

Proposal to

State of New Hampshire Public Utilities
Commission

In response to

Request for Proposals for
Programs to Reduce Greenhouse Gas
Emissions in New Hampshire

March 23, 2009

Prepared and Submitted by:

**Department of Resources and Economic Development
Division of Economic Development**



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1.0 Cover Page

1.1 Program Title

Expanded Energy Efficiency and Renewable Energy Program.

1.2 Program Type

This program, which is being proposed by the NH Department of Resources and Economic Development, Division of Economic Development (DED), fits the description of the desired program types pursuant to PUC 2604.01(c). An expansion in energy related efficiency projects requires a workforce that is aware of current technologies and practices, and which can provide a consistency in standards. As such, the educational program in this proposal is supportive of all program types detailed in the request for proposal; but particularly energy audits (#1), weatherization (#2), workforce training (#3), compliance efforts (#7), retrofitting (#8 and #9), and education and outreach (#10).

The portion of the program devoted to expanded energy efficiency audits begins with an energy audit with a primary focus on the improvement of building weatherization using infra-red technology as a diagnostic tool to identify areas for potential improvement. Weatherization related improvements are one of the most cost effective measure¹ areas for energy savings for smaller commercial buildings and conform to program types #1 & #2. For industrial businesses typically over 70% of their energy use is process related and offers one of the most cost effective (on a \$/energy unit basis) sources within the State for potential energy savings² (#5). When the vendor (GDS) performs energy audits all savings are based on energy code for the base case and the implemented changes will surpass energy code (#8). Participating in the energy assessment and implementing changes offers an excellent opportunity for staff at each site to fully understand their system and changes that can impact energy savings (#10).

1.3 Program Summary

The volume of funds directed toward the State of New Hampshire via federal funding for the purpose of energy policy and economic development, is an opportunity for the State to encourage more worker training. Ultimately, NH businesses will need to train professionals to standards that ensure that proper, and consistent, information is provided to the consumer public. Towards this end, DED will partner with the Lakes Region Community College (LRCC). LRCC is expanding their current associate degree program in Energy Services and Technology to develop a new, contractor training program. Upon completion, the student may become certified by the nationally recognized, Building Performance Institute. LRCC is also working in conjunction with the State EESE Board subcommittee on workforce development to coordinate training throughout the state, with other technical colleges as well as independent industry training resources.

DED also currently offers a limited energy efficiency and renewable energy services program to a select number of New Hampshire Businesses. The Energy Efficiency and Renewable Energy (EERE) program has limited funding but strong demand. By expanding the service through this partnership, more New Hampshire businesses will be better positioned to make meaningful change by incorporating energy efficiency and renewable energy alternatives.

¹ PUC Technical Potential Study 2009 by GDS associates.

² PUC Technical Potential Study 2009 by GDS associates.

1.4 Low Income Residential Customer Qualification.

This training portion of the program will provide opportunities for low income/unemployed workers; who will in turn elevate the level of service provided to low income customers through the State’s weatherization program. The audit portion of the program is targeted to business. It is estimated that 25% of the program is expected to serve low income residential customers.

1.5 Identification of Applicant Organization

George Bald, Commissioner (contracting officer/authorized negotiator)
 Christopher S. Way, Business Services Manager
 NH Department of Resources and Economic Development
 172 Pembroke Road, Concord, NH 03221
 Tel: 603-271-2591, Email: cway@dred.state.nh.us

1.6 Partners

Mark Edelstein, President Cynthia Gunn Lakes Region Community College 379 Belmont Road, Laconia, NH 03246 Tel: 603-224-7110, Email: cynngunn@aol.com	Scott Albert, Principal and Region Manager GDS Associates 1181 Elm Street Suite 205, Manchester, NH 03101 Tel: 603-656-0336 Email: scott.albert@gdsassociates.com
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1.7 Authorized Negotiator(s)

The authorized negotiators are the same as the contacts posted above in section 1.6

1.8 Projected Energy Savings

The energy savings for this project is based on the estimated number and size of each business. For the expanded energy services component, it is assumed that complete service will be provided for 20 NH Businesses per year. Based upon three years of previous BRC audit results, there is an estimated energy savings of 4,000,000 kWh/yr and 39,000 MMBtu/yr. The training component does not result in direct measurable energy savings.

1.9 Projected Greenhouse Gas Emissions Reductions

The projected green house reductions are based on the estimated savings above using the emissions factors provided in the RFP. It is estimated there will be about 3,400 metric tons of CO2 reductions (reference section 4.7). The training component does not result directly in emission reductions.

1.10 Length of Program

The training portion of the proposal will request funding for tuition incentives for an initial period of two years while the program becomes self-supporting through increased enrollment and tuition revenues. The expanded audit program and position request is for three years. All contracts will be subject to one the conditions of one year/renewable.

1.11 Total Program Costs

	Year 1 request	Year 2 request	Year 3 request
Total	\$393,800	\$346,300	\$341,800

1.12 GHGER Funds Requested

DED is requesting \$393,800for year one; \$346,300for year two; and \$341,800 for year three. Total request is for 1,081,900 over three years.

