

# GREENHOUSE GAS EMISSIONS REDUCTION FUND (GHGER)

## Quarterly Progress Report

### Plymouth Area Renewable Energy Initiative

May 1, 2010 – July 31, 2010

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)

Summary of work completed during this reporting period **May 1st – July 31, 2010**

### **Solar Energy Tasks**

#### **Task 1: Solar Energy Raiser Expansion – Three NH Communities 65% Completed**

- Continued outreach and support for Energy Action NH (Canterbury/Concord)
  - o Narrowed down three sites to two to be targeted for Energy Raisers. One in Canterbury and one in Concord.
  - o Continued correspondence with homeowners concerning the schematic and design of each of these solar installations.
  - o Canterbury site will receive the grant funded on-site Energy Raiser Training in October. Energy Action NH will conduct the Energy Raiser at the Concord home on their own soon thereafter.
  - o Conducted follow up paperwork for these two sites including re-doing estimates and preparing rebate applications.
  - o Tank and Collectors (Two AP20s) have been ordered for the Canterbury site
- Continued outreach and support to all inquiries from throughout NH giving them the initial guidance needed to start up their own PAREI model.
  - o Provided guidance to the Bethlehem Energy Committee's inquiry on starting their own Energy Raiser Team. Gave fundraising advice which resulted in a donation from Woodsville Guaranty Savings Bank. This donation will fund the purchase of a Community Partnership with PAREI, a solar pathfinder, a PAREI ER training that will include three site visits, Energy Raiser planning session, Set Up Session and Day of Energy Raiser training.

- Provided guidance to Conway citizens on how to begin creating a core group of volunteers to reach their goals of establishing an Energy Raiser team as part of the Mount Washington Valley's on-going "Green Activities". It is looking likely that the Conway Energy Raiser team will come together and will be our third Community Energy Raiser Training.

**Task 4: Solar Energy Raiser Expansion: Conduct five energy raisers 90% Completed**

- Continued work and coordination on our last "Extra ER" - the PSU EcoHouse Energy Raiser. It will take place in Sept or early Oct. The EcoHouse underwent a renovation project starting in June. PAREI provided materials and met on site several times with contractors to consult on the running of piping and conduit from attic to basement for prep work for the planned solar thermal installation and possible future solar pv installation. This project will be designed as an educational project (NHEC has committed \$2000 to the project) and includes an educational window in the front hallway showing the solar controller, piping and wiring. This window was constructed as part of the renovation project. The Ecohouse is a dorm and students living there will conduct regular tours of the energy efficiency projects and solar installations at the building starting this Fall/Winter.

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

- On July 10<sup>th</sup>, we conducted a Solar and Local Farms Bicycle Tour of the Baker River Valley that included stops at three solar homes with solar electric and/or thermal installations in Rumney and Wentworth, NH.
- This quarter we have worked on encouraging our members to take part in NHSEA's Green Building Open House. On Oct 2<sup>nd</sup> we will be holding an Energy Raiser in Tamworth, NH as a stop on the GBOH tour so people have the opportunity to see a solar thermal installation in progress!
- To increase the public education outcome from two of our past Energy Raisers supported through this grant, our summer intern designed and completed two posters that will be publically displayed. These two posters are attached to this report. They are:
  - Appalachian Mtn Club in Alexandria, NH will display this poster in their public "gear" room next to the solar water storage tank.
  - The Solar PV Module installed in Sept of 2009 at the Pavilion at Plymouth's Riverside Park will now include a small kiosk explaining how the project took place and showing a solar net-metering schematic.

**Task 6: Solar Energy Raiser Expansion: Promote the use of the PAREI Tool Kit via conference attendance, special presentations, advertisements, media 90% complete**

- This quarter we focused our media outreach efforts on improving our website. We launched a new website with a new look and 50% more information on things such as our Community Energy Raiser. In the lower right corner we have a new section publicizing our "Duplicate the Model" media. Please check it out: [www.plymouthenergy.org](http://www.plymouthenergy.org)

**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 (AP- Apricus Evacuated Tube Solar Collector)**

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

Additional Installations (those supported by GHGER grant) Anticipated by 11/30/2010  
Canterbury, NH – AP40  
Concord, NH – AP60  
Third Community Energy Raiser - Conway – AP30  
PSU Eco House – AP60

