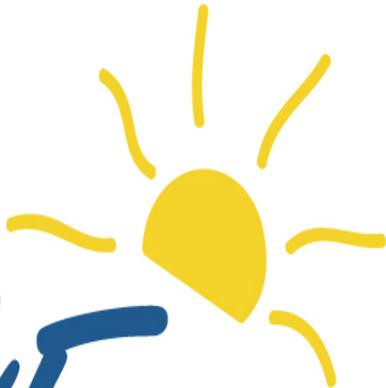


PLYMOUTH AREA
Renewable Energy
INITIATIVE



Plymouth Area Renewable Energy Initiative

- Formed in February of 2004 in response to
 - 1) Peaking of oil supplies and
 - 2) a need for leadership, resources and services to help ourselves, neighbors and our community prepare for our energy future through energy conservation, energy efficiency, renewable energy and a general awareness building of one's energy use.
- Over the last seven years, 425 businesses and families have joined PAREI.

PAREI Services

- **Community Services**

- Home Energy Assessments and Solar Site Visits
- Energy Raisers
- Energy Exchanges
- Energy Advisors
- Educational workshops, outreach, speaking, LFP

- **Professional Services**

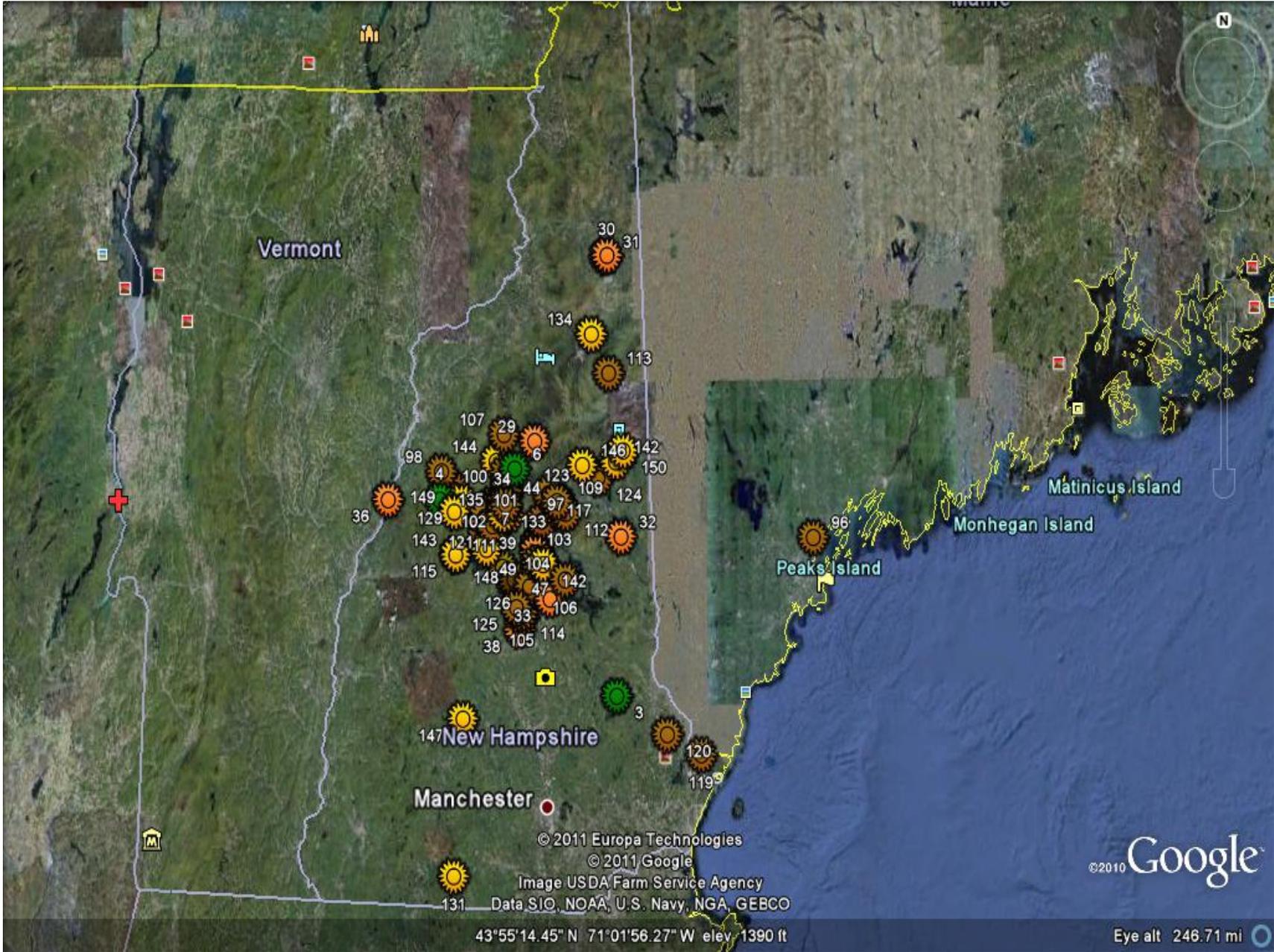
- BPI Certified Energy Audit Services
- Solar Thermal and Solar PV installations
- PAREI Tool Kit – CD and DVD Kit for others to use
- Energy Raiser Training for community groups
- Energy Consulting (ie: construction planning)

