



Program Results and Analysis



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Program Overview

Solarize Westchester was an innovative program designed to remove obstacles to accelerated deployment of photovoltaics (PV) in Westchester New York. The program, supported by NYSERDA under the \$1 billion NY-Sun initiative, addressed inefficiencies inherent in existing zoning, permitting, and customer acquisition – all of which add considerably to the costs for PV in Westchester and elsewhere in New York State.

Solarize Westchester comprised two program components to address a broad range of contributors to PV soft costs and to spur long term market growth:

- 1) Solar-Friendly Permitting and Zoning - designed to lower permitting and zoning barriers to PV installations via direct interactions with local governments' building departments and elected officials.
- 2) Solarize Campaigns - designed to significantly increase residential and commercial solar installations in selected communities through time-limited market aggregation campaigns with competitively selected PV installers. The first round of four Solarize Westchester campaigns launched January-February 2015 and concluded in June 2015 while the second round of four campaigns launched in October 2015 and concluded in April 2016.

Funding totaling \$485,000 was provided by NYSERDA through a Photovoltaic Balance-of-System Cost Reduction grant, designed to drive down the “soft” costs of PV installations. Approximately \$123,000 was allocated for permitting and zoning work and \$362,000 was allocated for the Solarize campaigns. As the first NYSERDA-funded Solarize initiative, the objective of the program was to help hone the Solarize model for New York State while amplifying and broadening impact through the permitting and zoning component.

Solarize Westchester was a collaborative effort with the following partners:

- Energy Improvement Corporation (EIC), a NY public benefit corporation that offers property assessed clean energy (PACE) financing for energy efficiency and renewable energy projects in its member municipalities – Prime Contractor and provider of PACE financing for commercial installations;
- Abundant Efficiency, a consulting firm with a focus on innovative community-based sustainability initiatives - Program Manager and administrator of Solarize Campaigns;
- SmartPower, a leading nonprofit clean energy marketing organization – Solarize campaign tools and expertise;
- Sustainable Westchester, an inter-municipal sustainability consortium – Issuer of Solar Installer RFP;
- Pace Land Use Law Center of Pace University Law School – Solar-Friendly Permitting and Zoning;
- Croton Energy Group, a sustainability consulting firm – Solar-Friendly Permitting and Zoning.



Figure 1 - Representatives of the Solarize Westchester Team and NYSERDA's Community Solar Program

Solarize Westchester Campaigns

The Solarize Westchester Campaigns were largely modeled on the Solarize Connecticut program designed by SmartPower, a Solarize Westchester partner. Key differences between the programs include the inclusion of commercial PV installations in Solarize Westchester, the deep integration of the permitting and zoning component in the campaigns and the range of project partners in Westchester. In addition, a host of changes were made to reflect the differences in solar programs in Connecticut and New York and the difference in role played by the Connecticut Green Bank in Solarize Connecticut (both administering and funding the program) and by NYSERDA in Solarize Westchester (funding but not administering the program).

The Solarize campaigns were organized as two rounds of four campaigns each, for a total of eight campaigns. The each full campaign cycle required approximately ten months and included the following components:

- Community Selection
- Installer Selection
- Launch and Run Campaigns

The Solarize Westchester team targeted an average of 50 contracts and 300 KW of installed capacity per campaign which equates to 200 contracts and 1.2 MW per round and 400 contracts and 2.4 MW for the overall program. As there was little precedent for a commercial Solarize program, separate goals for residential and commercial campaigns were not established. Program goals were exceeded during the campaigns, with 405 signed contracts totaling almost 3.8 MW of capacity (Round 2 commercial campaigns are still active and will add to this total) and representing a direct investment of over \$14.6 million in PV installations. The program design was refined over the course of the two rounds of Solarize Westchester campaigns, as detailed below.

Community Selection

Solarize Westchester employed a competitive process for community selection for the campaigns in order to ensure that participating communities were highly motivated and well prepared for success. The Solarize Team created a Request for Information (RFI) for interested communities that was designed to have community leaders demonstrate their support for the program and prepare the communities for a successful campaign.



Figure 2 - Solarize Westchester Launch Event

The opportunity for municipalities to apply for consideration was well publicized throughout Westchester County through Solarize Westchester partners. For Round One, the RFI was released at a Solarize Westchester launch event on September 4th, 2014 at Pace Law School, attended by over one hundred representatives of Westchester municipalities, partner organizations and other interested parties. For Round Two, a webinar was held to describe the Solarize opportunity and explain the RFI and community selection process.

A scoring matrix was used to evaluate submissions according to the criteria that had been disclosed in the RFI. Team members participating in the review, representing Abundant Efficiency, SmartPower and Sustainable Westchester, independently scored submissions and selected the highest scoring proposals.

Scoring of Key Criteria		
Scoring: low = 1 point, medium = 2 points and high = 3 points.		
Criteria marked with an * are priorities and the points for these attributes are doubled.		
Topic	Criteria	Score
Community Commitment to Clean Energy and Sustainability	Record of interest in expanding renewable energy and promoting community sustainability	
	Membership in Sustainable Westchester and/or the Energy Improvement Corporation	
	Solar-friendly permitting and zoning practices*	
Project Leadership	Ability of designated Project Lead to champion the Solarize Campaign	
	Commitment of elected officials*	
	Commitment of the Core Team of volunteers*	
	Plans for creative outreach	
Unique Qualities, Resources and Communication Channels	Strong community communication channels and identified partners*	
	Community events	
Current Solar Adoption	Solar on homes and/or businesses in the community*	
Total Score		

Figure 3 - Community RFI Scoring Matrix

Of a total of six responses, the following submissions were chosen for Round One:

- Town of Bedford and Village of Mt. Kisco (Solarize Bedford-Mt. Kisco or “BMK” in some reports)
- Town of Cortlandt and Village of Croton (Solarize Cortlandt-Croton or “CC”)
- Town and Village of Mamaroneck and Village of Larchmont (the Village of Mamaroneck was added after selection) (Solarize Larchmont-Mamaroneck or “LM”)

- Town and Village of Ossining with Village of Briarcliff (Briarcliff was added after selection) (Solarize Ossining-Briarcliff or “OBO”)

The following submissions, including revamped submissions from two communities not chosen in Round One, were chosen for Round Two:

- The Village of Hastings-on-Hudson and the Village of Dobbs Ferry (Solarize Hastings-Dobbs Ferry or “HDF” in some reports)
- The Village of Rye Brook (Solarize Rye Brook or “RB”)
- The Town of Somers and the Town of New Castle (Solarize Somers-New Castle or “SNC”)
- The Village of Tarrytown (Solarize Tarrytown or “TT”)

Lessons Learned: Community Selection

Overall the community selection process went quite smoothly. For Round Two, Solarize Westchester’s Project Manager recused herself as her own municipality had applied to participate. There were a few minor changes to the process based on lessons learned in the first round of campaigns, including:

- **Standardizing the response form.** The RFI addressed the key issues for evaluating the likely performance of a campaign but did not require that most of that information be provided by the communities in a standard form. For the second round, an RFI form with text boxes was created to facilitate side-by-side comparison of responses.
- **Separating information to be provided to installers from other information to be reviewed only by the Solarize Westchester Team.** Information from the RFIs related to municipal permitting and zoning processes and Solarize marketing plans was to be provided to PV installers vying for selection in the Solarize program. Those aspects of the RFI had not been created as separate documents and therefore had to be extracted to be shared, which was inefficient. For Round Two, separate documents were created addressing those topics to facilitate sharing that information with installers.
- **Addressing the need for more detailed information regarding Permitting and Zoning practices.** It was discovered after communities had been selected for the program that some of the information regarding permitting and zoning practices that was relevant for installers was omitted from the RFI responses. To address this for Round Two, we required the Building Inspector (or equivalent) to sign off on, and/or correct, the permitting and zoning surveys that had been completed through the Solar-Friendly Permitting and Zoning component of the Solarize program. This ensured that the person who had the most familiarity with those requirements reviewed the information already gathered (but in some cases not yet vetted by municipalities) and resulted in the following benefits: 1) more complete and detailed information that could be provided to installers, and 2) motivation for municipalities to review and approve the information gathered in the surveys (another deliverable for this program).