Executive Summary

Title: Business Energy Efficiency Program

The Department of Resources and Economic Development, Division of Economic Development (DED) is requesting funds to meet the challenges of rising energy costs by encouraging the development of “green” jobs through training programs designed for service providers and end users, as well as expanded energy audits for NH businesses. Working in conjunction with NH vendors, DED will provide access to energy related training, auditing, and technical assistance in order to service the state's largest industry sectors, lessen the dependence on energy resources, reduce the emission of greenhouse gas, and foster sustainability and energy awareness.

The volume of funds directed toward the State of New Hampshire via federal funding for the purpose of energy policy and economic development provides an opportunity for the State to encourage more worker training and to expand auditing services for businesses challenged by rising costs. RGGI funds that will be used for weatherization, private projects, and assessment of business practices will need qualified people to provide services in the field. Ultimately, NH businesses will need to train professionals to standards that ensure that proper, and consistent, direction is provided to the consumer public. Under this proposed program, the Department of Resources and Economic Development will create an infrastructure by which workers in need of introductory training or professional development will have the opportunity, both from an availability and financial perspective, to obtain transferrable job skills that will benefit them personally, and expand the capabilities of their parent company.

There are two aspects of the DED energy efficiency program in need of enhancement. First, partnerships with an existing training program needs to be created to assist companies that are dedicated to implementing energy efficient practices and equipment within their facilities. Funds that will be used for weatherization, private projects, and assessment of business practices will need qualified people to provide services in the field. To realize the full benefits from energy efficiency improvements, such as weatherization, workers need to be trained in the proper tools for assessment and implementation, as well as the practices that will provide clients with opportunities for reducing their utility costs. DED sees an ideal opportunity by working with the Lakes Region Community College, which has a current associate degree program in Energy Services and Technology. LRCC is developing a new, Energy Contractor training program. This training will utilize an existing curriculum developed by NYSERDA and Hudson Valley Community College in New York State, and graduates will be eligible for field exams completing certification by the nationally recognized Builders Performance Institute (BPI). It is important that future clients be assured that the services provided by NH contractors recognize industry standards, and are high quality born of rigorous training.

Secondly, DED currently offers targeted energy audits and renewable energy assessments to New Hampshire businesses that are identified by the Business Resource Center. For the past three years GDS has been the provider of services for the energy audits and renewable energy assessments. Due to current budget constraints, only a limited number of businesses each year are able to have audits and assessments performed under this program. Each such audit or assessment is targeted at two to three energy conservation measures or renewable energy opportunities of greatest interest to the participating business. This targeted approach has helped DED to provide limited audit services to the largest number of customers possible within extremely tight grant funding budget constraints.

Energy Efficiency Training Program -Laconia Community College

The U.S. Energy Information Administration reports that buildings account for a staggering 48% of energy consumption and greenhouse gas emissions. Assessing building performance in existing building stock and designing and building new buildings that will reduce energy use and emissions, will take a trained workforce many times what we have currently available.

LRCC's Energy Services and Technology Program, focuses on the areas of energy conservation and alternative energy production. Interested students may also access any of the program's courses on an individual basis. LRCC has worked closely with the state weatherization agencies to help assess workforce needs in that market. They have helped to develop an economy of scale model to address more building renovations through single providers, thereby reducing costs with a multiple home bid process, bulk purchasing of materials and efficient work models. The college is very interested in partnering with DED and expanding capacity by teaching a short term, state certified course to train Building Analysts and Implementation Contractors. Using a statewide market assessment, they have identified a particular need in the state Weatherization program to hire and deploy more contractors to address the large backlog of homes needing services. The Weatherization program will be receiving additional federal dollars this year and will be able to address some of the funding limitations they have been experiencing in recent years. In addition to the low income eligible building stock, trained workers will be able to address the need for a consistent, energy efficient approach to all buildings throughout the state.

Expanded Energy Audit Services –GDS Associates

The expanded services in response to the PUC RFP will help provide deeper and more comprehensive audit and assessment services to a significantly larger group of New Hampshire business clients. In addition, direct follow-up and support efforts will be provided to help move measure installation projects forward and to document and verify energy, cost and carbon emission savings. This expanded client outreach, and depth and breadth of services, we estimate, could be done in a cost-effective and efficient manner over a three year period (\$187,000 per year for expanded assessment), through a partnership with GDS Associates' existing Manchester, NH office staff, and with continued active client screening, oversight and administration provided through DED. The program is predicted to run for three concurrent years. This program is fully developed for this phase (Energy Assessment) and will require program development efforts for the measurement and verification. GDS has had Hands on Measurement and Verification experience for the past three years and the Manchester NH office is confident that a M&V plan could be developed rapidly (less than one month). On the back end of the program, the last three months will be spent compiling the data, completing final analysis, and reporting the findings.