**Since June of 2005, PAREI Members
have installed 157 solar thermal or
PV Systems around the state.**

37 Do-It-Yourself

57 Energy Raisers

63 Professional Installations



Vermont

147 New Hampshire

Manchester

Matinicus Island

Monhegan Island

Peaks Island

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Image USDA Farm Service Agency

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

43°55'14.45" N 71°01'56.27" W elev. 1390 ft

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Eye alt 246.71 mi

- **PAREI responded to the RGGI RFP for three reasons**
- 1) to expand our solar energy raiser practice to new communities, non profit sites, low income homes and schools.
 - Normally, PAREI only offers Solar Energy Raisers to residential settings in the Plymouth/Sandwich region
- 2) to transfer the neighbor helping neighbor concept of the Solar Raiser to weatherizing homes. We named this idea Housewarmings. (more on that later)
- 3) To get assistance with tooling up for and training staff to respond to the demand for energy audits and weatherization services

PAREI Solar Energy Raiser
Expansion & Weatherization

Pilot Program

August, 2009 – December, 2010

RGGI Funds Received
\$99,250

The Results

- With this grant, we coordinated 12 Solar Energy Raisers across the state of New Hampshire saving 251 million BTUs annually leveraging over \$72,000 in private solar and plumbing equipment sales. (all equipment was purchased privately)
- The grant funded energy auditing equipment and a training opportunity for new employees and contractors resulting in 8 BPI trained building analysts, 33 subsidized energy audits for the public and 10 Housewarmings where over \$45,000 in weatherization measures were implemented by homeowners, volunteers and NH Electric Coop's Home Performance with Energy Star contractors.

Responded to three communities in Portsmouth, Canterbury and
Conway seeking to start their own Energy Raiser team

TMREI – The Tin Mountain Renewable Energy Initiative



The Seacoast Renewable Energy Initiative - SEAREI

- <http://www.searei.org/>
- See Bald Guy Video (go to above website)
- Update from SEAREI 2-9-11
 - We have completed 5 solar hot water energy raisers and 4 photovoltaic systems since August 2009.
 - We have more in the works.
 - We have forged a relationship with Southeast NH habitat for humanity. they intend to have 3 - 5 new builds per year and they want to have each of them set up with renewable energy systems.
 - We have received a small grant from NHCF to hire a project manager and we are just in the process of getting that word out.
 -
 - We have been offering Energy Shares and Potlucks every other month and will be having our first of this year on Thursday Feb 10th.
 -
 - We have about 80 household members now...and we have met with the group in Kennebunk/Arundel to help them with their setting up a York County Maine Renewable Energy Initiative...all very exciting.

