Working Together for the Region

Neighbors Helping Neighbors Go Solar

Round
Two
Summary





www.SolarUpNewHampshire.com

2015

Generating 1.35 MWs of New Renewable Solar Energy for the Region....









A special thanks to all the community volunteers and partner solar installers (Granite State Solar and Revision Energy) for making Round Two a success and for providing many of the photos included in this report.

Also a special thanks to the John Merck Fund for providing the necessary funding which allowed us to undertake this project. Based in Boston, Massachusetts, the John Merck Fund was established in 1970 by the late Serena Merck and is now in its third generation of family leadership. Starting in 2012, the John Merck Fund will spend all of its assets over the next 10 years to spur progress in clean energy, environmental health, development of a New England regional food system, and treatment of developmental disabilities. Solar Up NH is made possible in part by generous funding from the John Merck Fund. More information at www.jmfund.org

For more information and a summary of the results of Round One of Solar Up NH, see **Round**One Report, October 2015 which can be found at: http://snhpc.org/?page=granite_state

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Program Partners

Southern NH Planning Commission (SNHPC)



Created in 1966 and operating under RSA 36:45-55, SNHPC has a strong tradition and history working closely with governmental entities located within the Southern NH Region. SNHPC provides assistance in a variety of roles and works to enhance intergovernmental cooperation and coordination in many areas, including transportation, housing, land use, energy, public facilities and services. SNHPC also has in place a 501c3 sustainability foundation which acts as an arm of the commission to accept charitable donations, gifts and grants. See www.snhpc.org

Smart Power

Smart Power is the nation's leading non-profit marketing firm dedicated to promoting clean, renewable energy and energy efficiency. Smart Power has been a leader partner in many solarize programs and campaigns. Founded in 2002, Smart Power has run campaigns to encourage citizens to adopt clean energy and energy efficiency across the nation. During Round One of Solar Up NH, Smart Power provided templates and lessons learned from Solarize Connecticut and Solarize Massachusetts and the Upper Valley of NH, as well as branding support and input on marketing/outreach strategies. See: www.smartpower.org

NH Sustainable Energy Association (NHSEA)



SmartPower[®]

et's Get Energy Smart.

The NH Sustainable Energy Association is a statewide 501c3 nonprofit organization made up a key energy policy advisors and local volunteers that work together to educate NH citizens and organizations about sustainable energy and to advocate in NH for favorable energy policies. See www.nhsea.org

Hillsborough County Area Renewable Energy Initiative (HAREI)



HAREI is a volunteer based 502c3 non-profit organization with a mission to reduce barriers to the use of renewable energy by providing education and provide assistance to property owners and businesses to execute their energy futures. See www.harei.org

Executive Summary

Between August/September and end of November 2015, four municipalities in the SNHPC Region (Chester and Derry and Candia and Deerfield) working together as community coalitions launched Solarize campaigns in Round Two of Solar Up NH to encourage town residents and business owners to go solar.

By the November 30, 2015 deadline, a total of **91** homeowners and **3** businesses signed contracts for solar PV installations. Through the work of many community volunteers and the two partner solar installers (Granite State Solar and Revision Energy), Solar Up NH significantly lowered on average the cost of going solar between **5.2%** and **13.6%** and more than tripled number of existing solar PV installations in these communities adding **63** new systems to the 19 existing systems in Candia and Deerfield. The program also more than doubled the number of existing systems, adding **31** new systems to the 18 systems existing in Chester and Derry. With the completion of these installations, a total of **805.15** kWs of new renewable energy will be created within the four Round Two Solar Up NH communities. Combined with the results of Round One of the program, over **1.35** MWs of new solar energy will be generated within the SNHPC Region.

Through the Solar Up NH website (www.solarupnh.com) and volunteer-led community outreach events and activities, 610 households made an inquiry about Solar Up NH representing 1.8% of Chester and Derry's 13,987 households and 11.7% of Candia and Deerfield's 2,987 total households. A total of 379 or 2.22% of all households in the four Round Two communities received a site visit and a total of 91 households and 3 businesses signed contracts to go solar. Among the residents that did not sign a contract, a majority indicated that they would likely go solar in the future, but as of yet have not made a decision. All the solar installers participating in Solar Up NH have indicated that there will likely be additional households and businesses who decide to go solar after the November 30, 2015 deadline.

Solar Up NH, a program of SNHPC and Smart Power, is based on successful Solarize models developed across the country and in several New England states. Solar Up NH was expanded

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¹ 2010 US Census



beyond the typical residential program to also include business, non-profit organizations, churches, municipalities and agricultural operations. Solar Up NH was also adapted to fit Southern New Hampshire's suburban and rural size communities.

The Solarize concept is simple: team up community volunteers with competitively selected solar installers to help many residents go solar in a short amount of time and in a very public way. Of the four municipalities selected to participate in Round Two, each community selected a single solar installer (**Granite State Solar** was selected for Candia and Deerfield and **Revision Energy** was selected for Chester and Derry). The program consisted of extensive community outreach encouraging residents and businesses to obtain a site visit, a proposal and enter into a contract for a solar PV system installation. As more residents and business owners signed contracts to go solar with the selected installer; the total system cost dropped for everyone in each community. Solar Up NH is successful because it is based on the power of community spirit and the principles of group purchasing. The program also addresses a number of common barriers to going solar (consumer confidence and trust; complexity of the technology and process; cost and savings; and program inertia).

- Confidence & Trust Solar Up NH is highly visible and community supported. Partner solar installers are fully vested and selected by each community based upon their quality of work and guarantees.
- System Complexity Solar Up NH makes the process of going solar easy, educates residents and provides simple and easy solutions on what to expect.



Solar Panels on a Garage, Deerfield, NH

- Cost & Savings Solar Up NH delivers competitive pricing and discounts as more residents sign up.
- **Program Inertia** Solar Up NH builds upon itself once it gets going and the deadlines motivate people to take action.



SNHPC and Smart Power are committed to sharing these results and the lessons learned from Solar Up NH with organizations and communities throughout the region and the state. Everything developed for Solar Up NH is open and available to the public either online or by request. Interested organizations and communities can contact Jack Munn, Chief Planner at SNHPC at imunn@snhpc.org or 6603.669.4664 for assistance.

This Summary Report identifies the results and lessons learned in developing and implementing Round Two of Solar Up NH in the SNHPC Region. Solar Up NH was made possible by generous funding from the John Merck Fund, support of the SNHPC staff, our program partners and all the community volunteers and partner solar installers who spent countless hours working to help educate and inform the public and spread the word that solar works!

Background

Solar Up NH is a program of SNHPC and Smart Power that teams up local communities with solar photovoltaic (PV) installers for 15/16 weeks of intensive public outreach aimed at making

solar energy more accessible for residents and businesses. The program builds on a model first created in Portland, Oregon, in 2007. The Portland model has been adapted in recent years, leading to successful ongoing solarize programs across the country, including Massachusetts, Connecticut, Vermont as well as the Upper Valley region of NH. In 2014, SNHPC joined forces with the John Merck Fund and Smart Power, a leading partner in many solarize campaigns, to bring Solar Up NH to the SNHPC Region.

Feedback from a Solar Up NH Customer:

"I think the Solar Up NH program did a great job in providing a better understanding and awareness of solar energy benefits to people who may not have known much about it before this program. It encouraged people to take an easy next step by having a free evaluation to find out owning a solar system was right for their situation. Although some of those people didn't go ahead and install a system at this time, it no doubt put solar on their radar and perhaps conditions will be right for them in the future" – Deborah Munson, Chester, NH

SNHPC was committed to Solar Up NH from the beginning and believes it has significantly ramped up the rate of solar adoption within the region. SNHPC also is committed to enabling



the Solar Up NH program to be shared across the state through other regional planning commissions, partner organizations and communities.

The goals of Solar Up NH are (1) obtain price discounts of 10% or more; and (2) double the number of solar PV installations in participating communities. Additionally, the overall goal is to empower the Solar Up NH program to spread across the state.

Within each participating community, Solar Up NH is designed to address key barriers to going solar and educating the public about solar PV technology and state rebates and the 30% federal tax credit which is currently available through end of 2016 and has now been extended by Congress for three more years eventually ramping down by 2021 and 2022.

Confidence & Trust

- Solar Up NH is a highly visible program lead by local volunteers and coordinated by trusted partners – SNHPC; NHSEA and HAREI.
- Each community competitively selects a partner solar installer who provides transparent pricing and services and an on-the-ground presence throughout the campaign.
- Residents and businesses have many opportunities to identify and interact with their neighbors who are also thinking of going solar.

System Complexity

- Solar Up NH is designed to make the first step easy: sign up for free site visit and find out if solar can work for you.
- Solar Up NH outreach and education also helps residents understand the various aspects of solar PV technology, how it works and how it is set up and what to expect. The partner solar installers also take this a step further by simplifying their own customer process and documents in order to reduce complexity for Solar Up NH customers.