Resources would be leveraged to the greatest extent possible, to include RGGI dollars, measure installation and audit rebate contributions available through existing (and evolving) electric and gas utility energy efficiency programs, low interest loan funds, tax credits, etc. – the greater the leveraging, the more New Hampshire business clients and the deeper the services that can be provided per client each year. Face-to-face contact is advocated to help move project forward and increase the effectiveness of the program. Face-to-face time has provided significant impact to the states utility energy efficiency programs in New Hampshire and other states. This element along with support for businesses will help navigate EERE projects and changes will work hand and hand to help greenhouse gas reductions be realized in a cost effective manner.

3.0 Proposed Work Scope and Schedule

This proposal represents an expansion of DED's current Energy Efficiency Program. As such, the Department will use funds to solidify the infrastructure of support by which the activities in this proposal, as well as future activities, will be implemented to their full benefit. This will be accomplished by hiring a Program Manager, which will take on the expanded duties and will serve as the lead for all activities conducted under the program. A supportive budget has been created which will sustain the position through the duration of the grant activities. The position, which will be located in DED's Business Resource Center, will also be responsible for developing and coordinating the quarterly sector based training. Based upon industry needs (which will be identified through communications with partners, clients, and utilities), the training sessions will be conducted once per quarter and will last approximately 3 hours in length. Each session will have an evaluation and query for future seminars. Attendance by company representatives and the general public will be at no charge.

Project oversight will be provided by senior management at DED.

Tasks to be performed for expanding DED's Energy Efficiency Program:

- Task one: **May 2009** -Hiring of Program manager position –this will be a labor grade 25 position; expected hiring to occur within two-three months of award. To be completed by DED personnel.
- Task two: **April-2009** - Contacts solidified with partner organizations. To be completed by DED personnel.
- Task three: **April 2009** -Energy audit program begun- GDS/DED (see tasks schedule below)
- Task four: **April 2009**- Contractor Program begun – Lakes Region CC/DED (see tasks below)
- Task five: **May 2009** -Outreach (web/media/promotional) – DED will craft outreach materials (brochures, posters, promotional items) that will best convey the intent of the program. The primary method of outreach, which is more energy friendly and efficient, is to utilize the web. DED will create a web page devoted to energy efficiency and training and will work with partners, utilities and other stakeholders to promote the web address.
- Task six: **June 2009**- Quarterly seminars- DED will survey industry sectors to determine potential seminars. Following discussions with partners, DED will schedule the first seminar to take place in summer of 2009.
- Task seven: Measurables and reporting. To be completed by DED/LRCC/GDS

Scholarship and Support –Lakes Region Community College

DED will work collaboratively with the Lakes Region Community College to encourage participation in LRCC's new contractor training program in Building Analysis. This will be accomplished by DED sponsored scholarships in which the State will pay 50% of course tuition for students accepted in to the program. Applications will be accepted by Lakes Region, and acceptance will be at the discretion of the college. RGGI funds will also be used to provide for initial equipment costs. This training will utilize an existing curriculum developed by NYSERDA and Hudson Valley Community College in New York State. When completed, the contractor will complete a written and field exam.

Once students complete the program, the graduate contractor is then prepared to apply to become certified by the nationally recognized Building Performance Institute, through a similar exam and field test. These trained contractors will enter the workforce at any number of points, as private contractors, with governmental agencies, municipalities, schools, and in the private sector. Trained building analysts may also work as implementation contractors throughout the industry. With additional funds coming to the state through a variety of avenues to fund efficiency work, the demand for professionals to assess the energy usage in buildings towards reducing emissions, cutting operational costs, and increasing comfort for building users will rise very quickly. Meeting that infrastructure demand will best be accomplished and sustained through expanded energy efficiency programs. Project oversight will be provided by senior management at LRCC and DED. Where applicable, and to gain first hand field experience on the subject matter being taught, students enrolled in the LRCC Building Analysis program will accompany GDS Associates experts when conducting the expanded energy audits and analysis portions of this proposal.

The tasks to be performed for the entire LRCC program are as follows.

- Task one: **April 2009** - Establish Learning Centers at five Community College of NH sites. LRCC as hub site will contract with other colleges in the system.
- Task two: **April 2009** - Hire and train staff on selected BA curriculum. Develop train the trainer model to increase instructor pool across the State. Establish internship sites for newly trained workers for supervision.
- Task three: **April 2009-** Recruit and train building analysts and implementation contractors.
- Task four: **April 2009** Market program region wide through a variety of tools, website, print, media, presentations technical seminars.
- Task five: **April 2009-** Monitor newly trained workforce through employers
- Task six: **April 2009** Collect data on work performed, worker retention, energy savings, carbon reduction, employee/employer satisfaction.

Expanded Energy Audits

The expansion of energy auditing services beyond the current offering by DED requires no additional planning and is able to be implemented immediately. As the audits are being performed and efficiency measures analyzed, GDS will work jointly with the DED to establish a protocol for implementing the identified measures. The protocol will include several steps; first, a measurement and verification plan will be developed for each building to record relevant baseline data before the measures are implemented. Second, a RFP will be prepared for each project that clearly defines scope of work and that will be used to solicit competitive bids from a pre-selected set of local contractors. GDS will oversee the implementation of the work and will conduct post implementation inspections to confirm that the work has been completed as specified. Where appropriate, GDS will work to educate contractors and building owners on the benefits and inner-workings of the efficiency measures implemented. Following the completion of work, post-installation measurement and verification will be conducted to confirm the energy savings. Results of the M&V will be made available and will be used to refine future cost and energy savings estimates for various efficiency measures.

