:

- Building Envelope Retrofit Mini Boot Camp pilot installer training
- BPI Envelope Professional with associated BPI written and field certification tests
- Booth and demonstrations at the April 2, 2011 Local Energy Solutions conference

A number of additional training courses and programs are being developed for the continuation of the overall grant program after March 31.

5. Please document any jobs created.

One FTE job was created to teach courses and manage the energy auditor training program.

Approximately 0.5 FTE additional job was created by adjunct instructor/proctor positions and related activities through LRCC.

The more important but less easily measureable jobs created came as a result of training alumni who gained employment, started a business, or expanded an existing business as a result of the energy auditor skills gained from the trainings. Of the 70 alumni (60% response rate) who responded to a survey from August 2010, 8.5% “became employed in the energy field,” 10% “started a new energy business”, and 20% started a new line of work in an existing business or attracted additional customers as a result of the training. Extrapolating to the approximately 180 unique individuals (some students have taken multiple training courses), this equates to 15 new jobs, 18 new businesses, and 36 expanded businesses. These estimates do not include another 38% of the respondents who increased their ability to perform existing job duties.

An example of a new business is Bill, of Loudon-based general contracting firm, who took the BPI Building Analyst course in 2010 as well as Infrared course in 2011. He shifted from a general contractor to a weatherization contractor after taking the Building Analyst course. As a result he hired four underemployed framers, who according to Bill have made a successful transition to energy efficiency professionals. As another example, an alum who works for a Manchester-based building supply company expanded their company’s weatherization supplies, which allowed their supply company to increase sales in a difficult period for the building supply business.

6. Explain any obstacles encountered or any milestones not reached.

While the program overall has been successful, there have been a number of unexpected obstacles. These include:

- The BPI training program is more intensive and thus costly than originally envisioned, while the \$500 scholarship fee has been fixed for most of the grant period. Furthermore there were significant fixed costs in providing a training program, whether 8 or 18 students enrolled. Yet tuition and grant revenue was significantly less for the many smaller enrollment courses. This resulted in Lakes Region Community College taken on a greater financial burden for the courses than originally planned.
- The estimated average of 21 students per class was too high in two respects. First, there simply was not enough initial demand in New Hampshire to easily fill these energy auditor classes. Second, the few classes that did approach these numbers were too large. This type of training with sophisticated energy auditing diagnostic tools needs to have plenty of student face time using the tools, and that is

difficult to achieve in a class of 20 students. A more reasonably average number per class is 12 students.

- The job shadowing and internship program was not well developed. This is in part due to structural aspects of the grant. Originally an engineering firm was included as a partner in the grant, but the company's roles and funding were not included in the eventual grant that was awarded. Therefore the job shadowing and internship program was not developed fully.

-While energy auditing and weatherization as a profession has grown in New Hampshire, there are indications that the demand for energy audits and energy efficiency weatherization contracting has not reached its full potential. There is still a high reliance on subsidized programs- energy utility programs, US DOE and ARRA-funded income-qualified weatherization programs, and other programs where some or all of the energy audit and weatherization costs are paid for by parties other than home owners. A continued increase in market demand for energy auditing and weatherization will increase demand for this type of training.

7. If applicable, in a section labeled *Beyond the Contract* (or some other well defined title), please report other activities, partnerships, funding or other synergies that have occurred as a result of this funding.

There have been many synergies that have emerged as a result of this grant. Some are specifically related to the contract, and some are "beyond the contract." A number of these synergies are continuing into the next 2011-2012 grant. Notable beyond the contract synergies include working closely with numerous civic, educational and governmental organizations, such as the New Hampshire Division of Economic Development, the Plymouth Area Renewable Energy Initiative, the Sustainable Energy Resource Group, the Home Builders Association of New Hampshire, New Hampshire energy utilities, other campuses in the Community College System of New Hampshire, the BetterBuildings New Hampshire program, the community action weatherization programs, and other groups to achieve common goals.

8. If applicable, please include brochures, pictures, announcements, or other materials developed to promote your grant activities. Attachments (and other documentation) are appreciated.

The previous materials supplied in quarterly are incorporated here, along with the following new materials:

-Three RGGI Success Stories handouts produced by New Hampshire Department of Environmental Services.

-The LRCC page as part of an 8-page Community Energy booklet distributed at the March 2011 New Hampshire Home Show.

9. Budget vs. Actual Expenditures:

Expense Categories	Budget	Expenditures	Over / (Under) Budget
Advertising & Marketing- LRCC	\$11,000	\$16,391.06	\$5,391.06
DRED Marketing	\$4,500	\$1,164.50	(\$3,335.50)
LRCC Tuition / Program	\$125,000	\$128,576.80	\$3,576.80
LRCC Training Equipment	\$25,000	\$17,106.34	(\$7,893.66)
LRCC Curriculum License/Manuals	\$7,500	\$6,500.00	(\$1,000.00)
DRED Training Programs	\$1,000	\$0.00	(\$1,000.00)
TOTALS:	\$174,000	\$169,738.70	(\$4,261.30)

Overall the grant program expenditures were about 2.5% under budget. LRCC advertising and marketing is over budget because of the extensive advertising needed to increase class attendance figures. In addition to the grant expenditures noted above, LRCC spent over \$11,000 in additional direct advertising costs that were not billed to the grant. LRCC program expenses were over budget by about 3% due to the expense of additional training courses during the last quarter of the grant. LRCC training equipment is the largest category under budget because the actual equipment needs were less than anticipated. DRED marketing was also under budget because LRCC played the lead marketing role.

Match funding from student tuition revenue totals \$118,200. This does not include pass-through costs from BPI certification testing fees that are charged to LRCC and passed through as a student fee. While it is difficult to tally internal college expenses for this training program, an informal analysis suggests that GHGERF per-student grant funding plus student tuition does not add up to the College's total cost of providing this training program. The College, with DRED and PUC support, is moving to a more sustainable expense reimbursement system based on actual expenses rather than per-student funding.

10. Based on you're the results of your project, what additional steps are you now taking that you would have not otherwise taken had you not received the grant? Please be specific and provide details.

In essence this short term energy auditor training program is a new LRCC program as a result of the grant. On the administrative side, one additional step has been to bring overall efficiency training program in-house so that it can be managed more closely as a LRCC function. Associated with this is more careful quantification of LRCC effort and expenses associated with the program so that all expenses can be better tracked.

11. If you plan any press activities to announce your project, we would greatly appreciate the opportunity to attend.

This primarily pertains to the initial phase of the project. No press activities are currently planned.