Cost & Savings

Solar Up NH partner solar installers save on marketing costs because volunteer outreach
is so effective in generating contacts and leads. Installers transfer those savings to



- customers using a tiered pricing structure, through which greater participation among residents within the community leads to greater savings for everyone.
- Partner installers and NHSEA worked with local, regional and national lenders to compile information about various financial options for going solar. Saint Mary's Bank in Manchester offered a special rate for their solar loans.
- All Solar Up NH volunteers and partners worked together to help ensure all potential customers have access to information about pricing and financing. A summary of available financing among many banks and leading institutions was also prepared and posted on the Solar Up NH website (see examples in this report).

Program Inertia

Residents must sign a contract with their partner installer by the program deadline to be
eligible for the special tiered pricing offer in their community. Having a deadline helps
build commitment and resolve.

Round One Timeline

RFPs Released for Communities and Installers	March/April 2015
Information Workshop/Sessions for Communities and Installers	March/April 2015
Participating Communities Selected	April 2015
Partner Solar Installers Selected	May 2015
Launch Events Held in Each Community	August/November 2015
Program Deadline (signed contracts must be in by this date)	November 30, 2015

Program Overview

Solar Up NH relies on support of staff from SNHPC, NHSEA, HAREI and Smart Power, who are responsible for establishing program timelines, coordinating among program partners and community volunteers and partner installers, developing resources and marketing materials, flyers, banners, signs, etc.; developing and managing the Solar Up NH website; and tracking data throughout the program.

Solar Up NH can be broken down into four main program components: 1) developing program goals; 2) selection of the Solar Up NH communities; 3) selection of the partner solar installers; and 4) community education and outreach.

Program Goals

In working with Smart Power and the John Merck Fund, SNHPC and its team partners believed it would be possible through Solar Up NH to achieve the following major goals:



Roof Mounted PV Solar, Derry, NH

- Obtain 10-15 percent pricing discounts;
- "Double" the number of solar PV installations in participating communities;
- Open Solar Up NH to more than residential "home owners" and welcome non-profit
 organizations, churches, small business, agricultural and multi-family/mixed use entities
 in the program; and
- Expand Solar Up NH statewide.

Solar Up NH is one of the first solarize programs in New England which includes both residential and non-residential customers. The typical solarize programs implemented across the country have focused primarily on residential home owners.



In considering these goals, the Solar Up NH partners all believed that these goals were realistic and that achieving significant price savings and doubling the number of PV installations was "doable" for the region.

According to the New Hampshire Public Utilities Commission (PUC), the following Table indicates the total number of residential solar PV installations that existed within the SNHPC Region that obtained state rebates through 1/13/15. This data provides a baseline for

measuring our results, but does not capture the number of solar installations which are completely off grid.

Smart Power and the John Merck Fund are currently working together with SNHPC and other regional planning commissions now to find ways to expand Solar Up NH and take it statewide in 2016/2017.

Towns	Count	Count Rebate (\$)		Facility	
		(1)	Total (kW)	Cost (\$)	
Manchester	15	52,400	75.645	305,081	
Windham	9	33.855	41.93	185,870	
Londonderry	5	22,834	20.09	99,683	
Auburn	5	15,788	26.075	133,905	
Bedford	20	73,774	116.125	462,014	
Derry	9	28,313	43.405	211,865	
Francestown	4	9,368	18.54	72,006	
Weare	10	34,658	53.44	217,547	
New Boston	7	33,015	22.46	138,544	
Goffstown	11	35,454	56.512	254,200	
Hooksett	6	16,875	31.305	142,800	
Deerfield	15	50,381	73.885	319,456	
Candia	4	17,813	17.15	80,652	
Raymond	6	18,750	30.665	152,035	
Chester	9	23,175	50.125	176,909	
Southern New	135	446,450	677.352	2,952,572	
Hampshire Planning					
Commission(SNHPC)					

Selection of Communities

On March 11, 2015, SNHPC distributed a Request for Information (RFI) – e.g. an application to all the town administrators, managers, governing boards and energy committees among the municipalities in SNHPC's 15-town region. SNHPC also issued a press release and media blast inviting every community in the region to participate in Solar Up NH and to prepare and submit



an application to the SNHPC. Given available funding for the program, SNHPC and its program partners determined that a total of four communities or community coalitions (e.g. two communities working together) could be accepted to participate in the program. One community coalition consisting of Bedford and Goffstown was established in Round One (which extended from June to September 2015) and four communities (Candia and Deerfield and Chester and Derry) formed two community coalitions in Round Two (which extended from August/September to November 2015).

To assist the region's communities with their application, SNHPC organized an informational workshop held on March 30, 2015 prior to the application deadline of April 15, 2015. The RFI asked that municipal governing boards also submit a letter signed by the governing board chair or town manager/administrator indicating support for the program. During the community application process, it was important to convey to the municipalities that Solar Up NH does not require municipal funding or municipal resources. The application also encouraged communities identify their volunteer leaders and provide additional information, including a list of outreach ideas and letters of support from local organizations and partners. SNHPC also encouraged communities to partner and apply jointly as one single Solar Up NH community coalition.

In response to the RFI, a total of seven towns applied to participate in Solar Up NH and on April 22, 2015, the towns of Bedford and Goffstown acting as one community coalition and the Town of Francestown were selected for Round One of the program and the towns of Chester and Derry and the towns of Candia and Deerfield were selected as two community coalitions for Round Two of the program (see following region map showing location of communities selected for Solar Up NH).

Applications were evaluated by the Solar Up NH team of partners based on several criteria, including commitment to clean energy and sustainability, project leadership and experience with community outreach, capacity of the project volunteer team, demonstration of creative thinking, and unique qualities and resources. By forming partnerships and working together as community coalitions, all the community applicants were accepted into the Solar Up NH program. A total of 8 communities within the SNHPC Region choose not to submit an application.

However, after Solar Up NH program started up we heard that several communities expressed interest in participating in the future.

Given the proposed launch events and other outreach activities planned in these communities, it was decided that Round Two of the program for Candia/Deerfield would officially start in August and end in November 2015 and Chester/Derry would start in September and end in November 2015.

Information about each selected community and the program timelines were posted on the Solar Up NH website and shared with interested solar installers.



Ground Mounted PV Solar, Deerfield, NH

4.1 Selection of Installers

During the community selection process, on April 8, 2015, SNHPC released an Installer RFP by email and on the SNHPC website to all the solar PV installers in New Hampshire known to be operating within the SNHPC Region and the state. Several companies outside of NH were also included on the distribution list upon request. In generating a list of solar PV installers, SNHPC conducted google searches, checked with the PUC, its Solar Up NH partners and other sources as there is currently no official statewide or state endorsed list of recognized solar PV installers operating in NH. Once the installer list was created, it was posted on the SNHPC website and on the Solar Up NH website (holding page) which was under construction at the time. Proposals from solar PV installers were due on May 13, 2015 and communities had a very short window for reviewing, interviewing and selecting a designated installer for their community. To answer questions and help installers navigate through the RFP, SNHPC held a breakfast workshop for interested installers and community volunteers.



After this workshop, a total of seven proposals were submitted electronically to SNHPC by the deadline. SNHPC distributed the proposals among community volunteers and the Solar Up NH team of partners during the week of May 18th. At this meeting it was decided that one of the proposals was not eligible as the installer only provided ground mounts and did not offer roof installations. Interviews of the six eligible solar installers were than held over the course of one afternoon with the volunteers from each of the selected communities participating as well as Solar Up NH partners so that everyone at one time could get a sense of what the specific services, capacity, technical aspects, warranties and pricing, etc. each installer could offer. After the interviews were held, it was determined that four installers stood out among the others.

Community volunteers from each of the four Solar Up NH communities next worked independently among themselves checking references and evaluating each installer and how well they would serve their community. As this process unfolded, it worked perfectly that each of the four Solar Up NH communities selected a different installer for their

Towns	Installers
Francestown	Millhouse Enterprises
Bedford/Goffstown	NuWatt Energy
Candia/Deerfield	Granite State Solar
Derry/Chester	Revision Energy

community which ensured that pre-selected installers were not spread then and did not overlap between communities. The solar PV installers selected by each community are shown in the table above.

4.2 Outreach and Education

Working together with their pre-selected Solar Up NH installer, volunteers in each community began to develop and implement their outreach schedule for their community. A number of community-wide outreach and educational Solar Up NH launch or "kick off" events for Round Two communities were held in September and October 2015.

Specifically, the towns of Candia and Deerfield held their launch events on August 2, 2015 at the Candia Youth Athletic Association facility in Candia and on August 3, 2015 at the old Deerfield Town Hall in Deerfield. Both events were very well attended with upwards of 75 to

100 people. Before the launch events, volunteers were out all over both towns organizing photo opportunities, posting signs and mailing out flyers to town residents as well as talking to folks about the program. SNHPC and Smart Power worked together to develop and print Solar Up NH banners for each community and Smart Power and NHSEA updated the website about the upcoming events. In addition, yard signs and program flyers were printed and provided to each community (see example materials).

Volunteers in Candia and Deerfield also hung up the banners at the Town Offices and posted flyers at Post Office, Village Store and Library in each town. They also posted the yard signs around the community in public rights of way and worked with town officials to post news events on the town websites. A video presentation and song about Solar Up NH was also prepared by a local artist and played throughout the communities.