One key element to the expanded service is face to face follow up. This has been proven in NH and other states to move cost effective projects forward and greatly increase the realization rate. While it is nice to have energy savings opportunities clearly identified, without follow up projects can be lost in many of the medium to small sized companies with NH without support.

The expanded scope also provides additional support to help evaluate proposal for implement improvement, Scope of work support and commissioning support once installed.

Project oversight will be provided by senior management at GDS and DED. Energy assessment reports will be prepared at the conclusion of work at each individual facility. In the first several months, presentations of project results are contemplated to review the work that was done and to identify potential areas for improvement. Annual reviews of program cost effectiveness will be conducted.

4.0 Project Benefits

Benefits - Energy Services and Technology Program at LRCC

Adopting energy-efficient design and technologies for *new* commercial buildings can cut energy costs by as much as 50 percent, according to the DOE. In *existing* buildings, renovations that replace older systems with more efficient technology can yield savings of up to 30 percent.

Trained building analysts can provide a variety of services from collecting data on the efficiency of existing buildings and making recommendations for upgrades, to performing building commissioning which should occur throughout the new construction process to give real time data on efficiency measures as they are designed, installed and upon completion of the project.

Trained implementation contractors will install measures that will have an immediate impact on building performance, reducing energy usage. Following is a summary of resulting program benefits:

- An immediate rise in the number of personnel qualified to staff professional weatherization installation and services team positions in New Hampshire's Community Action Program agencies and their contractors.
- An increase in the number of students in degree programs aimed at providing energy services technicians and managers for the growing stock of high performance, "green" buildings and the vendors in their supply chains.
- An expansion of the foundation-building work already underway that will underlie the training curriculum, faculty, and facilities necessary for New Hampshire to capture the "green job" opportunities which are rapidly developing.
- An expanding source of livable wage incomes for New Hampshire workers now facing "un" and under-employment at the front-end of this recession. It has been suggested that "green" jobs typically provide incomes about 25% higher than the average for all other jobs in New Hampshire.
- A replicable program model for other community college systems around the country.

Benefits - Expanded Energy Audit Program

The most significant benefit of the proposed expansion of DED's energy audit program will be the actual implementation of the energy efficiency measures identified in the audits and resulting energy savings and emission reductions. This will provide real and measurable benefit to NH Businesses and to the State. Apart from the audit reports completed for each site, and summarized at the end of each contract year, the current DED Business Energy Audits Program has no formal process or means to encourage installations or track the success of the energy audits. Thusly, many efficiency measures that have been identified in DED's current limited audit program may not have been implemented due to budgetary or other constraints, and the benefit to the state and the businesses may not have been realized to its fullest potential. The future success of the program will be based on actual energy efficiency, carbon reduction and business cost reductions that result at audited facilities over time. Using the Projected Benefit categories identified in the RFP's Section 4.1 through 4.9, following is a summary of benefits that this program will address:

4.1 With this expanded services program the expected impact on actual emissions will be based on the cost effective measures that are implemented. The estimated emission reduction for energy efficiency is over 450 metric tons of CO₂. If renewable measures are installed this number will be higher.

4.2 Based on a recent technical potential study sponsored by the NH Electric utilizes and NH PUC the average achievable simple payback from energy efficiency was 3.1 years and represents the single most cost effective area to reduce greenhouse gas emissions. All combined measure recommendations and installations within each NH business facility supported through this expanded program will have a benefit/cost ratio greater than or 1.0 (using commission-approved total resource cost effectiveness standards).

4.3 The recently completed Technical potential study recognizes that energy efficiencies potentially obtainable demand savings over the next years is estimated at 8.5%. In addition one of the areas of focus for the enhanced energy audits has been demand response potential. The expanded program will include identification of potential peak electric load reduction opportunities and will encourage business to implement those opportunities. Such reductions will be documented as part of this proposed program's measurement and verification efforts.

4.4 The program is expected to positively impact market transformation through education of facilities managers and local contractors that are expected to be involved in the energy efficiency upgrades. More specifically, this program will promote market transformation by: 1) increasing awareness of the value and demand energy efficiency improvements in NH businesses, 2) development of an infrastructure of local service providers that recognize the benefits of offering energy efficient products and services as part of their normal business plans, and 3) creation of continuous training and education facilities to ensure creation of a sustainable skilled work force to keep up with increased demand in the years ahead.

4.5 In addition to the promotion and use of commercially available technologies, the program will track in regularly incorporate recommendations of installation of innovative new technologies entering the market that can reduce emissions and/or save energy. Renewable energy options will also be explored and the most current and cost effective technologies will be recommended.