Installer Selection

The Solarize Team developed a Request for Proposals (RFP) for solar installers to evaluate companies interested in participating in the program. Key decisions were made with the intent of expanding the number of installers that could be selected as Solarize installers. Most significantly, the Solarize Team indicated the desire to select an installer for no more than one residential Solarize campaign though an installer could be selected for any number of commercial campaigns. In addition, the decision was made to have a separate selection process for residential and commercial installers in order to maximize the opportunity for different installers to be selected and to ensure that a broader range of installers would be eligible.

Installer eligibility requirements were designed to align with NYSERDA's requirements for installers to participate in the PON 2112 NY Sun Solar Electric Incentive Program, while providing additional assurance regarding installers' quality performance and financial stability. As communities who participated in Solarize Westchester were putting their reputation alongside that of the selected installers, quality and performance of the selected installers was paramount in the review of RFP submissions. As described below, eligibility standards were modified for Round Two to more easily screen installers for quality.

Installers applying for consideration for the commercial programs were required to be Energize NY Finance partners, able to offer their customers PACE financing through Energize NY. A training, required as part of Energize NY Finance eligibility, was scheduled to accommodate installers, and many attended this training to be eligible prior to the Round One RFP submission date.

Installer Outreach

For Round One, the Team publicized the opportunity to participate through communication sent to the installer community by CUNY and NYSERDA as well as through Sustainable Westchester, EIC, and other partners. A breakfast briefing for installers was held at New York Power Authority to present the opportunity, explain the campaign and installer selection process and answer questions. This in-person meeting was critical as a few local installers had been very vocal in criticizing the Solarize program design (criticism was largely based on fears that the program would prioritize low price over quality installations and also might favor the largest installers). The Solarize Team provided guidance including the recommendation to fully value the expected soft cost savings in bid submissions, to seek support (both credit and special pricing) from suppliers, and to ensure that the pricing quoted would be sustainable for proposers if selected. In addition, it was stressed that installers could provide for adders for factors that would increase installation costs in their submission. Approximately 50 people attended the installer briefing.

Ultimately ten PV installers responded to the RFP in Round One: eight for residential only, one for commercial only, and one for both residential and commercial. Installers were required to target their submissions to communities – some applied for consideration by all communities and some applied only for a single community. On average, five to six installers applied for each community for residential and two installers applied for commercial.

For Round Two, the Solarize team conducted outreach to all installers who had expressed interest in the program (over 110 individuals representing over 70 companies), in addition to the channels used in Round One. Additional interest was generated through press coverage regarding the successful results of the first round of campaigns. Installers were invited to participate in a webinar that described the results of the Round One campaigns and the process for applying for consideration for Round Two.

Eight complete submissions were received for Round Two: four for residential only, three for residential and commercial, and one for commercial only. Other installers indicated they had intended to apply but may have been unable to secure the pre-qualification from NYSERDA required for Round Two (see below) or decided not to apply for other reasons.

Selection Process

The installer selection process included the Solarize Team and selected representatives of each Solarize campaign. Each Solarize Campaign was required to designate three or four individuals to participate on the Installer Selection Committee for their campaign. The installer selection process included vetting of submissions by the Solarize Team, review of submissions by each campaign's Installer Selection Committee, a Short-List Workshop for each Installer Selection Committee, and in-person Installer Interviews. At the end of this process each Installer Selection Committee was required to select two PV installers they felt would be a

good fit for their community and the Solarize Westchester team made the final determination regarding matches to ensure optimal coverage of all campaigns in a given round. Solarize Westchester committed to matching communities with one of their preferred installers.

Vetting done by the Solarize Westchester Team included:

- Confirming installer eligibility and status with NYSERDA
- Review of financial strength
- Reference checks with customers
- Better Business Bureau rating and online reviews
- Review of quality of equipment, terms and pricing
- Review of performance in previous Solarize campaigns (if applicable)
- For installers on short-lists, review of their template contracts

Full RFP responses were shared with each campaign's Installer Selection Committee. To prepare the committees for the interviews with installers, a two to three hour Short-List Workshop, led by a technical consultant engaged by SmartPower, and Abundant Efficiency, was held with each Installer Selection Committee. Spreadsheets that enabled easy comparison of many of the key attributes of the installer proposals (e.g. equipment specified, warranties, price, etc.), were provided to members of the Installer Selection Committee, and the technical consultant briefed each selection committee on the key issues to focus on for installer selection. For Round Two, a webinar covering the installer selection process was added prior to the Short-list Workshop, and SmartPower prepared a spreadsheet with information regarding each company and the key attributes of their marketing plans to further facilitate comparison. Though an evaluation template was provided to Installer Selection Committees in Round Two, a decision was made not to have set scoring for the installer review, in order to allow more flexibility to committee members.

Campaign timing constraints, driven by a decision to avoid campaign launches or conclusions during holiday and vacation seasons, dictated aspects of the installer selection schedule and campaign rollouts. For Round One, these timing constraints resulted in installer RFP responses being shared with Installer Selection Committees prior to full completion of installer vetting by the Solarize Westchester team. During the vetting process, it was determined that some installer applicants had not met the eligibility requirements stipulated. As a result, following full review of their RFP submissions, the number of PV installers ultimately considered eligible was significantly reduced. In total, three installers who otherwise presented complete submissions were excluded from consideration.

Following the Short-List Workshop, each Selection Committee indicated which installers they wanted to interview. Interviews for all installers and Selection Committees took place on a single day at the White Plains headquarters of New York Power Authority. Though the interviews went smoothly, due to a limited pool of eligible responses, concerns about financial stability or poor interview performance, the communities' preferences coalesced around just two solar installers for residential campaigns. Therefore, despite the Solarize Team's strong preference for selecting a different installer for each residential campaign, those two installers were each matched with two campaigns. One of those installers was also selected by three of the campaigns for commercial markets while another commercial-only installer was selected by one.

These challenges in Round One led to significant changes in installer eligibility requirements and the installer review process. These changes resulted in a smoother installer selection process in Round Two. During this round, two installers were selected for a single residential campaign each, one installer who performed very well in Round One was matched with two residential campaigns and one commercial campaign, and a commercial-only installer was selected by three campaigns for the commercial component.

Some of the challenges encountered in Round One and their proposed remedies, described below, are reflected in the eligibility requirements established by NYSERDA for participation in their Community Solar Solarize program.

Lessons Learned: Installer Selection

The Installer Selection process was unexpectedly difficult for the first round of Solarize Westchester campaigns and presented some challenges in the second round as well. We learned the following lessons from this process.

- **Ensure that installer eligibility requirements are clear and that all information regarding all eligibility requirements is shared with installers.** Installers' quality track record was of prime importance to the Solarize Westchester Team. For the first round of campaigns, valuable information about installer quality track records scores was shared privately by NYSERDA at the request of the Solarize Team, but this information then had to be interpreted. The Program Manager requested that NYSERDA evaluate quality scores of applying installers and confirm acceptable quality scores for those who applied. Furthermore, it was recommended that for Round Two, installers understand that quality scores would be part of the selection criteria in order to focus installers on that critical aspect of their eligibility. In response, NYSERDA instituted a Solarize Prequalification process that addresses this need prior to the second round of Solarize Westchester campaigns. Incorporating this quality assurance by NYSERDA into the installer selection process allowed for a significant improvement in the process for Round Two and ensured that all installers who were prequalified by NYSERDA and submitted complete RFP responses were fully eligible for consideration.
- **Approach the installer selection process with some flexibility.** As indicated, the Solarize Westchester team had the initial intent of matching an installer with only one residential campaign; however, our commitment to ensuring that communities were matched with quality installers selected by them superseded the goal of pairing installers with a single community.
- **Conduct a webinar briefing for selection committees in advance of their receipt of the RFP responses.** During Round One, some Installer Selection Committee members were anxious that they were not sufficiently prepared for the installer selection process. To better prepare committee members and allay these concerns, a webinar describing the full selection process was incorporated into the installer selection process for Round Two. Further, the Program Manager created a document that lays out the Installer Selection Process and schedule in detail for Round Two committee members.
- **Consider the likely impact of adders on system prices.** Construction adders (e.g. steep roof, minimum size) may add significantly to total cost. The number of possible adders can be reduced in the RFP or these can be discussed and potentially negotiated with installers during review of RFP responses.
- **Make it easier for installers to apply for both residential and commercial programs.** Round One resulted in a paucity of submissions for commercial programs - only two installers applied - though some other installers who applied for residential indicated they would have been happy to offer commercial as well. Having two fully separate RFPs created a burden for installers, particularly when the scale of the opportunity for commercial installations was unknown. The application process was streamlined for Round Two to make it easier for installers to apply for both residential and commercial in the same response while still allowing for a separate selection processes by the communities. This change resulted in increased response, with four installers applying for consideration as the commercial installer in Round Two.

