Working Together for the Region

Neighbors Helping Neighbors Go Solar

Round One Report

October

SOLAR UP NEW HAMPSHIRE

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SOUTHERN PLANNING COMMISSION

SNHPC

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A special thanks to all our community volunteers, partner solar installers (Nu Watt Energy and Millhouse Enterprises) and the John Merck Fund for making Round One a success and for providing many of the photos included in this report.

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

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I. 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)

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

II. Executive Summary

In July 2015, three Southern New Hampshire Planning Commission municipalities (Bedford and Goffstown working together as one community coalition and the Town of Francestown going it alone) launched Solarize campaigns to encourage town residents and business owners to go solar.

By the program's September 30, 2015 deadline, 61 homeowners signed contracts and 2 businesses agreed to apply for state rebates to go solar. As a result of the work of many community volunteers and the two partner solar installers (NuWatt Energy and Millhouse Enterprises), Solar Up NH significantly lowered the cost of going solar between **15.9% and 16.1%** and more than doubled the number of existing solar PV installations within these communities.

Through the Solar Up NH website (www.solarupnh.com) and volunteer-led community outreach events and activities held in each community over the past several months, a total of **409** residents made an inquiry about Solar Up NH and another **276** residents requested a site visit from the community's partner solar installer representing **1.9%** of Bedford/Goffstown's total number of households and **10.4%** of Francestown's total households.

Of the residents who received a site visit but did not go solar, a majority indicated that they would be likely go solar in the future, but as of yet have not made a decision. The partner solar installers have indicated that there will likely be additional residents who decide to go solar after the 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 beyond the typical residential program to also include business, non-profit organizations, churches, and agricultural operations. The program was also adapted to 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 three municipalities selected to participate in Round One, each community selected a single partner solar installer (Nu Watt was selected for Bedford and Goffstown and Millhouse Enterprises was selected for Francestown). Round One of the program started up in June and went through the end of September 2015. It consisted of extensive community outreach encouraging residents and businesses to get 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 drops 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, complexity of the technology and process, cost, inertia, and trust).

Town Hall, Goffstown, NH

- **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.
- **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 jmunn@snhpc.org or 6603.669.4664 for assistance.

This Summary Report identifies the results and lessons learned in developing and implementing Round One 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!

III. 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 Customers:

A 16-panel solar array that takes up a considerable portion of one's backyard may not be desirable to most, but for Ruth Behrsing and Peter Jones in Francestown, the choice was easy to make.

"The more we can do to be energy conscious, the better. The way I look at it is my electric bill is my loan for the system, until the project has been paid off. After that, we will not need to worry about paying electric bills, because my system is designed to fulfill 100-percent of our energy needs" – Ruth Behrsing

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 Solar Up NH to be shared all across the state by 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 currently available through end of 2016.

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	June/September 2015
Program Deadline (signed contracts must be in by this date)	Wednesday, September 30, 2015

IV. 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.


Ground Mount PV Array Install in Francestown

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.

4.1 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:

- 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) at the start of Round One of Solar Up NH, the following Table indicates the total number of residential solar PV installations that existed in the SNHPC Region and 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.

Towns	Count	Rebate ($)	Total (kW)	Facility Cost ($)
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 Hampshire Planning Commission(SNPC)	135	446,450	677.352	2,952,572

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

4.2 Selection of Communities

On March 11, 2015, SNHPC distributed an Request for Information (RFI) – e.g. 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 all the communities to participate in Solar Up NH and submit an application to be considered. Given available funding for the program, SNHPC and its program partners determined that a total of four communities could be accepted to participate in the program – two communities in Round One (June to September 2015) and two communities in Round Two (October to December 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 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.

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 joint community and the Town of Francestown were selected for Round One of the program. In addition, the towns of Chester and Derry and the towns of Candia and Deerfield were selected as these towns applied jointly as two joint Solar Up NH communities (see following region map showing location of communities selected for Solar Up NH). The towns of Chester and Derry applied jointly as a coalition as did the towns of Candia and Deerfield.

www.SolarUpNewHampshire.com

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.