The towns of Chester and Derry working together as one community held their first Solar Up NH launch event on August 31, 2015 at the Town of Derry Council Chambers. This event was televised and repeated several times on the local cable channel in Derry and was also very well attended with close to 100 people. The volunteers in Chester/Derry stayed active throughout



Solar Up NH Educational Event in Derry, NH

the campaign working neighbor by neighbor and passing out program flyers; holding and posting events and information on the town's websites; posting the Solar Up NH banners at the town offices and overall working to spread Solar Up NH yard signs throughout the two towns. In addition, a detailed marketing plan was developed (see Appendix) and Solar Up information booths were also set up at the Chester Fair on September 12; Derryfest September 19; and at the Derry Farmer's Market held between



August 1 and September 16th. Final presentations of the results of Solar Up NH were also made to the Chester Board of Selectmen. Similar presentations are planned for the Candia, Deerfield and Derry Town Council.

Perhaps the largest community effort was coordinating and obtaining letters from the towns of Candia, Deerfield and Chester governing boards showing their support of Solar Up NH and encouraging town residents to participate. These letters were mailed to every resident and out of town resident in all three of communities utilizing the door to door flyer service of the US Post Office. A similar letter from Pinkerton Academy was also prepared and given to all students in the Town of



Solar Up NH Event in Deerfield, NH

Derry to take home to their parents. The Solar Up NH program and the partner solar installers all worked together to pay for these extensive mailers.

In addition to these events, HAREI provided a strong role in meeting with town residents in all three communities; attending all Solar Up NH events and activities; sponsoring local solar raisers and holding open houses. NHSEA played a large role in Round One by keeping everyone up to date with current status of state renewable energy funding and the rebate/incentive program; funding opportunities through various local and regional banks and institutions as well as the status of statewide and utility renewable energy caps. NHSEA also worked directly with Smart Power in developing, updating and maintaining the Solar Up NH website.

In addition, SNHPC stayed active helping to coordinate all of these events and preparing and updating a Frequently Asked Questionnaire (FAQ) which helped to address many the technical and funding issues as well as educational aspects of the program. The FAQ was also an important communications tool which was circulated among all the community volunteers and partner PV installers to maintain consistent messaging during Round Two of the program.



Tracking Progress During Round Two

In addition to this outreach, community volunteers in Chester and Derry telephoned and emailed town residents once a month expressing an interest in learning more about or having a site visit with an update of the status of the program and copies of forms and permits that they would need to fill out.

Most importantly, community volunteers in Chester and Derry working together with their partner solar installer Revision Energy built and maintained an extensive spreadsheet designed to keep track of the progress of Solar Up NH in each community. This spreadsheet was used to manage new inquiries obtained through both the Solar Up NH website and through community volunteer contacts and discussions. Numbers of sign ups, site visits and status of contracts and installations was also maintained and the solar PV installer updated this spreadsheet daily and weekly with status reports and comments so that all volunteers would be able to access it.

Also, the solar PV installer Granite State Solar for the towns of Candia and Deerfield built and maintained a similar spreadsheet which accomplished the same for these communities. In addition, the Solar Up NH website was set up such that all interested inquiries and sign-ups for information was circulated as reports to the email addresses of Smart Power; the two solar PV installers, SNHPC and designated community volunteers. During Round Two of the program, the solar installers and many volunteers requested that these reports be tracked not based upon the two Solar Up NH communities but based upon the town in which the potential customer lived.

RESULTS

The overall results of Round Two of Solar Up NH were very impressive and meet our program goals. Specifically,

91 homeowners and 3 businesses signed contracts by the program deadline to go solar
which will add a total of 805.15 kilowatts (kW) of new renewable energy within the four
communities as well as double the number of existing installations across the Round
Two communities;

- Combined with the results of Round One of Solar Up NH, a total of **1.35 MWs** of new renewable solar energy will be developed within the SNHPC Region;
- Approximately **1,608 metric tons of CO2** will be avoided annually for years to come (equivalent to taking 307 cars off the road)²;
- **610 households or 2.22% percent** of all households within the four Round Two communities requested site visits from the Solar Up NH partner installers; and
- 0.55% percent of these households resulted in signed contracts to go solar; and
- 26 solar PV systems were installed prior to the program deadline; and another 68 systems are scheduled to be installed this winter/spring in the Round Two communities.

The following graphics and tables provide an overall Summary of Solar Up NH Results by each of the four communities in Round Two. The data confirms that Solar Up NH was highly visible in the region. Specifically, **3.5% of all households** in the Round Two communities expressed an interest in going solar and **2.22%** requested site visits. Out of the **610** inquires, a total of **379** site visits were conducted and **94** contracts were signed for installations. Among the Round Two communities, the Town of **Deerfield** has the most contracts for installations **(32)**, followed by **Candia (31)**, **Chester (17)** and **Derry (14)**.

In evaluating the cost savings of Round Two, we found that Solar Up NH prices were highly competitive and that all of the Round Two communities had enough participation to secure the lowest-tier pricing from their partner installer. Solar Up NH residents in **Candia and Deerfield** by reaching the lowest tier pricing of \$3.52/watt experienced on average a savings of \$3,840 per system based upon an average system size of 8kW at a typical market cost of \$32,000. The average system size and cost in Candia was **8.45** kW at \$32,063 and **7.53** kW at \$29,595 in Deerfield.

Solar Up NH residents in Chester and Derry obtained the installer's lowest tier 5 pricing of \$3.84/watt. The average system varied anywhere from 8.41 kW to 11.38 kW in size. The average cost per system was \$35,827.77 at \$3.84/watt. Discounts offered through the program ranged anywhere from \$832 to \$4,834 depending on the size of the solar PV system installed.

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² http://www2.epa.gov/energy/greenhouse-gas-equivalencies-calculator

According to the NHSEA and the HAREI, the average cost of a residential PV solar system in the SNHPC Region at the beginning of the program was \$4.00 per watt. By reaching the lowest-tier 5 pricing in Chester and Derry of \$3.84/watt, residents realized savings of 20 cents/watt below the installer's average market price of \$4.04 at the start of the program. This represents estimated savings of 5.2%. By reaching the lowest-tier pricing in Candia and Deerfield of \$3.52/watt, residents realized savings of 48 cents/watt below the market rate of \$4.00 per watt. This represents estimated savings of 13.6%.

Overall, Solar Up NH pricing in Round Two of the program fell within the \$3.52/watt to \$3.84/watt price range representing savings of between **5.2%** and **13.6%** below pricing at the start of the program. Thus, customers obtained significant discounts.

Solar installations can be financed through home equity loans, consumer loans, and financing offered through the pre-selected installers. According to the Solar Up NH installers most homeowners used cash or their own financing institution, such as Service credit unions.

In addition, to these results, we asked our Solar Up NH volunteers, partners and installers to tell us what aspects of the Solar Up NH program were most important and most influenced customer decisions to participate and sign a contract.

Based upon the responses received, the following Solar Up NH program features were identified as being the most influential:

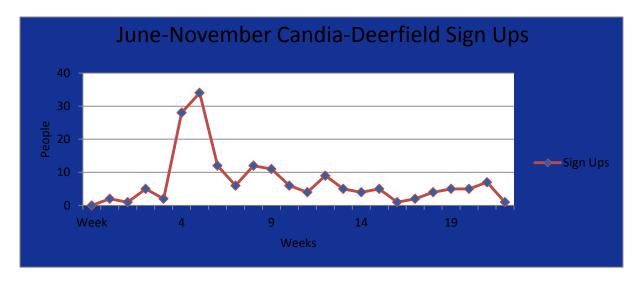
- 1. Tiered Pricing
- 2. Confidence/Trust in Pre-Selected Installer
- 3. Program Deadline
- 4. Neighbor Decisions to Go Solar
- 5. Solar Up NH Events & Activities
- 6. Letter Received from Town Governing Board
- 7. Accessible/Helpful Volunteers
- 8. Involvement of Town Energy Committee



Tiered pricing followed by trust/confidence in the pre-selected solar installer, the program deadline, neighbor decisions and Solar Up NH events and activities were considered as having the most influence in customer decisions to sign a contract.

In comparing these survey results with the total number of resident inquires and requests for site visits received through our Solar UP NH website, we

found that the greatest spike or interest occurred at or shortly after the launch events held in each community with interest peaking again towards the end of the campaigns after the town governing board letter was distributed and approaching the program deadline.



On average, the website generated on average **26 inquiries** per month in Candia/Deerfield and another **26 inquires** per month in Chester/Derry. The following tables demonstrate the overall monthly trends and the peaks of residents' inquiry received throughout the Round Two campaigns.



This data clearly shows the significance of getting a good kick start at the beginning of the campaigns and distributing the town governing board letter of support toward the middle of the campaigns. During the Solar Up NH campaigns, residents were free to go solar with any installer they wanted to work with.

According to our partner Solar Up NH installers many of the reasons why residents decided not to go solar centered around the following factors: 1. Other financial priorities; 2. Inability to obtain financing; 3. Other investments needed (roof, trees); 4. Timing was not right; and 5. Poor site for solar (shading, orientation).

