

# CleanEnergy

## States Alliance

### GUIDEBOOK

September 2014

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# Planning and Implementing a Solarize Initiative

## A Guide for State Program Managers

# Acknowledgements

This Guide was prepared by the Clean Energy States Alliance (CESA) through the New England Solar Cost-Reduction Partnership, a project under the U.S. Department of Energy SunShot Initiative Rooftop Solar Challenge II program, to reduce the costs of solar deployment across five New England states. The New England Solar Cost-Reduction Partnership is working to build the regional solar market by targeting non-hardware “soft” costs for photovoltaic (PV) electricity systems and increasing coordination across Connecticut, Massachusetts, New Hampshire, Rhode Island, and Vermont.

The U.S. Department of Energy SunShot Initiative Rooftop Solar Challenge II incentivizes regional awardee teams to make it easier and more affordable for Americans to go solar. By streamlining permit processes, updating planning and zoning codes, improving standards for connecting solar power to the electric grid, and increasing access to financing, teams will clear a path for rapid expansion of solar energy and serve as models for other communities across the nation. The Rooftop Solar Challenge II is part of the SunShot Initiative, which strives to make solar energy fully cost-competitive with other forms of energy by the end of the decade. For more information, please visit <http://www.eere.energy.gov/solarchallenge/>.

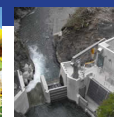
CESA thanks all of the entities and individuals who contributed to this Guide. The maxim that many hands make light work rings true. Indeed, many hands make solar energy deployment and Solarize campaigns work too. While the list is by no means exhaustive, CESA would like to thank the following individuals, in particular, for their contributions to this report:

- Bryan Bollinger—New York University, Leonard N. Stern School of Business
- Clean Energy Finance and Investment Authority—Andrew Brydges, Lucy Charpentier, Isabelle Hazlewood, Selya Price, Robert Schmitt, and Bob Wall.
- Ryan Cook, Massachusetts Institute of Technology Masters in City Planning
- Kenneth Gillingham—Yale University School of Forestry and Environmental Studies
- ICLEI—Riana Ackley, Chad Tudenggongbu, and Nancy Quirk.
- Massachusetts Clean Energy Center (MassCEC)—Catherine Finneran, Elizabeth Kennedy, and Elizabeth Youngblood
- Massachusetts Department of Energy Resources (MA DOER)—Emma Krause and Meg Lusardi
- Northwest Sustainable Energy for Economic Development (NW SEED)—Jennifer Grove, Linda Irvine, and Alexandra Sawyer
- SmartPower—Toni Bouchard, Brian F. Keane, and Lyn Rosoff
- U.S. Department of Energy—Joshua Huneycutt

## Disclaimer

This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0006305.

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Credit: CEfIA (Solarize Portland, CT)



Credit: CEfIA (Solarize West Hartford)

## I. PREFACE

Solarize is a cost-efficient way for communities to scale up residential solar deployment. The first Solarize campaign began in 2009 in southeast Portland, Oregon where residents sought to increase their solar purchasing power by banding together through a neighborhood coalition called Southeast Uplift. CESA member [Energy Trust of Oregon](#), an independent nonprofit established by the State of Oregon to help utility customers benefit from saving energy and generating renewable energy, collaborated with Southeast Uplift to pilot a solar bulk purchasing program, which it dubbed “Solarize Portland.”

The initial Solarize Portland campaign saw immense success in reducing the financial and logistical barriers of going solar, with over 300 residents signing solar installation contracts in the first six months of the program. The Solarize Portland campaign delivered 20 percent cost savings to solar customers taking advantage of the program.

Other jurisdictions took notice and subsequently launched their own Solarize programs. Solarize campaigns have now been initiated across the country, creating jobs, lowering energy bills for residents, and helping decrease the carbon footprint of participating communities. Solarize campaigns have been introduced on the neighborhood, municipal, county, and regional level. And, the Solarize model continues to spread to new areas. An extensive but non-comprehensive list of Solarize initiatives from across the country can be found at <http://solaroutreach.org/solarize/>.

This Guide, funded through Rooftop Solar Challenge II, focuses on two successful state-driven Solarize programs—Solarize Connecticut and Solarize Mass—as case studies to help program managers from other states develop Solarize programs. In addition to municipal governments, below is a summary of some of the key agency/organizational actors involved in the Solarize Connecticut and Solarize Mass programs.

### Solarize Connecticut ([www.solarizect.com](http://www.solarizect.com))

- **Clean Energy Financing and Investment and Investment Authority (CEfIA)** is a quasi-public state organization in Connecticut. The mission of CEfIA is to support the Connecticut Governor’s and legislature’s strategies to achieve cleaner, cheaper, and more reliable sources of energy through clean energy finance. CEfIA administers Solarize Connecticut, which was developed based on the Solarize Mass model.
- **SmartPower** is a non-profit marketing firm with experience conducting community clean energy campaigns. SmartPower has been employed in Connecticut’s Solarize program to develop promotional materials, recruit towns, manage town websites and social media, and coordinate local community outreach campaigns.

### Solarize Massachusetts ([www.masscec.com/solarizemass](http://www.masscec.com/solarizemass))

- **Massachusetts Clean Energy Center (MassCEC)** is a quasi-public Massachusetts state agency with a broad mandate to accelerate the success of clean energy technologies, companies, and projects in the Commonwealth. MassCEC manages the Solarize Mass program.
- **Massachusetts Department of Energy Resources (MA DOER)** is a Massachusetts state energy agency that develops and implements policies and programs to ensure the security and cost-effectiveness of the Commonwealth’s energy supply with the aim of creating of a cleaner energy future. MA DOER administers the Massachusetts Green Communities program and has existing relationships with Massachusetts’ municipal governments on energy issues. Relying on these municipal relationships, MA DOER collaborated with MassCEC to establish the Solarize Mass program.





## II. INTRODUCTION

Solarize is a solar photovoltaic (PV) group purchasing program that aims to lower acquisition costs for home rooftop solar installations. At its core, Solarize is a community-focused marketing campaign that combines four main components:

1. **Discount, Tiered Pricing:** Pre-negotiated group buying discounts increase as more people sign up within a target community (i.e., the more people who go solar under a Solarize campaign, the lower the price for everyone who participates in the community).
2. **Community-Driven Outreach:** These methods may include peer-to-peer interactions, social media campaigns, town meetings, and booths at community events.
3. **Competitively-Selected Installers:** Through a competitive bidding process, the targeted community selects an installer or installers to service the area throughout the duration of the Solarize campaign. This reduces installers' customer acquisition and screening costs and saves the consumer from shopping around for a reputable, price-competitive installer.
4. **Limited-Time Offer:** Solarize campaigns are limited-time offers. This motivates customers to act quickly, or risk missing the window of opportunity to install solar PV at a reduced rate.

The cost savings result from coordinated education, promotion, and outreach effort provided by town volunteers, and in some case, assistance from professional marketing organizations, along with discounted pricing, which takes advantage of reduced customer acquisition costs. These savings are passed along to homeowners and create a compelling reason to sign up for Solarize.

Solarize campaigns have taken different forms in different locations. Indeed, group purchasing initiatives of various stripes have embraced the Solarize name. As a result, what qualifies as a Solarize program is not always clear. Few restrictions have been placed on the use of the word "Solarize." In some places, for example, independent neighborhood or installer-driven efforts have used the Solarize moniker to refer to their solar aggregation initiatives. This Guide, however, focuses on programs that include a state-level promotion or sponsorship component. While we are aware that other Solarize models have been successful, having an organized, systematic, state-backed Solarize program adds legitimacy to a group purchasing arrangement and has demonstrated more consistent levels of scaled PV deployment across communities. This Guide is aimed at state program managers seeking to establish state-backed Solarize programs.



### III. HOW TO USE THIS GUIDE

The purpose of this Guide is to help states structure and launch Solarize programs. The authors acknowledge that there is no single recipe for a successful Solarize program. Indeed, different program organizers may have different definitions of success, which could include increased solar penetration, reduced cost per watt for PV prices, or simply enhanced community knowledge about energy resources and energy consumption. Different structures may work more or less effectively depending upon the location of the campaign, the level of funding available, and the level of community support for a Solarize campaign. This Guide aims to give states a big-picture overview of some of the options for structuring a program, tools for organizing a program, and some elements common to successful Solarize programs.

This Guide does not stand alone. It piggybacks off the fine work of others. In particular, this Guide relies upon and updates an existing guidebook entitled

*Solarize Guidebook: A Community Guide to Collective Purchasing of Residential PV Systems* prepared for the National Renewable Energy Laboratory (NREL) by Northwest SEED. Our new Guide is intended to supplement, not to supplant, that publication.

NREL's *Solarize Guidebook* features case studies of eight Solarize (or Solarize-like) programs. We do not attempt to recreate the case studies presented in NREL's *Solarize Guidebook*. Instead, we provide a detailed look at two particularly well-developed Solarize programs—Solarize Connecticut and Solarize Mass—which have burgeoned since NREL's *Solarize Guidebook* was published. Solarize Connecticut and Solarize Mass offer well-designed, seasoned, and replicable state-administered Solarize programs, which may serve as especially helpful models for state managers seeking to launch their own Solarize programs. A further detailed report on Solarize Connecticut funded by the Department of Energy's SunShot Initiative Solar Energy Evolution and Diffusion Study (SEEDS) will be available in late 2014, published by Yale University.<sup>1</sup>

<sup>1</sup> For more information about this forthcoming report on Solarize Connecticut, contact Professor Kenneth Gillingham at [kenneth.gillingham@yale.edu](mailto:kenneth.gillingham@yale.edu).