- **Weigh the benefits of single versus multi-installer campaigns.** Solarize Westchester selected a single installer model for each campaign’s residential component. Some installers and community members urged a change in program design to accommodate two or more selected installers for the residential market for a given campaign. Having a single residential installer streamlines the campaign process (though increases the risk related to the selected installer’s performance), and the Solarize Westchester team opted to continue this model in Round Two.

Campaigns – Community Teams

Each Solarize campaign included a Core Team comprised of volunteers, municipal staff, and elected officials (the representation of each group varied by campaign) of participating municipalities. Abundant Efficiency hosted regular bi-weekly calls with each Solarize Campaign’s Core Team and their selected residential installer. During these calls, participants reviewed reporting for the campaign (both reporting provided by the installers and reporting that Abundant Efficiency created based on web inquiries), reviewed and planned upcoming events and outreach strategies, and trouble-shot issues that emerged.

The Solarize campaigns involved a partnership between the Solarize Westchester team, the Core Team and the selected installer and each party played a distinct role; maintaining clarity regarding these roles is critical. The Solarize Westchester team enabled and supported the campaign through provision of structure, tools and guidance. Solarize Westchester played the role of the honest broker, protecting the interests of the other parties as appropriate (e.g. ensuring that an installer lived up to its obligations under the program but not placing overly onerous demands related to frequency of reporting).



Figure 4 - Solarize Westchester Campaigns

The four Round One Solarize Westchester campaigns launched from mid-January to early February 2015 (and concluded during the months of May and June). Originally we planned for all the campaigns to launch within a narrower window but deemed it beneficial to stagger launches since the installers selected for the residential campaigns were matched with two campaigns each. It was considered important to have a minimum two-week gap between the end dates of each of their campaigns to accommodate the expected heightened activity at the end of each campaign.

The Round Two campaigns were launched during a three-week period from mid-October to early November 2015 and the residential component of the campaigns ended in March 2016 (the official end date for

commercial campaigns was April however discussions with prospects are still continuing). For Round Two, effort was made to ensure that the campaigns would be well underway before attention turned towards the holiday season.

Lessons Learned: Community Teams

There were a host of lessons learned throughout the campaigns. These included:

- **Have a single individual act as the point person for each campaign.** This is particularly key for multi-community campaigns. This individual should expect to coordinate many campaign activities with his/her team. We had two campaigns with a single point person who was the designated project lead and two campaigns where leadership was divided between various individuals depending on the activity and municipality in which the activity was taking place. Having a project lead made administering and supporting the campaigns easier and in some cases ensured that activities that needed to be undertaken were covered (often through effective delegation by the project lead). The Solarize Westchester Team clarified the need for a designated project lead in the second round RFI and required that all municipalities participating together in a single RFI response identify a single individual as playing that role.
- **Have communities complete the scheduling of all or most of their outreach events for the duration of the campaign at its outset.** This is much more efficient for the teams and the program administrators than scheduling one event at a time and allows for production of event flyers that cover multiple events. This change was very helpful for the campaigns in Round Two.
- **Have a designated member of the Core Team take responsibility for logistics and planning for each event.** The Solarize Westchester team provided an Event Checklist to help prompt smooth event execution.
- **Document the resources and plans that communities have outlined in their RFI responses.** Members of Core Teams often forgot the organizations and media outlets that they had intended to leverage. The Solarize Westchester team created an outreach plan template into which we transferred relevant information from the RFIs to remind the community teams of the resources that they had already identified.
- **Don't rely heavily on tabling events for program sign-ups.** Though these can be helpful, they shouldn't be the primary focus of outreach efforts. One campaign had an outdoor festival event at the center of its outreach plans and this yielded less results than anticipated as there was no opportunity to educate and engage groups of people about the Solarize opportunity.
- **Advise Core Teams that installer marketing budgets are to be used to directly support the program only.** Installers were asked to sponsor community events in Round One. The Solarize Westchester team clarified to all second round campaigns at the outset that they should not request sponsorship from their Solarize installers for community events. These requests put the installer in an uncomfortable position of potentially misallocating marketing funds or alienating a community partner. We have concluded that it is more advantageous to stress that installer's support is for the production of marketing materials and for their investment in staff time.
- **Every campaign is different.** Identify the strengths of each Core Team, as well as the unique characteristics of the community, and encourage and leverage them.

Communication and Marketing

The Solarize Westchester team and participating communities used social media, the website, community/municipal communication channels, press, banners, signage, flyers and direct mail to communicate about the campaigns. The Solarize Westchester website (www.SolarizeWestchester.com) had an individual page for each campaign. The primary goal was to drive interested individuals to the Solarize Westchester website to sign up for a site evaluation from the selected installer.

In Round One, 57% of all people who requested information about the program signed up through the website – this percentage ranged from 49% to 61% for those campaigns.

Table 1 - Round One Campaigns: Web Inquiries

Solarize Campaign	Website Inquiries	Total Inquiries	% From Website
BMK	198	327	61%
CC	187	334	56%
LM	252	432	58%
OBO	84	172	49%
Totals	721	1265	57%

In Round Two, 62% of those who requested information about the program did so through the web inquiry form on the website.

Table 2 - Round Two Campaigns: Web Inquiries

Solarize Campaign	Website Inquiries	Total Inquiries	% From Website
Hastings-Dobbs Ferry (HDF)	311	499	62%
Rye Brook (RB)	121	216	56%
Somers-New Castle (SNC)	303	507	60%
Tarrytown (TT)	159	211	75%
Totals	894	1433	62%

The balance of people requesting information contacted the selected installers directly, either in-person during Solarize events, or by phone. It should be noted that people who reached out to installers directly and who were immediately determined not to be candidates for solar may not be represented in the total inquiries.

The Inquiry Form located on each Solarize Westchester campaign page included fields for contact information, whether interest was residential or commercial (in order to direct the inquiry to the appropriate installer), and how the person making the inquiry heard about the campaign. The ways in which people indicated they heard about the Solarize campaigns are detailed in the table below, with more successful methods highlighted in green for each campaign. The importance of municipal support is clear as the leading method for the campaigns is Town Letters and Town Leader (“Town Letters” may include e-mail blasts and other municipal communication as well as printed letters). Other stand-outs include “Banners” for one campaign that used them very prominently throughout town (including across major roads and at train stations for the duration of the campaign) and “Neighbor/Friend,” particularly in Larchmont-Mamaroneck where the Core Team was comprised solely of volunteers.

The marketing expenses of the installers ranged from under \$2,000 to almost \$7,000 (note that this does not include any in-house design work by installers or any staff time). It is worth noting that the two campaigns in Round One that sent postcards to all single family residences, Bedford-Mt. Kisco and Ossining-Briarcliff, showed negligible results from this marketing expense – which totaled about \$3,000 per campaign. In fact, in Round One, the two campaigns that did not use postcards had as many people indicating they had heard about the campaign in that manner as Bedford-Mt. Kisco, which in turn had a better result than Ossining-Briarcliff. Installers were advised that they should expect to spend approximately \$5,000 for marketing expenses and that these investments should be determined in consultation with the communities.