To kick off the program, Bedford and Goffstown acting together as one community and the Town of Francestown going alone elected to participate in Round One of Solar Up NH (June to September 2015). Candia and Deerfield acting together as one community and Chester and Derry acting together as one community elected to participate in Round Two. Given the proposed launch events and other outreach activities planned in these communities, it was decided as a group that Round Two for Candia/Deerfield officially 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.

4.3 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 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 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 following table.

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

4.4 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 One communities were held in June 2015.

The Town of Francestown held their launch event on June 24th at the Town Offices. Before the launch event, volunteers were out at the town “dump” handing out flyers and talking to folks about the program. SNHPC and Smart Power also worked together to develop the Solar Up NH

logo and banner which was printed for each community and Smart Power and NHSEA worked together on the website. In addition, ground level or yard signs and program flyers were also developed, printed and provided to each community (see example materials).

Volunteers in Francestown placed these posters and flyers in the Town Offices, Post Office, Village Store and Library and posted the yard signs around the town in public rights of way. They also had t-shirts that volunteer members wore to various town events, walking and jogging, and talking with residents and neighbors. Francestown also had an open house at the first solar PV installation and invited town residents to come and learn about this installation and other solar options. Over Labor Day weekend, volunteers also had flyers available and wore t-shirts on the float for the town hall. Community volunteers also published 3 articles in the Monadnock Ledger and two in the Francestown News and on September 17th they held a questions and answers event for town residents at one of the community volunteers home.


Solar Up NH Launch Event in Francestown

The towns of Bedford and Goffstown working together as one community held their first Solar Up NH launch event on June 15, 2015 at the Bedford McKelvie Middle School. This event was well attended with over 75 people coming out on a rainy night. The community volunteers in Bedford/Goffstown were also active in working neighbor by neighbor and passing out program flyers at the "town dump"; posting events and information on the town website; posting the Solar Up NH banners at the town offices and overall working to spread and post Solar Up NH yard signs throughout the two towns.

On August 18th another launch and educational event was held in Goffstown at the Hillsborough County Offices as well as on August 20th at the Bedford Public Library. All of these events were recorded live and played on the Bedford and Goffstown Public Television stations.

Perhaps the largest community effort was coordinating and obtaining letters from both the Bedford and Goffstown 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 both communities utilizing the door to door flyer service of the US Post Office. A similar letter from the Francestown Board of Selectmen was also dropped off to every resident address in Francestown through the US Post Office. The Solar Up NH program and the partner solar installers 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 One of the program.

4.5 Tracking Progress During Round One

In addition to this outreach, community volunteers in Francestown emailed all 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 working together with their partner solar installer built and maintained a cloud-based spreadsheet tool designed to keep track of the progress of Solar Up NH in Francestown. 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 for Bedford/Goffstown built and maintained a similar cloud-based 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 solar PV installers, SNHPC and designated community volunteers. During Round One 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.

V. RESULTS

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

- **61 homeowners** signed contracts by the program deadline to go solar through their partner installers which will add **546.2 kilowatts (kW)** of new renewable energy to the region as well as double the number of existing residential installations across the Round One communities;
- **2 businesses** are also waiting to apply for state rebates to go solar through their partner installers when the rebate levels for commercial and industrial uses are established by the state PUC. These systems will add an additional **250 new kilowatts (kW)** of renewable energy to the region;
- **3,636 metric tons of CO2** will be avoided annually for years to come (equivalent to taking **765** cars off the road)[1];
- **1.9% percent** of households across the participating communities requested site visits from Solar Up NH partner installers; and
- **22.1% percent** of those inquiries resulted in signed contracts to go solar; and

[1] http://www2.epa.gov/energy/greenhouse-gas-equivalencies-calculator

- **8 solar PV systems** were installed prior to the program deadline; and another **53 systems** are scheduled to be installed this fall/winter in Round One communities.

The following Table provides an overall Summary of Solar Up NH Results by each of the two communities in Round One. The data confirms that Solar Up NH was highly visible. Specifically, **2.9% of all households** in the Round One communities expressed an interest in going solar and submitted inquiries for site visits. Out of the **409** initial inquires, a total of **276** site visits were conducted and **61** contracts were signed for installations. Among the Round One communities, the towns of **Bedford (30)**, followed by **Goffstown (24)** and **Francestown (8)** had 61 total installations.