Credit: MassCEC (Solarize Hatfield)





## IV. HOW TO STRUCTURE A SOLARIZE CAMPAIGN

The structure of a Solarize campaign can vary widely depending on the number of communities participating, the population (and population density) of the communities involved, and the installer(s) selected. Although different programs may designate titles differently, typical roles in a Solarize campaign include the following:

- **State agency**—a state or quasi-state administrative entity that oversees a Solarize program, lends support and legitimacy to Solarize campaigns, and identifies communities it will support. The Clean Energy Finance and Investment Authority (CEFIA) administers Solarize Connecticut. The Massachusetts Clean Energy Center (MassCEC) runs Solarize Mass.
- **Solar installers**—PV installation companies can opt to participate in individual Solarize campaigns by responding to a municipality's Solarize Request for Proposal (RFP). If selected, installers teach customers about PV installations and financing options, participate in Solarize events and question and answer sessions, schedule customer site assessments, execute contracts with homeowners, and install PV systems.
- **Marketing assistance**—a non-profit marketing firm focused on clean energy has been employed in Connecticut's Solarize program to develop promotional materials, recruit towns, manage town websites and social media, and coordinate local community outreach campaigns.
- **Municipal leaders**—Elected officials or other town leaders apply to the state to participate in Solarize. Municipal leaders identify key roles for community members including a lead volunteer and a core committee of volunteers, and help develop a municipal marketing strategy and promote the program.
- **Lead volunteer (sometimes referred to as a "Project Manager" or "Solar Coach") or a core group of volunteers (sometimes referred to as a "Core Committee")**—An individual or group of town residents charged with recruiting volunteers for a Solarize campaign, advising on the RFP and installer selection process, coordinating municipal outreach, compiling leads, helping to promote the program, and monitoring installer turnaround time.
- **Volunteers (sometimes referred to "Solar Ambassadors")**—Volunteers willing to actively participate and promote Solarize. These volunteers may be organized into committees such as an installer selection committee or a website committee. Often volunteers will be people who have already adopted solar and want to extol its virtues. Solar ambassadors may serve a variety of functions, including providing ideas to the lead volunteer or core committee, recruiting, answering questions, touting the program through various forms of media, and staffing events.





While specific roles and responsibilities may vary between Solarize programs and campaigns, successful Solarize programs often share these common elements. The following section explains the steps of planning and executing a successful Solarize campaign.

## Pre-launch Planning

Both Solarize Connecticut and Solarize Mass limit the number of cities and towns that may participate in any given round or phase. This ensures that there is adequate administrative and installer bandwidth for program implementation. In addition, both Solarize Connecticut and Solarize Mass have competitive selection processes for community participation. Communities that put in the effort to compile

competitive applications tend to be well-organized and better equipped to engage in successful Solarize campaigns. Before the launch of a state-sponsored Solarize program, state administrators, program implementers, and stakeholders should spend several months planning for its roll out. The initial planning process involves designing the program, creating materials (RFPs, town and installer selection process, FAQs, promotional media, press releases, etc.), and ensuring the necessary infrastructure is in place for the program's launch. The initial planning phase will also likely require constructing a website, and perhaps a blog and social media pages. The centralized Solarize website should contain a separate page for each individual participating municipality. Links to sample Solarize documents from Connecticut and Massachusetts can be found in *Table 1* below.

**Table 1. Sample Solarize Documents**

Sample Solarize Materials	Connecticut	Massachusetts
Community RFP	<a href="http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Round%204%20RFP.pdf">http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Round%204%20RFP.pdf</a>	<p>Sample documents for Solarize Mass can be accessed at the following website:</p> <p><a href="http://www.masscec.com/SolarizeMassReferenceGuide">www.masscec.com/SolarizeMassReferenceGuide</a></p>
Installer RFP	<a href="http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204.pdf">http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204.pdf</a>	
Technical Consultant RFP	Solarize Connecticut's program does not use a technical consultant RFP analogous to Solarize Mass. Connecticut relies on other stakeholders to perform technical advising services.	
Community FAQs	<a href="http://www.ctcleanenergy.com/Portals/0/SolarizePilot2_FAQ.pdf">http://www.ctcleanenergy.com/Portals/0/SolarizePilot2_FAQ.pdf</a>	
Installer FAQs	<a href="http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204%20FAQ.pdf">http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204%20FAQ.pdf</a>	
Community Contract	<a href="http://www.ctcleanenergy.com/Portals/0/Attachment%20B%20-%20Solarize%20CT%20Phase%204.pdf">http://www.ctcleanenergy.com/Portals/0/Attachment%20B%20-%20Solarize%20CT%20Phase%204.pdf</a>	
Installer Contract	Contractual terms for installers are included in Connecticut's Installer RFP <a href="http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204.pdf">http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204.pdf</a>	
Community Marketing Plans	Connecticut does not require this element and instead works with municipalities post-selection to develop and customize a marketing plan.	

Note: All of the documents in *Table 1* above are intended as sample templates, which can be modified to meet the particular contours of a specific Solarize program.




Upfront marketing work for Solarize can be done in-house or can be contracted out to a qualified vendor. CEFA partnered with SmartPower to develop promotional materials, manage town websites and social media, recruit towns, and coordinate local community outreach campaigns with assistance from CEFA and selected installers. MassCEC, on the other hand, conducted its marketing in-house, designing a website for each community, provided generic marketing materials, and assisting with educational and outreach efforts. MassCEC also providing each participating community with a marketing grant for community-specific promotion efforts. Whatever promotional route is pursued, a new Solarize program should be recognizably branded on all electronic and print materials.

At the outset, administrators should consider how they would like to track the Solarize program (for example, what data they would like to capture, how it will be collected and conveyed, and what overall metrics they will use to measure the success of the program). This may require considerable effort building one or more

databases in advance of the launch of a program if a state currently does not have systems in place to track this kind of information. Tracking Solarize metrics using a common database and prescribed protocols is important for the smooth operation of the program. Among many other data points, MassCEC collects weekly metrics from all participating installers to track the progress of campaigns within each community. See *Table 2* below for an example of weekly metrics collected by MassCEC. MassCEC also has a Production Tracking System to track, monitor, and evaluate the performance of all solar installations in the state, including those under the Solarize Mass program.

*Table 2* below illustrates the weekly metrics that MassCEC collects for each community. It provides information about the projects that contract as well as the rationale for why other projects may not move forward. After the pre-launch planning has been completed, the timeline for a typical Solarize campaign is six to seven months. This period represents the time from the selection of communities to the last day residents can contract

**Table 2. Solarize Mass Community Summary Metrics**

<div> Weekly Solarize Mass Community Summary</div>						Non-Feasible Sites		Feasible Sites							Contracts Signed (PV)					Awaiting Decision
Week	Week Ending	Initial Interest Contacts	Desk Analysis: Aerial Screen Completed	Desk Analysis: Non-Feasible Sites	Site Visits Completed	Total	Total	Received Proposal	Not Moving Forward					Rebate Project		Non-Rebate Project		Total		Total
									All	Perceived Value	Timing	Financing/Credit Score	Other	Systems	Capacity (kW)	Systems	Capacity (kW)	Systems	Capacity (kW)	
0	2/8/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0
1	2/15/2014	235	135	34	12	3	9	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0
2	2/22/2014	24	90	6	22	6	16	25	0	0	0	0	0	1	5.2	0	0.0	1	5.2	24
3	3/1/2014	13	23	0	20	0	13	11	0	0	0	0	0	2	11.27	0	0.0	2	11.3	9
4	3/8/2014	15	19	12	18	0	15	9	5	5	0	0	0	1	14.94	1	8.3	2	23.3	2
5	3/15/2014	10	22	6	20	6	14	22	2	2	0	0	0	1	5.22	0	0.0	1	5.2	19
6	3/22/2014	9	17	4	21	2	20	20	3	3	0	0	0	5	32.76	1	6.2	6	39.0	11
7	3/29/2014	19	19	2	10	0	17	14	1	1	0	0	0	3	18	0	0.0	3	18.0	10
8	4/5/2014	13	13	0	15	0	13	15	5	5	0	0	0	2	19.38	0	0.0	2	19.4	8
9	4/12/2014	12	12	3	19	0	9	7	6	6	0	0	0	4	16.12	1	4.7	5	20.8	-4
10	4/19/2014	28	22	1	12	0	12	7	1	1	0	0	0	3	7.8	1	7.5	4	15.3	2
11	4/26/2014	39	25	0	15	0	15	9	2	2	0	0	0	3	13.52	4	24.6	7	38.1	0
12	5/3/2014	21	21	4	7	0	7	7	1	1	0	0	0	1	7.48	0	0.0	1	7.5	5
13	5/10/2014	21	21	8	9	0	9	9	2	2	0	0	0	2	14.56	1	4.4	3	19.0	4
14	5/17/2014	31	31	5	20	0	20	20	3	3	0	0	0	3	18.46	0	0.0	3	18.5	14
15	5/24/2014	15	15	0	17	0	12	12	2	2	0	0	0	4	28.38	0	0.0	4	28.4	6
16	5/31/2014	18	18	0	20	0	18	12	3	3	0	0	0	1	14.82	3	16.6	4	31.5	5
17	6/7/2014	19	14	5	20	0	19	19	4	4	0	0	0	8	54.78	3	19.2	11	74.0	4
18	6/14/2014	10	10	0	19	0	19	19	12	12	0	0	0	7	40.94	3	17.9	10	58.8	-3
19	6/21/2014	17	17	3	22	0	22	42	6	6	0	0	0	17	94.19	4	220.3	21	314.5	15
20	6/28/2014	40	40	12	22	0	40	62	1	1	0	0	0	72	387.02	12	60.3	84	447.3	-23
21	6/30/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0
	Total	609	584	105	340	17	319	341	59	59	0	0	0	140	804.84	34	390.2	174	1195	108

\* Awaiting Decision = Received Proposal - Contracts Signed - Customer Not Moving Forward

Notes: Preliminary information - Subject to change

to install solar under the tiered pricing regime and is often referred to as a “phase” or “round” of the program. Multiple communities usually participate in each “phase” or “round.” The time period for customers to contract typically lasts between 15-20 weeks. Depending on

the state, installers then have between 210 days to one year from the time of the execution of the customer’s contract to complete the installation of the project.