Table 3 - Round One Marketing Response

How Did You Hear About Solarize?	Responses by Inquiry				Responses by Percentage of Inquiries			
	BMK	CC	LM	OBO	BMK	CC	LM	OBO
Town Letter	65	49	72	25	33%	26%	29%	30%
Town Leader	29	17	23	20	15%	9%	9%	24%
Banner	16	46	29	6	8%	25%	12%	7%
Newspaper Article	19	16	23	10	10%	9%	9%	12%
Yard Sign	19	8	26	3	10%	4%	10%	4%
Neighbor / Friend	17	25	52	14	9%	13%	21%	17%
Organization I belong to	17	4	11	1	9%	2%	4%	1%
Advertising	15	26	22	4	8%	14%	9%	5%
Social Media	12	15	13	13	6%	8%	5%	15%
Postcard Mailing	11	11	11	6	6%	6%	4%	7%
Solar Ambassador / Volunteer	10	5	20	5	5%	3%	8%	6%
Workshop	8	5	3	2	4%	3%	1%	2%
Solar Installer	1	3	1	0	1%	2%	0%	0%
Total Website Inquiries*	198	187	252	84				

* Note Total Responses By Inquiry exceeds Total Inquiries as people were encouraged to check all that applied.

Direct municipal communication continued to be the key driver for inquiries in Round Two. The municipalities that had strong e-mail lists for residents used digital communication effectively, as seen in the “Town Leader” segment. All installers in Round Two sent letters to some residents targeted as being good candidates for solar. The numbers of those targeted letters ranged from approximately a thousand (Somers-New Castle) to a few dozen. Some municipalities included letters in water bills and as inserts in the local paper as well.

Table 4 - Round Two Marketing Response

How Did You Hear About Solarize?	Responses by Inquiry				Responses by Percentage of Inquiries			
	HDF	RB	SNC	TT	HDF	RB	SNC	TT
Town Letter	80	41	122	39	26%	34%	40%	25%
Town Leader	137	41	69	22	44%	34%	23%	14%
Banner	11	9	20	33	4%	7%	7%	21%
Newspaper Article	40	12	63	30	13%	10%	21%	19%
Yard Sign	34	4	19	26	11%	3%	6%	16%
Neighbor / Friend	48	17	21	23	15%	14%	7%	14%
Organization I belong to	11	5	4	2	4%	4%	1%	1%
Advertising	19	13	15	16	6%	11%	5%	10%
Social Media	14	5	30	9	5%	4%	10%	6%
Postcard Mailing	4	2	6	10	1%	2%	2%	6%
Solar Ambassador / Volunteer	40	2	11	8	13%	2%	4%	5%
Workshop	12	1	1	17	4%	1%	0%	11%
Solar Installer	1	1	3	3	0%	1%	1%	2%
Total Inquiries*	311	121	303	159				

Website and Social Media

The Solarize Westchester website and the campaign pages were continually updated throughout the campaigns. The campaign pages were frequently refreshed with new photos from outreach events as well as published articles. The greatest number of page views typically occurred after a story was published in print or digital media that included a link or at least a mention of the website.

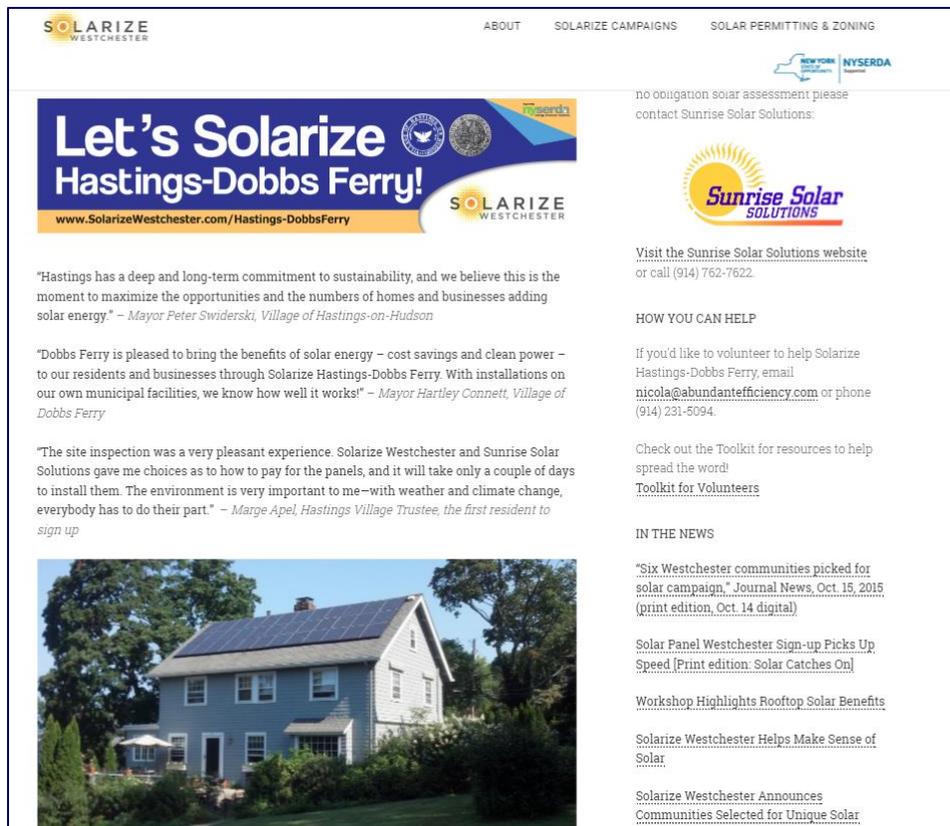


Figure 5: Sample Solarize Westchester Campaign Webpage

The Solarize Westchester Facebook page (www.facebook.com/solarizewestchester/) was kept refreshed with information about upcoming events, campaign news and solar trends. Facebook was a useful way to reach interested people in a community with timely information. We spent modestly to promote the page as well as to promote particular posts about upcoming Solarize events to geographically targeted audiences. The effectiveness of Facebook promotions varied by community and by post, but overall was quite effective. For instance, a \$20 boost yielded 2,320 views with 45 actions (“likes”, shares, comments) for an Ossining-Briarcliff/Cortlandt-Croton end-of-campaign notification. Using Facebook also allowed community Facebook members to share and promote Solarize posts.

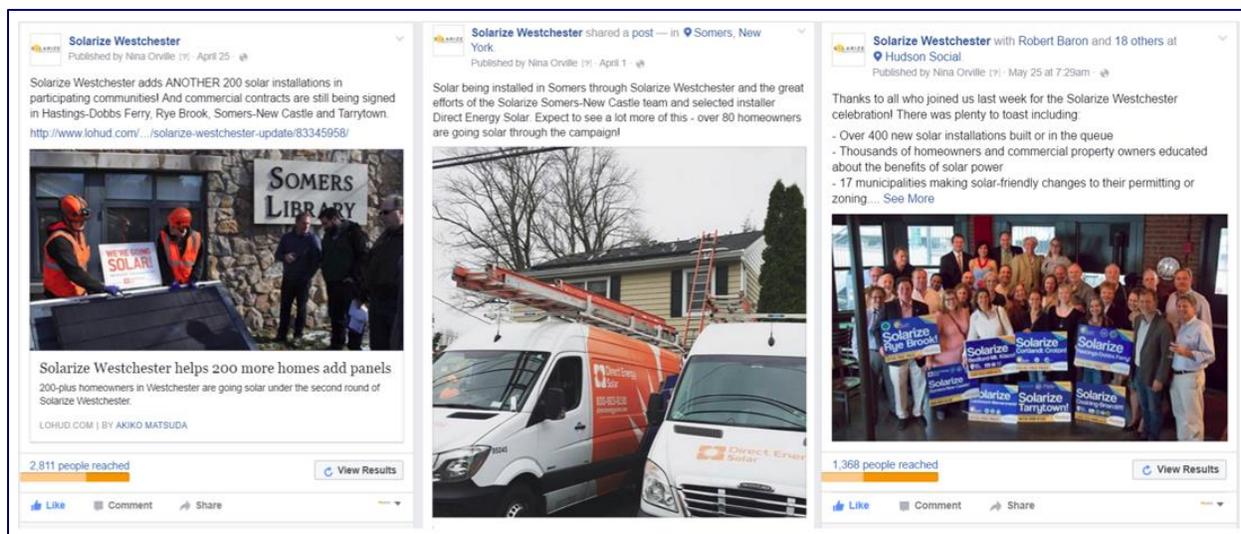


Figure 6: Sample Facebook Posts

Lessons Learned: Communication and Marketing

Generally, communication was relatively effective and efficient during the campaigns.