4.6 The target of this program is to focus on NH business. By elevating their energy efficiency and reducing cost, the intent is to provide the NH business with a competitive advantage and to draw business to NH with a supportive EERE environment. In addition to this NH business (end user) focus; this program seeks to build an infrastructure of local service providers – thus creating new jobs and new businesses that are providing green services to customers within the state, in a quality and profitable manner.

4.7 Energy, cost and emission savings are the direct benefit from EERE implementation projects. The focus of this expanded program is to develop actions from recommendations and provide support, verification and measurable results. Based on results from the previous 3 years of energy audits conducted through the DED/GDS limited audit program, estimated energy savings and emission reductions from facilities already served are summarized in the following table. Through this expanded program, with the face-to-face and related follow-up services, actual achievement of these savings/reductions will be more likely. And, given the larger number of businesses to be served through this expanded program, the potential for greater savings exists.

	kWh/yr	MMBtu/yr	CO2 lb/yr	Co2 tons/yr
Summary from 14 sites completed 2007	5,742,075	54,651	10,758,156	4,859
Aver per site	410,148	3,904	768,440	347
Escalated for 20 sites	8,202,965	78,073	15,368,795	6,942
Estimated Savings*	4,101,482	39,037	7,684,397	3,471

* Represents 50% of projected, but not necessary installed savings from 14 sites completed - to recognize custom behavior and conflicting priorities

4.8 The M&V portion of the expanded services is intended to provide a detailed report with verified energy and emissions savings. This information, including assessment of barriers preventing businesses from moving ahead with installations, or for contractors to provide services, will be made available and will help to inform future program design/improvements. In addition, by coordinating with other existing/expanded utility and industry programs, lessons learned can be more easily shared to improve program delivery channels and activities for all.

4.9 Some of the non tangible benefits of EERE will be captured in the pre and post surveys on space comfort, barriers, etc...

- The benefit from increased comfort can be measured in decreased energy usage but work productively and attitude is also an unquantifiable benefit but is real. GDS will attempt to measure and gauge these additional benefits.
- It is important to recognize that capital investments for efficiency improvements within the business environment will compete against other important business capital investment requirements. Even with a “champion” within the business facility, it often takes 2 or more years for efficiency improvements (or renewable energy projects) to navigate their way through the budget cycle from concept to completion.
- With this expanded program, regular follow-up with each business client audited will be conducted by DED and GDS staff to track progress on recommended items, to identify barriers that may be preventing each participating business client from proceeding with installation, and assisting with development of innovative strategies to help overcome such barriers. Financing is often one such barrier.
- Currently, follow up phone calls are used to track progress informally. Going forward face-to-face meetings would be conducted and updated project savings and costs would be developed to keep project recommendations accurate and up-to- date.
- DED is uniquely positioned to lead this effort and to help move projects forward if barriers are meet. DED has the resources to help business meet different needs, and help the business thrive and succeed. GDS staff also has substantial experience and insights identifying potential barriers to installation of efficiency equipment and renewable energy systems, and developing innovative approaches to help overcome such barriers.

Benefits - Expanded Energy Efficiency Program

In addition to identification and quantification of the information noted above, through the NH Business Resource Center and through its Division of Economic Development, DED has regular contact with the business community. There are clear concerns relayed to DED by clients who are challenged by rising energy costs and their lack of insight or financing required to realize savings through upgrades and modified practices. Clients who cannot afford addressing their energy related issues will often consider layoffs, delayed expansions, or movement to states/climes more conducive to their survival. The DED energy efficiency program considers energy related issues to be one of its top priorities and continues to be a sought after resource for guidance and advice by NH business clients.

In addition to the benefits mentioned above, the expanded DED energy efficiency program will provide the following benefits through services offered to clients:

- Reduce greenhouse gas emissions and electric load coincident with electric utility system peak time periods. Businesses that are presented with the means to cost effectively address needed energy challenges; will consider upgrading their facilities, provided that the return on investment is warranted. Working directly with particular sectors and utility providers, DED is well positioned to identify customers and areas with the most potential for reducing emissions and shaving electric system peak.
- Cost effective assistance to businesses: The Energy Efficiency Program serves as a cost effective clearinghouse for NH business concerns regarding assessment of comprehensive energy issues (electric, natural gas, oil, propane, water, etc.) and potential solutions that can be addressed through appropriately applied technical assistance and that can be linked to and leveraged across multiple available funding sources. The existing energy audit program is at no charge to clients, and is a sought after resource such that scheduled audits fall way short of demand. Additionally, businesses have utilized training resources to the extent that over 3,100 employees have access to opportunities through the State's job training program.
- Innovative Technologies and market transformation – Businesses that have awareness of equipment, practices, and standards by which new technologies may be integrated into existing operations is a clear incentive to adoption. This is critical for many manufacturing businesses that must refine their existing operations, and consider new product development to ensure competitive sustainability. When integrated with financing partners offering attractive rates and payback scenarios, clients are motivated to consider financing upgrades.
- Economic Development: Everything mentioned previously has clear ties to economic development and the challenges brought about by the current economic downturn. In addition to sustainable practices, the economic prosperity of the State is also affected by recruitment and expansion of new and existing businesses. Awareness of resources, such as auditing and cost effective training, is a clear incentive to site selectors representing companies wishing to relocate. Inevitably, utility costs are compared not just with regions, but other states, and in some cases, other countries. With unemployment over 5%, and orders at minimal levels, companies are making choices based upon costs. High energy costs brought about by expensive machinery, extra shifts, and peak load times forces companies to consider immediate, but not often sustainable solutions of reductions (e.g., layoffs, plant closures, etc...). In many cases, if companies can proactively address these costs, utilizing energy audits, trained personnel and retrofits, they can maintain employment and become even more competitive.