*Table 3* below provides an example of a target timeline for a round of Solarize Mass.

**Table 3. Sample Target Timeline for Solarize Mass Program**

2013-2014 Solarize Massachusetts Schedule	Round 1
RFP for Communities: Released	January 16, 2013
RFP for Technical Consultants: Released	February 1, 2013
RFP for Solar Installers: Released	February 11, 2013
RFP for Technical Consultants: Due	February 22, 2013
RFP for Communities: Due	February 20, 2013
Announce Selected Technical Consultants	March 4, 2013
Announce Selected Communities	March 14, 2013
RFP for Solar Installers: Due	March 21, 2013
MassCEC threshold review of Installer Proposals	Week of March 25, 2013
Community selection of top three proposals	Week of April 8, 2013
Community-Installer Interview Day	Mid April, 2013
Announce Selected Installers	Early May, 2013
Begin Community Solar Coach Education & Solar 101s	Throughout April, 2013
Outreach Strategy Development with installer	Early May, 2013
Customer Sign-Up Period Begins	Mid May, 2013
Customer Sign-Up Period Ends	September 30, 2013
Installer Final Report of projects due to MassCEC	October 15, 2013
Deadline for Installations	One year from Rebate Award Date

Source: MassCEC





## Solar Technical Consultant Selection

Under Solarize Mass, MassCEC competitively selects two to three solar technical consultants to assist communities in reviewing the technical aspects of the installer proposals and to lend a knowledgeable and objective eye to the installer selection process. This technical work can include evaluation of proposed equipment and pricing, the business terms of the customer contracts, and various installation practices. Connecticut's Solarize program relies on other stakeholders to perform these services.

## Community Selection

When starting a new Solarize program in a state, "start small" and "play it safe" are words to live by. Both Connecticut and Massachusetts piloted Solarize in four communities in the first phase of their programs. (The number of communities selected to participate grew in subsequent phases.) Both Connecticut and Massachusetts chose to pilot Solarize campaigns only in towns with a history of successfully engaging in clean energy initiatives. In Connecticut, towns for the initial phase of Solarize were selected from the state's designated Clean Energy Communities program. In Massachusetts, the pilot Solarize towns were chosen from the state's Green Communities program, which is administered by the Massachusetts Department of Energy Resources (MA DOER). After initially piloting their programs, both Connecticut and Massachusetts expanded eligibility so that all communities within each state, regardless of whether they are designated as Clean Energy Communities or Green Communities, can apply to participate.

Both Connecticut's Clean Energy Communities and Massachusetts' Green Communities require a demonstrated commitment to energy efficiency and renewable energy generation. While often concomitant with a track record of advancing clean energy initiatives, it may help to initially select towns with committed renewable energy advocates and renewable-friendly elected officials and/or an active Energy or Sustainability Committee to help promote the program. Visibility of existing solar panels on housing stock pre-dating Solarize installations and word-of-mouth by prior solar adoptees can also be a significant boon. These factors will increase the likelihood of early success and will enable the program to gain momentum for subsequent Solarize rounds.

A selective RFP process is advisable for choosing participating communities because it helps ensure community buy-in and understanding of their obligations. State administrators should create a template RFP, which should include a short description of the Solarize program, community eligibility requirements, specific application requirements, and evaluation criteria.

A sample Solarize Connecticut Phase IV Community RFP can be found at <http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Round%204%20RFP.pdf>.

A sample Solarize Mass Round II RFP can be found via [www.masscec.com/SolarizeMassReferenceGuide](http://www.masscec.com/SolarizeMassReferenceGuide).

Connecticut's Phase IV Community RFP notes that in selecting communities,

*applications will be evaluated competitively, and communities that demonstrate a clear commitment to increasing education and outreach around solar PV, as well as an openness to streamlining their permitting processes around residential solar PV installations, will receive strong consideration. The key to a successful Solarize campaign is dependent on the municipality's ability to take ownership of the Solarize Connecticut initiative within their community and the identification of a project lead who will coordinate between stakeholders...and be responsible for matter requiring the town's attention.*

Although the precise municipal application requirements vary between Connecticut and Massachusetts, both state programs require a letter from a municipal Chief Executive Officer committing to the community's full participation, a marketing strategy, and the identification of key community roles (Lead Volunteer, Project Manager, Solar Coach, or Core Committee of Volunteers or Solar Ambassadors, depending on the state) responsible for promoting and carrying out the town's Solarize marketing strategy. Connecticut's Phase IV RFP lists the following criteria for evaluating community proposals:

- **Team:** degree of proposed team's experience and the breadth of partnerships and level of commitment identified in proposal;
- **Project Manager:** ability of project lead, identified by the municipality, to successfully execute a clean energy campaign, and coordinate and support the efforts of a variety of stakeholders;

- **Additional resources:** extent to which additional resources (both financial and otherwise) are identified and potentially committed to the program;
- **Commitment to clean energy and sustainability:** overall record of expanding renewable energy and energy efficiency initiatives in the community.

Connecticut and Massachusetts usually give interested communities approximately four to six weeks to submit their application proposals. As part of the community selection process in Massachusetts, MassCEC conducts a phone interview with designated representatives from the prospective Solarize community. Both Connecticut and Massachusetts allow communities to band together to respond to the RFP. In Massachusetts, up to three municipalities may form a partnership to respond to the RFP as long as each community within the partnership is located adjacent to at least one other community in the partnership. Connecticut allows coalitions of two to four towns to partner under similar conditions. It is helpful if such coalitions have prior experience working together through associations such as regional school districts or a local councils of governments.

## Outreach & Promotion

Partnering with existing community groups and stakeholders is a critical part of a Solarize campaign. Each participating community's lead volunteer, who might work under the title "Project Manager" or "Solar Coach," oversees the major moving parts of the campaign and is responsible for searching out and enlisting program allies. In Connecticut, CEFIA and SmartPower work closely with both the Project Manager and Core Committee to develop an outreach strategy at the start of the campaign. MassCEC provides some outreach structure for the program, but the Solar Coach and Municipal Representative from the community are responsible for determining a course of action. Requiring teams to submit a map of the volunteer team structure and an explanation of the roles of the various volunteers at the time of application enables the development of an expedited outreach strategy. Potential organizational allies to reach out to include local non-profit advocacy groups, utilities, neighborhood coalitions or associations, local solar industry representatives, faith-based organizations, libraries, senior citizen centers, and banks and other financial institutions in the community.

The lead volunteer or core committee should also recruit volunteers, sometimes called "solar ambassadors," to promote the program. People with strong ties to the selected community, those with elevated influence or standing in the community, and those who have had past positive experiences with solar make particularly good solar ambassadors. These solar ambassadors can provide ideas to the project manager, distribute fliers, blog about the program's success, write letters to the local newspaper, take pictures at events, email interested parties, staff community workshops, and perhaps most importantly, recruit their neighbors for the program. Solar ambassadors often have solar deployed on their homes and can host solar tour events in their community so other residents can see a solar installation up close and ask questions about it. Each town might have a handful of solar ambassadors working on the ground. Other volunteers may wish to join an installer selection committee, which is charged with issuing an RFP and choosing an installer for a particular community's Solarize campaign.<sup>2</sup>

As previously noted, in Connecticut, CEFIA hired SmartPower to handle marketing and outreach within participating Solarize communities. SmartPower is responsible for the branding of the program in the state, for website and logo design, and for hiring local coordinators to manage day-to-day activities. CEFIA oversees and approves Solarize marketing materials and assists with campaign outreach. Community volunteers play a critical role in executing the campaigns.

## Installer Selection

After the Solarize communities have been selected, an RFP for solar installers should be released widely through multiple media outlets. Typically, installers are given about four to ten weeks to submit an application proposal. State administrators should create a template installer RFP, which should include a description of the Solarize program, an overview of campaign roles and responsibilities, an explanation of installer eligibility requirements (e.g., having an established customer service database), a projected timeline for the campaign, a list of data tracking requirements, and a checklist of proposal requirements. An installer selection committee, which may be made up wholly or partially of community members, may wish to tailor the RFP (or the installer selection criteria) to emphasize certain community-specific goals or objectives.

<sup>2</sup> In Massachusetts, the individuals involved in the installer selection are pre-identified in the application process.