In evaluating the cost savings of Round One, we found that Solar Up NH prices were highly competitive and that all of the Round One communities had enough participation to secure the lowest-tier pricing from their partner installer, except for the Town of Francestown. Solar Up NH residents in Francestown however by reaching the next lowest tier of pricing at **$3.45/watt** saved a total of roughly $8,250, which averages $1,000 per system. This represents an estimated overall savings of **15.9%** based on an average cost of $4.00/watt at the start of the program**.** According to the NHSEA and the HAREI, the current average cost of a residential PV solar system in the SNHPC Region is around $4.00 per watt.

By reaching the lowest-tier price in Bedford and Goffstown of **$3.40/watt**, residents realized savings of **55 cents/watt** below the base price of **$3.95** at the start of the program. This represents estimated savings of **16.1%**. The average actual cost (including cost adders)[2] has not been calculated yet as several ground mounted systems are soon scheduled for installation in Bedford and Goffstown.

Overall, Solar Up NH pricing in Round One of the program fell within the $3.40/watt to $3.45/watt price range representing savings of between **15.9%** and **16.1%** below pricing at the state of the program. Thus, customers obtained significant discounts.

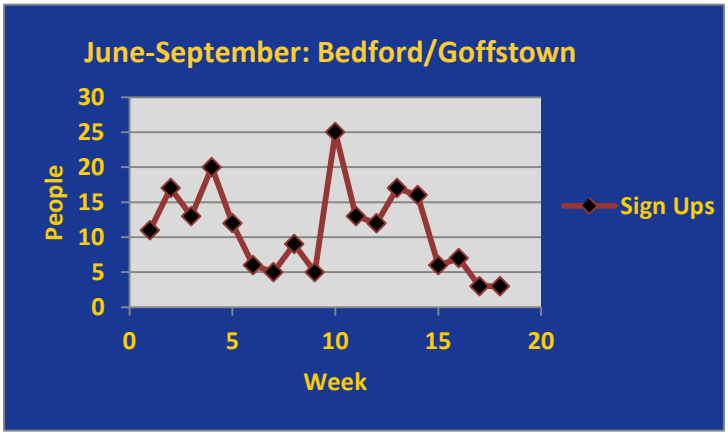
Solar installations can be financed through home equity loans, consumer loans, and financing offered through the pre-selected installers. According to the Solar Up NH installers most

[2] Partner installers were required to list all equipment and services included in their base price package, as well as a list of prices for any additional features and services that might be required/requested on a case-by-case basis.

homeowners used their own financing institution, used cash or 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

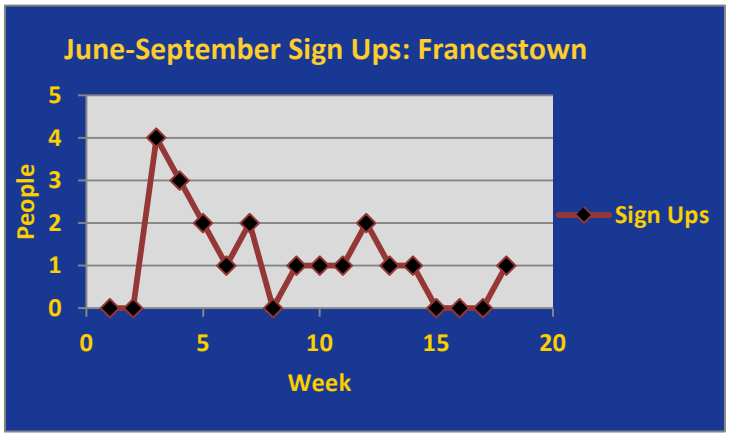
Tiered pricing followed by trust/confidence in the pre-selected solar installer, the program deadline, neighbor decisions and Solar Up NH events and activities were considered as having the most influence in customer decisions to sign a contract.