- Leverage municipal support.** The strong support of municipalities, expressed through official communication in letters, e-mails, etc. is key to a successful campaign. E-mail and other digital communication is free, and when letters are sent, they can often be sent along with other communication from the town, eliminating mailing expenses (e.g. some towns sent Solarize information along with water bills to town residents). Including Solarize in town communication enhances campaign credibility with minimal expense.
- Identify all opportunities to leverage municipal communication before the campaign begins.** Identify when any mailings are taking place to residents and any restrictions on including Solarize information with those mailings. Have the community team and installer work with the tax assessor's office to identify the best mailing list available for Solarize communication for residential and commercial property owners. Identify and plan for mailing deadlines and lead times, which can be considerable.
- Leverage the support and outreach channels of community organizations.** Some campaigns were able to generate greater attendance when they obtained co-sponsorship of the outreach event by one or more community partners, such as the Lions Club, local library, homeowners association, etc., which added their own publicity channels to the core team's efforts.
- Make use of banners.** Identify all locations for Solarize banners, obtain necessary approvals in advance from the municipalities and other relevant parties (e.g. Department of Transportation, utility), and get detailed specifications for banners (size, grommets, provisions for wind, etc.). Have banners hung as early as possible in the campaign. Have team members periodically check on banner placement and status.
- Make use of standing signs that can display campaign and event flyers.** These were effective in high-traffic public indoor spaces such as the lobbies of libraries and municipal halls, especially when deployed early in the campaign. This was a design developed by a selected installer and then shared with other campaigns.

- **Don't overspend on advertising and direct mail.** The installers used very little traditional advertising during the campaigns, and the installer that printed and mailed postcards in Round One had negligible results. It is hard to stand out in the market when solar advertising is ubiquitous. Results are much stronger when installers focus on leveraging what is unique about Solarize, i.e. municipal and community selection and support.
- **Strongly encourage community teams to obtain photos of attractive local solar installations and testimonials from local homeowners/property owners as early in the campaign as possible** (or if necessary, obtain them directly, such as from the installer.) These are important for the website, for social media and to accompany press releases as well. Campaigns varied widely in their ability to provide good photos.
- **At all outreach events, designate a photographer in advance,** as photos of these events are extremely useful for keeping the website fresh and generating interest on social media.
- **On the website, clearly define "residential" and "commercial"** so that web inquiries are directed to the appropriate installer.
- **Consider adding a small dedicated budget for Facebook and other social media promotion.** Facebook yielded reasonable results for a modest cost and made it easy to spread the word about upcoming events.
- **Print large volumes of the campaign flyers at the outset of the campaign.** Reduced printing costs for volume make this a good investment.
- **Do not overproduce yard signs.** For most campaigns, printing 50 yard signs is likely to be enough (some campaigns may use more but installers and community teams found it more difficult than expected to distribute the signs to those willing to have them placed on their property). Some communities have very restrictive guidelines regarding use and placement of yard signs.
- **When selected installers follow up with inquiries, they should indicate that they are responding to the prospect's Solarize inquiry.** Some prospects complained that they didn't get a prompt response from Solarize but were receiving many calls from installers – they failed to make the link between their Solarize inquiry and the follow-up from the selected installer.

Campaign Results

Ultimately, the measure of a Solarize campaign lies in its success converting interest into signed contracts. Solarize Westchester exceeded its campaign goals with 405 signed contracts totaling over 3.794 MW of capacity (Round 2 commercial campaigns are still active and will add to this total) and representing a direct investment of over \$14.6 million (over \$14 million of which was for systems purchased rather than leased). Results by campaign, and by Round, are shown below:

Table 5 - Residential and Commercial Results by Campaign

Total Residential and Commercial by Campaign						
Campaign	Total Inquiries	In-Person Analysis	Contracts Presented	Contracts Signed	Total KW	Avg KW / contract
Bedford- Mt. Kisco	334	186	118	26	202.7	7.8
Cortlandt-Croton	334	185	88	72	657.3	9.1
Larchmont-Mamaroneck	464	187	85	56	389.7	7.0
Ossining-Briarcliff	178	106	86	30	815.0	27.2
Total - Round 1	1,310	664	377	184	2,064.7	11.2
Hastings-Dobbs Ferry	499	216	91	82	534.2	6.5
Rye Brook	216	88	24	21	171.4	8.2
Somers-New Castle	507	327	258	88	822.5	9.3
Tarrytown	211	60	30	30	201.4	6.7
Total - Round 2	1,433	691	403	221	1,729.5	7.8
Total - Both Rounds	2,743	1,355	780	405	3,794.2	9.4

Results of the residential campaigns are shown below.

Table 6 - Residential Results

Residential						
Campaign	Total Inquiries	In-Person Analysis	Contracts Presented	Contracts Signed	Total KW	Avg KW / contract
Bedford- Mt. Kisco	311	174	110	25	194.9	7.8
Cortlandt-Croton	316	171	81	69	502.3	7.3
Larchmont-Mamaroneck	433	170	80	55	375.7	6.8
Ossining-Briarcliff	153	92	83	26	205.9	7.9
Total - Round 1	1,213	607	354	175	1,278.8	7.3
Hastings-Dobbs Ferry	477	208	89	81	485.2	6.0
Rye Brook	202	81	24	21	171.4	8.2
Somers-New Castle	485	318	254	85	767.0	9.0
Tarrytown	175	46	29	29	189.0	6.5
Total - Round 2	1,339	653	396	216	1,612.6	7.5
Total - Both Rounds	2,552	1,260	750	391	2,891.4	7.4

Commercial campaign results are shown below. Note that these totals are incomplete for Round Two (selected installers are still engaging with prospects and there is a Letter of Intent outstanding with one prospect which is not reflected in the total). In addition, Round One numbers include a large (450 KW) contract that originated due to Solarize but that the property owner ultimately signed with a Solarize installer other than the selected installer for that particular campaign.

Table 7 - Commercial Results

Commercial *						
Campaign	Total Inquiries	In-Person Analysis	Contracts Presented	Contracts Signed	Total KW	Avg KW / contract
Bedford- Mt. Kisco	23	12	8	1	7.8	7.8
Cortlandt-Croton	18	14	7	3	155	51.7
Larchmont-Mamaroneck	31	17	5	1	14	14.0
Ossining-Briarcliff *	25	14	3	4	609.1	152.3
Total - Round 1	97	57	23	9	785.9	87.3
Hastings-Dobbs Ferry	22	8	2	1	49.0	49.0
Rye Brook	14	7	0	0	0.0	NA
Somers-New Castle	22	9	4	3	55.5	18.5
Tarrytown	36	14	1	1	12.4	12.4
Total - Round 2	94	38	7	5	116.9	23.4
Total - Both Rounds	191	95	30	14	902.8	64.5

Commercial campaigns added significantly to the contracted capacity, representing 24% of the total (with additional contracts still likely in Round 2 campaigns).

Table 8 - Proportional Residential and Commercial by KW

Total - Residential and Commercial	Total Inquiries	In-Person Analysis	Contracts Presented	Contracts Signed	Total KW	Avg KW / contract
Total	2,743	1,355	780	405	3,794.2	9.4
Residential %	93%	93%	96%	97%	76%	7.4
Commercial %	7%	7%	4%	3%	24%	64.5
Goal for Round				400	2,400.0	6.0
Current (Under)/Over				5	1,394.2	3.4

The contribution of each campaign to the totals for the round at each stage of the process are shown below.

Table 9 - Contribution by Campaign by Stage

Residential Campaign	% of Total			
	Inquiries	In-Person Analysis	Contracts Presented	Contracts Signed
Bedford- Mt. Kisco	25.6%	28.7%	31.1%	14.3%
Cortlandt-Croton	26.1%	28.2%	22.9%	39.4%
Larchmont-Mamaroneck	35.7%	28.0%	22.6%	31.4%
Ossining-Briarcliff	12.6%	15.2%	23.4%	14.9%
Total - Round 1	100.0%	100.0%	100.0%	100.0%
Hastings-Dobbs Ferry	35.6%	31.9%	22.5%	37.5%
Rye Brook	15.1%	12.4%	6.1%	9.7%
Somers-New Castle	36.2%	48.7%	64.1%	39.4%
Tarrytown	13.1%	7.0%	7.3%	13.4%
Total - Round 2	100.0%	100.0%	100.0%	100.0%

It is the responsibility of the Solarize Team and the communities (with support from the installers) to generate inquiries about solar – the number of inquiries from prospects defines the ceiling of potential results for that campaign. The installer is then tasked with qualifying prospects and converting them into customers. The ultimate success of the installer can be viewed in the conversion rate of inquiries, site visits and contracts presented to signed contracts.