- The sector based training requested in this proposal will be tailored for the specific needs of industry. An emphasis on current technology and best operating practices will encourage companies to look within their own operations in order to: 1) realize energy saving from cost effective upgrades; 2) developing best operating practices that will result in lower operating costs; 3) implement innovative technologies that are tailored for their industry; 4) pursue practices that will result in safer operations; and 5) encourage participation in other proven training programs, such as lean energy. The lack of a fee will make the program cost effective, and will encourage employers to send more than one worker.

5.0 Measurement and Verification

Energy Services and Technology Program at LRCC

In collaboration with its partners, LRCC will utilize a pre-determined, multi-faceted data collection effort which will include information provided by the state and local weatherization agencies, building modeling data, data on emissions savings and workforce training and employment data. Data tracking in specific workforce areas, such as the state Weatherization program, and through DED's proposed expanded audit program targeting NH businesses, will provide valuable, real time information on types of measures implemented, worker input, and energy savings in rehabilitated buildings. From this data and other information which can be accessed as more building stock is addressed by the trained workforce, training investment dollars can be calculated into the life cycle saving in buildings. However, the broader economic impact on the building owners and occupants will be measured in dollars saved on energy, the attendant structural soundness and reduction of emissions. Those dollars saved by energy efficient building performance will ultimately be spent in the wider economy.

Sector Based Training provided by DED

Attendee evaluation data collection will be conducted at all training sessions and results tabulated for review prior to the next training session. Trade groups will be consulted for additional sessions. DED staff will work with attending companies to further identify energy savings and to access financial resources that will allow for cost effective upgrades.

Expanded Energy Audits

Currently no measurement or formal verification of existing and post efficiency measure conditions have been performed through DED's Business Energy Audits Program, other than through the annual summary reports discussed above. With this proposed expanded program, measurement indicators will be specified and tracked.

- Important measurement indicators include: number of business clients served, number and types of energy efficiency and renewable energy system measures recommended, estimated energy and cost savings and emission reductions, actual measures/systems installed, timing for such installations and associated costs and savings/emission reductions achieved, barriers encountered that have slowed or prevented installation of recommended measures/systems.
- To document these indicators, interviews with participating business clients will be conducted, and pre- and post- measurements will be taken to provide realistic quantification of results and to document the program's success/progress.

- One critical element of these measurement and verification activities entails onsite inspection and commissioning of all installed systems. This can be a significant barrier for medium and smaller companies that don't have the time and/or the technical staff to be able to be knowledgeable in every area of energy efficiency and renewable energy. This additional support can be instrumental in the ability for a project to occur and to ensure it will be installed and function correctly.
- GDS has substantial experience conducting such market assessments and impact evaluations for clients throughout the region and nationwide.

6.0 Budget

6.1 Requested Budget for NH Department of Resources and Development

The Business Resource Center is requesting funds for the purpose of supporting existing energy efficiency training programs and for providing sector based training programs. DED will create a separate organizational code to house the funds and will pay partner agencies upon invoice.

DED will incur expenses for the development of the program which are further detailed in the attached spreadsheet in appendix A.

Position request –The Department is requesting funds to create the Position of Energy Efficiency Program Manger. This will be a Labor Grade 25 position with a salary and benefits range of \$66,368-\$89,821 and will be located within the Division of Economic Development. The primary responsibilities will be to assist, promote and coordinate the activities within this proposal. The position will also be responsible for the following:

- Provide New Hampshire businesses with access to technical assistance and information in the areas of energy efficiency.
- Organize and/or promote four (4) energy efficiency workshops per year. This may be done in partnership with other organizations.
- Promote energy efficiency as a DED service where appropriate in advertising, DED's web site, and written materials.
- Explore relationships with additional funding sources to help secure the future operation and enhancement of BEEP.
- Work with OEP to develop appropriate benchmarks to evaluate year-to-year effectiveness of the Energy Efficiency Program.

