

## GREENHOUSE GAS EMISSIONS REDUCTION FUND Final Project Report Form

*Your final invoice will not be paid until the final report is received and approved.*

**Instructions:**

- *Please refer to Exhibits A & B of your contract.*
- *Exhibit A outlines the tasks that you agreed to complete. **Your report should explain the work done on each task and what was required to meet 100% completion.***
- *Exhibit B refers to your payment schedule. Invoices will not be processed without supporting documentation on hours worked. Payment will only be made on work that relates to the contract.*
- *Please submit the report electronically in a Word format. This will allow us to cut & paste for program summaries. Attachments and supporting documents can be provided in hard copy, but pdf versions, where appropriate, are greatly appreciated.*

1. Program Title *(as displayed in your proposal)*

MEASURING, MANAGING AND PLANNING: A ROADMAP TO REDUCING GREENHOUSE GASES IN NEW HAMPSHIRE TOWNS

2. Program Type *(as listed in your proposal)*

This project comports with several of the programs pursuant to PUC 2604.01(c), including: energy audits; weatherization of commercial building stock; programs to improve the electric and thermal energy efficiency of existing commercial buildings; and education outreach and information programs that promote energy efficiency conservation and demand response

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

- *Provide a summary of activities relevant to this grant using Exhibit A of your contract as an outline.*
- *For each task, please explain the work performed.*
- *Discuss any benefit your activities may have had for low income residents.*
- *Note any problems or delays.*
- *Note any deviation from the work-plan*

The NHMEAP partners, Clean Air-Cool Planet, SDES Group, Jeffrey Taylor and Associates, The Sustainable Energy Resource Group/Vital Communities, and Carbon Solutions New England, sent an invitation to all NH municipalities in August 2009, explaining the NH Municipal Energy Assistance Program and inviting them to apply to participate in it. Eventually, about 60 applications for participation were received and vetted by the NHMEAP team.

The NHMEAP program offered a menu of services to support municipalities to initiate or progress their energy management programs. This menu included a municipal energy use baseline inventory (identifying municipal energy priorities and offering custom recommendations across the building, vehicle fleet and streetlight sectors), a full-scale municipal building energy audit (identifying energy priorities and offering recommendations for energy conservation measures in the building) with addition energy advocacy support, and a municipal regulatory audit (identifying policies and regulations that would be in conflict with a municipal goal to conserve energy and making

recommendations to design policies and planning to maximize municipal energy efficiency. Not every municipality would need to take advantage of every item on the menu. The program only provided for six policy audits, most of which were conducted in municipalities that took advantage of other NHMEAP offerings. Several municipalities had already completed baseline inventories and did not need to take advantage of that service. Most (47) of the participating municipalities did sign up to take advantage of the building audit and energy advocacy portion of the program.

The NHMEAP participating municipalities were: Albany, Alstead, Barnstead, Barrington, Bedford, Berlin, Canterbury, Chesterfield, Cornish, Danbury, Danville, Dorchester, Dunbarton, Enfield, Exeter, Franconia, Fremont, Gilmanton, Goffstown, Gorham, Grafton, Hopkinton, Hollis, Keene, Kingston, Laconia, Lancaster, Lebanon, Lee, Littleton, Marlborough, New Castle, Newfields, New Ipswich, New London, Northumberland, Peterborough, Pittsfield, Rye, Sanbornton, Sandwich, Springfield, Stratham, Sullivan, Tuftonboro, Thornton, Washington, and Weare.

Task 1: Compile baseline greenhouse gas emissions inventories for each of the 24-48 selected municipalities, allowing decision makers to prioritize potential emissions reductions measures.

Clean Air-Cool Planet hired eight part-time Energy Project Assistants to educate officials and citizens in the selected municipalities about the program, collect municipal energy use data, analyze the data using online tools, and produce and present baseline inventory reports to each municipality. A key function of the Energy Project Assistants, in collaboration with the NHMEAP partners, was to identify energy conservation priorities and offer custom energy conservation recommendations to each municipality within the energy baseline inventory. The Energy Project Assistants were trained and matched with their municipalities in October 2009 (with a second round of selections and matches in December 2009).