A sample Solarize Connecticut Phase IV Installer RFP can be found at <http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204.pdf>.

A sample Solarize Mass Round II Installer RFP can be found via [www.masscec.com/SolarizeMassReferenceGuide](http://www.masscec.com/SolarizeMassReferenceGuide).

Massachusetts limits the number of communities or community partnerships a given installer may bid on during any one round of Solarize to three. This allows a single installer to actively participate in Solarize in multiple communities in a given round, but avoids granting any one installation company most or all of the communities to the exclusion of other installers. This helps facilitate competition and hampers exclusivity and conglomeration of the installer community. Connecticut does not limit the number of communities any one installer can bid on in any given phase, but program managers sometimes engage in matchmaking in the installer selection process to help ensure an equitable

distribution of installers among Solarize municipalities. To help small installers, both states allow a consortium consisting of more than one installer to bid collectively on a community.<sup>3</sup>

Components of an installer's application should include a summary identifying the community or partnership of communities for which the installer is applying, a written section on the proposal team's previous experience, a program plan, and a tiered pricing proposal. *Table 4* below shows an example of a five-tiered pricing proposal template from MassCEC, which allows for third-party purchasing through leases and Power Purchase Agreements (PPAs) in addition to direct purchasing of solar systems by homeowners. Connecticut is moving toward a three-tiered pricing scheme beginning in Phase V of its Solarize program.

<sup>3</sup> To date, no installer consortiums have taken advantage of this provision in Connecticut.

**Table 4. Example of Tiered Pricing Template**

The bid should include a dollar per watt (\$/W) Purchase Price that will reduce as higher tiers are reached, as well as a Lease/PPA Price in the form of a dollar per kilowatt hour (\$/kWh) price. While the Lease/PPA Price is expected to remain the same throughout the program, the bid should include a financial incentive (such as a rebate, check card, other incentive, etc.) that is received by Lease/PPA customers as higher tiers are reached.

Tiers	1kW-25kW	>25kW-50kW	>50kW-100kW	>100kW-200kW	200kW+
Purchased Price (\$/W)					
Lease/PPA Price* (\$/kWh)**	Lease/PPA Price (at 90% optimal): _____			Escalator (%)***: _____	
Lease/PPA Incentive****	N/A				
Details on Lease/PPA Pricing Model	Explain any variations on the Lease/PPA model that will be provided. Outline the maximum range for pricing escalators that will be present in contracts.				

Source: MassCEC

\*Provide a Lease/PPA price for a system that produces 90% of optimal production (see Minimum Technical Requirements for how to determine optimal production).

All Lease/PPA Prices should assume \$0 down upfront. In addition, provide the contract escalator that company applies to projects.

\*\* If a lease is offered, convert the payment to a \$/kWh price.

\*\*\* The Lease/PPA escalator is the rate by which the price will increase over the term of the contract.

\*\*\*\* Provide the incremental value that a Lease/PPA customer would receive as each new tier is reached, NOT the cumulative value received (including prior tier incentives).



In Massachusetts, the tier price represents the base price offered to customers (i.e., the basic cost associated with a solar installation). Installers are required to offer a detailed description of any cost components that could be applied to the base price, known as cost adders. These cost adders may be site specific (such as the use of a pole-mounted system, rafter reinforcement, or electrical upgrades), or they may be optional cost adders (such as the use of premium solar panels). Cost adders may be submitted either as a flat rate, or a cost/watt price per adder. Correspondingly, at project completion, if a project costs more than the tier price, the installer is obligated to submit a cost adder form noting any additional cost adders associated with the project.

After the deadline for installer proposals has elapsed, installer selection occurs. Installer selection may take place either through an RFP or installer selection committee at the community level or by the state program administrator or through some combination of both. In Connecticut, communities identify which installers they wish to interview after a technical briefing reviewing each of the RFPs received. The selected solar installers are then interviewed by all of the communities together. Connecticut communities choose their preferred installers following the interviews. In Massachusetts, MassCEC, MA DOER, and a solar technical consultant assist each community in scoring their installer. The top three scoring installation companies are then invited in for an interview with the community. After the interview process, the community makes the final decision about which installation company they would like to work with. Whatever selection protocol is established, installer applications should be carefully scrutinized and evaluated.

## Customer Enrollment

After an installer is selected and the volunteer team has been assembled, the customer enrollment period should begin. To kick off a Solarize campaign in a community, some kind of introductory workshop or celebratory event should be held. Press releases should go out to local media outlets, and fliers, posters, and lawn signs should be disseminated to the extent possible.

The kick-off event should explain the basics of solar PV systems, how the Solarize program works, the benefits of bulk purchasing, financing options and available incentives for homeowners, and how to participate in the program. An installer representative should attend the kick-off event

to introduce the community to the installation company and to answer questions. In both Solarize Connecticut and Solarize Mass, either the state or the installer is assigned to provide the basics on how solar works, as well as homeowner financing options at the kick-off workshop. State and local spokespeople are available at the kick-off to provide background on the program, how the installation company was selected, and to demonstrate the commitment of the state and municipality.

Typically, the customer enrollment period for a Solarize round lasts three to five months. Outreach, including additional workshops and other scheduled events, should occur throughout the enrollment period. Other enrollment outreach may include door-to-door canvassing, house parties, email blasts, yards signs, or tabling at a local farmers' market, craft fair, holiday celebration, or other community event. Letters sent on town letterhead but paid for by the solar installer, and print media have been identified as key ways that participants in Connecticut learned about the Solarize project. Several Solarize communities have created some version of a thermometer located in a high-visibility location to show progress toward achieving the lowest tiered prices. Depending on the structure of the Solarize program, enrollment could occur online, in person, or both. In Solarize Connecticut and Solarize Mass, all sign-ups on community websites are directly referred to the selected installer. Once a person has signed up for more information, the selected installer should act quickly to conduct a site assessment.

## Coordination Calls

In both Massachusetts and Connecticut, bi-monthly campaign coordination calls occur for stakeholders. These coordination calls are led by Solarize program administrators and may include the community's lead volunteer, members of the core committee, promoters, and representatives from the selected installer company. The purpose of these calls is to make sure each town is continually creating new outreach opportunities and coordinating for upcoming events. Because the primary job of community volunteers is to "fill the pipeline" of interested residents, these calls are extremely helpful in ensuring high visibility across the community and attendance at scheduled events. They are also helpful for infusing new strategies and ideas into campaigns, if needed. Solarize program managers in other states should consider conducting regular, standing coordination calls to help ensure their campaigns proceed smoothly.



## Aerial Site Analysis and In-Person Site Assessments

Initial site screening for potential installation locations can begin through the education outreach process. Although the installer will ultimately be the technical expert to determine which properties are feasible sites for solar, solar mapping software may also be employed to preliminarily identify customers who may possess suitable sites. These customers can then be targeted to receive a door hanger, flyer, or mailing. Solar mapping tools can be used remotely by trained volunteers or solar ambassadors to assess the potential solar production at particular sites and to show the financial viability of installing solar on particular buildings within a community. MassCEC's solar map to assist communities and residents determine potential solar site suitability can be found at [www.masscec.com/solarmap](http://www.masscec.com/solarmap). Demonstrations of cutting-edge solar mapping tools can be found at [www.cesa.org/webinars/showevent/cesa-webinar-solar-maps-as-tools-for-advancing-solar-energy?d=2014-03-05](http://www.cesa.org/webinars/showevent/cesa-webinar-solar-maps-as-tools-for-advancing-solar-energy?d=2014-03-05). If a more sophisticated mapping tool is unavailable, a more basic site assessment analysis may also be done using an online aerial map, such as Bing or Google maps.

Other enrollee leads should be passed to the selected installer in a timely manner so in-depth, in-person site assessments and contracting can begin promptly. Experience in Solarize Connecticut communities shows that only approximately 20percent of homes will actually be suitable for solar, due to shading, roof orientation, or other structural roof issues. Solarize Mass data is relatively similar, although the percentage of feasible homes for solar can vary greatly between communities. And, while some homeowners may not have feasible sites for solar, they can still be tremendous advocates for the program or even campaign volunteers. In addition, those homeowners who may not be able to put solar on their own home may be eligible to participate in a community shared solar project or other renewable energy or energy efficiency technologies. For a community, it is generally worth maintaining contact with these interested individuals for future clean energy efforts.

## Signing Contracts/Financing

As part of the outreach process, the installer should clarify his or her expected timeframe between receiving an initial interest contact, completing a site assessment, and presenting a proposal to the resident. In Solarize Mass, the installer is required to offer an updated leads list to the volunteer team on a regular basis, which includes customer names and project status. This may help minimize confusion and aid community volunteers in assisting residents who are moving forward through the sales process.

While some of those who are interested in going solar may not be able to do so, others who can move forward may need help with financing. Although many customers pay upfront for their systems, homeowners are increasingly looking at leasing and debt financing options to make solar affordable as an investment. Both Connecticut and Massachusetts have a number of financing options available for home or business owners. The installer should carefully explain customer financing options before executing a contract with an individual homeowner.

## Solar Installation

Under the terms of the installer's RFP, installers have a specified time window from contract execution to complete a solar installation on a home (typically, one year). State program administrators or the designated lead volunteer should monitor the customer-tracking database to ensure that installations are occurring within this predetermined timeframe. Regular communication and updates should occur between the installer, the customer, and program administrators to ensure the program is running smoothly. As projects come online in a given community, a successful strategy has been to use the early installations as an opportunity to create media attention and customer interest by hosting open houses where projects have been completed. This enables other residents to view an installed PV solar system and to talk to homeowners about their decision to adopt solar.