Requested operating budget:

- Sector based training programs (4/year @1,000 each). Total amount will be \$8,0000 over two years
- Initial web development \$2,500; maintenance of \$500/year
- Brochures/Program Materials: 2,000; maintenance of \$500/year
- Travel, car share, and mileage: \$1000/year
- Copying, mailings, supplies: \$1000/year
- Initial desk, computer purchase: \$3,000

6.2 Requested budget for services provided by Lakes Region Community College

LRCC will be purchase a licensed curriculum from the New York State Energy Research and Development Authority which has been used at seven community college sites throughout New York State to do building analyst training. The completion of this course leads to a national certification by the Building Performance Institute. Ballpark initial costs are as follows:

NYSERDA course license	CATEGORY
Initial License Fee ²	\$5,000.00
Teaching Materials & Aides	\$1,200.00
TOTAL	\$6,500.00
Annual License Fee	\$1,000.00

Equipment listed in the proposal is needed to conduct a general building audit. These tools allow the auditor to test the air infiltration of the building, heat retention and other markers which provide the analyst with a baseline for rating the building's energy efficiency. The building is then computer modeled to determine what retrofits will address the noted deficiencies. After the retrofits, the building is again analyzed to ensure that the work done accomplished the goals and the building is performing more efficiently. All students taking the BA must become proficient on the use of this equipment and must complete the field exams utilizing these tools.

REQUIRED TRAINING EQUIPMENT	BA	ENVELOPE	HEATING	COOLING
Blower Door	√	√	√	
Digital Manometer	√	√	√	√
Duct Testing Equipment			√	√
Digital Thermometer			√	√
Combustion Gas Analyzer	√	√	√	√
Pressure Pan		√		
Gas Leak Detector	√	√	√	√
Manual J Software			√	√

125 Total Students trained in 2009 at three sites: \$125,000.00

50% to be paid by DED/RGGI funds \$62,500

Three sets of required equipment: (5 @\$5,000.00) \$25,000.00

Initial NYSERDA course license: 1 @ \$6,500.00

Marketing/Public Awareness Budget 1 year @ \$10,000.00

Total request Year 1 (LRCC): \$104,000.00

Year 2 - 125 additional students \$62,500.00

 Annual License Fee \$1,000.00

Total request Year 2 (LRCC): \$63,500.00

6.2 Requested Budget for Expanded Audit Services –GDS Associates

Please reference attachment for cost break down detail. The program is budgeted at \$187,000 each per year, with funding requested for three years. The EERE expanded project has been budgeted to provide 20 comprehensive audits, including expanded follow-on support and measurement/verification support per year for a combined labor and expense cost of \$187,000 which includes expenses at \$1,000 per year, primarily for travel reimbursement. By selectively coupling GDS’ most experienced energy efficiency and renewable energy experts and auditing professionals with their lower cost engineers/analyst staff, GDS has structured this proposal to provide the highest quality and most timely professional consulting services at the lowest possible cost. Hourly rates for each dedicated GDS staff member are provided in the following table. These hourly rates are fully loaded and include all overhead.

GDS Employee	Hourly Rate
Scott Albert, Principal & Region Manager	\$185
Keith McBrien, A.I. – Project Manager	\$150
Richard Beard, P.E. – Project Engineer	\$120
Matt Siska, P.E. – Project Engineer	\$120
Jennifer Ferrante, CEM – Engineer	\$95
Sam Alpert, CEM – Engineer	\$95
Armand Gottlieb– Associate Analyst	\$75

6.3 Summary Table-Budget Projections

The following table summarizes total requested funds.

Activity	Year 1 request	Year 2 request	Year 3 request
Total	\$393,800	\$346,300	\$341,800

7.0 Applicant Qualifications

DED has been engaged in the effort to promote sustainable energy efficiency measures for over a decade. Beginning with the collaborative “Industries of the Future” program, DED partnered with WasteCap to provide sector based training to business clients throughout NH. Once WasteCap was dissolved, DED subcontracted on a Department of Energy Grant awarded to the Office of Energy and Planning. This grant, which is currently in affect, requires that the Business Resource Center assign a technical director, conduct presentations, maintain a website and complete the following:

- Provide Technical Assistance: last year, this included over 2000 hours towards energy efficiency and consulting/assistance for over 200 businesses.
- DED was also issued an award of \$35,000 to GDS Associates for the purpose of conducting energy audits (contract term till 6/30/09).

- Energy Efficiency Integration: DED is required to collaborate with other partners, including USDA Rural Development, Ocean National Bank Energy Loan Program, PSNH Small Business Retrofit Program: Utility Programs: Office of Energy and Planning Small Business Development Compliance Assistance UMass CERE Program:

Key Personnel (resumes attached are in appendix B):

Lakes Region Community College

Three years ago, Lakes Region Community College, part of the Community College System of NH, located in Laconia, NH created a degree and continuing education program in Energy Services and Technology in order to provide advanced, consistent training for energy efficiency. Modeled on a pilot program originally designed by the US Dept. of Energy, New Hampshire is only the second, statewide community college system in the country to offer these opportunities. The Energy Services and Technology Program (ESTP) provide students with the knowledge and skills to enter the rapidly expanding field of energy services and technologies. Key Personnel (resumes attached in appendix B)

GDS Associates

GDS Associates is a 160-person engineering and management consulting firm with over six offices across the country including Manchester New Hampshire, Marietta Georgia (GDS Headquarters), Madison Wisconsin, Augusta, Maine and Austin Texas. GDS has substantial and nationally recognized experience in the design, delivery and evaluation of energy efficiency and renewable energy programs for clients here in New Hampshire, and more broadly in the northeast region and across the country. GDS has been the lead implementation contractor for DED's business energy program since 2007 and provides similar and expanded comprehensive energy audit services to municipal, business, and industrial customers throughout the region. For this expanded project, GDS will retain its strategically assembled handful of internal GDS engineers to ensure that the proper, and objective technical experts are available and dedicated to continue helping DED achieve its specific program goals/scope in the most timely and cost-effective manner. Resumes for these staff members are included in Appendix B.

