

**Brief The Action: give a brief description of the project.**

The Mount Washington Valley affiliate of Habitat for Humanity researched and chose to go green, surpassing all standard energy efficiency codes in its most recently completed 1200 sq. ft. home in Tamworth NH. It includes all LED lighting, all Energy Star rated appliances, radiant floor heating and domestic hot water using an on-demand propane fired system, insulation that exceeds R 26 on the walls and R-49 in the ceiling and it is topped with a 5kW photovoltaic solar installation. The rationale was that building affordable homes means reducing utility costs for low income families without significantly increasing their mortgage.

**When was the project completed & how long did it take from start to finish?**

The Affiliate began its research in the fall of 2015, examining the incentives, rebates, net-metering legislation, and RECs to determine the actual costs and payback periods. Once it was shown that the house could be sited perfectly for maximum solar exposure and the reduction in electricity costs would be greater than any increase in the mortgage, the Affiliate looked for local solar installers willing to partner favorably with us. The house was built from April to November 2016 using a minimum of contractors, volunteer labor and sweat equity of the prospective homeowners. Our

**What elements made this project a success?**

Success was possible due to the work at the Board level to understand and approve the concepts brought forward by our building managers, Anthony Ruddy and Roger Aubrey. Secondly, we had considerable help from local contractors who donated their labor including a local tree landscaper who cleared the necessary trees, insulation company, roofer, and electrician who installed the solar panels. Grants were obtained from the McIninch Foundation to defray the cost of the panels. Fortunately, Habitat for Humanity in the Mount Washington Valley has a long and successful track record of building homes on time and on budget and we receive excellent support from our community.

**What were the main challenges?**

The challenges arose with connections with the utility company and permitting that was unfamiliar to our electrician. Help was provided by Frase electric and our local MWV Energy Hub to provide information on the necessary steps. Going forward, and we do intend to repeat the same building project in 2017 on a nearby lot, we will benefit from our lessons learned.

**List the key players and their roles.**

Our building managers, Roger Aubrey and Anthony Ruddy were key to all of the energy efficiency decisions. We had generous support from Superior Insulation, Mike Lyons-roofer, Dean & Martin Construction and HR Hoyt Construction for the roof trusses, DW Electric-solar installation, Radiantec with design of the radiant floor heating.

**Roughly, what was the final cost and how was it funded?**

The cost for the 5kW photovoltaic system was approximately \$16,000 but we received the PUC rebate, and donated labor of approximately \$4800 and the McIninch Foundation grant to cover the costs of the solar panels. Habitat for Humanity builds homes with interest free mortgages. All homeowners' mortgage repayments are recycled into building more homes. Significant fundraising, volunteer building hours and homeowner sweat equity hours (minimum of 300) allow homes to be constructed at approximately 2/3 fair market value.

**What were the results of this action after it was completed?**

The homeowners took occupancy in late November but it is anticipated that they will have virtually all of their electricity needs met by their system and they will have 2/3 the usual heating costs expected for a similar size home in the area.

(Financial savings, energy savings or environmental benefits?)

**Any advice for other communities interested in undertaking a similar energy action?**

We are strongly urging other Habitat for Humanity and other non-profit affordable housing builders to investigate these energy efficiency measures for incorporation into their design. One of our homeowners recently said "The initial investment is definitely worth the long term pay out. It will give our family relief in the future from heavy electric bills especially when we have older children in the house and our power needs will go up." His wife anticipates being able to can local foods and consider a small catering business without incurring utility costs.

The advice is to do the math, ask where donations could come from, and seek rebates, incentives and grants. Do not make the mistake of assuming it's not possible with affordable housing. It is.