**Average Daily BTU** output of all collectors installed through the GHGER Grant = 659,300 daily BTUS

### **Weatherization Tasks**

#### **Task 10. Weatherization Energy Raiser Pilot Program 75% Completed**

1. Completed two Weatherization Housewarmings May 1 – July 31, 2010 with a volunteer crew of 12 people.
  1. Housewarming - Habitat Home #2 – Cellulose Insulation Installation on July, 2, 2010. PAREI volunteers assisted with installing cellulose insulation increasing the planned attic insulation from R25 to R60. PAREI consulted with Habitat Contractors in the design stage of the building project helping them decide on the plan for air and thermal barriers, improving site and construction details that historically are weak areas in traditional construction, review Energy Star requirements and made recommendations on air exhaust fans and energy efficient appliances. This consultation resulted in not only the increased attic insulation but an increased outside wall insulation from R19 to R24 and the addition of 2” foam insulation under the concrete slab.
  2. House Warming - Installed Air to Water Heat Pump and insulated basement pipes at home in Meredith, NH – on June 23, 2010. This housewarming went off without a hitch. Five volunteers including a NH certified plumber attended this housewarming to install an Airtap Heat Pump for the home’s water heater. Normally the home uses 26KWH a week to provide hot water for a family of five. One week following the installation of the AirTap, the electricity draw

dropped from 26KWH (a Kill-0-Watt was used on site) to 12.6KWH. Prior to this project the homeowner was heating their water off a coil in their furnace. The addition of an efficient water heater/tank and the air to water heat pump, it is estimated to save this family over 200 gallons of oil a year. Homeowner will pay the favor forward and volunteer at the Chimney Balloon/Attic Hatch Housewarming in September.

#### Task 12. Monitoring and Evaluation

1. Sent a second mailing to all participants requesting fuel release forms. Forwarded forms to Matt Magnuson.
  2. Site visits to Habitat Home and EcoHouse to track implementation of recommendations,
  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 addition to our consultation with Habitat for Humanity General Contractors on making the second Habitat home in Rumney, NH Energy Star Certified, PAREI chose to conduct a Housewarming at the building site and contributed \$500 toward the added cost of extra air sealing and insulating. See above.
    - b. *Note any problems or delays.* PAREI finds that most homeowners do not act quickly in making decisions both about solar and weatherization projects especially when these projects include having several people come to your home to help out. We are moving more slowly through our goals because of people's need to mull projects over and to think them through. We also find that pinning down dates to make projects happen often get pushed into the future so homeowners can complete other projects (such as cleaning their basement) that need to happen first so they can take on the weatherization or solar project.

*Note any deviation from the work-plan.* Last quarter we reported we would be assisting the Laconia Energy Raiser Team with an on-site energy raiser training but this solar installation has been delayed due to other projects needing to take priority. There are no Energy Raisers planned currently for the Laconia area but PAREI is in communication with them currently with the goal of setting two dates for a Solar Information Session to drum up interest.
    - c. *Attachments and other documentation are appreciated.* See attached educational posters describing two REGGI funded events.
2. Summarize work to be completed next quarter: **August 1 – Oct 31<sup>st</sup>, 2010**

#### Task 1: Solar Energy Raiser Expansion – Three NH Communities

- ✚ Complete Energy Raiser Planning Session and Set Up Night for Canterbury Energy Raiser with the goal of completing the Energy Raiser by Nov 20, 2010.
- ✚ Conduct at least two Site Visits and Set Energy Raiser Planning Session Date for Conway group with goal of completing the Energy Raiser by Nov 20, 2010.

- ✚ Conduct up to three Site Visits with the Bethlehem Energy Raiser Team and continue consultation on Energy Raiser Team Start Up with goal of first Energy Raiser to take place in Spring, 2011.
- ✚ Continue work with Energy Raiser Homeowners to hone in their system design, purchase the solar equipment and prepare the rebate applications.

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

1. Prepare for PSU EcoHouse Energy Raiser Planning Session Meeting --- meeting scheduled for September 1, 2010
2. Set Date for PSU EcoHouse Energy Raiser
3. Conduct Energy Raiser Set Up Night for EcoHouse Energy Raiser
4. Complete EcoHouse Energy Raiser by Oct 31, 2010.
5. Continued outreach to Holderness School in response to their interest in conducting a Solar Energy Raiser...urging them to attend PSU ER.

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

1. Promote Community Energy Raiser process and Tool Kit at several local sites during the GBOH tour on 10/2/10

Task 5: Solar Energy Raiser Expansion: Conduct 12 Solar Information Sessions

Complete Educational Signage Project at AMC and Riverside Park

- ✚ Deliver framed poster to AMC
- ✚ Get final approval from Board of Selectmen on Park signage
- ✚ Print Riverside Park Sign on Waterproof product
- ✚ Build Educational Kiosk and install it at Riverside Park in Plymouth NH in time for September 18<sup>th</sup> well attended Duck Derby.

Task 10. Weatherization Energy Raiser Pilot Program

1. Complete three of the remaining three housewarmings with an attendance of over six volunteers at each one -- in conjunction with our NHEC Housewarming Grant that covers up to \$500 in materials for each Housewarming. Complete by Oct 31, 2010.
  1. Install three chimney balloons and insulate attic hatch in large home in Ellsworth, NH
  2. Air Sealing and Insulating in Basement and Attic in Rumney, Home
  3. Air Sealing and Window Sealing in Farmhouse in Wentworth

Task 12. Monitoring and Evaluation

Conduct third 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. Work with NH PUC to video projects.

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.