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 around week 10 of the campaigns after the town governing board letter was distributed and then subsequently declining during the last month of the campaigns.

On average, **the website generated 50 inquiries or requests** for site visits per month in Bedford/Goffstown and 5 inquires per month in Francestown. The following figures demonstrate the overall monthly trends and the peaks of residents' inquiry received

throughout the Round One 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.



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

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	Total Sign Ups
June	7
July	6
August	6
September	1
Total	**20**

Francestown

Month	Total Sign Ups
June	61
July	37
August	83
September	19
Total	**200**

Bedford/Goffstown

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Summary of Solar Up NH Results by Town in Round One

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]
Bedford/Goffstown	338	2.5%	214	1.5%	53	0.39%	53	490.48	3299 T/year
Francestown	71	11.6%	64	10.49%	8	1.3%	8	55.72	337 T/year
Totals	409	2.9%	276	1.9%	61	0.43%	61	546.2	3636 T/year

*Census Data Total Households: Bedford – 7,364 Goffstown - 6,068 Francestown – 610

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

VI. LESSONS LEARNED

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

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 One, the visibility of the Solar Up NH website today continues to generate inquiries from residents both in the participating and even 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 One 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 One of Solar Up NH, particularly with respect to lessons learned that can be passed on to Round Two and future Solar Up NH campaigns conducted 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 Round One 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 Round One of 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 Round One, 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 Round One. First 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. In the end, these policy issues were 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.

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 actual program deadline of September 30, 2015.

Work with Partner Installers to Share in Marketing Costs. During Round One 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 to all the residents in Bedford, Goffstown and Francestown.

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 is 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 Francestown spent countless hours working to obtain the right installer for their community. Finding an installer that wanted to work in a smaller town was more of a challenge than selecting an installer for larger towns such as Bedford or Goffstown.

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. While Francestown decided not to partner, the community nevertheless was able to find adequate number of volunteers to support the program, including support from HAREI members.

Find Local Champions. As evidenced in Round One, community outreach requires serious work and coordination among many people and utilizing existing networks. As part of this outreach, Bedford/Goffstown and Francestown found it was essential to have several local champions capable of leading the Solar Up NH program. Round One of the program was 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 Round One 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 Round One. According to several installers however, it was found that the informal but planned outreach events specific to Solar Up NH generated the most leads and referrals and were more effective than town wide events such as Old Home Days and fairs.

VII. 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
jmunn@snhpc.org
603.669.4664
438 Dubuque Street
Manchester, NH 03102

VIII. Example Materials

SOLAR UP NEW HAMPSHIRE

Solar Makes Sense.

www.SolarUpNewHampshire.com

Program ends on September 30th

Solar Up Francestown

Solar Makes Sense.

Now is the time to go solar.

Solar power puts you in charge of your energy. With great financing and state of the art technology, you can take control of your utility bills.

Save money by taking advantage of this unique solar buying opportunity that makes solar easy and affordable. Solar Up New Hampshire offers these important benefits for residents:

- Protect against rising energy costs
- Pre-screened solar installer you can trust
- Flexible financing options
- 30% Federal Tax Credit

You must sign a contract by September 30, 2015 to participate.

Go to www.SolarUpNH.com/Francestown to find out if your home is good for solar.

SOLAR UP NEW HAMPSHIRE

www.SolarUpNH.com/Francestown

SNHPC

SOLAR UP NEW HAMPSHIRE

Solar Makes Sense.

www.SolarUpNewHampshire.com

Town of Goffstown

BOARD OF SELECTMEN

Dear Town Resident,

The Town of Goffstown would like to inform you about an exciting new program for our residents. Goffstown 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. The town has interviewed several companies and has selected NuWatt Energy as the solar installer that best fits our residents. The campaign is being organized by town 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 (HAREI). The 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 the installer - NuWatt Energy.