## Appreciation

State program administrators should acknowledge and celebrate the efforts of the municipality and community volunteers, along with the accomplishments of a campaign. In addition, the municipality, community volunteers, installer, and customers should all be encouraged to give feedback to program administrators in an effort to improve the program for subsequent rounds.

## Program Costs

The cost to administer a Solarize program will differ depending on how the program is structured and how many communities participate.

During Solarize Connecticut's first year, CEFIA expended roughly \$200,000. In addition, SmartPower received private foundation support from the John Merck Fund and Putnam Family Foundation to help fund Solarize in Connecticut. Some of the initial expenses were one-time, start-up costs. Program administration costs tend to decrease as a program matures. Because of the flexible

nature of the program and differences in program size and structure, actual state-incurred program costs may vary considerably.

*Table 5* below from MassCEC shows Solarize Mass program costs alongside projected customer savings. The costs covered in *Table 5* are only calculated for systems purchased outright, not for leased systems or systems purchased through power purchase agreements.

It should be noted that funds Connecticut and Massachusetts invested in Solarize has led to large consumer savings. For example, in Phase 1 of Solarize Connecticut, the actual customer savings compared to typical solar system prices was over \$2.2 million in just the first half of the year, or an average of approximately \$7,500 for each participating household. Under Solarize Mass 2013 Round 1, MassCEC expended about \$220,000 for purchased projects in the ten participating communities. This facilitated an investment of over \$12 million by purchasing solar customers, representing aggregate savings of \$2.6 - \$3.4 million for these customers.

**Table 5. Solarize Mass Program Costs and Projected Customer Savings**

*Massachusetts (covering systems purchased outright, not systems financed through leases or PPAs)*

Round/ Year	# of Communities	State Administrative Costs	Percentage of Purchased Projects in Round	Facilitated Expenditure	Customer Savings	Percentage of Savings Covered by State Costs
2012	17	\$153,000	57%	> \$10,200,000	\$1,700,000 - \$2,600,000	6%
2013 Round 1	10	\$220,000	90%	>\$12,000,000	\$2,600,000 - \$3,400,000	8%

Source: MassCEC

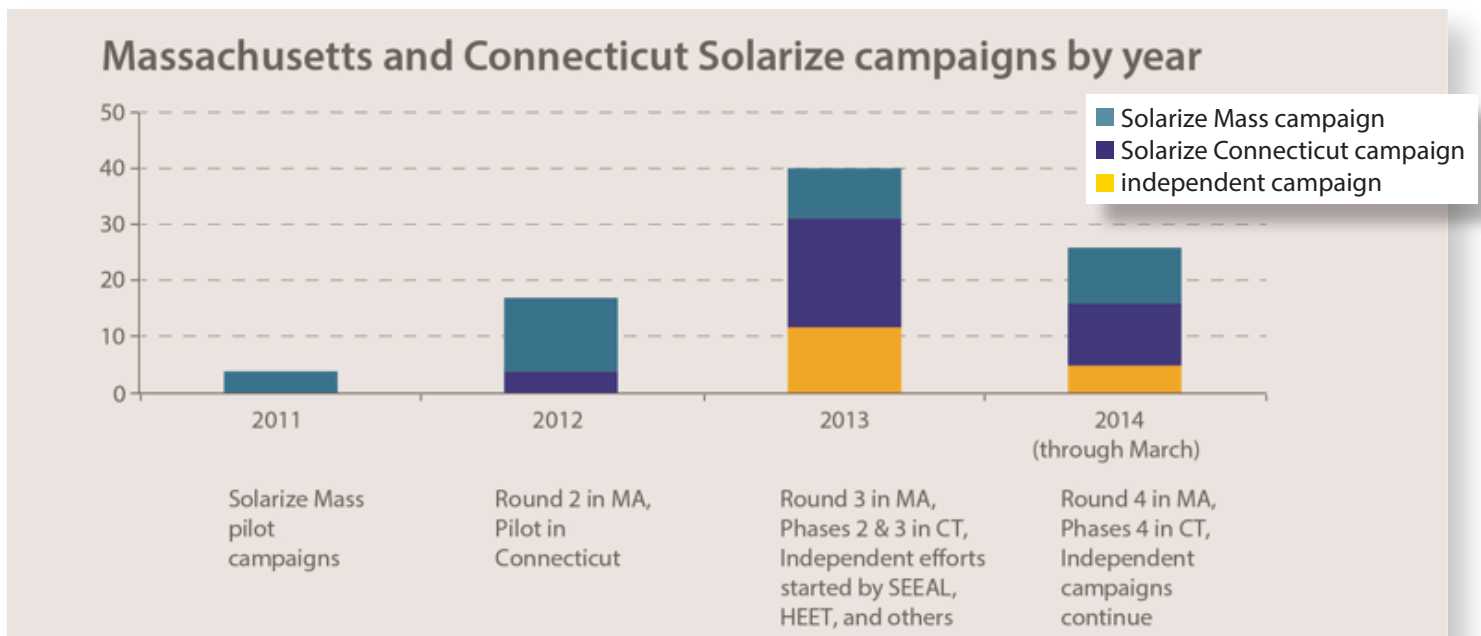




## V. PROGRAM RESULTS

MassCEC modelled its program after Solarize Portland and brought Solarize to Massachusetts in 2011 when it piloted Solarize in four municipalities. After the pilot's success, the model spread to other municipalities throughout the state and to Connecticut, which started a Solarize program of its own in 2012. As of spring 2014, 70 state-sponsored Solarize campaigns had been coordinated in the Connecticut and Massachusetts combined. The success of the state-backed programs also inspired the launch of 17 additional Solarize campaigns independently run by non-profit organizations or municipal governments in the two states. *Figure 1* below shows the proliferation of Solarize campaigns in Connecticut and Massachusetts from 2011 through March of 2014.

**Figure 1**



*Source: Ryan Cook, Massachusetts Institute of Technology Masters in City Planning*

Presently, some 80 state-sponsored Solarize campaigns have been launched in either Connecticut or Massachusetts, with more campaigns to come.

## Solarize Connecticut

**Campaigns: 34**

**Projects: 1,167**

**Total Capacity: 8,200 kW<sup>4</sup>**

CEFIA began Solarize Connecticut in May of 2012, choosing four towns from its pre-existing Clean Energy Communities program. Several phases of Solarize, as of this writing, have been completed. These phases tend to last anywhere from 12 to 20 weeks during which time participants may take advantage of discounted prices as more people sign up. Phase I of Solarize Connecticut, which ran from August 2012 until January 2013, was a marked success, with approximately 280 signed contracts, and more than 2.2 megawatts of installed capacity – all generated from four towns. Phase II of Solarize Connecticut installed about one megawatt of capacity with 160 contracts signed. It reached five additional towns, and installed more than double the level of existing solar PV capacity during the preceding eight years within those towns. Phase II also saw the continued reduction of customer acquisition costs, with rates decreasing across participating towns from an average of \$4.80 to a new average of \$3.99 per watt.<sup>5</sup> Phase II also included two financially distressed communities participating in the Solarize Connecticut project. Phase III of Solarize Connecticut expanded to 22 new towns. Solarize Connecticut is currently in Phase IV, working to bring affordable solar power to 14 new towns in Connecticut.



*Credit: CEFIA (Solarize Bridgeport)*

### *Solarize Connecticut Campaigns—Selected Solarize Communities*

**2012: (Phase I):** Durham, Fairfield, Portland, and Westport.

**2013 (Phase II):** Bridgeport, Canton, Coventry, and Mansfield/Windham.

**2013 (Phase III):** Ashford/Chaplin/Hampton/Pomfret, Easton/Redding/Trumbull, Greenwich, Manchester, Newtown, and West Hartford. Connecticut also ran some variations of the classic Solarize model during Phase III in Cheshire, Columbia-Lebanon, Enfield, Glastonbury, Hamden, Roxbury-Washington, Stafford, Stamford, and West Haven.

**2014 (Phase IV):** Bloomfield, Brookfield, East Lyme, Essex, Farmington, Haddam/Killingworth, Montville, Simsbury, Tolland, Torrington, and Weston.

<sup>4</sup> This figure represents an approximation of total kW capacity of those who have enrolled in Solarize Connecticut between the beginning of May, 2012 and the end of April, 2014. Because the time lag between homeowner contract signing and actual solar installation some of electric capacity encapsulated in this number may have yet to be installed.

<sup>5</sup> This average price reflects residential installations across all Phase II towns with adders included.

## Solarize Massachusetts

**Campaigns: 46 (2011-2013)**

**Projects: 2,448**

**Total Capacity: 15,955 kW<sup>6</sup>**

MassCEC partnered with the Green Communities division of the Massachusetts Department of Energy Resources (MA DOER) to launch Solarize Massachusetts in 2011. Working with four communities, the pilot program resulted in 162 contracts signed for 829 kW, with especially impressive results in the town of Harvard, where four percent of the residences in the town received installations. In 2012, MassCEC and MA DOER ran a second round of the program in 17 communities, resulting in more than 800 residents and business owners signing contracts to install more than 5.1 megawatts of solar. Customers that purchased projects under the 2012 round experienced about a 20% cost reduction relative to the market price, with an average price of \$4.15/watt under the program (down from \$5.23/watt in the larger solar market). In the 2013 Round 1 program, Solarize Mass was launched in ten additional communities, with 551 contracts signed resulting in over 3.8 megawatts of solar. The average customer purchasing a system under the 2013 Round 1 program experienced an 18% cost reduction, with an average purchase price of \$4.00/watt under the program (down from \$4.85/watt in the larger solar market). There were 15 additional communities selected for the 2013 Round 2, demonstrating continued success with 932 contracts signed resulting in over 6.1 megawatts of installed solar capacity.