With regards to project participants, no known criminal violations have occurred within the past 5 years by the applicant and applicant's officers, directors, partners or other principals.

APPENDIX A
PROPOSED BUDGET

APPENDIX B
PROFESSIONAL RESUMES

Cynthia G. Gunn-Stone
5 Branch Londonderry Tpk. West
Bow, NH 03304

Cynggunn@aol.com

603-224-7110 Office/Home
603-966-6031 Cell

**Summary
Qualifications**

Strong program management skills, with experience in development, implementation and monitoring and verification. Ten years of diverse experience in Energy and Environmental field, including government contracts. Solid track record in team formation and goal based project management.

Attributes

- Customer service background, focus in Energy Field
- Budgeting, project and time management skills.
- Strong writing skills, with journalism background.
- Experience with development and implementation of new processes.

Experience

Lockheed Martin Corporation (Aspen Systems) 2001 -2005
2005-
Senior Program Manager Business Processes Div.
• **Delivers direct program support for delivery of energy efficiency programs to five regions in NYS**
• Supports all phases of program implementation, management and reporting
• Provides software support for client users

CG Consulting 1998-
2001
• Energy Consulting, program design, policy development, outreach design.

Education

James Madison University, BA 1983

**Additional
Experience**

Licensed NH Real Estate Broker 1999-

APPENDIX C
OTHER INFORMATION

(Current Energy Efficiency Brochure utilized by the Business Resource Center)

APPENDIX D
LETTERS OF INTEREST

March 19, 2009

Mr. Christopher Way
New Hampshire Business Resource Center
172 Pembroke Road
Concord, New Hampshire, 03302

Dear Chris,

I am pleased to submit this letter of intent for enhancing the energy efficiency and renewable energy services within the State of New Hampshire. In this effort, staff from our Manchester, NH office will be made available and look forward to providing the following services and support:

- Comprehensive 3rd party audits
- Technical assistance
- Retro-commissioning opportunities identification, implementation and assessment
- Renewable energy alternative analysis
- Business scope of work support, RFP review and system improvement commissioning.

Should you have any questions or require additional information, please don't hesitate to call.

Thanks for your consideration and interest in using the local and skilled resources here at GDS.

Sincerely,



Scott M. Albert

Principal and Region Manager

March 20, 2009

Jack Ruderman
Director, Sustainable Energy Division
Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301

Dear Mr. Ruderman:

The New Hampshire Lakes Region Community College (LRCC) has taken a lead role in creating infrastructure to address the needs of the transition to a more energy efficient economy by establishing one of the few programs in the country designed to educate and train people for the new energy technologies and services industries. With this grant proposal we are seeking to enhance and grow that existing program, both at the LRCC and at its sister campuses around the state, by expanding the offerings, investing in necessary faculty and equipment, promoting distance learning, establishing mentoring and intern relationships in the field, etc.

These proposed new funds will allow the college to purchase curriculum and launch short term training courses in building analysis, with the goal of having graduates qualify for certification by the Building Performance Institute (BPI). The trained professional will enter the market place as a building auditor or an implementation contractor, with the opportunity to continue his education in the Energy Services program and beyond.

One area of immediate promise for employment for this newly trained workforce is in the weatherization of income-qualified homes in New Hampshire. The FY09 federal budget has increased dramatically the dollars to be devoted to weatherizing increasing the operational efficiency of private, low-income homes. New Hampshire needs to have the infrastructure in place to take full advantage of this funding. The federal weatherization program in New Hampshire, as in other regions of the country, has never been able to address more than a small fraction of the need for weatherization services through their staff resources. A dramatic increase of the money available to do this important work will take a long step towards meeting the demand. The increase will also create the opportunity for economies of scale bidding by outside contractors that will allow CAP agencies to utilize the private sector as a cost effective way of approaching this need.

In addition to the low income needs, the wider market will continue to respond to the message of addressing carbon reduction and increasing fuel costs through implementation of energy efficiency measures in all types of buildings. It is incumbent on the state to prepare its workforce for the expanding the economy, retaining existing business and industry and attracting new residents.

As an existing educational institution well versed in developing and implementing a variety of programs, we have the opportunity to create a durable infrastructure through flexible training and degree programs in energy efficiency at Lakes Region Community college and its affiliates. We are pleased to collaborate with our partners in proposing for these funds and anticipate a lasting and productive relationship as we move forward towards a more energy efficient NH.

Please feel free to contact Tom Goulette, Vice President of Academic Affairs, Cynthia Gunn, Program Director, or myself should you have questions.

Sincerely,

Mark Edelstein

President

APPENDIX D
COST EFFECTIVENESS ANALYSIS