Here's what Solar UP NH includes:

- **DISCOUNT PRICE:** A discounted price offered by your town-selected installer NuWatt Energy. Solar Up pricing has 5 tiers. The more people sign up for solar, the lower the price falls. All participants will get this pricing no matter when they sign up.
- **FINANCING**: There are a variety of flexible financing options offered by your installer that makes installing solar panels more affordable than ever. Most financing options allow homeowners to immediately lower their monthly electric bills. The installer can review these options with you.
- **END DATE:** Your Solar Up program has an **end date of September 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:**
  http://solarupnh.com/Bedford-Goffstown
- **Come to one of our workshops (see the above website for event info.)**

Contact NuWatt Energy at (603)-657-7177 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 houses.

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

Sincerely,

Peter Georgantas
Chairman of the Board of Selectmen

16 MAIN STREET • GOFFSTOWN, NEW HAMPSHIRE 03045
ADMINISTRATION: (603) 497-8990 • FAX (603) 497-8993

Learn more and be part of the future: SolarUpNH.com
www.solarupnh.com/Bedford-Goffstown
Contact: Fergus Cullen, NuWatt Energy, fcullen@nuwattenergy.com, 603-657-7177

SOLAR UP
Bedford-Goffstown
Solar Makes Sense.
www.SolarUpNH.com/Bedford-Goffstown
SOLAR UP NEW HAMPSHIRE

SOLAR UP NEW HAMPSHIRE

Solar Makes Sense.

www.SolarUpNewHampshire.com

TOWN OF BEDFORD New Hampshire

Dear Town Resident/Business,

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

Solar Up New Hampshire is a unique program that helps increase solar energy in communities. Solar UP Bedford-Goffstown has interviewed several companies and has selected NuWatt Energy as the solar installer that best fits our residents. The campaign is being organized by town 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 (HAREI). The funding for all advertising and marketing of this program, including the printing and mailing costs of banners, signs, and even this letter, is through a grant from the John Merck Fund, the SNHPC and the installer - NuWatt Energy.

Here's what Solar UP NH includes:

- **DISCOUNT PRICE:** A discounted price offered by the selected installer NuWatt Energy. Solar Up pricing has 5 tiers. The more people sign up for solar, the lower the price falls. All participants will get this pricing as long as they sign up by the September 30, 2015 end date.
- **FINANCING:** There are a variety of flexible financing options offered by your installer that makes installing solar panels more affordable than ever. Most financing options allow homeowners and businesses to immediately lower their monthly electric bills. The installer can review these options with you.
- **END DATE:** Your Solar Up program has an **end date of September 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: http://solarupnh.com/Bedford-Goffstown**
- **Come to one of the Solar UP Bedford-Goffstown workshops (see the above website for event info.)**

Contact NuWatt Energy at (603)-657-7177 to find out more about SOLAR-UP NH or to be put in touch with other town residents who have already installed solar on their houses.

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

Sincerely,

Jim Scanlon
Bedford Town Council Chairman

24 North Amherst Road, Bedford, NH 03110 • 603-472-5242 • www.bedfordnh.org

Learn more and be part of the future: SolarUpNH.com
www.solarupnh.com/Bedford-Goffstown
Contact: Fergus Cullen, NuWatt Energy, fcullen@nuwattenergy.com, 603-657-7177

SOLAR UP
Bedford-Goffstown
Solar Makes Sense.
www.SolarUpNH.com/Bedford-Goffstown
SOLAR UP NEW HAMPSHIRE

SOLAR UP NEW HAMPSHIRE

Solar Makes Sense.

www.SolarUpNewHampshire.com

NuWattEnergy
AFFORDABLE CLEAN ENERGY

NuWattEnergy.com
14 Ellyson Ave
East Hampstead, NH 03826

PRSRT STD
U.S. POSTAGE
PAID
Spectrum Marketing Companies

Please recycle after reading and sharing.

Solar Up Bedford-Goffstown is a community-supported solar campaign that makes it easy for residents to go solar. You'll get:

- 30% income tax credit
- Eligible for $3,750 State of NH rebate
- Opportunity to receive positive cash-flow from the beginning
- Low interest rate financing
- Insulation from ever-increasing energy costs
- 25 year warranty
- Eligible for Bedford property tax exemption

SOLAR UP
Bedford-Goffstown
Solar Makes Sense.
www.SolarUpNH.com/Bedford-Goffstown

SOLAR UP
NEW HAMPSHIRE

INFORMATION NIGHTS:

Tuesday, August 18: 6:30 p.m.
Hillsborough County offices
329 Mast Road, Goffstown

Thursday, August 20: 6:30 p.m.
Bedford Public Library
3 Meetinghouse Road, Bedford

The program ends September 30, 2015.