Almost every community participating in Solarize Mass has more than doubled its number of residential-scale solar projects as a result of the program and has seen the rate of solar adoption increase relative to the rate prior to participating in the program. In addition, the average number of systems and the average capacity contracted per community has continued to increase in every round. Under Solarize Mass 2013 Round 2, each community had an average of 62 contracts signed for an average of 409 kilowatts of solar capacity.

Initially, towns designated as “Green Communities” by MA DOER were selected for Solarize Mass using a top-down model. Since that first round, however, MassCEC discovered that greater community buy-in could be generated through a competitive selection process. Towns now apply to be considered for Solarize Mass, and new communities are selected from those applicants. The Solarize Mass pilot demonstrated that residents and businesses within a community are more inclined to install a solar PV project when they are educated about the benefits of the technology, when they are receiving a sound value proposition, and when they have the support of the community and other local advocates.

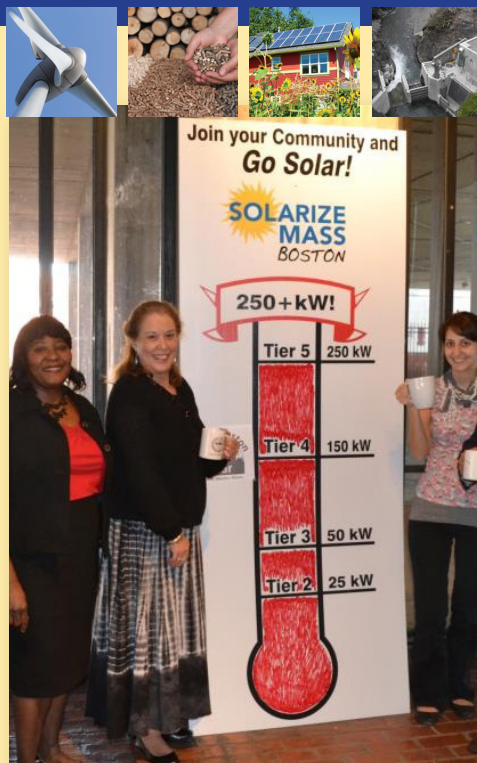
### *Solarize Massachusetts Campaigns—Selected Solarize Communities*

**2011:** Hatfield, Harvard, Scituate, and Winchester.

**2012:** Acton, Arlington, Boston, Hopkinton, Melrose, Mendon, Montague, Newburyport, Palmer, Shirley, Lenox/Pittsfield, Millbury/Sutton, and Lincoln/Wayland/Sudbury.

**2013 (Round 1):** Bourne, Brookline, Chelmsford/Carlisle, Lee, Medford, Medway, Newton, Northampton, and Williamstown.

**2013 (Round 2):** Adams, Amherst, Andover, Great Barrington/Egremont, Lexington/Bedford, Needham, Salem/Swampscott, Watertown, Wellfleet, and Williamsburg/Whately/Chesterfield.



*Credit: MassCEC (Solarize Boston)*

<sup>6</sup> This figure represents an approximation of total kW capacity of those who have contracted under Solarize Mass. Some of electric capacity encapsulated in this number may have yet to be installed.



## VI. LESSONS LEARNED

The Solarize model continues to spread and evolve. As Solarize proliferates, new variations are tested and new lessons emerge. Each campaign offers opportunities for learning. Below are a few big-picture lessons learned from the Connecticut and Massachusetts Solarize programs:

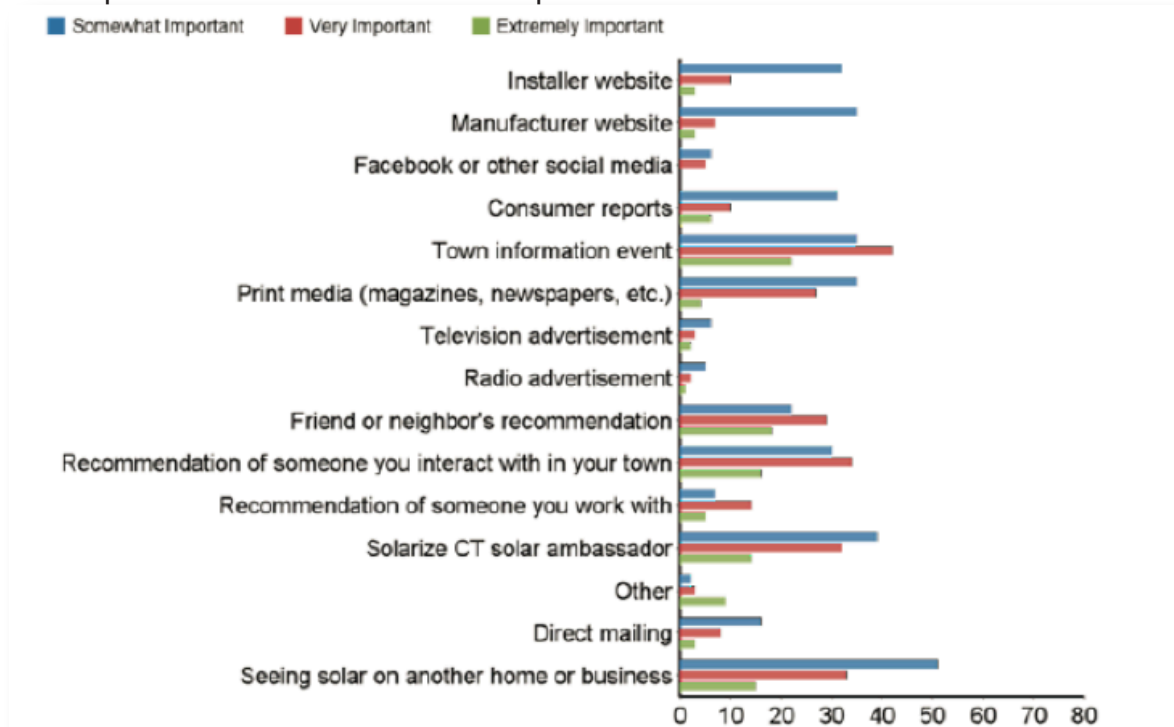
- 1) Every community, and hence every Solarize campaign, is different. Both Massachusetts and Connecticut quickly learned that what worked in one community may not work in another. For example, a social media promotional campaign may work well in one town, while spreading the word via local access television or setting up a table at a local transfer station might be more successful in another. Some communities have a strong media outlet which will be critical to creating visibility for the program, while other smaller communities may not enjoy this resource. This means that Solarize campaigns should be individually tailored to the communities that are selected for participation. This individualistic

approach extends to installer selection as well – some communities place a high value on having a local installer, while others might prioritize lower prices.

Peer-to-peer social networks also make a difference. Ken Gillingham of Yale University and his partners at CEFIA, SmartPower, and the NYU Stern School of Business have studied the Solarize program in Connecticut under the U.S. Department of Energy's Solar Energy Evolution and Diffusion Studies (SEEDS) program. Their early research shows that leveraging social interactions is an effective way to accelerate residential solar adoption. The graph below, derived from a survey of solar adopters from Phase I of Solarize Connecticut, illustrates that seeing solar on other homes or businesses and hearing recommendations from solar ambassadors are both highly persuasive factors for homeowners thinking about going solar. Radio and television advertisements and social media tend to be less compelling factors in homeowner decisions about going solar.

**Figure 2**  
**Importance of Social Network Effects**

Homeowner Responses Related to the Relative Importance of Different Factors in the Decision to Adopt Solar



Source: Ken Gillingham, Yale University School of Forestry and Environmental Studies, SEEDS





MassCEC conducted surveys of the individuals who expressed interest in learning more about the Solarize Mass program. *Table 6* below shows the efficacy of different outreach methods received under the 2013 Round 2 Solarize Mass survey. While the results would vary by community, there is a clear indication that direct interaction with other members of the community is a highly effective method for galvanizing support for the program.

**Table 6. Effectiveness of Different Solarize Outreach Methods**

*2013 Round 2 Solarize Mass—Effectiveness of Different Solarize Outreach Methods*

Marketing & Outreach Method	Not Applicable	Not Important	Important
Neighbor/Friend	30%	22%	45%
Local Community or Civic Group	28%	21%	48%
Solar Coach or Town Official	29%	26%	42%
Solar Installer	24%	16%	57%
Community Meetings or Events	26%	20%	51%
Lawn Signs/Banner	26%	32%	38%
Mailing/Door Hanger/Flyer	41%	34%	21%
Traditional/Online Media (TV, Radio, Newspaper, etc.)	36%	28%	34%
Social Media (Facebook, Google Groups, Twitter, etc.)	48%	37%	13%
Other	71%	15%	11%

*Source: MassCEC*

- 2) A third-party, state-sponsored entity charged with administering the Solarize program lends legitimacy to the program. Similar Solarize-like initiatives led by independent, private installers, such as the Connecticut Solar Challenge, have not had the same consistent level of success in terms of solar adoption as state-run efforts. This may be due, in part, to the lack of third-party verification or the absence of the additional resources and credibility the state otherwise might provide.
- 3) Deadlines for customer enrollment are essential. Clearly articulating a campaign end date provides an important impetus for customer sign-ups. Up to half of the sign-ups tend to be in the last month of a Solarize campaign.<sup>7</sup>
- 4) Identifying a community member to serve as the campaign lead, along with a core group of dedicated volunteers is extremely valuable. Having dedicated municipal leaders to help run a Solarize campaign is a key asset in Solarize communities, as it demonstrates support and provides added legitimacy to the program.
- 5) It is important to take into account the available bandwidth of the solar installer industry in the state or region when determining the number of Solarize communities to participate in a program. Solarize programs can drive adoption at a much faster rate than normally seen in the market. It is useful to think about whether installation companies will have the resources to meet the increased demand, particularly if an installation company is selected for more than one community.