The municipalities that received baseline inventories (task 1) were: Albany, Barnstead, Bedford, Berlin, Canterbury, Cornish, Danbury, Danville, Dorchester, Dunbarton, Enfield, Exeter, Franconia, Fremont, Gilmanton, Goffstown, Gorham, Grafton, Hopkinton, Kingston, Laconia, Lancaster, Lebanon, Lee, Littleton, Newfields, New Ipswich, New London, Northumberland, Pittsfield, Rye, Sanbornton, Sandwich, Springfield, Stratham, Tuftonboro, Thornton, Washington, and Weare. All baseline inventories were completed and presented to the municipalities as of June 15, 2010.

Task 2: Coordinate energy audits for one selected building in each community.

Tobias Marquette of SDES Group reviewed the baseline inventory of each town and selected the strongest candidates (worst performers) for an energy audit. After completing a scheduled full-day to visit each town, a thorough walk-through of the candidate buildings with a facility manager or other town stakeholder familiar was undertaken. The next step required the selection of a building and the collection of detailed data for a complete audit (thermal scans, blower door tests, etc). SDES Group communicated with municipal officials to explain which building was selected for an audit and why, and next steps. Once data was collected, it was analyzed using software at the SDES Group's office in Dover, NH and building audit reports were written. These reports were explained to each municipality through a public presentation or interactive communication platform of the results before municipal officials and relevant boards and citizens.

SDES Group developed the Wrightsoft Template for reporting out heat loss and loading calculations. This baseline was completed first using the audit work from Barrington Town Hall and then served as the template for each audit performed. The baseline template provides the specific target reduction methods and the ability to track the impact of improvements on energy reductions and greenhouse gas reductions. This element of the template was specifically tailored to provide measurement and verification of the results and improvement screening. Final use of the template is to insure seamless integration into RETScreen for energy system modeling and options analysis. Specific outcomes and results are necessary to achieve both a triangulation of results from the two programs and also verify projections for reductions.

The following is an example of the buildings that received a Decision Grade Audit:

- Hollis – Police Department
- Barrington – Town Hall
- Sullivan – Public Library
- Peterborough – Town Hall
- Marlborough – Frost Free Library
- Alstead – Town Hall/Fire Station
- Chesterfield – Town Hall/Annex
- Washington – Town Hall
- Newcastle – Town Hall
- Lee – Town Hall
- Dunbarton – Town Offices
- Newfields – Town Hall
- Sandwich – Highway Garage

SDES completed all building audit site visits (with the exception of New London and Stratham) as of November 4, 2010.

Task 3: Provide six New Hampshire communities with policy audits geared at identifying changes to a town's regulatory framework that might reduce its greenhouse gas emissions.

In collaboration with the NHMEAP partners, Jeffrey Taylor and Associates selected six municipalities to receive a land use policy and regulatory audit. Those communities were Enfield, Exeter, Keene, Lancaster, Peterborough, and Sanbornton. The work involved initial meetings with appropriate boards and stakeholders to preview the procedures and purpose of the project; in-depth review of local policies, ordinances, planning documents, and other land use related materials; the writing of detailed reports with specific recommendations; and on-site reporting of findings to each community with appropriate boards, decision-makers and citizens present. All work with the six communities was completed as of October 18, 2010.

Task 4: Work closely with towns, providing resources and answering questions as they begin to implement priority recommendations.

As various NHMEAP representatives, including Energy Project Assistants, SDES Group staff, and Jeffrey Taylor and Associates staff, visited and communicated with municipal representatives, they responded to a wide range of energy questions related to: funding opportunities for energy efficiency

retrofits, resources and organizations that can support municipalities in their energy conservation efforts, recommended technologies and methods for energy reductions, and examples of other municipalities that have achieved energy reductions.

NHMEAP partners responded to queries through several avenues. They provided contact information to the participating communities for questions and support for recommendations. In addition, the NHMEAP website provided a growing repository for support of the project and general information and outreach to all municipalities. SDES was responsible for converting these inquiries and results into a working product. All generic questions issued were tracked and listed. FAQs and guidance recommendations were released on the NHMEAP website.

SDES has provided direct support to communities in the form of guidance for projects that arose from the audit process. This included the following components:

- Develop and understand community goals and objectives for energy-related projects.
- Tie and relate these objectives to inventory results and specifically to the SDES audit results to provide specific examples and a lead-by-example framework for future projects, including audits and potential participation with the ETAP program through NH OEP.
- Describe how projects are prioritized with respect to goals and objectives.
- Identify and educate community leaders on financial options, the expanding work of the EESE Board, PACE legislation, and other tools to make projects happen.