Come learn about the advantages of owning a solar system vs. leasing.

Learn more and be part of the future: SolarUpNH.com
www.solarupnh.com/Bedford-Goffstown

SOLAR UP NEW HAMPSHIRE

Solar Makes Sense.

www.SolarUpNewHampshire.com

168724

NuWattEnergy
AFFORDABLE CLEAN ENERGY

NuWattEnergy.com
14 Ellyson Ave
East Hampstead, NH 03826

PRSRT STD
U.S. POSTAGE
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Spectrum Marketing Companies

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- Opportunity to receive positive cash-flow from the beginning
- Low interest rate financing
- Insulation from ever-increasing energy costs
- 25 year warranty
- Eligible for Goffstown property tax exemption

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Learn more and be part of the future: SolarUpNH.com
www.solarupnh.com/Bedford-Goffstown

Small program, huge impact

As the clock ticks on the Land and Water Conservation Fund, Congress has a chance to save it.

You may have not heard of this small, but vital, federal program, but you have surely benefited from it, whether you enjoy the great outdoors or not, whether you stay in the Monadnock Region or enjoy trips to the White Mountains or other great places.

BOBCAT'S TAIL

Eric Aldrich

If you enjoy clean water, fresh air, healthy lands, vibrant communities and a robust economy, you've benefited from the Land and Water Conservation Fund.

And unless Congress acts soon, it's about to expire. Since 1965, the LWCF has used a small percentage of revenue from offshore oil and gas drilling to invest in lands, water, recreation and working landscapes. LWCF uses no taxpayer dollars. None.

Its investments have created or enhanced local and state parks, working farms and forests, wildlife refuges, national forests, historic battlefields, cultural sites and access for hunting and fishing. Here in New Hampshire, LWCF has provided $150 million over the past five decades, boosting local projects such as Temple Mountain State Reservation, Shattuck Pond in Francestown, Hunniston Field in Jaffrey, Adams Playground in Peterborough, Gregg Lake Beach in Antrim and the list goes on.

The program has helped projects in all 50 states and 98 percent of all U.S. counties, supporting protection of 3 million acres of recreation lands and more than 29,000 recreation facilities, matched by local monies and driven by local priorities.

Across the country, national parks, refuges, and forests have been created or enhanced through LWCF funding. These national lands protect our history; they ensure outdoor recreation opportunities that tally up some 407 million visits each year; they secure opportunities for fishing, hunting, hiking and countless other activities.

When Congress passed the LWCF 50 years ago, lawmakers did so knowing that outdoor recreation is fundamental to our well-being. And we now better understand that healthy natural places can help safeguard our communities. Forests serve as natural filters for our drinking water. Salt marshes and shellfish reefs can blunt the impact of coastal storms.

Healthy lands, economy

These investments not only enhance and safeguard our way of life, they help our economy.

Hunting, fishing, camping and other outdoor recreation activities contribute a total of $725.5 billion annually to the economy; supporting 6.15 million jobs (one of every 20 jobs in the United States) and stimulating 8 percent of all consumer spending. The ripple effect of outdoor recreation activities is even greater, with an estimated economic impact of $1.2 trillion and an estimated employment impact of 12 million jobs annually.

That economic impact is real from the local scale - from an angler's purchase of bait and soda - to the collective strength of millions of outdoor-related purchases each year throughout the country. In New Hampshire alone, outdoor recreation generates $4.2 billion in consumer spending each year, supporting some 49,000 jobs.

It all sounds great, right?

The challenge

Well, the LWCF is in serious trouble. But right now, we have a slim opportunity to save it.

The LWCF is set to expire on September 30. If Congress does not reauthorize LWCF, we can't continue to make these wise investments in our green spaces, our parks and trails, the places that make ourselves and our communities whole and healthy.