<sup>7</sup> For example, the total number of contracts signed and the total capacity of solar more than doubled in the last two weeks alone of the Solarize Mass 2013 Round 2 program.

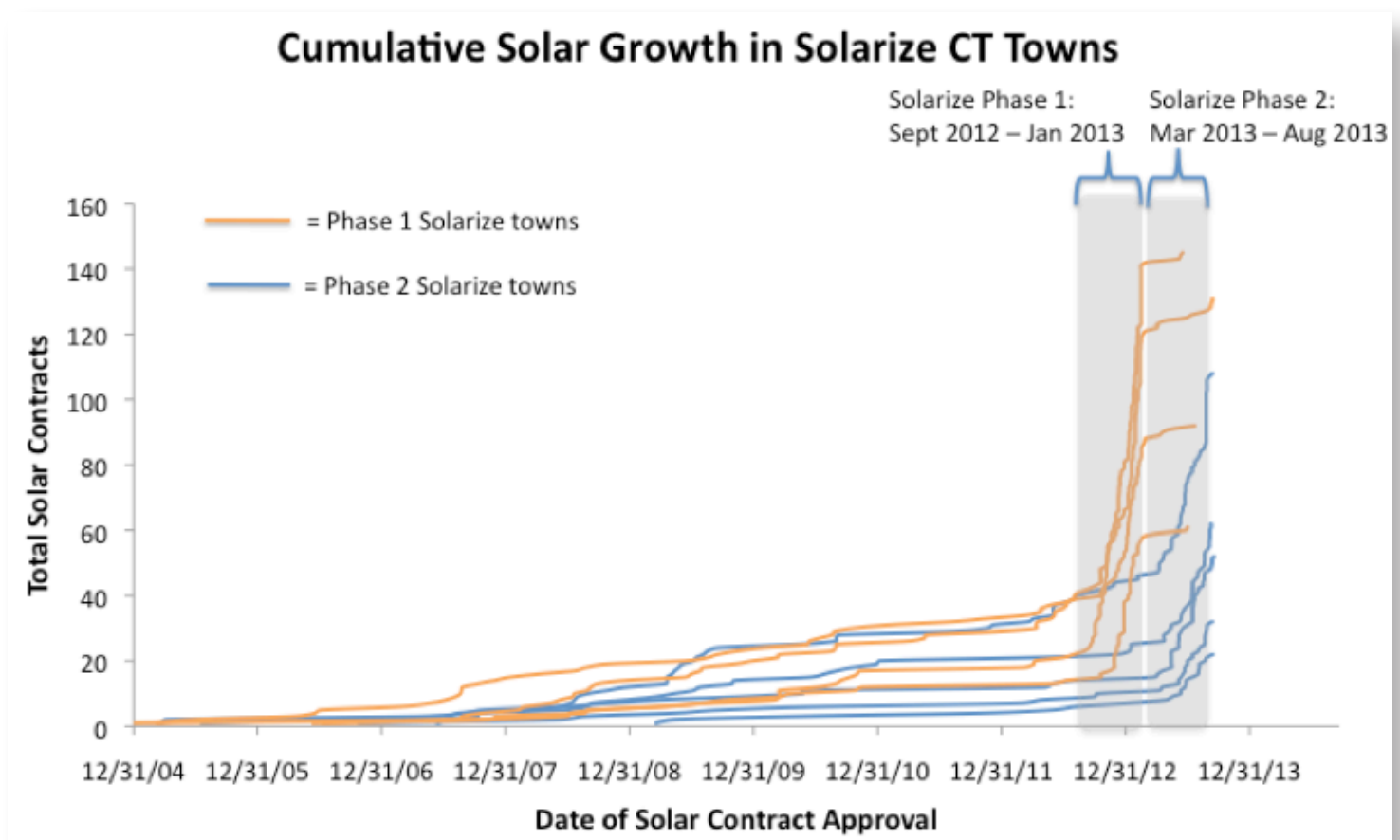
## VII. DEFINING SUCCESS

Solarize programs in both Connecticut and Massachusetts have been tremendously successful in increasing the rate of residential solar adoption in three ways:

First, Solarize **expands the potential customer base**. In Connecticut, 20% of households who signed a contract for solar had never considered installing solar before.

Second, the program **speeds up solar deployment**. In Massachusetts, the number of small-scale solar projects has more than doubled in the vast majority of participating Solarize communities as a result of the program. In Connecticut, during Phase I selected Solarize municipalities achieved 24 – 65 times the rate of new solar installation contracts as compared to the rate during the prior seven years. *Figure 3* below shows the enormous growth in the number of solar installation contracts signed in Connecticut during both Phase I and II.

**Figure 3**



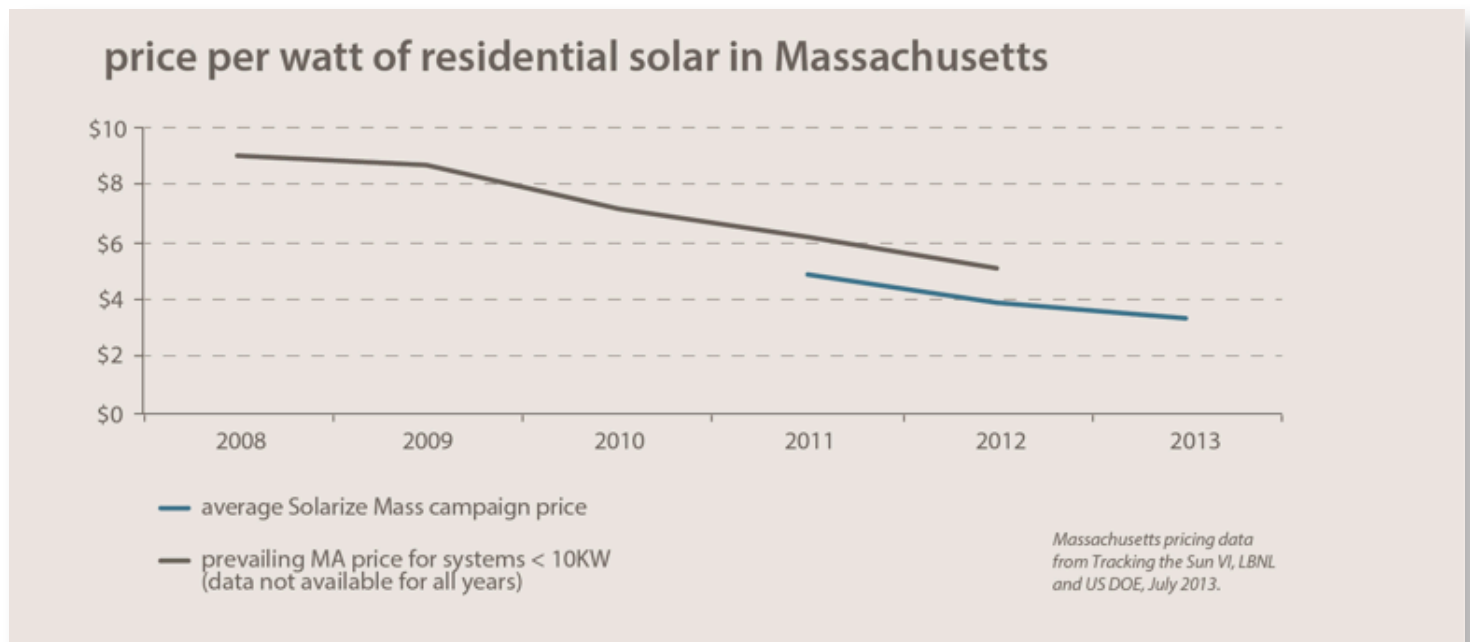
Source: Ken Gillingham, Yale University School of Forestry and Environmental Studies, SEEDS



It is worth noting that despite worries about a potential lull in solar uptake in a Solarize community following a campaign, Solarize communities in both Connecticut and Massachusetts have continued to experience increasing solar adoption even after the town's Solarize campaign has ended.

Lastly, Solarize **helps drive down the installation prices** for consumers. In Connecticut, Solarize has resulted in cost reductions of between 20-30 percent for customers. Solarize Mass has achieved an average price reduction of 18-20 percent for purchased projects. *Figure 4* shows the prevailing price per watt of residential solar PV systems in Massachusetts compared to the average price per watt achieved for solar customers participating in Solarize Mass campaigns.

