

GREENHOUSE GAS EMISSIONS REDUCTION FUND (GHGER)
Quarterly Progress Report
Plymouth Area Renewable Energy Initiative

1. Program Title:

PAREI Solar Energy Raiser Expansion & Weatherization Pilot Program

2. Program Type:

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

3. Summary of work completed during this reporting period **Jan 1, 2010 – April 30, 2010**

Solar Energy Tasks

Task 1: Solar Energy Raiser Expansion – Three NH Communities 55% Completed

- Continued outreach and support for Energy Action NH
 - o Conducted Three Solar Site Visits for homeowners in the Canterbury/Concord area with the goal of their first Energy Raiser in Summer of 2010.
 - o Created Site Plans and Solar Pathfinder Reports for each site.
 - o Conducted follow up paperwork for each site including preparing estimates and rebate applications.
- Continued outreach and support for LARELLA who has held three of their own Energy Raisers with PAREI's support but needs continued training. They plan to hold another Energy Raiser in Summer of 2010.
- Continued outreach and support to all inquiries from throughout NH giving them the initial guidance needed to start up their own PAREI model.

Task 2: Solar Energy Raiser Expansion – Non Profit Organization 100%+ Completion

- Provided Additional Assistance with a second solar installation with the Appalachian Mountain Club. Inspired by their Solar Energy Raiser at their Cardigan Lodge in 11/09, AMC facility crew installed a 120 tube Solar Thermal System on the Joe Dodge Lodge in Pinkham Notch.
- Continued support for the Pemi Baker Home Health and Hospice for help with a solar project to heat their therapeutic pool. Advised them on Solar Demonstration Project Money available through NH Electric Coop and funding opportunities through CDFA.

Task 3: Solar Energy Raiser Expansion – A Low Income Home – 100% Completed

- On the same Habitat home in Rumney, NH, where we completed our Housewarming, we conducted a Solar Water Heating Energy Raiser on April 17, 2010, installing an Apricus 20 Evacuated Tube SHW Collector. Equipment costs were covered in part through this grant, a NHCF grant and through financial donations by PAREI members and suppliers. Fifteen volunteers participated in the Energy Raiser and eight community members attended the on-site Solar Information Session. Inspired by this information session, one attendee has already scheduled their solar installation for July 14th, 2010. (Offering public information sessions at PAREI Energy Raisers allows the public to see first hand how solar energy can be incorporated into anyone's home energy plan. These Info Sessions, that include an educational component about Peak Oil, have played an instrumental part in building momentum for solar energy in our community.)

Task 4: Solar Energy Raiser Expansion: Conduct **five** energy raisers **80% Completed**

- New Hampton School Solar Energy Raiser
 - Organized and Conducted Energy Raiser Planning Session with Faculty, Facility Crew and Students.
 - Coordinated with PR staff on Event Publicity and produced a video press release released the day of the Energy Raiser
 - Conducted a Energy Raiser Set Up Session with the Sustainability Projects Class. Conducted a Hands On Educational Session for the students on the parts of a Solar Thermal System.
 - Worked with Faculty and Students on Preparing Information Session materials such as a large schematic and informational handouts.
 - Organized and Conducted an Earth Day Solar Energy Raiser on Veezee Dorm on the campus of the New Hampton School installing an Apricus 60 Evacuated Tube Solar Collector. Over 30 volunteers including adults and students from New Hampton School and PSU successfully installed the system within one day. **To see a video on the event's day go to New Hampton School's Home Page: <http://www.newhampton.org/>** To read the press release about the event go to: <http://www.newhampton.org/podium/default.aspx?t=204&nid=613255>
 - Received news coverage in the Union Leader and Laconia Evening Citizen.
 - The Energy Raiser inspired New Hampton School Headmaster to pursue meeting with PAREI members and contractors to pursue solar electric panels for the campus.
- We conducted outreach to the Lakes Region Community Council to plan a possible Energy Raiser on their new home for people with disabilities in Plymouth, NH. Unfortunately, this isn't materializing as of now.
- We conducted additional outreach in the form of site visits and class talks to nail down PSU's participation in an Energy Raiser. We conducted a Pre Energy Raiser Planning Session with PSU in April and since then PSU has committed to the project for two Apricus 30 SHW collectors on the EcoHouse. This project will be designed as an educational project (NHEC has committed \$2000 to the project) and installed in a way that the controller and pipes are visible. The Ecohouse is a dorm and students living there will conduct regular tours of the

building starting this Fall/Winter. The building is being renovated in Summer, 2010.