According to our partner installers among the residents reporting they had other financial priorities as their reason for not signing a contract, indicated a "very good chance" that they will install solar panels in the future.

Month	Sign Ups
June	9
July	81
August	34
September	10
October	16
November	8
Total	158

Candia-Deerfield: Inquiries made per month to Solar Up's website for information/site visits

Month	Sign Ups
July	42
July August September	22
September	15
Total	79

Chester-Derry: Inquiries made per month to Solar Up's website for information/site visits

In addition to the above sign ups from participating towns, the Solar Up NH website also generated many inquiries from non-participating towns (see graphic). These include: Amherst (1); Berlin (1); Hampstead (3); Kingston (1), Londonderry (1); Mason (1); New Boston (2); Northwood (1); Raymond (1); Weare (1); Westmoreland (1); Windham (1) and Unknown (1).



Towns	Total Inquiries	% of Total Households*	Total Site Visits	% of Total Households	Total Contracts	% of Total Households	Total Confirmed Installations	Total New Solar kW	Carbon Impact Equivalents ³
Candia/Deerfield	350	11.7%	270	8,3%	63	2.10%	63	502.80	1,004 T/year
Chester/Derry	260	1.8%	109	0.77%	31	0.22%	31	302.35	604 T/year
Totals	610	3.5%	379	2.22%	94	0.55%	94	805.15	1,608 T/year

³ http://www2.epa.gov/energy/greenhouse-gas-equivalencies-calculator



LESSONS LEARNED

As evidenced by the PUC data, solar deployment in the SNHPC Region has been limited in the past. Small programs such as Solar Up NH can have an immediate and long lasting impact in helping residents and business owners go solar and improving local economies.

Clearly the large numbers of inquiries received through the Solar Up NH website demonstrates the popularity of Solar Up NH both within and outside of the SNHPC Region. Even with the end of Round Two, the visibility of the Solar Up NH website continues to generate inquiries from residents both in participating and nonparticipating communities.

As experienced with many solarize campaigns, there is always tremendous momentum both at the beginning and end of the campaigns. While there are many residents that decide not to go solar, Round Two of Solar Up NH successfully sparked positive interest and helped educate many homeowners about the pros and cons of solar PV technology.

As with all new programs there are often questions and issues which emerge impacting the success of the program. This has been true with Round Two of Solar Up NH, particularly with respect to lessons learned that can be passed on future Solar Up NH campaigns conducted in other towns and elsewhere in the state.

Perhaps the most important lesson is that it is impossible to predict all the questions and answers that may come up during a campaign and oftentimes there are forces and policies at work at all levels with regard to solar deployment that will need to be addressed requiring clear and consistent messaging.

Maintain Clear and Consistent Messaging. During both Round One and Two of Solar Up NH, several questions and issues emerged which necessitated updated to our Frequently Asked Questions (FAQ) which was posted on the Solar Up NH website. We found that by maintaining an updated FAQ clear and consistent messaging could be achieved throughout the program between installers, community volunteers and residents. Some of the early questions and issues raised pertained to one of the partner installer's practices and qualifications regarding roof installations, specifically (1) if an asphalt shingle roof over 5 years old should be replaced



with a standing seam metal roof or not; and (2) what credentials of solar installers are required by the Solar Up NH program.

We found that these questions could be adequately addressed by incorporating best management practices into the FAQ utilizing the professional guidance provided from our partners, NHSEA and HAREI. Other questions raised during the campaign pertained to whether solar panels can become hot enough to create a fire hazard and what the building code requires for power shut off during an emergency. Professional guidance on these questions were obtained directly from the State Fire Marshall's Office and incorporated into the FAQ. Other important lessons learned are noted as follows.

Work with All Levels of Government. As the Solar Up NH campaigns geared up during both Round One and Two, it was clear that community volunteers had to work with and keep their town governing board and town administrators/officials up to speed with the purpose, intent, progress and status of the program, including most importantly obtaining their overall support of the program. Maintaining good governmental relations and support was essential when community volunteers sought letters of program endorsement from their governing boards (see Example Materials). Letters from the town governing boards played a tremendous role in Solar Up NH adding an important level of credibility to the program.

There were also several state financial and policy issues that arose during the program. During Round One of the program, the New Hampshire House voted to raid the state's renewable energy fund completely of all funding to help balance the state budget. Next there were questions related to the state PUC fiscal estimates of the value of the public's renewable energy fund and whether available funding would still be available to continue to offer state incentives for residential solar PV installations. These policy issues were later addressed when the state senate voted not to raid all the renewable energy funds and when the PUC staff determined that adequate renewable energy funding was available, but recommended the dollar value of the state's solar PV incentive rebate be reduced – which happened primarily during Round Two.

While the reduction in the state rebate from \$3,750 to \$2,500 did not actually take place until October 2, 2015, this order happened to coincide with the end of Round One and in the end it had a positive impact by helping to move residents into a decision-making mode; more so than the Round One program deadline of September 30, 2015. During Round Two, the installers and



community volunteers were able to successfully integrate and communicate the impacts of this reduction in installation pricing and benefits.

Also and more importantly, during Round Two of the program there was and continues to be a big concern about looming roadblocks created by the state's production cap on net metering. Currently, NH has an arbitrary cap on the number of people that can participate in net metering. Net metering is a cornerstone policy that gives New Hampshire residents, schools, and businesses fair credit for the excess power their solar PV systems produce. It is the foundation of a robust solar market – without net metering, the solar industry in the state would stop in its tracks. The policy exists in 44 states, and close to half of these states have no cap at all. In 1998, NH set the net metering cap at 50 megawatts of installed capacity. Today nearly 20 years later, due to popularity and cost competitiveness, solar adoption has increased exponentially across the state and the utility companies expressed concern that the cap could be hit at any time.

Concern about hitting the net metering cap would essentially halt the state's thriving solar industry. In completing Round Two of the program, while the net metering cap loomed over the program, community volunteers and the solar installers all agreed that Solar Up NH continue to promote solar PV installations and not let this issue stop the program given its set Round Two completion dates at end of October and November 2015. Solar Up NH's partners NHSEA and HAREI and all the solar volunteers and installers in the state however set out to work with the PUC and state legislatures to educate local and state officials about this looming issue and the need for new state legislation. This effort is continuing today and making progress with a public hearing before the PUC now scheduled for January 7, 2015.

Work with Partner Installers to Share in Marketing Costs. During both Round One and Two it was found that the printing and mailing costs related to the letters of program endorsement from the town governing boards were quite high and it was advantageous to share these costs with the partner installer. Additionally, taking advantage of the US Postal Service's Every Door Direct Mail (EDDM) helped to substantially lower the costs of distributing this letter within each community, although engaging the schools to distribute a letter of support among the student body is equally cost effective.



Take the Installer Selection Process Seriously. Selecting the partner Solar Up NH installer was perhaps the most challenging task for community volunteers, and the stakes were high. It is critical in achieving a successful program that the right solar installer be selected; particularly an installer that can be trusted and respected among town residents. The reason many residents elected to participate in Solar Up NH and enter into a contract for installation was the confidence they had in the pre-selected installer, including the discounted tiered pricing. Community volunteers in all the communities in both Round One and Two spent countless hours working to obtain the right installer for their community. We found that the installers also had specific ideas and preferences for which towns they wanted to work in.

Partner with a Neighboring Town. Community volunteers during the startup of Solar Up NH most definitely took advantage of the opportunity of partnering with neighboring towns to take combine resources and collaborate in community outreach activities. This arrangement most definitely favored the towns of Bedford and Goffstown during Round One of the program and the towns of Candia and Deerfield and Chester and Derry during Round Two. While the Town of Francestown decided not to partner, the community nevertheless had equally committed volunteers to support the program, including support from HAREI members.

Find Local Champions. As evidenced in both Round One and Two, community outreach requires serious work and coordination among many people and utilizing existing networks. As part of this outreach, all the participating towns found it was essential to have several local champions capable of leading the Solar Up NH program. Both Rounds of the program were indeed successful because each community had strong and capable local champions.

Develop a Plan for Community Outreach. Community outreach can be made a simple process as town residents will ultimately find out about Solar Up NH through a variety of channels – emails, newsletters, websites or by word of mouth. Community volunteers in both Round One and Two took advantage of existing town programs and media sources, including public access channels, local events, newsletters as well as distributing Solar Up NH flyers at the town dump.



All of these events and opportunities were shared with each partner solar installer during the campaigns. According all the installers after the program was completed, they found that it was the informal but planned outreach events specific to Solar Up NH that generated the most leads and referrals and were more effective than town wide events such as Old Home Days and fairs. Included in the Appendix to this Report is a copy of the Marketing Plan, the volunteers in Chester and Derry created as their community outreach plan.