And while the program is authorized to receive a small percentage of offshore oil and gas revenues - up to $900 million per year - most of those funds have been diverted elsewhere. With America losing 1 million acres of working farms, forests and ranches each year, it's critical that LWCF receive its full funding for future generations.

As Sept. 30 comes near, your congressional representatives need to hear from you. In New Hampshire, our U.S. senators and representatives are strong supporters of the LWCF.

But in other states, not all are on board, and our delegation can help raise the bipartisan support that LWCF has historically enjoyed.

The clock is ticking. I hope Granite Staters will speak up, and that Congress will help ensure quick action to renew and fully fund LWCF.

Eric Aldrich writes from his home in Hancock.

Courtesy photo by Eric Aldrich

The LWCF is in serious trouble. But right now, we have a slim opportunity to save it.

FRANCESTOWN

Staff photos by Nicholas Handy

Ruth Behrsing and Peter Jones were the first two in Francestown to install solar panels as a part of the Solar Up program.

Solar Up begins house installs

By Nicholas Handy
Monadnock Ledger-Transcript

FRANCESTOWN — A 16-panel solar array that takes up a considerable portion of one's backyard may not be desirable to most, but for Ruth Behrsing and Peter Jones, the choice easy to make.

"The more that we can do to be energy conscious, the better, said Behrsing, whose solar install went live a week and a half ago. "I don't think it's that ugly, and we can't plant anything where it was installed anyway because it's all ledge."

Behrsing's system is the first to be installed under Francestown's new pilot program: Solar Up. The program is available to any residential property in town where solar is feasible, and uses one solar installer to help reduce the cost of the solar projects based on how many sign up.

In addition to Behrsing's array, four other systems are set to be installedas of Monday morning. Nearly 60 residents in town have requested site visits, according to Behrsing, who serves as the chair of Francestown's volunteer Solar Up Committee.

"I think everyone in town should at least sign up for a site visit, especially because they are free," said Behrsing. "That way, you can at least see if solar is even an option at your home."

Behrsing said the process of getting solar installed at her house was "really quick and efficient" and that despite the amount of paperwork, applying for the various rebates were well worth it.

Behrsing's 4.5 kilowatt system — which is on the smaller end of residential projects — cost her $16,500 to install. Behrsing will receive a $3,400 state rebate and a $3,900 federal rebate, bringing the cost to roughly $9,200. Being a part of the Solar Up program will save Behrsing even more money; with the Solar Up project currently in tier two, Behrsing will save an additional $250. If tier 5 is reached — over 100 kilowatts of solar installed — Behrsing could save over $1,000.

"You pay a deposit on the install, and the remainder of the balance after Sept. 30," said Behrsing. "The way I look at it is my electric bill is my loan for the system, until the project has been paid off. After that, I likely won't have to worry about paying my electric bill, because my system is designed to fulfill 100-percent of our energy needs."

Ruth Behrsing and Peter Jones of Francestown installed a 16-panel array in their backyard.

When looking at savings for a solar system install, there are three major programs in place.

A 30-percent federal tax rebate is available through May 2016, which applies to a number of alternative energy projects, including wind, geothermal, and water power projects.

There is a state rebate which still has funds available as a part of the currently approved state budget. This rebate pays back a solar owner $.75 a watt up to $3,750. According to Chris Milner of Milhouse Enterprises, the solar company that is doing all the installs for the Francestown Solar Up campaign, there should be enough money available to fund residential solar projects through at least November, depending on the volume of projects.

The most important program making solar systems feasible is net metering. Net metering is the program that allows for solar owners to be credited for the energy that they overproduce. Since solar systems typically overproduce during sunny summer days, the increase of solar energy produced can be applied to cloudy winter days, when the sun is out for less time, without the use of a battery to store the energy.

The problem in New Hampshire is there is a lot of uncertainty around these programs. While the federal rebate is in place until May 2016 and likely to be signed to another term, the state rebate is facing reduction or elimination and electric companies are quickly approaching their caps for net metering.