- Solar Thermal Radiant Floor Heating Demonstration Installation, Sandwich, NH. On February 27th, PAREI members joined the Sandwich Energy Raiser team and local building contractor Rich Bennett to install Three Apricus 30 Evacuated Tube Collectors in a home under construction. The 90 tube system was installed vertically on the front of the house as part of the building design. The solar heated glycol will first heat the domestic water tank and when that temperature is met will switch to heating a double coil tank for radiant floor heating. The bottom coil is hooked up to the solar loop and the top coil is part of the radiant floor heating loop.

Task 5: Solar Energy Raiser Expansion: Conduct 12 Solar Information Sessions 100% Completed

- We conducted three solar water heating information sessions at our Energy Exchange Networking Meetings in January, February and March. These sessions were publicized and open to the public.
- We conducted two solar information sessions at the AMC Cardigan Lodge in Alexandria as part of their workshop offerings at the Statewide Member Activity Day on May 1, 2010.
- We conducted one public solar water heating information session at our Habitat for Humanity Energy Raiser in Rumney on April 22, 2010.
- We conducted a day long public solar water heating information session at the New Hampton School Earth Day Energy Raiser on April 22, 2010. Over 125 people attended this information session including New Hampton Students, New Hampton Board of Trustee members, a faculty member from NH College and students from the Holderness School and PSU seeking information on how to organize their own raisers/installations on their campuses. An adorable class of wide eyed preschoolers also attended!
- We conducted an informal solar water information session as part of Energy Action NH's membership meeting in April of 2010.
- We conducted a presentation about the PAREI model including information on solar energy in Henniker in February of 2010.

The following Lists the Energy Savings From the Installations as of 4/30/10 that were made possible due to the GHGER Grant: (Keeping in mind only \$1500 in equipment costs were expended from the GHGER Grant)

Solar Collectors Installed

AMC – AP60
AMC 2 – AP120
Tilton ER – AP30
SEAREI Portsmouth ER - AP30
SEAREI 2 Durham ER – AP60
Habitat Home in Rumney ER – AP20
New Hampton School ER - AP60
Solar Radiant Floor Demo Project ER in Sandwich, NH – AP90

Average Daily BTU output of all collectors installed through the GHGER Grant = 468,800 BTUS

Weatherization Tasks

Task 8. Weatherization Training – Whole House System & Blower Door - Public **100% Completed**

1. Prepared for and implemented two Button-Up NH group classroom trainings. Held in January and February 2010 on Whole House as a System.
2. Prepared for and implemented one on site training on the use of the Blower Door in Plymouth, NH.
3. Trained five volunteers on Whole House as a System and the use of the Blower Door.
4. Prepared for and conducted onsite group trainings at five homes January – March 31st.
 - a. Installation of Chimney Balloons
 - b. Installation of two part foam in basement – three homes
 - c. Insulating Window Weight Cavities

Task 9. Weatherization Energy Raiser Pilot Program **100% Completed**

1. PAREI staff and contractors conducted site visits, weatherization testing for 33 homes, 10 of which will host Housewarmings. Energy Audit Reports and Project Recommendations were generated for the majority of these homes.

Task 10. Weatherization Energy Raiser Pilot Program **55% Completed**

1. Conducted five Weatherization Housewarmings January – March 30, 2010 with a volunteer crew of 18 people.
 - a. Installation of two Chimney Balloons in Ashland Home
 - b. Installation of Astrofoil and two part foam in Campton Home
 - c. Installation of insulation in the Window Weight Cavities in five windows in old home in Plymouth
 - d. Installation of Extruded Polystyrene and two part foam in Rim Boxes in the basement of an Holderness Home
 - e. Installation of Extruded Polystyrene in Knee Walls in old Holderness Farmhouse

Task 12. Monitoring and Evaluation

1. Sent a mailing to all participants requesting fuel release forms. Forwarded forms to Matt Magnuson.
2. Site visit to Habitat Home to monitor solar installation.
3. Track Energy Audit Participants' implementation of recommendations.
4. Tracking and invoicing financial expenditures.

a. Discuss any benefit your activities may have had for low income residents.