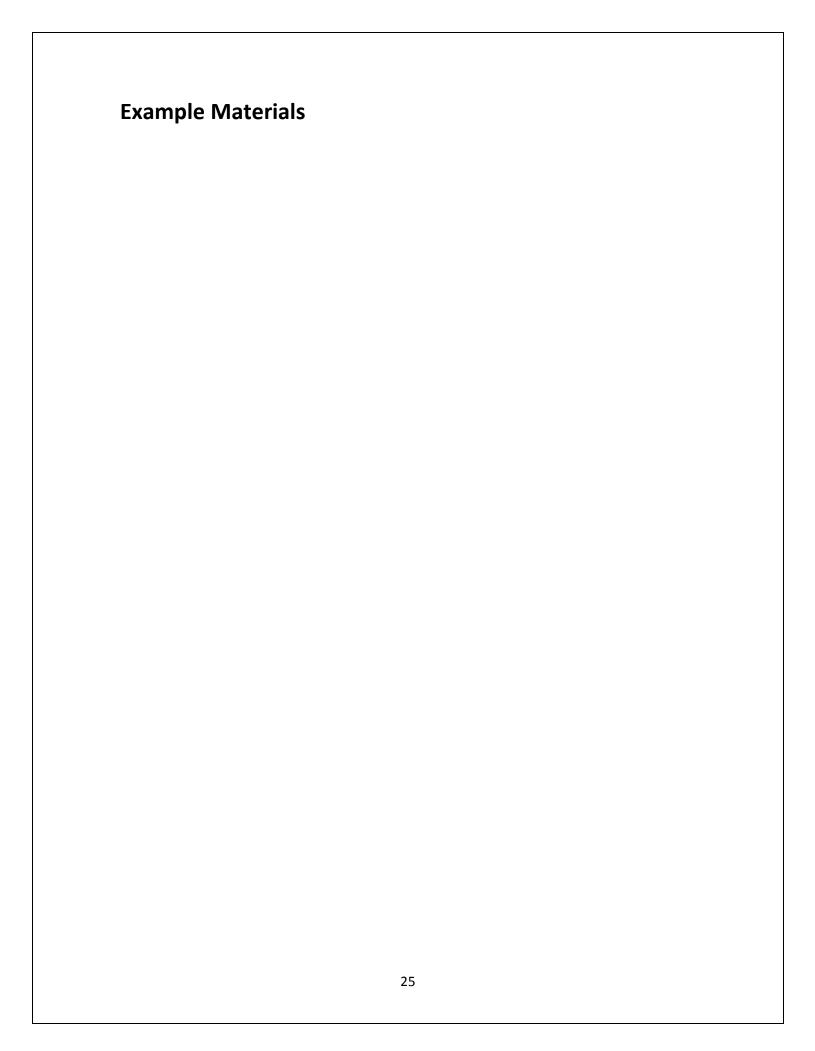
Work with the Town Building Code Official. Lastly, it was found during Round Two of the program that both the volunteers and the pre-selected installer meet with the town's Building Code Official prior to the submittal of building permit requests to discuss and gauge the level of information and plans that would be required of the town in order to obtain a permit for installation. Every Town Building Code Official is somewhat different with respect to building permit requirements for solar PV installation. This inconsistency in permitting adds costs to the installation process. In the future, as Solar Up NH is taken statewide, it is recommended that the State of New Hampshire and the State Building Code Officials Association work together with the Office of Energy and Planning to develop specific legislation for one complete set of building code requirements that all municipalities must adopt and implement for solar PV installations.

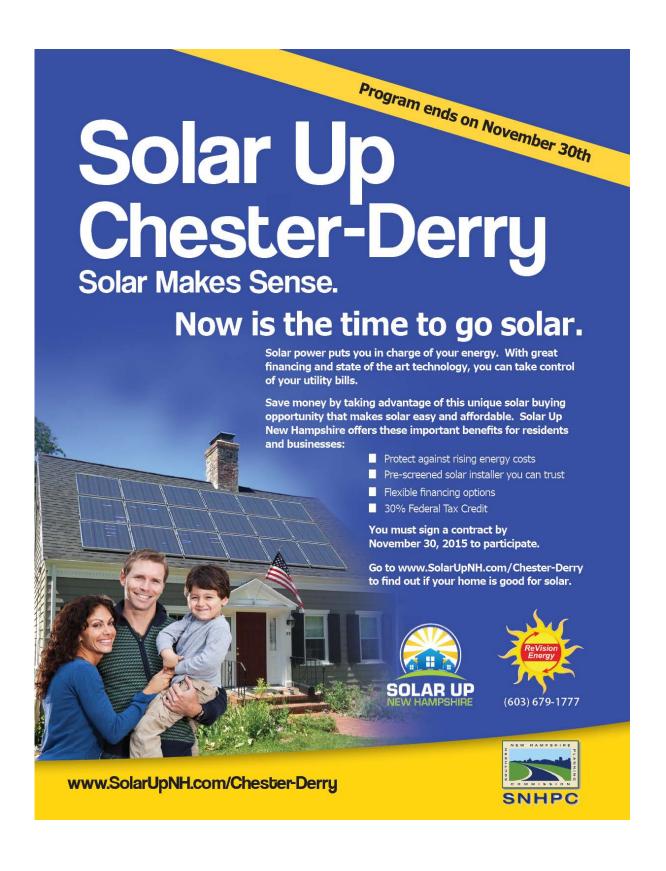
Additional Information

More information about Solar Up NH can be found online at: www.solarupnh.com. Solar Up NH is proud to be an open-source program. Anything developed by the Solar Up NH partners, including RFPs, event and outreach checklists, tracking templates, outreach materials, and more, is available online or by request.

Contact:

Jack Munn, AICP
Chief Planner
Southern New Hampshire Planning Commission
imunn@snhpc.org
603.669.4664
438 Dubuque Street
Manchester, NH 03102





PRSRT STD ECRWSS U.S. POSTAGE PAID EDDM RETAIL

Residential Customer Candia NH 03034



Town of Candia

Office of the Selectmen 74 High Street Candia NH 03034 (603) 483-8101

Dear Town Resident,

The Town of Candia would like to inform you about an exciting new program for our residents. Candia has been selected to be part of a special program called Solar Up New Hampshire. This Town supported initiative offers solar energy to homeowners at discounted pricing, making it more affordable.

Solar Up New Hampshire is a unique program that helps increase solar energy in communities. We have interviewed several companies and have selected Granite State Solar as the solar installer that best fits our residents. The campaign is being organized by Candia volunteers in partnership with the Southern New Hampshire Planning Commission (SNHPC), Smart Power, a national marketing company, the NH Sustainable Energy Association, and the Hillsborough County Area Renewable Energy Initiative. Funding for all advertising and marketing of this program, including the printing and mailing costs of banners, signs, and even this letter, are through a grant from the John Merck Fund, the SNHPC and Candia's installer Granite State Solar.

Here's what Solar UP NH includes:

- DISCOUNT PRICE: A discounted price offered by our town-selected installer Granite State Solar. Solar Up pricing has 3 tiers. The more people sign up for solar, the lower the price. All participants will receive the tiered pricing discounts, as long as they sign up by the November 30th deadline.
- FINANCING: There are a variety of flexible financing options offer by Granite State Solar that makes installing solar panels more affordable than ever. Most financing options allow homeowners to <u>immediately lower</u> their monthly electric bills. Granite State Solar can review these options with you.
- OFFERING DATE: Candia's Solar Up Program will be offered from August 1, 2015 through November 30, 2015.
 All contracts must be signed in that time frame in order to qualify for the discounted cost.

To find out more about the program:

- Sign up for a FREE, no obligation home visit at: http://solarupnh.com/Candia-Deerfield
- Come to one our workshops (see the above website for event info.)

Contact Granite State Solar 603-396-4318 to find out more about SOLAR-UP NH or to be put in touch with other town residents that have already installed solar on their homes.

Thank you for helping make our Town a cleaner, more energy-efficient community!

Sincerely, Carleton Robie Chairman of the Board of Selectmen



Town of Deerfield Board of Selectmen

8 Raymond Road • P.O. Box 159 • Deerfield, NH 03037 Tel (603)463-8811 • Fax (603)463-5846 Website: www.townofdeerfieldnh.com

Dear Town Resident,

The Town of Deerfield would like to inform you about an exciting new program for our residents. Deerfield has been selected to be part of a special program called Solar Up New Hampshire. This town supported initiative offers solar energy to homeowners at discounted pricing making it more affordable.

Solar Up New Hampshire is a unique program that increases residential solar in communities. Several companies have been interviewed and Granite State Solar has been selected as the installer that best fits our community. The campaign is being organized by town volunteers and funded by a grant received by Southern New Hampshire Planning Commission in partnership with Smart Power a national marketing company, the NH Sustainable Energy Association, and the Hillsborough County Area Renewable Energy Initiative (HAREI).

Here's what Solarize Deerfield includes:

- **DISCOUNT PRICE** A discounted price offered by Granite State Solar. Solar Up pricing has 3 tiers, the more people sign up for solar, the lower the price falls. All participants will get the same pricing no matter when they sign up.
- **FINANCING** There are a variety of flexible financing options offered which makes installing solar panels more affordable than ever. Most financing options allow homeowners to <u>immediately lower their monthly electric bills</u>. Granite State Solar and Solar Up volunteers will review these options with you.
- END DATE Solar Up Deerfield has an end date of November 30, 2015. All contracts must be signed by that date in order to qualify for the discounted cost.