One of the goals of the grants was to work with a Non Profit Organization and their facility staff and volunteers to conduct an Energy Raiser.

Prior to getting the RGGI grant, the AMC sought PAREI out for guidance and we were unable to respond fully to their request for help.

The RGGI grant gave us the resources needed to respond to the Appalachian Mountain Club's desire to pursue a solar thermal energy installation at the Cardigan Mtn Lodge in Alexandria, NH for the purpose of on-going public education and to reduce their carbon footprint.

Energy Raiser at the **AMC Cardigan Mountain Lodge**, Alexandria , New Hampshire . Installed 60 tube solar thermal collectors.

Inspired by the immediate results and energy savings, the AMC Facility Crew went on to install four collectors on the Joe Dodge Lodge in Pinkham Notch, NH.



New Hampton School Energy Raiser Earth Day 2010



New Hampton School Energy Raiser Video produced by Students

- Video available on the RGGI program page on the NHPUC site
- <http://www.puc.state.nh.us/Sustainable%20Energy/GHGERF%202009%20Grantees.htm>

We also conducted Energy Raisers at:

- **Riverside Park Pavilion** – 165 watt PV panel, **first solar panel** on municipal property in Plymouth, NH. Conducted installation during a town Energy Fair
- **PSU Eco House** – a student, faculty and service crew energy raiser that installed a 60 tube collector on a new student dorm. First solar collectors on the campus to date.
- **Two homes in Canterbury** w/ Energy Action NH
- And several more.....

**Hired one part-time Energy Solutions
Manager and three as-needed Energy
Auditors.**

Trained new employees and area contractors (8) to become BPI Building Analysts improving the Plymouth area community's ability to respond to the new energy economy and assisting NH workers with re-tooling their services.

Habitat for Humanity

- Conducted one solar energy raiser on a newly constructed Habitat Home in Rumney, NH. RGGI paid for \$1500 of the materials. Suppliers donated products and PAREI members raised the remaining money to cover the equipment costs.
- Conducted two housewarming air sealing and insulating projects during the construction phase of two Habitat Building projects
- Spin Off: Due to this newly formed partnership - PAREI volunteered consultation on how to make the second home Energy Star Certified and PAREI members, staff and intern volunteered hundreds of hours on the building site

Transferred the concepts of the Solar Energy Raiser to weatherizing homes. Coordinated 10 neighbor-helping-neighbor volunteer Housewarmings.

1. Two Chimney Balloons in Ashland Home
2. Astrofoil and two part foam in Campton Home
3. Insulated Window Weight Cavities in five windows in Plymouth home
4. Installation of Extruded Polystyrene and two part foam in Rim Boxes in the basement of an Holderness Home
5. Installation of Extruded Polystyrene in Knee Walls in old Holderness Farmhouse
6. Installation of cellulose insulation increasing the planned attic insulation from R25 to R60 in a Habitat for Humanity Home in Rumney, NH
7. Installation of a Air to Water Heat Pump and pipe wrap on basement pipes at home in Meredith, NH. 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.
8. Four Chimney Balloon Installation and window sealing, Ellsworth, NH
9. 12 bails of Dense Pack Cellulose Insulation into the wall sections of a newly renovated room. Including one layer of 1" rigid foam making the R value 39. The wall framing used an isolated stud framing to prevent thermal bridging.
10. NH Made Interior Storm Windows, Wentworth, NH – Installation of 16 Warmer Windows in a Farmhouse built in 1762, coordinated by Brown Dog Woodworking in Wentworth NH

Photos from Housewarmings



PAREI Energy Auditors and Volunteers insulate and air seal window pockets after replacing the window counter weights at a home in Plymouth, NH. Window pockets are a common place to find air leaks in older NH homes.