SDES also provided support for communities once they moved on to the implementation stage. SDES assisted both communities and building/facility managers in implementation elements of projects and provided model documents and references for project implementation.

In the Upper Valley (UV), SERG and Vital Communities (VC) structured one hour meetings with each of the 6 regional towns to discuss energy project financing options. Megan Shannon, staff of Vital Communities, attended the Municipal Energy Reduction Funding Workshop in Concord and shared this information to UV towns as they received building audits and moved toward specific project implementation.

### *Energy Efficiency and Community Block Grant Support*

During the second quarter of the NHMEAP project, the Energy Efficiency and Community Block Grants (EECBG) were announced and applications were solicited. In anticipation of the support needs of NHMEAP municipalities, all of which were busy with Town Meeting preparations when the EECBG opportunity became available, SDES had prepared the necessary research, templates, and additional foundation necessary to insure that the objectives of this program coalesce with the EECBG program. For the 35 NHMEAP towns that submitted applications for the EECBG grants, this opportunity quickly turned the attention of the town governance toward identifying and implementing priority recommendations.

Depending on where the towns were on the NHMEAP roadmap, those that were making applications to EECBG received support from their Energy Project Assistants or from SDES Group to help identify energy priorities, formulate the best approaches to implement energy conservation measures in those areas, and identify resources they would need to carry out a project if they were to receive EECBG funding. The NHMEAP team reached out to all NHMEAP towns with information about the grants and the four informational workshops given across the state to prepare for EECBG applications. Out of

the 35 NHMEAP towns that made EECBG applications, 25 were awarded some EECBG funds to implement energy conservation projects.

Many MEAP communities used SDES Group and their audit results to support the development of EECBG applications that were announced during this quarter. During this period SDES worked with the following towns and school districts in developing applications to this program as part of the implementation stage:

- Sullivan
- Lee
- Dunbarton
- Newcastle
- Washington
- Peterborough
- Barrington
- Marlborough
- Chesterfield
- Hollis
- Alstead
- Exeter
- Newcastle School District
- East Kingston School District

These grant applications relied on extensive modeling and contractor interaction provided by SDES. Using Wrightsoft and RETScreen software programs, SDES performed over 125 models for alternatives analysis for projects on municipal buildings and renewable energy systems.

SDES Group continued through the third quarter to assist EECBG applicants by reviewing project implementation plans, contracts, and through general response to their questions via phone, email, and face to face meetings. These efforts were instrumental in helping communities understand the complexities of the involved scope of work and contracts between the individual towns and the EECBG program manager.

Task 5: Offer additional education, outreach and guidance to both participating communities and those not selected for the program.

The following resources, supported by the NHMEAP partner organizations, provide education, outreach and guidance to all communities whether or not they were NHMEAP selected participants.

- Nhenergy.org  
In order to have an accessible, public clearinghouse of information on the MEAP process, a web page was created on the NH Energy wiki web site. The web page is located at [http://www.nhenergy.org/index.php?title=New\\_Hampshire\\_Municipal\\_Energy\\_Assistance\\_Program](http://www.nhenergy.org/index.php?title=New_Hampshire_Municipal_Energy_Assistance_Program) and is updated weekly.

It contains information on: the project partners, goals of the project, selected communities, energy project assistants working with the communities, location, dates and times of

presentations to the local governing bodies, inventory reports, building audit reports, land use and energy audit reports, resources for towns, and contact information.