To find out more about the program:

- Sign up for a FREE no obligation home visit at solarupnh.com
- Come to one of our workshops, the next two are scheduled for:
 Saturday, August 1, 2015 from 12:00-1:00 Deerfield Town Hall
 Sunday, August 2, 2015 from 12:00-1:00 Candia Youth Athletic Association

Contact Wes Golomb 463-7537 to find out more about Solarize Deerfield or to be put in touch with other town residents that have already installed solar on their houses.

Thank you for helping make Deerfield a cleaner, more energy-efficient community!

Stephen R. Barry, Chairman

. Andrew Robertson

Richard Pitman

Rebecca Hutchinson

Jeffrey Shute

Deerfield Board of Selectmen June 29, 2015



Town of Chester

<u>Board of Selectmen</u>

<u>84 Chester Street</u>

Chester, NH 03036

Phone: (603) 887-4979

Fax: (603) 887-4274 E-mail: chesterbos@gsinet.net

Stephen O. Landau, Chairman '17

Joseph M. Hagan, Vice Chairman, '17

Joseph S. Castricone, '16

Jack Cannon, '18

Richard S. Trask, '18

July 23, 2015

To the Citizens of Chester:

Please be advised that the Town of Chester, in partnership with Southern New Hampshire Planning Commission, has joined a solar campaign program with Derry to offer its residents and businesses an opportunity to explore solar energy for their homes and businesses. This Program (Solar Up New Hampshire) officially starts on August 1, 2015 and ends on November 30, 2015.

Where to Find Information: Solar Up Chester-Derry is on the Solar Up New Hampshire website at www.SolarUpNH.com/Chester-Derry. Also, you may call ReVision Energy at the number listed on the website (603) 679-1777 and get started with a free site evaluation to find out if solar is an option that is right for you. Information on the website states that the following is what you will get by contracting in time:

- 30% income tax rebate
- Opportunity to receive positive cash flow from the beginning
- Low interest rate financing
- Insulation from ever-increasing energy costs
- 25 year warranty

Chester residents are also invited to participate in a **Solar Up Informational Event** on Monday, August 31, 2015 at 7:30 PM - 9:00 PM at the Derry Municipal Building at 14 Manning Street in Derry, New Hampshire. This event will be presented by ReVision Energy and recorded for community TV.

Sincerely yours,

Stephen G. Landau, Chairman

Castricone, Selectman

Joseph M. Hagan, Vice Chairman

Cannon, Selectman

Richard S. Trask, Selectman

DRAFT Copy of Letter Released Through Pinkerton Academy

October xx, 2015

To the Citizens of Chester and Derry:

As you may already know, the Towns of Chester and Derry, in partnership with the Southern New Hampshire Planning Commission, is running a solar campaign for its residents and businesses. This Program (Solar Up New Hampshire) can provide you technical and economic information on the suitability of solar energy for your home and business. The campaign officially started on August 1st, 2015 and ends on November 30th, 2015.

Where to Find Information: Solar Up Chester-Derry is on the Solar Up New Hampshire website at www.SolarUpNH.com/Chester-Derry. Also, you may call ReVision Energy at the number listed on the website (603-697-1777) and get started with a free site evaluation to find out if solar is an option for your home or business. Information on the website states that the following benefits can be obtained if you sign up by November 30th:

- 30% income tax credit
- Opportunity to receive positive cash flow from the beginning
- Low interest rate financing
- Insulation from increasing energy costs
- 25 year warranty
- Help reduce carbon emissions and improve air quality

Also, if you need additional local information on the program, feel free to contact the following volunteers:

- Chester: Deb Munson, debmunson@gsinet.net
- Derry: Jeff Moulton, jeff.moulton5@gmail.com

We hope you get the opportunity to take advantage of this outstanding opportunity.

Sincerely,



Chester to be a Pilot Town for Solar Energy

Posted on July 16, 2015 by Matt Rittenhouse

CHESTER – Chester residents have the chance to erect photovoltaic solar arrays on their property for reduced rates through a program organized by the Southern New Hampshire Planning Commission (SNHPC).

Chester representative to the SNHPC Deb Munson met with the board of selectmen at their July 9 meeting to update them, and town residents, about the Solar Up New Hampshire program.

The point of the program is to make it easier for residents and businesses to go solar, a move that not only moves energy use off the electricity produced by burning fossil fuels, but also helps make residents energy independent and can eliminate the monthly electric bill.

The Solar Up program has seen success in other states and was brought to pilot communities in New Hampshire with grant funding and the cooperation of SNHPC, various non-profits and volunteers from local towns.

The program combines towns in partnerships, with an aim to increasing the amount of units installed, thus reducing the overall cost of the work. A single contractor, ReVision Energy, was chosen through a competitive bid process to work with the partnership of Chester and Derry.

Residents from both towns interested in learning more about solar power can contact ReVision to get a free analysis of their location and information about the next steps. The more people involved, the larger the discounts, scaled according to various kilowatt-hour thresholds.

"The prices are coming down and it seemed like a good opportunity for the people in town," said Munson.

Munson spoke about the benefits of the project and sought the selectmen's approval to advertise on town property with signs.

The selectmen had no problems with Munson's work and wished her luck with the endeavor.

According to its website, "Solar Up New Hampshire provides significant discounts off the cost of a solar photovoltaic system, which is in addition to incentives from the state and federal governments. Solar Up New Hampshire gives residents access to significant savings on the cost of electricity for decades to come."

For more information, including a list of the basic frequently asked questions, visit solarupnh.com. There's a link on the site for the Chester/Derry partnership.

Selectman Joe Castricone also directed Munson to local TV personality Karl Knudsen for a potential local access cable interview to spread the word.



Solar Up Candia-Deerfield ends November 30th!



- Take advantage of the lowest-tier pricing, now available
 - 30% Tax Credit
- NH Public Utilities Commission rebate still available up to \$2,500
 - Financing available

Sign up for a free site visit to evaluate your home at: SolarUpNH.com/Candia-Deerfield









GraniteStateSolar.com

Granite State Solar (603) 369.4318

Or contact us at:



Financing for Solar Up

Financing a home solar system may make sense for you and your financial needs. Here are some tips that many Solar Up and Vital Communities Solarize campaigns have learned from lenders in NH that will help you make an informed decision:

Useful Tips to Consider:

- Some lending institutions offer loans specifically designed for energy-related projects, like installing a residential solar system.
- In addition to energy-specific loans, customers can access more traditional lending options (e.g. unsecured personal loans, home equality loans) through virtually any bank or financial institution in the region.
- Customers must meet credit and income requirements to be eligible for any loan. In some cases, the interest rate and term depend on customer credit, amount borrowed, and other factors.
- Be sure to speak with a knowledgeable loan advisor about your specific situation to determine what financing options make the most sense for you.
- Because the appropriate loan type often depends on the amount being borrowed, it is helpful to have a cost estimate from an installer prior to seeking approval for financing.
- Some solar installers have relationships or experience with certain lending institutions and may be able to help direct you to appropriate financing resources—talk with your community volunteers or selected installer to learn more.
- In sharing general information about specific lending institutions, the Southern NH Planning Commission or Solar Up NH are in no way endorsing or recommending particular financing partners or products. As with any contract you may enter into, we urge you to read and understand the "fine print" and seek expert advice as necessary.

Institution	Loan Type	Key Points	
		10-year, fixed rate loan secured	
		by the borrower's home. Loans	
Ct Many's Book	Green Rate Loan	available up to 80% if home	
St. Mary's Bank	Green Rate Loan	value. Rate equals Home Equity Loan rate.	
		Rates average 3.89 and 3.99%	
Eastern Bank		for 5 and 10 years terms.	
	Home Equity Loan	Additional payments features	
		designed for solar tax credits	
		\$55,000 in sunsecured loans at	
		2.99% over a term up to 12	
		years.	
GreenSky	Home Improvement Solar	" "	
,	Loan	"Solar Up installer partners	
		ReVision Energy and Granite	
		State Solar both offer this loan product"	
		10-year, fixed rate loan secured	
The Nashua Bank		by the borrower's home. Loans	
	Energy Efficient Home Loan	available up to 80% of home	
		value. Rate equals Home Equity	
		Loans rate.	
		Fixed rate with lower rate than	
		standard personal loan, up to	
Service Credit Union	Energy Loan	\$20,000 and 60 months	
Service erealt ernen	znergy zoun	unsecured. Equity loan product	
		option offers lowest interest	
		rate.	
		Fixed interest rate, flexible loan term, up to \$25,000 secured	
		5.99%	
Admirals Bank	Solar StepDown Loan	3.3370	
		"Granite State Solar offers this	
		loan product.	
		2.99% loan product. Contact	
EnerBankUSA	Equity Loans	Granite State Solar to learn	
	. ,	more or visit	
		enerbank.com/homeowners. Additional loan of up t\$15,000	
		(up to \$7,500 unsecured) to	
		supplement Solar StepDown	
National Bank	SolarPlus Loan	Loan	
		*Granite State Solar offers this	
		loans product	

Frequently Asked Questions

Q. What is Solar UP New Hampshire?

A. Solar Up New Hampshire is a program designed to make it easy and affordable for residents and businesses to go solar—that is, to convert sunlight into electricity that we can all use in our homes. It is a regional initiative that towns compete to be part of. Solar Up New Hampshire provides significant discounts off the cost of a solar photovoltaic (PV) system, which is in addition to incentives from the state and federal governments. Solar Up New Hampshire gives residents access to significant savings on the cost of electricity for decades to come.