Table 10 - Sales Funnel Results

Residential Campaign	% of Following to Contracts Signed		
	Inquiries	In-Person Analysis	Contracts Presented
Bedford- Mt. Kisco	8.0%	14.4%	22.7%
Cortlandt-Croton	21.8%	40.4%	85.2%
Larchmont-Mamaroneck	12.7%	32.4%	68.8%
Ossining-Briarcliff	17.0%	28.3%	31.3%
Total - Round 1	14.4%	28.8%	49.4%
Hastings-Dobbs Ferry	17.0%	38.9%	91.0%
Rye Brook	10.4%	25.9%	87.5%
Somers-New Castle	17.5%	26.7%	33.5%
Tarrytown	16.6%	63.0%	100.0%
Total - Round 2	16.1%	33.1%	54.5%
Total - Both Rounds	15.3%	31.0%	52.1%

Certain factors influence the percentage of inquiries that progress to site visits. These include the responsiveness of installers (responding to customer interest very promptly results in more success obtaining all information necessary to assess eligibility and schedule a site visit) and characteristics of each community. Some communities have conditions which make a higher percentage of buildings appropriate sites for solar (e.g. newer building stock, less shading). It was noted by installers some communities presented significant shading challenges and some had a large number of “difficult” roof types such as slate and tile or complicated

roof lines. Some less tangible community characteristics influenced outcomes as well. In one campaign, the installer reported signing a high number of contracts for systems of marginal performance due to residents' enthusiasm for the opportunity to install solar. In another, the installer indicated that many residents were sending draft contracts to attorneys and accountants for review, slowing the sales process and resulting in fewer signed contracts.

Other factors related to the installers' sales process determine the progression of leads from in-person analysis to contracts presented and contracts signed. Most residential installers bring a proposal to the first meeting with a customer, developed using remote tools to assess solar capacity. This enables the installer to discuss the cost and energy generation of a proposed installation at that initial meeting. If a prospect is interested in the proposal, the site conditions are further verified by a technical expert and any modifications necessary are incorporated into a contract. In this approach, contracts are only presented to prospects who already understand their specific solar opportunity and have indicated interest in proceeding. One installer typically did not bring a proposal to this meeting (resulting in a much longer sales cycle) and two immediately offered draft contracts, skipping the proposal phase altogether.

Lessons Learned – Campaign Results

The community, the installer, and the program administration team all play distinct roles in a campaign. It is important to be aware of these roles and for the program administrator to support the other participants well while recognizing that certain aspects of the program are ultimately the responsibility of the community or the installer (e.g., neither the program manager nor the community can manage the solar sales process). For this reason, not all the observations about what makes a program successful can be implemented in future campaigns. Despite this limitation, there is value in sharing observations about key components of success (or difficulty) for past campaigns.

- **Responsiveness to customers is key.** The campaigns in which we heard more complaints about lack of timely response showed lower conversion rates. Though there were often legitimate reasons for delayed response in specific instances, multiple cases of these circumstances may point to the need for tighter management of the sales process by the installer.
- **Sales processes must be tailored for the community campaign.** The installers with a local point of contact for the campaign, empowered to make decisions or obtain decision quickly, were more successful. One national PV installer, unable to tailor its processes effectively for the campaign, alienated residents through robocalls from a national call center and when it discontinued robocalls at the insistence of the community team, left the local number, which had been widely publicized, unattended for over a month.
- **Installers need to be willing to adapt their plans if they are not yielding expected results.** Particularly for installers who have not worked extensively in Westchester (or New York State), if the goal is to maximize results, there should be a high level of willingness to adapt plans, including offering attractive financing (i.e. On-Bill) to customers.
- **Shorter sales cycles improve the conversion rate.** The installers who brought proposals or contracts to initial meetings with prospects closed sales faster.
- **Seasoned and focused sales representatives make a difference.** One installer had two new sales people working on campaigns and the prospects directed to those new sales people converted at a much lower rate. The installers whose sales teams were deeply invested in the success of a particular campaign performed better.

- **Complexity of offerings.** It appears that one installer offered prospects more choices, which increased the complexity of the decision and may have contributed to a lower conversion rate. More streamlined offerings may also keep costs down by reducing the number of applicable adders.
- **In some communities, higher system quality may offset lower discounts.** The pricing of one installer known for high quality installations included multiple adders for upgrades and system characteristics resulting in high performance installations at a relatively high cost. Positive response from community members regarding the sales experience with the company and with the quality of the resulting installations confirmed that this installer was a good fit for the Solarize communities by which it was selected.
- **Monitor pricing of signed contracts.** Monitor and spot-check pricing to confirm that it confirms with the RFP submission.
- **Obtaining metrics is challenging.** We experienced some difficulty obtaining reliable reporting from most residential installers. This related to a range of factors including some companies acting in a more decentralized way (individual sales people tracking their own leads and inputting information into a company CRM system incompletely or only periodically). In one case, the CRM system in place at the beginning of the campaign was not set up to capture the reporting information that we required. Reporting is a challenge that can be only partially managed by a Solarize administrator, according to conversations with other Solarize program managers. The bi-weekly calls with communities kept pressure on installers to keep reporting up to date.
- **Track installations and sales backlog in addition to sales.** Perceptions of the success of a campaign can sour if there are significant unanticipated delays in installations. Tracking how sales move through the production process allows for pinpointing challenges and identifying remedies (e.g. adding installation crews, changing messaging to customers) earlier.
- **Success Fee.** We built into the program a \$0.02/watt success fee to be paid by the Solarize installers to Sustainable Westchester to support sustainability efforts in Westchester County. This has worked well and can be considered an avenue for supporting Solarize or other programs in the future.
- **Solarize campaigns have an impact on business for non-Solarize installers.** A small non-Solarize installer located in a Solarize municipality reported that its activity in this municipality nearly halted for the five months of the Solarize campaign. Another non-Solarize installer located in a different Solarize community indicated they lost some sales in head-to-head competition with the selected Solarize installer while winning others. This non-Solarize installer organized solar events concurrent with the campaign to piggy-back on heightened interest in solar in the community.
- **Leverage with Permitting-Zoning.** Most communities participating in the Solarize campaigns made some improvements to their permitting processes to accommodate the increase in demand for solar permits. Installers were required to meet with building department officials, often with support from elected officials, to ensure that municipal requirements were understood (in one case that meeting was not set up in a timely manner and this delay resulted in miscommunication). These meetings served to clarify requirements and in some cases, resulted in building departments making or considering additional streamlining changes. Solarize campaigns and a focus on permitting and zoning have been demonstrated to be complementary and mutually reinforcing.
- **Tie-in other sustainability or clean energy initiatives.** A number of communities participating in Solarize also had previously launched Energize residential energy efficiency programs supported by the Energy Improvement Corporation. Efforts were made to communicate to homeowners who had expressed interest in one program about the opportunity to participate in the other (e.g. “First you

Energized, now you can Solarize!”). These cross-program communications were helpful and could have been strengthened even further.

Commercial Solarize

Solarize Westchester prioritized the inclusion of commercial solar activity as part of the program despite the dearth of successful solarize initiatives that have included commercial installations. As there are few examples of commercial Solarize programs, overall Solarize Westchester goals were based on the results of successful residential-only programs but with the hope that those goals would be exceeded through the inclusion of the commercial sector. Including a commercial component also allowed community leaders to speak strongly about the economic development benefits of Solarize Westchester.