- **LGC Annual Conference**  
Clean Air Cool Planet presented at the annual 2009 LGC conference in Manchester. The presentation focused on the roadmap process developed for NH municipalities to reduce energy and the results of the MEAP process as of the date of the conference. The session had over 30 participants from around the state.
- **HB 189 Fact Sheet**  
Clean Air-Cool Planet collaborated with the Local Energy Committee Working Group to write and publicize a fact sheet explaining the HB189 enabling legislation that supports the creation of Local Energy Commissions in NH municipalities. It is available on the web at [http://nhenergy.org/images/b/b8/HB189\\_factsheet.pdf](http://nhenergy.org/images/b/b8/HB189_factsheet.pdf).
- **Street Lighting**  
In response to the NH Outdoor Lighting Efficiency Act (HB585), Clean Air-Cool Planet provided support to Bob Gillette of the Ossipee Energy Committee in reviewing, giving input on and publicizing a guide for municipalities to energy conservation in street lighting. A link to the guide can be found at <http://nhenergy.org/index.php?title=Resources>.
- **EECBG support**  
Clean Air-Cool Planet staff provided guidance to and EECBG application assistance to several non-NHMEAP towns, such as Meredith and Antrim, on how to use benchmarking tools (Portfolio Manager and STOCC) to measure current energy use and demonstrate priority projects in their communities. Also, as noted above, support was given to two school districts.
- **Button Up New Hampshire**  
MEAP project partners CA-CP and Sustainable Energy Resource Group collaborated to adapt the highly successful Button Up Vermont Home Energy Savings Workshop to New Hampshire. CA-CP and SERG led trainings for workshop organizers from 9 towns throughout NH (New London, Concord, Dover, Sanbornton, Lebanon, Rye, Grafton, Plymouth and Atkinson) and presenters. In six weeks nine workshops attracted 250 attendees.
- **Upper Valley Energy Committee Regional Roundtable**  
SERG and Vital Communities, in partnership with Upper Valley Lake Sunapee (NH) and Two Rivers Ottauquechee (VT) Regional Planning Commissions organized the 4<sup>th</sup> annual Upper Valley Energy Committee Regional Roundtable that took place May 25<sup>th</sup>. The Roundtable was attended by 65 folks, representing 22 town energy committees (7 of which were NH LECs), 3 regional planning commissions, 2 elected representatives and several fee-for-service energy service providers and nonprofit organizations. LECs presented updates on their activities, there were general presentations on MEAP, PACE and funding and program opportunities in each NH and VT, and breakout sessions on PACE, MEAP, forming new LECs, successful projects for existing LECs and participating in 350.org 10/10/10 events.
- **Local Energy Solutions Conference**  
On June 19, 2010, Clean Air-Cool Planet and the Local Energy Committee Working Group hosted the Local Energy Solutions 2010 Conference, and CA-CP staff, along with other

NHMEAP partners, collaborated on various tasks to make this important conference possible. The purpose of this publicly and privately funded conference is to empower municipal leaders and citizens with the tools they need to reduce municipal energy costs.

- Local Energy Committee Newsletter  
The Local Energy Committee Newsletter, published monthly by Clean Air-Cool Planet, is sent by e-mail to over 650 NH Local Energy Committee members and other constituents. The Newsletter contains updates on programs and funding opportunities for municipalities to reduce their energy consumption. A recent Spotlight article shared the important information from a July 2010 workshop held at the Local Government Center on “How to Get Your Energy Project and Financing Approved by Town Meeting” and encouraged people in all municipalities to take advantage of funding options that have recently become available through the Community Development Finance Authority.

Task 6: Work with local energy committees to see that municipal inventories are carried out post-project and compared to the baseline inventories.

NHMEAP partners worked with the Energy Technical Assistance Program to facilitate the integration of NHMEAP work with ETAP. The ETAP program is working with a software tool provided by Peregrine Energy that will continue to track municipal energy use over time. Thirty-three NHMEAP municipalities authorized the transfer of their NHMEAP data to Peregrine Energy, and the data has been shared for those municipalities.

SERG and VC have been in continuous contact with Upper Valley towns and have encouraged Energy Committees and town energy coordinators to continue the inventory process. Several towns have asked for further guidance and assistance from SERG/VC in this process. Additionally, SERG and VC are in the process of meeting with the 6 UV towns to present energy project funding options, provide further technical assistance and generally support LEC activities related to MEAP outputs and outcomes.

4. Summarize the overall project completed.

The NHMEAP program has directly enhanced the energy management work of 48 New Hampshire municipalities and provided guidance and support to the wider community of NH municipalities seeking to reduce their dependence on fossil fuels. Analysis of the data collected through the baseline inventory process indicates that each household in an NHMEAP municipality carries an average burden of \$82 per year to pay for the energy for their municipality’s operations. Helping those municipalities identify their energy inefficiencies and setting them on the path to reducing their energy use will result in a reduction of the energy cost that will be felt across the community.