Q. What is the cost to the town?

A. Town money is not used for the Solar Up program. Solar Up materials are paid for in large part by the installer and grant funds. Other grassroots efforts as well as local program management are handled by volunteers led by the Energy Commissions/Committees in each town or town officials.

Q. Why is the town promoting one installer?

A. The Solar Up program works by giving residents and businesses the benefit of economies of scale. An installer can offer reduced prices by concentrating its efforts in one area and working with the community to spread the word about the program. The more people in the community who sign up, the lower the price goes for everyone, even the first to sign up. But everyone is free to use another installer or, of course, not to go solar at all.

Q. How was the designated installer selected?

A. The process began with Southern New Hampshire Planning Commission issuing a Request for Proposals from installers who were interested in serving the towns participating in Solar Up New Hampshire. After a screening process between SNHPC, the non-profit SmartPower and the towns, a small committee from your town interviewed selected installers and ranked the proposals, based on prices, quality of the equipment to be installed, quality of service, and overall track record. The SNHPC then contracts in good faith with the designated installer for the town.

Q. How do I know if my home is suitable for solar?

A. The most suitable location for a roof-mounted solar PV system is a south-facing roof with little to no shading from nearby trees, chimneys or other obstructions. Any shading on the system can reduce energy output, so it is important to assess the locations of current trees and buildings around your home as well as that of other obstructions that may exist around your home in the future. Advances in panel and inverter technologies can allow homes with some south-east or south-west-facing roofs to benefit from solar PV as well. The installer can give you a free evaluation of the suitability of your home. If your roof does not work you many also consider a ground mounted system.

Q. My roof is old; my roof is metal; my attic is hard to access;...Can I have solar?

A. All of these situations can be handled by a professional installer. If your roof needs to be replaced soon anyway, it may make sense to do that first. The installer can evaluate your situation as part of the free evaluation.

Q. Will drilling holes in my roof to install the solar panels cause leaks in my roof?

A. No. This is an issue that has been successfully addressed by specialized solar roof mounting systems, with professional installations.

Q. Can you put a solar array on an asphalt roof that is older than 5 years?

A. It can be completely acceptable to locate an array on an asphalt shingle roof over 5 years old and the decision to do so is completely dependent upon the condition of the roof, not necessarily the roof's age. Mounting a solar array on a roof can actually extend the life of the roof as the area under the array is shaded from the harmful UV rays. It is important to note however that when a roof is over 10 years old, the owner may want to have a plan to remove the panels in the next 20 years to replace the roof. This is not required, but the owner should be aware it might happen.

Q. If your asphalt shingle roof is over 5 years old should you consider changing it to a standing seam metal roof if you want a mounted PV array?

A. Standing seam metal roofs are very nice and really expensive, but are not required for roof mounted PV arrays. The best solution for solar mounting is really site dependent. Solar PV arrays can be mounted on existing roofs composed of asphalt shingles, standing seam, corrugated metal, rubber membrane as well as ground and pole mounts. Changing a roof to standing seam may be entirely unnecessary, but also may be a solution to consider given that metal will last approximately 50 years.

Q. Will the system produce electricity on cloudy days?

A. Yes, just not as much. Under an overcast sky, panels will produce less electricity than they produce on a clear, sunny day.

Q. Will my system produce power if there is a blackout?

A. Without a battery backup, grid-tied solar PV systems will not operate when the power grid is down. This safety requirement, called "anti-islanding" allows utility linemen to safely repair power lines during a power outage. You may choose to add a battery backup to your solar system to keep the lights on during a blackout, though they cost between \$3,000 and \$15,000.

Q. How long will the installation process take?

A. From the day you sign a contract with an installer, it can take between a few weeks and a

few months before your solar PV system will be turned on. The physical installation of the solar system typically takes anywhere from two to three days, but the time it takes to order and receive equipment, secure permits or schedule your installation can vary. Once installed, systems typically will need to be inspected by the town and utility.

Q. Can a ground or pole mount PV array be installed more cheaply than a roof mounted system?

A. This is completely dependent upon the particulars of the system, the site and the amount of electricity the customer wishes to make. It is also dependent upon what the solar installer can offer you as the owner. In most cases today, roof mounted PV arrays are typically less expensive than ground mounts but costs for ground mounts are steadily decreasing.

Q. Are micro-inverters the only way to build a solar array?

A. Micro-inverters, like other module level electronics such as optimizers, can be great options, but they are not the only option and there is not one size that fits all solar PV systems. Micro-inverters can be great to maximize production under partial shading or other site conditions. All solar electronics have to make electricity for a long time to achieve financial benefits: for example, micro-inverters sitting under a hot PV module exposed to the elements for 25 years or more will not last as long as a string inverter in a nice cool basement or in the shade of a building. It makes little sense to use these devices if the site does not call for it, but if it does, they are beneficial. System simplicity increases the probability of a long lived trouble-free PV array.

Q. There is a large up-front cost to install solar PV panels? What if I do not have the money to pay for it?

A. While the simplest solution is to pay cash out of savings, this is not possible for many people, although it may be a little easier than it sounds since you get 30% back as a federal tax credit and a cash rebate from the state within the first year. However, there are at least four other financing options: 1) Borrow against the equity in your home. Today, rates for home loans and home equity lines of credit are quite low. Depending on your specific circumstances, you may find that the yearly loan payments are lower than the overall savings from the solar installation. 2) Take out a personal loan. You pay a higher interest rate for a personal loan that is not backed by the equity in your home. However, there are credit unions, such as St. Mary's Credit Union, that offer "green" loans with more attractive rates. 3) Install it yourself. If you have home improvement skills or interest (electrical, carpentry, etc.), there are local, non-profit groups, such as the Hillsborough Area Renewable Energy Initiative (see www.HAREI.org) that help homeowners install their own systems at a reduced cost. The drawback to this method is that there is no warranty on the work, and it requires sweat-equity. 4) Lease the system and/or enter into a Power Purchase Agreement for the output (more details below).

Q. What is a Power Purchase Agreement (PPA)?

A. A solar installer that offers you a PPA will evaluate your home for its solar potential. If it is suitable, they will offer to install a system and sell you electricity for a fixed time period

(typically 10-20 years) at a rate that is lower than current electric prices. The deal here is that since the installer is making the investment, they take almost all the profit, but you will pay a lower rate for electricity. The benefit to you is that there is no up-front cost, and you get a currently discounted electricity cost. Issues to check out before signing a contract:

- How much of your electric usage will be covered?
- Can the system owner raise the price of electricity that you pay?
- What happens if the cost of electricity falls below your discounted rate?
- What happens if you want to sell your home and/or there is a lien on the property?
- What happens if you want to make changes to the roof?

Q. What are your Solar Installers Credentials?

A. It is important that your solar PV installer have formal credentials to ensure that a system is properly designed and installed. This includes having a Solar Energy International Solar Professionals Certificate and a NH Electrician's License, but may also include additional certifications such as NABCEP or other technical college degrees. It is a requirement in NH that all metallic structures that are part of a solar PV system are properly bonded by a licensed NH electrician. Also see attached Office of State Fire Marshal's November 27, 2012 Informational Bulletin.

Q. What sort of maintenance is required?

A. Solar PV systems require very little maintenance. Rain showers will generally take care of pollen and dust that fall on your solar panels. If your system is shaded by trees, you may have to trim and maintain branches to protect your system from falling limbs and to minimize shading and maximize production. In extremely snowy winters, you may have to clear snow from your roof to protect your solar panels and maximize winter production. It is important to note that snow will melt off of a tilted system except when there is an extremely heavy snow or prolonged freezing temperatures.

Q. What size system should I install?

A. Every home is different. As such, your system size will be determined by your roof space and electricity needs. The average residential solar system is approximately 7 kW and produces approximately 8,400 kWh per year, but this could be too big or too small for your home. If you use certain technologies that are highly dependent on electricity, such as an electric car or geothermal heating and cooling, you might require a larger system than otherwise. Your installer will work with you to design a system with characteristics that will meet your specific needs. Reducing your electricity demand through energy efficiency and conservation is another important consideration when sizing a PV system in order to produce only what you need so that you need not pay for excess capacity.

Q. Are Solar PV systems and installations safe?

A. Yes solar PV is a tested, safe and efficient source of energy for your home or place of business. Building code and fire code requirements as well as solar panel manufacture warranties ensure that these systems are safe, last for many years and are installed properly. These code requirements also require that solar PV systems be easily shut down

to allow for fire-fighting and access to a roof in case of fire. Fire codes also specify three feet setbacks between the array and roof edge as well as between the top of the array and roof ridge. This prevents filling the entire roof space with solar panels.