The availability of Property Assessed Clean Energy (PACE) through the Energize NY Finance program was a key component of the commercial program. Municipalities must join the Energy Improvement Corp, a local development corporation, in order for commercial property owners in those municipalities to be eligible to access Energize NY Finance (the EIC-branded version of PACE). The municipalities that participated in six of the eight Solarize campaigns had done so. Energize NY Finance is an ideal finance offering for PV installations as it provides low interest rates, long terms, transferability to new owners and up to 100% financing. In addition, it is based on the building’s ability to carry the tax charge rather than the credit rating of owners or a financial review of the business. (For more information, see www.commercial.energizeny.com).



Figure 7 – Terra Tile Solar installation (a Round One project), financed with Energize NY Finance

Outreach to commercial prospects is more targeted than to homeowners. In each campaign, the installer and Solarize Westchester Team organized a Commercial Solarize event focused exclusively on commercial property owners. These events were publicized through letters signed by the chief elected officials and sent to all commercial property owners as well as through channels such as chambers of commerce and through individualized outreach to specific property owners by Solarize volunteers and elected officials. The individualized outreach was most successful in spurring attendance at the commercial events and attendance ranged from several prospects to upwards of twenty people at these events.

Unlike residential Solarize events which offered very light refreshments (typically cider or coffee and cookies or similar), the commercial events offered more extensive refreshments, often in a location that would be considered attractive to invitees (e.g. private rooms in restaurants or bars, a Tesla showroom, the offices of a well-known local architect).



Figure 8 - Commercial Solarize Westchester events

Lessons Learned: Commercial Solarize

- **The sales cycle for commercial PV is lengthy.** While municipal support encourages business owners to consider the opportunity, organizational decision-making and financing consideration and choices extend the process. The commercial Solarize installers are still engaging with prospects from the Round One, which concluded last summer. Originally, Solarize Westchester had the same 18 week campaign length for commercial as well as residential. This was later extended by an additional 8 weeks with the recognition that commercial Solarize installers can, and should, continue to pursue sales opportunities even after that end date.
- **Availability of PACE financing is helpful, particularly for systems over \$100,000.** Even if commercial property owners choose to finance their systems in other ways, being able to offer PACE financing is very helpful. For those property owners that choose to use PACE, the low interest rates and long term (up to twenty years) provide for installations that are cash-flow positive in addition to the other benefits including financing being attached to the property.
- **Municipal endorsements matter.** One commercial property owner who signed a contract for a 115 KW PV system indicated that the endorsement by the municipality's chief elected official of the Solarize program was critical in his decision to proceed.
- **Commercial property owners are more likely to seek multiple bids.** As the investment is much greater for larger commercial systems, property owners are more likely to request bids from other parties. For Round One, this resulted in a very large contract (450 KW) being written with a commercial Solarize installer who was not the selected installer for that campaign.

Solar-Friendly Permitting and Zoning

Solarize Westchester’s Solar-Friendly Permitting and Zoning component was designed to complement and deepen the impact of the Solarize Campaigns. Streamlining processes and reducing barriers results in a more conducive environment for installing solar and reduces costs both immediately and in the long term. Solarize Westchester’s Permitting and Zoning Work was led by Croton Energy Group (“CEG”) and Pace Law School’s Land Use Law Center (“LULC”) in collaboration with, and overseen by, Abundant Efficiency.

The scope of work included:

- Participation in the Kick-off Meeting to introduce the program to municipal representatives.
- Municipal surveys regarding current permitting and zoning practices and requirements.
- Developing a document that, through analysis of the municipal surveys, identifies key barriers for Westchester municipalities, and provides remedies.
- Outreach and technical assistance to encourage and support changes in practices and requirements.

Goals for the Solar-Friendly Permitting and Zoning component included:

- Surveying an estimated 80% of Westchester County's municipalities.
- Adoption of the New York State Unified Solar Permit (allowing for minor modifications) by an estimated 67% (30 of 45) of Westchester municipalities.
- Creation of a decision tree resource to support municipalities -in Westchester County and beyond -in the removal of unnecessary zoning restrictions.
- Through technical assistance provided by Pace University Land Use Law Center, an estimated 5-10 municipalities will remove or reduce zoning and/or procedural barriers to installing PV.
- Westchester will gain a reputation for being a solar-friendly county.

All these goals, with the exception of adoption of the New York State Unified Solar Permit by the targeted number of municipalities, were met or exceeded.



Figure 9 - PV Installations by Solarize Westchester Installers

Municipal Surveys and Survey Analysis

A municipal survey template was created to identify current municipal practices regarding permitting and zoning for PV. To ensure that the results of the surveys would be accessible, the Solarize Westchester team collaborated with The Solar Road Map (www.SolarRoadMap.com). The Solar Road Map, a DOE-funded initiative that has the stated goal of helping “local governments, electric utilities and service providers implement global best practices at the local level to make solar energy easier, faster and more cost

effective,” seemed an effective preexisting platform whose goals matched our program needs. To ensure that survey results could be effectively uploaded to the Solar Road Map’s platform, the Solarize Westchester survey included Solar Road Map questions, plus a set specific to New York State and to Solarize Westchester’s needs. Topics included permitting, zoning, market development and contacts/notes.

CEG administered the survey to all PV permitting jurisdictions in Westchester County. In order to reduce the time required of municipal officials, CEG sought available information regarding permitting and zoning for each municipality on municipal websites and completed as much of the survey on each municipality’s behalf as possible prior to conducting the interviews. Conducting the surveys was an iterative process as not all necessary information was always available and the building department staff who were typically the interviewees often could not allot sufficient time to complete the interviews in a single sitting.

Ultimately, CEG was able to complete the surveys for one hundred percent of all municipalities, exceeding the program goal of eighty percent. During the interview process, CEG staff also took the opportunity to provide information regarding best practices adopted by other Westchester municipalities and to explore the willingness of municipal officials to institute similar changes in their jurisdiction. CEG discovered that the impetus for making these types of changes typically came from elected officials rather than building department staff which resulted in the need to conduct these conversations with a broader range of municipal representatives, and in a more iterative fashion, than originally envisioned.

LULC staff reviewed the survey responses to determine the most common zoning or procedural barriers to permitting roof-mounted residential PV systems. The results of this review are detailed in the LULC document, [Barrier Removal for Solar Permitting Resource Guide](#), and show that key barriers include:

1. Failure to define solar electric systems appropriately;
2. Approving all solar electric systems using the same process, including by requiring a site plan;
3. Applying each zoning district’s bulk and area requirements to solar electric systems;
4. Requiring architectural review board review for these systems; and/or
5. Requiring historic preservation commission review for solar electric systems.

LULC staff further describe the results of this review and analysis below.

“Sixty percent of the surveyed municipalities require some form of ARB review. Of the 43 surveyed communities, 18 require ARB review for solar electric systems on both residential and commercial buildings (in some cases, however, one- and two-family homes are excluded from ARB review), while seven require it only for commercial buildings. In addition, 36 Westchester municipalities apply their height restrictions and setback limitations in zoning to solar electric systems, although four of these 36 municipalities only apply height limitations with certain exceptions. Finally, 17 of the 43 surveyed municipalities require site plan review for small-scale, roof-mounted solar electric systems. Nine of these localities review site plans for installations on commercial property only, three require site plan review for all residential properties, and two require site plan review only for certain residential properties.

In addition to these barriers, a municipality’s zoning code can impose other hurdles for small-scale, roof-mounted solar electric system approvals. Some municipalities require historic preservation commission (HPC) review when a roof-mounted system is proposed for installation in a historic district and may restrict the location of solar panels on a roof to reduce their visibility from the street. Additionally, zoning codes often remain silent as to whether roof-mounted solar electric systems are permitted as principal, accessory, or special uses. Generally, if a zoning code does not specify that a particular land use is an as-of-right principal or accessory use or a special use, then the law deems those uses prohibited. Lastly, most municipalities use the

general building permit process to approve solar electric systems, which can slow the process as building inspectors usually need very specific pieces of information pertaining to the system that aren't made clear in a regular building permit application.

Many Westchester communities interested in pursuing solar development are well prepared and/or willing to make adjustments to local laws to accommodate roof-top solar installations. For communities not actively pursuing solar development, the five identified barriers remain issues to address as solar projects are submitted. Some of these communities are currently addressing issues related to aesthetic impacts and interested in adopting design standards. Some Westchester communities are updating their planning documents and looking to incorporate renewable energy and specifically solar development into the plan.”