"If these rebates and programs go away, the years of payback for a project are going to increase," said Milner. "Most of the projects I install have a payback of seven to eight years, but without these programs, that number would easily double, making solar not feasible for the average person."

Because of the uncertainty facing state and federal incentives, Behrsing says now is the perfect time for those interested in solar to take advantage of the current opportunities.

"I know that some people say they can't afford it, but there are a lot of savings available right now and there are loan companies that can help finance the project," said Behrsing. "In theory, it isn't that large or a financial gain because the project pays for itself."

The deadline to sign up for Francestown's Solar Up campaign is September 30. Those with questions can call Milhouse Enterprises at 300-2943.

Nicholas Handy can be reached at 924-7172 ext. 235 or nhandy@ledger-transcript.com.

WILTON

Subdivision creates 5 'estate' lots on 70 acres

By Ashley Saari
Monadnock Ledger-Transcript

WILTON — The Planning Board approved a plan to subdivide a 70-acre lot to create five new housing lots during its meeting Wednesday.

Provost Trust owns approximately 70 acres of land on Cram Hill Road, extending into Lyndeborough. In 2008, the tow obtained approval from the Wilton and Lyndeborough Planning Boards for a 13 lot subdivision containing two private roads and three access points from Cram Hill Road.

According to an application submitted on behalf of Provost Trust, Chad E. Branon, the project manager, explained that plan had been reworked and is now being resubmitted as a five-lot subdivision.

"Due to the housing market and costs associated with developing the 13-lot option our client would like to consolidate the 13 lots into five "estate" frontage lots," wrote Branon.

Planning Chair Jeff Kandt

The lots will range from 11.2 to 19.6 acres in size, with at least two acres of frontage on Cram Hill Road each. According to Provost Trust's application, two of the newly configured lots have an interested buyer, while the remaining three will be marketed.

The new plan eliminates the need for a previously approved wetlands crossing.

Michaud's crematorium

The board also continued its review of a site plan for a proposed crematorium at 343 Forest Road. The board previously conditionally approved the plan, pending a letter from the Fire Chief and Federal Emergency Management Agency permits. On Wednesday, Dawn Tuomala, representing owner Carl Michaud, presented the board with a letter from Fire Chief Ray Dick, but requested more time to obtain the FEMA permits. The board agreed to continue the review of the plan until its next meeting.

Michaud is also the owner and operator of Michaud Funeral Home in Wilton, is seeking to renovate an existing barn on the property to turn it into a crematorium to serve his funeral home.

Michaud has already obtained a variance from the Zoning Board of Adjustment to allow for an industrial use on the non-conforming lot.

Ashley Saari can be reached at 924-7172 ext. 244, asaari@ledgertranscript.com.

SOLAR UP NEW HAMPSHIRE

Solar Makes Sense.

www.SolarUpNewHampshire.com

SOLAR UP Francestown

SOLAR UP NEW HAMPSHIRE

Open House Sunday

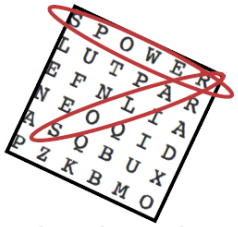
August 16th 2-4 pm

Come and learn about the Luci Lantern and win one to take home.

Come and see a Solar Ground Mount System and talk to the installer, Chris Milner. Find out more information as you "check out" this recently installed array. So come, bring the family, and learn more about your solar options.

Decorate Sun cookies and have a snack.

Solar Site:
Behrsing/Jones's Log Home
102 Gerrish Road



Solve Solar Puzzles and learn about Solar

Luci: http://cdn.shopify.com/s/files/1/0750/0067/products/luci_light_grande.png?v=1427733469
cookie: http://thecookiecuttershop.com/blog/wp-content/uploads/2014/06/WilhelmWanders2-300x225.jpg

IX. 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

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J. William Degnan, State Fire Marshal

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INFORMATIONAL BULLETIN

BULLETIN #	TITLE			DATE ISSUED
2013-02	**Solar Installations**			11/27/2012
SUPERSEDES	**RELEASED BY**	**APPROVED BY**	**SOURCE**	**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.