1. In this quarter we completed a Solar Energy Raiser on the home of a low income family. The cost of this installation was covered through this grant, a previous NHCF grant and through donations received directly from PAREI suppliers and

PAREI members. This installation qualified for a NH Electric Coop Solar Water Heating Rebate which netted the family over \$1100 - money they plan to apply to finish building their home - project that were not part of the initial Habitat building agreement.

2. Due to the relationship built with Habitat for Humanity builders and volunteers from our work in the last quarter, PAREI is now working (pro-bono) on their second build in Rumney offering consultation on making the home Energy Star Certified. PAREI's summer intern is also participating as a volunteer builder on this project with the goal of being a resource on the energy efficiency work going into the building.

b. *Note any problems or delays.* None at this time other than those expressed last quarter.

Note any deviation from the work-plan. None at this time.

c. *Attachments and other documentation are appreciated.* For your records we have attached the Energy Audit Inspection Checklist developed by PAREI Energy Auditors through their work on these grant goals. We are happy to share this document with the public upon request **but would prefer** that those seeking guidance on becoming an energy auditor become PAREI Community Partners at which time we can share all of PAREI's documents with them and get them involved as volunteers in our Housewarming events. This form was prepared to be used by trained auditors.

2. Summarize work to be completed next quarter: **May 1, 2010 – July 30, 2010**

Task 1: Solar Energy Raiser Expansion – Three NH Communities

- ✚ Continued Outreach to Energy Action NH (Canterbury/Concord) to solidify Energy Raiser Dates – most likely to be held in August or September of 2010.
- ✚ Conduct Site Visit and Set Energy Raiser Planning Session Date for Laconia Group – Energy Raiser to be held in August of 2010.
- ✚ Work with Energy Raiser Homeowners to purchase the solar equipment and prepare the rebate applications.

Task 4: Solar Energy Raiser Expansion – Five Extra Energy Raisers

1. Consult with PSU facility crew on prep work (running pipes and wire) while building is under construction in preparation for September's EcoHouse Energy Raiser.
2. Prepare for Energy Raiser Planning Session scheduled for September 1, 2010
3. Conduct outreach to Holderness School in response to their interest in conducting a Solar Energy Raiser.

Task 6: Solar Energy Raiser Expansion: Promote PAREI Tool Kit

1. Attend and Display Information at the June 19th Local Energy Conference

Task 10. Weatherization Energy Raiser Pilot Program

1. Complete three of the remaining five housewarmings in conjunction with our NHEC Housewarming Grant that covers up to \$500 in materials for each Housewarming. Complete the last two by Oct 15, 2010.
 1. Install Air to Water Heat Pump and insulated basement pipes at home in Meredith, NH – Scheduled for June 23, 2010.

2. Install three chimney balloons in uninsulated/unused chimneys at large home in Ellsworth, NH
3. Air Sealing and Insulating in Basement and Attic in Rumney, Home

Task 12. Monitoring and Evaluation

Conduct second mailing and follow up to track down more fuel release forms.

Follow up with all completed Energy Raiser sites to confirm systems are trouble free.

1. Budget vs. Actual Expenditures (if you have included this with your invoicing, there is no need to repeat this for the quarterly report.)

Using the budget you submitted for the final approved grant proposal, please add a column and provide actual expenditures as well as match dollars for this quarter. (Save this worksheet for future reporting as we will want to see your quarterly expenditures as the project continues.)

2. Explain any obstacles encountered or any milestones not reached. We feel like we continue to be on track with the completion goals of our proposed tasks. However, we do believe that we are able to more easily engage families for our Housewarming Program due to our ability to include \$500 in materials through the additional grant we received from NH Electric Coop.