5. Please document any jobs created.

- This project created eight part-time jobs for Energy Project Assistants.
- The project supported over 1000 hours of work for SDES Group Staff.
- This project has made it possible for SDES Group to hire a Project Assistant/energy auditor in training.

- The project supported nearly 700 hours of work for Jeffrey H. Taylor & Associates Staff.
- Construction, architecture, engineering Jobs will result from the successful EECBG awards, which were supported through the NHMEAP program. Jobs will result from actions towns take to put inventory recommendations and audit results to work.
- Energy retailers are selling lighting, HVAC and thermal products to towns.
- Megan Shannon's job as Energy Initiatives Coordinator at Vital Communities was largely created by Upper Valley MEAP town project coordination.
- Sarah Harpster's position as Local Energy Committee Project Assistant with Clean Air-Cool Planet was made possible through this program.

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

Two selected municipalities, Hampton and Westmoreland, chose to leave the NHMEAP program after applying and being chosen to accept NHMEAP services. Another challenge encountered in the baseline inventory phase of the project was that the STOCC software tool was not compatible with older versions of Microsoft Excel. This caused a delay while a compatible version was created and tested.

SDES Group experienced NHMEAP-related challenges in selecting appropriate buildings for audits and scheduling building inspections. Municipal officials in some cases lobbied to have particular buildings inspected because of community preferences, while the NHMEAP program required that SDES select the building based on scientific evidence of need. Scheduling inspections was often challenging because it was important to coordinate with appropriate staff and local decision-makers so that all could be present for the inspection. Challenges were also seen with respect to particular facilities that required a staff member to provide access to certain portions of a facility (i.e. Police Stations). This scheduling challenge did create some delays in carrying out the site visits, and therefore in generating facility energy audits. As a result, SDES is continuing to carry out the final energy audit report generations and Investment Grade Audit.

An additional challenge witnessed by SDES Group was the reluctance to move forward with Energy Advocate hours by many communities given the absence of dedicated funds for recommended projects. The result of this lack of funding presented a challenge to engage the municipalities once they had received their audit. Directing resources to communicate with NHMEAP partners became a lower priority for many communities as a result. The need for a reliable funding source for energy efficiency and renewable energy projects is paramount in order to continue engagement with NHMEAP partners and to proceed with many recommended projects. This was an unforeseen result with respect to carrying out Energy Advocate hours.

The EECBG grant announcement in January resulted in some disruption of the flow of the NHMEAP program as NHMEAP applicants for EECBG began to scramble for SDES Group's time to provide data and advice on their EECBG applications. The disruption was felt months later as SDES Group worked to catch up with the previous schedule of audits and organize the remaining advocacy hours for municipalities that applied for EECBG. Some municipalities delayed the audit with SDES Group while waiting to learn if they would be awarded EECBG funds that would also cover building audits.



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.

The timing of the MEAP project allowed for a synergy with the Energy Efficiency and Conservation Block Grant program. According to the NH Office of Energy and Planning, municipalities that demonstrated project readiness by collecting municipal baseline energy data and prioritizing their energy conservation opportunities had improved chances of receiving funding through this grant opportunity. All MEAP project partners worked to inform NH municipalities, whether or not they were MEAP recipients, of the EECBG grant and how to prepare for it.

Clean Air - Cool Planet convened meetings with other recipients of RGGI funding who are conducting regional or statewide programs. In the fall of 2010, this group of RGGI recipients began work together to tell the story of the impact of RGGI projects across sectors throughout the state of New Hampshire.

SDES Group developed additional educational materials to include in the building audit reports. This material covers the basics of some of the principals of building science related to heat loss and moisture control. SDES also produced specific renderings for different building types, performance inefficiencies, and solutions which offer a visual explanation to what otherwise may be confusing content to those who do not work in this field.

8. If applicable, please include brochures, pictures, announcements, or other materials developed to promote your grant activities. Attachments (and other documentation) are appreciated.
  - Updated Lebanon inventory results poster
  - MEAP Results PPT
  - NHMEAP Participant Survey Report
9. Budget vs. Actual Expenditures: *Using the budget you submitted for the final approved grant proposal, please add a column and provide actual expenditures as well as match dollars to show how funding was spent.*
10. If you plan any press activities to announce your project, we would greatly appreciate the opportunity to attend.