Surveys, once completed and reviewed by municipal staff, were then sent to the Solar Road Map and made accessible through a Westchester hub: <http://my.solarroadmap.com/ahj/westchester-county/view/>

Municipal Outreach, Education and Technical Assistance

Municipal outreach, education and technical assistance took place throughout the Solarize Westchester program. This involved in-person meetings, workshops and conferences as well as dissemination of program resources. Specifically, this outreach took place as follows:

- The Solarize Westchester Kick-Off event included a review of the goals and work plan for this component of the program, a panel featuring municipal officials who had already adopted some best practices to spark peer-to-peer learning between municipal officials. In addition, the importance of solar-friendly practices in the evaluation of communities applying for Solarize campaigns was stressed.
- During the survey process, as described above.
- As issues or concerns arose related to permitting processes for Solarize communities or communities interested in applying for Solarize, referrals were made to CEG and LULC.
- Through a workshop entitled “Preparing Your Municipality for Growth in Solar: What’s Coming and Technical Assistance to Help You Manage the Changes.” This event included the introduction of the Barrier Removal document produced by LULC, information on trends and developments related to the growth of PV installations in New York State, a panel of municipal officials sharing best practices, and an introduction to other related resources and opportunities of value to municipalities.
- At the annual LULC Conference on December 11, 2015 through inclusion in two panels (Sustainability Planning – 60 Westchester-based registrants and Energy Barrier Removal --29 Westchester-based registrants) and at the Solar Resource Table (50 copies of the Barrier Removal report distributed).
- By LULC at the Corporation Counsel Roundtable on November 12, 2015. Presented Barrier Removal guide and provided technical assistance to representatives of seven municipalities.
- By LULC at the Mayor’s Redevelopment Roundtable on January 20, 2016 to multiple representatives of eight urban Westchester municipalities.
- By LULC through individual onsite meetings and direct resource sharing with ten Westchester municipalities.
- By LULC through electronic distribution of resources and news in multiple communications to including to Land Use Leadership Alliance Graduates (454 recipients) and announced and distributed Barrier Removal guide in January 2016 newsletter (2000 hits).
- Through the Permitting and Zoning page of the Solarize Westchester website: <http://www.solarizewestchester.com/for-municipalities/solar-permitting-zoning/>

One key issue, roof setbacks for roof-mounted solar electric systems, had not been identified in advance of the program and was not explored in the survey. Municipalities had divergent approaches to roof setbacks and this became an obstacle in three of the Round Two Solarize campaigns when building department officials indicated that their requirements were more restrictive than the selected installers had assumed. In one municipality, contracts that had been written had to be revised or cancelled. Westchester municipalities' approaches ranged from requiring no setbacks to requiring 36 inches on three or four sides of the array.

The 2016 Uniform Code Supplement, published on April 6, 2016, provides welcome clarity and standardization regarding this issue. Standards that were very restrictive – identical to those used by a Solarize community that resulted in cancelled and downscaled contracts - had initially been proposed. The Solarize Westchester Program Manager provided input regarding impacts of those proposed standards to the Director of the New York Sun program as we had seen first-hand the impact that those guidelines had on potential solar installations.

The new standards meet the needs of fire fighters but are not so restrictive so as to make solar installations cost-ineffective. 2016 Code will take effect on October 3, 2016, and in the interim, municipalities can use current standards or the new Code.

The new standards are designed to address first responder needs, but still accommodate solar installations. The Code will be fully effective on October 3, 2016. During the transition period, regulated parties can complete building permits using either the current or newly adopted Uniform Code. The Land Use Law Center and Abundant Efficiency are providing updated information to Solarize communities with the more restrictive setback requirements.

Results

By the conclusion of the program, eight municipalities had adopted the New York State Unified Solar Permit:

- Bedford (Town)
- Croton-on-Hudson (Village)
- Dobbs Ferry (Village)
- Somers (Town)
- Cortlandt (Town)
- White Plains (City)
- Yonkers (City)
- Tarrytown (Village)

In addition, nine adopted some other solar-friendly changes (e.g. reduced solar checklists, reduced permit fees, utilizing ARB consent agenda, etc.) to their procedures for processing permits for roof-mounted PV systems:

- Larchmont (Village)
- Rye Brook (Village)
- Mamaroneck (Town)
- Mount Kisco (Village)
- Yorktown (Town)
- Pound Ridge (Town)
- Lewisboro (Town)
- Irvington (Village)
- Hastings-on-Hudson (Village)

Seven additional municipalities had such changes under consideration.

Lessons Learned: Permitting and Zoning

Lessons learned regarding permitting and zoning include the following:

- **There was no information available about barriers to solar electric systems in Westchester municipalities prior to the surveys conducted through Solarize Westchester.** This led to an underestimation of the preexisting barriers in the County and therefore an overly optimistic estimation of the number of municipalities that would adopt the Unified Solar Permit.
- **There is strong interest in Westchester County in understanding best practices for permitting PV systems.** Every municipality in the county has some PV systems installed and these numbers are increasing rapidly across the county. That results in an active interest in considering a range of options to streamline the process.
- **Concerns regarding aesthetic considerations for solar electric systems are gradually decreasing as these systems become more common and as the aesthetics are improved (e.g. with black-on black rather than blue panels in aluminum frames).** However, this remains a barrier in many communities and underlies the requirement in some for review by an Architectural Review Board. Most municipalities that include ARB review of solar permit requests believe this review is important.
- **Architectural review boards do not typically have design guidelines for solar electric systems and have significant discretion to determine which permit requests are approved.** Three municipalities that had all previously approved street-facing solar electric systems began rejecting applications when the members of their respective Architectural Review Boards changed. The Land Use Law Center is developing design guidelines representing best practices for PV installations which may reduce uncertainty about project approvals for those municipalities that adopt the guidelines.
- **Momentum for streamlining processes and removing barriers has most commonly originated with elected officials** rather than municipal staff (with some notable exceptions). This requires a multi-pronged outreach effort to advocate for change: engaging elected officials to encourage streamlining processes, then supporting municipal staff in effecting these changes.
- **A robust, well utilized portal for information about solar permitting and zoning in every jurisdiction might be valuable.** A significant investment was made in obtaining this information through Solarize Westchester's Permitting and Zoning component but the information gathered becomes stale quickly if municipalities are not able to, and incented to, update it. The Solar Road Map appeared to be a good solution to this challenge but it's uncertain that it will be sufficiently utilized for municipalities to keep their information up to date. A New York state solution may be of greater value.

Conclusion

The Solarize Westchester program resulted in a dramatic increase of solar systems contracted and installed in communities participating in the Solarize Campaigns. In addition, there was significant enthusiasm from communities regarding their participation in the program. Solarize campaigns provide an opportunity for community engagement, capacity-building and sustainability leadership for elected officials, municipal staff and volunteers. Solarize Westchester sought opportunities to recognize and celebrate the Solarize communities. This included working with NYSERDA staff to incorporate recognition by NYSERDA at the League of Conservation Voters annual cocktail party at which Solarize Westchester was being honored.



Figure 10 - Solarize Westchester honored at League of Conservation Voters event

Abundant Efficiency also organized a celebration event at the conclusion of the Solarize Westchester program to recognize the efforts of program partners and communities. Solarize installers were invited to underwrite the direct expense of the event and all but one did so.

NYSERDA's inclusion of Solarize campaigns, and adoption of the New York State Unified Solar Permit, as two of the ten high-impact actions under the new Clean Energy Communities Program underlines the importance these efforts. Experience in Westchester shows that each of these actions results in a myriad of benefits in participating communities and based on our observations of Round One communities it appears that even after their conclusion, the Solarize campaigns result in lasting raised awareness of and demand for solar.



Figure 11 - Solarize Westchester celebration

Finally, there is unmet demand for a continuation of Solarize campaigns in the county as well as additional opportunities to expand solar adoption through variations on the Solarize model. These variations might include targeting commercial properties only as well as focusing on lower and moderate income markets. There is significant hands-on experience and the development of capacity and resources made possible by Solarize Westchester that could be deployed in future efforts in Westchester County and beyond.

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