Q. Do solar PV panels produce glare and become hot enough to become a fire hazard?

A. No. Solar panels are manufactured with anti-glare technology which incorporates a matte finish inside the panel to eliminate reflective glare. Solar PV panels can reach approximately 350-375 °F in areas of high sun exposure in places such as Arizona. It takes 451 degrees to burn paper. The panels are mounted on rail systems, which provide a 4-6 inch air gap between the panels and the roof, negating this issue by allowing the heat to escape. The typical dark-colored roof shingles found on many homes get just as hot as the solar PV panels. Thus, solar PV panels do not become hot enough to create a fire or ignite a roof or building siding.

Q. How will solar affect my home's value?

A. Typically, solar systems add to a property's value. This is due to the fact that unlike electricity rates, solar rates will never go up. Thus, a solar PV system insulates you from rising electricity rates. Once the system has paid for itself, the electricity it generates is absolutely free!

Q. How much will I save by installing a solar system?

A. Your savings depend on the size of the system you choose, your annual electrical usage, electricity rates, and any financing option that you choose from your Solar Up installer. To start, ask your solar installer how much electricity your new system is expected to produce on an annual basis and then compare that number to how much electricity your household uses to get an idea of how much you could save. Installers can also help you determine how much money you could save if electricity prices escalate over time.

Q. I am confused about my electricity charges; can you explain my service rates?

A. Typically, a residential electricity bill is comprised of charges from a variety of supplier services, mainly: the fixed customer charge, generation services, delivery services, transmission charge, and distribution charge. For further reference, please go to your utilities website and search for "average bill" in the "Rates" section

Q. Will I still receive a monthly electric bill after installing a solar electric system?

A. Yes. You will receive a monthly bill from your utility company as you always have, but the amount owed will differ depending on your monthly electrical usage. Depending on how your system is sized, you may accrue credits in the more productive summer months which through "net metering" can be carried over and used in the less productive winter months. Even if your system entirely offsets your electrical usage, there is still a flat monthly fee required, in order to be connected to the grid.

Q. Am I required to use the Solar Up installer that was preselected for my community?

A. To take advantage of the tiered pricing structure offered through the Solar Up New Hampshire program, you'll need to work with your pre-selected installer. However, other solar installers may be able to offer you competitive pricing as well. Residents and businesses in your town or city are free to work with any contractor they wish to do business with, but may feel more comfortable working with the installer that was competitively selected by community leaders.

Q. Will installing a solar system increase my tax base?

A. It can depend on whether your town has in place a local property tax exemption for solar PV systems. While your property value will likely increase, some towns have in place property tax exemptions for renewable clean energy systems. Claims for these exemptions must be filed with the assessor or select board in your town. Make sure to contact your local tax assessor's office for more information. Such an exemption may also apply to solar water, wind turbine systems or wood-heating energy resources, regardless of the type of facility the system serves.

Q. Does homeowner's insurance cover my system?

A. If you prefer to own your system directly and either purchase it outright or finance it via a loan, you should check with your insurance agent to find out whether your system will be covered under your existing policy.

Q. Are state incentives available for my system?

A. Yes, see the New Hampshire PUC website at: http://www.puc.nh.gov for information about the state's residential renewable energy rebate programs. As of September 18, 2015 and order of the PUC, there is now a reduction of the incentive payment level to \$0.50 per watt up to a maximum of \$2,000, or 30% of the total system cost, whichever is less. This modification goes into effect for applications received after October 2, 2015. Prior to October 2, 2015, the incentive program will continue to provide for \$3,750 or 50% of total facility cost, whichever is less. There is also a residential solar hot water rebate program. While there was a temporary hold in place regarding the rebate program this summer; given the high demand for these rebates and limited program funding as well as continuing decreases in solar prices, the PUC Commission determined that the state rebate program should continue to operate under the current terms and conditions.

Q. Will Electric Utility Companies in NH continue to support solar PV installations?

A. There is currently a 50 MW cap statewide on solar PV installations and this cap is quickly being approached now. Liberty Utilities hit their cap allocation level at the end of July and Eversource has enough solar PV projects in the pipeline to potentially hit their cap relatively soon. Unitil is the furthest away from hitting their cap, with about 35% of their allocation online or under review. A piece of legislation that would lift the cap is currently

being considered for the special session in the fall, as a bridge to the 2016 legislative session in January 2016. Approval of this legislation would likely ensure that additional residential and small commercial solar PV installations will be able to be developed throughout the state in FY 2016.

Q. Are federal incentives available for my system?

A. The federal government currently provides an investment tax credit equal to 30% of your system's total installed cost, net of state incentives. This can be claimed on your 2015 or 2016 tax return. This tax credit is set to be reduced to 10% starting on January 1, 2017.



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY John J. Barthelmes, Commissioner

Division of Fire Safety OFFICE OF THE STATE FIRE MARSHAL J. William Degnan, State Fire Marshal

Office: NH Incident Management Center, 110 Smokey Bear Blvd., Concord, NH Mailing Address: 33 Hazen Drive, Concord, NH 03305 PHONE 603-223-4298, FAX 603-223-4294 or 603-223-4295 TDD Access: Relay NH 1-800-735-2964 ARSON HOTLINE 1-800-400-3526



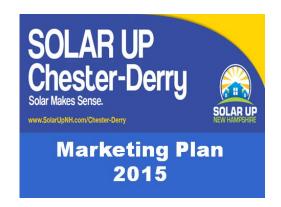
INFORMATIONAL BULLETIN

BULLETIN#	TITLE		DATE ISSUED		
2013-02	Solar Installations		11/27/2012		
SUPERSEDES	RELEASED BY	APPROVED BY	SOURCE SUPE		SUPERSEDED BY
See below	DS	RBF	Electrical Safety & Licensing Electricians' Board		

On November 27, 2012 the Electricians' Licensing Board (Board) voted unanimously that all the metallic structure components of a PV system are required to be installed by a New Hampshire licensed electrician under the scope of RSA 319-C.

After receiving public input at an open forum, held on October 23, 2012, the Board voted in favor of the following motion, the installation of the metallic support structure, fittings, raceways, conductors and electrical equipment are considered part of the electrical installation and therefore are required to be installed by a New Hampshire licensed electrician. This would include any bonding jumpers or devices identified for grounding or bonding of the metallic frames of PV modules, metallic mounting structures or other metallic equipment.

This current decision of the Board supersedes any prior decisions and informational bulletins regarding licensure requirements relating to PV installations.







Marketing production Cost

- This Marketing Project supported volunteer the Total number true project hours are unknown.
 Mass Mail cost bared by the town of Chester unknown amount.
 Printing cost for handouts was bared by Revision Energy Unknown cost
 TV production payed for under agreement Public access contract project cost zero.
 Newspoint Cost Zero manuscus and attention and the second project cost zero.
- cost zelo. Newspinit Cost Zero program received attention in all three papers as current events stories. Social Media site cost was zero for the web site or ad's due to market
- Launch Event cost This cost was covered by the Town of Derry cost

- Farmers market table spot cost was maned by volunteers
 Chester town fair table spot cost was maned by volunteers





Television Advertisement

Live show

Commercial advertisement

Message board











Social Media Web Site

- Went Live on June 22, 2015
- liked page 48 people
- Page views over One hundred

Social Media Ads

- Platform used Facebook
- Facebook Web Page 48 members
- Targeted Facebook local Ads on other Facebook web sites
- 1. Bring Derry Together Followers 3,200
- 2. Residents United Followed by 987
- 3. Chester Front Porch Followed By 1.665
- 4. Derry Economic Development followed by 157

News Print Media

Newsprint circulation Companies.

- The New Hampshire Union Leader distribution and readership in every county in the state, with nearly 140,000 daily readers and 180,000 Sunday readers, your story or message reaches all parts of the state

 Nuffield News publish weekly community newspapers in New Hampshire servicing the towns of Chester, Derry, East Derry, Hampstead, East Hampstead, Londonderry and Sandown. Other towns coming soon! All our community newspapers are mailed free of charge and have a controlled circulation of more than 28,000 residential copies.

 Derry News First published in 1880, the Derry News remains the best source for local news and information in Derry and Londonderry. Utilizing a combination of print and electronic media, the Derry News tells the stories of this vibrant region.



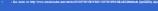
Union Leader article

DDAY — A program a demonstrally immoss for our of aller prove in Dany and Charler in gramming, the of immoss form was enabled.

A post large years only used Dark the device serving years of the Maniply Charle Marging and an enable of the large part and programs. Set by Charles Dany, which will demonstrate the demonstrate of the control of the contro

Union Leader Article

aming an official launch of the program on Aug. 21, when representance from Solar Up give to appear along with the render in Cony at the During the FO-minute bunch, representatives will cover what a typical immilition core, the installation time frame and other details. The launch is





Nutfield News Article



Derry News Article

Eagle Tribune Article



Hand- Outs Solar Up Chester-Derry! Solar Makes Sense Legislation Order Outs Handbill One Solar Up Chester-Derry Now is the time, to go color. Now is the time, to go color.



Community Events

- Launch Event August 31, 2015
- Framers Market Events September October
- Derry Fest September 19, 2015
- Chester Town Fair September 12, 2015