**Figure 4**



Source: Ryan Cook, Massachusetts Institute of Technology Masters in City Planning



*Credit: Energy Trust of Oregon*

## VIII. CHALLENGES

Although Solarize has been quite successful, some issues have arisen. One key issue is embedded in the very nature of the program itself. Since Solarize aims to deploy as much solar PV as possible in a short timeframe, it can lead to a boom-and-bust operations cycle for small installers who may not possess the initial capacity to meet the service needs of the community. These small installers may be forced to scale up to be competitive in the RFP selection process. They may not have the capacity to expand to serve an entire community within the required timeframe and then smoothly scale back down after the Solarize campaign has been completed.

A related challenge has been the capacity of installers who may be working in more than one community. Attending local events and workshops is critical, as is making site visits, so having sufficient sales support is vital. Administrators should consider methods to minimize the risk of an installation company over extending itself. Different Solarize programs across the country have attempted to address this issue in a number of ways. Connecticut piloted a new Solarize model, called “Solarize Choice,” to address this particular issue. In Solarize Choice communities, three installers were chosen instead of one so multiple

installers could service the area. Massachusetts mitigates the boom-and-bust issue by limiting the number of towns an installer may bid on during any given round.

It is also important to note that Solarize does not prohibit installers who are not selected by a community for Solarize from acquiring customers or installing in that particular community during a Solarize campaign; it merely makes it more difficult for those installers to be cost-competitive there due to the tiered pricing structure of a Solarize program. Nevertheless, in some cases, non-selected installers have been able to acquire customers during a Solarize campaign by undercutting the prices of the selected installer or offering additional options and services. In Massachusetts, up to a third of the installed systems in a community during a Solarize campaign are installed by companies not participating in the Solarize program. These installations were not counted towards the Solarize tiered system.

Another challenge that has surfaced with some Solarize campaigns is that most customer enrollments tend to occur within the final two weeks of the enrollment period. This can create short-term backlogs and capacity issues for the selected installer.





## IX. ALTERNATIVE SOLARIZE MODELS

The following two Solarize models—Solarize Choice and Solarize Express—have been piloted in Connecticut alongside Connecticut’s “Classic” Solarize model. These Solarize approaches were part of the research supported by the Department of Energy SunShot Initiative Solar Energy Evolution and Diffusion Studies (SEEDS) grant to Yale University, New York University, SmartPower, and CEFIA.

**Solarize Choice:** The traditional Solarize model uses one company for all new installations throughout a given community. This is not an issue for large installers, but many small companies have difficulty rapidly scaling up activity, and then smoothly transitioning back to lower uptake levels. In addition, some community leaders are uncomfortable sole-sourcing all of their installations to one private company. The Solarize Choice model enables more than one pre-screened installer to be selected for a particular community. This allows more installers to participate in the program and can help ease capacity issues for small installers engaging in Solarize.

*Solarize Choice Campaigns:* Cheshire, Columbia/Lebanon, Enfield, Stamford, West Haven

**Solarize Express:** Solarize Express tests the time-frame scalability of Solarize. The community outreach and customer acquisition portion of the traditional Solarize model generally runs for 16 to 20 weeks. While elevated solar uptake is seen throughout this period, the vast majority of new contracts are signed during the last weeks of the program. Solarize Express tests whether it is cost effective to shorten the marketing campaign to 12 to 13 weeks. This abbreviated program removes some of the time where only moderate solar uptake may occur, but increases the time sensitivity for customers.

*Solarize Express Campaigns:* Glastonbury, Hamden, Roxbury/Washington, Stafford

Two new Solarize models—Solarize Prime and Solarize Online—will be tested in Connecticut in the fall of 2014 through the SunShot Initiative SEEDS grant. These two new Solarize models are described below:

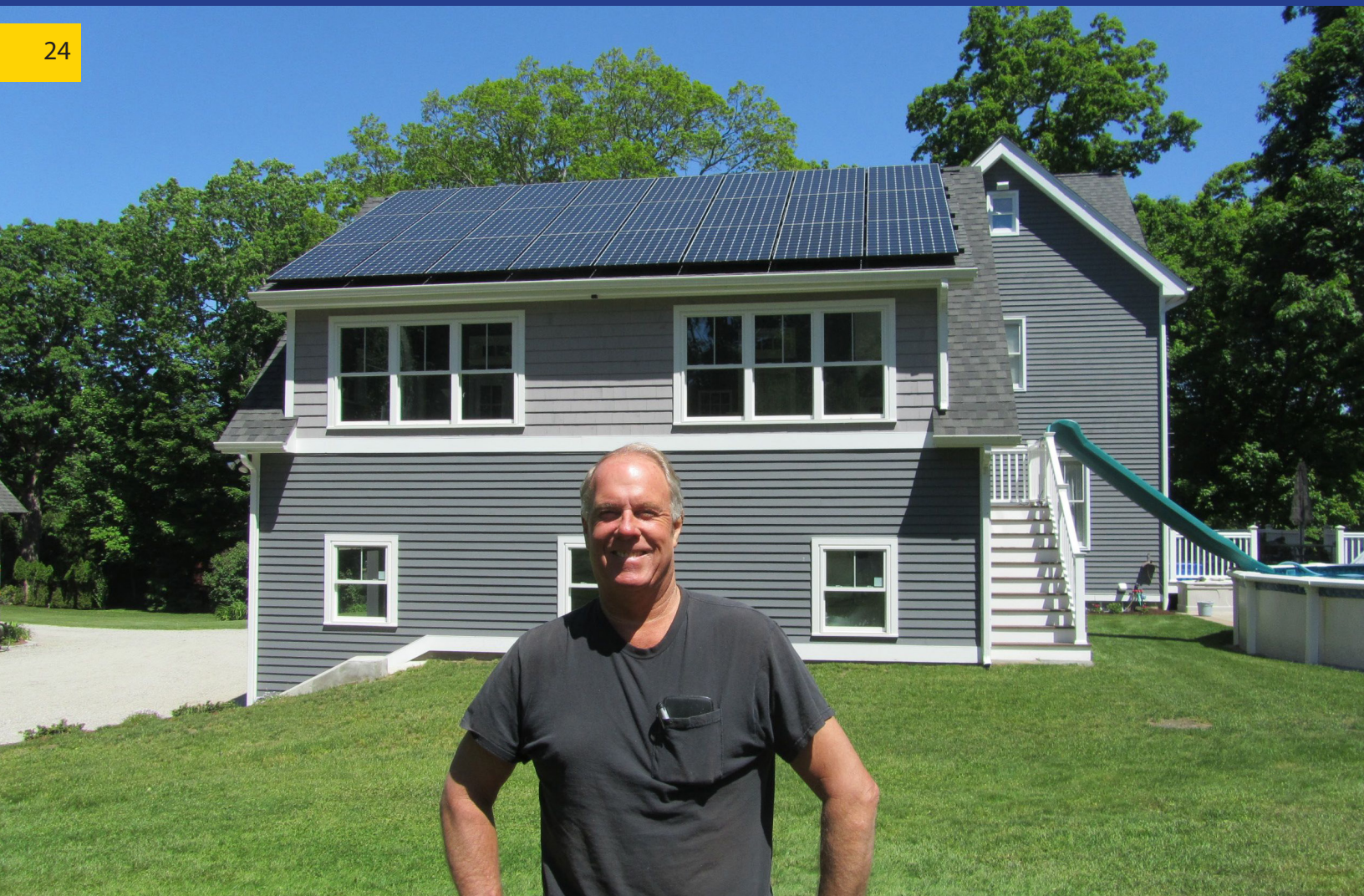
**Solarize Prime:** Selected Solarize communities will choose one qualified installer who will offer one low, discounted price rather than multiple pricing tiers, making it simpler than ever to determine the cost of a solar PV system and to go solar through the Solarize Connecticut program.

**Solarize Online:** Selected Solarize communities will leverage an online platform that makes it easy to compare solar PV quotes from multiple installers, providing customers with choice, and equipping them to make informed decisions. Educational and technical support from the online platform will be provided.



*Credit: MassCEC (Solarize Hopkinton)*





*Credit: SmartPower (Solarize Essex)*

## VII. CONCLUSION

Solarize offers a powerful tool for states and communities to reduce customer acquisition costs for going solar. Because it does not necessarily provide direct rebates or other solar incentives, it can be a relatively low-cost strategy for a state to encourage local solar deployment. Massachusetts

and Connecticut have observed 20% solar acquisition price reductions and considerably expedited solar uptake rates during the course of their Solarize campaigns. Using Solarize Connecticut and Solarize Mass as model programs, other states can structure and launch Solarize programs of their own to help build robust rooftop solar markets in their states.



## VIII. RESOURCES

### General Resources

- About Solarize. Solar Outreach Partnership. <http://solaroutreach.org/solarize/#.U44lXHJdXAm>
- A Model of Collaborative Solar Purchasing: The Alameda County Regional Renewable Energy Procurement Project. S. Donalds, Clean Energy States Alliance, 2014. <http://www.cesa.org/assets/2014-Files/RREP-Case-Study>
- CESA Webinar: Updates from OR, MA, and CT on Solarize Programs. Clean Energy States Alliance. <http://www.cesa.org/projects/states-advancing-solar/solar-events-and-webinars/showevent/cesa-webinar-updates-from-or-ma-and-ct-on-solarize-programs?d=2013-02-21>
- Influence of Novel Behavior Strategies in Promoting the Diffusion of Solar Energy. K. Gillingham, Yale University, 2014. <http://energy.gov/eere/sunshot/project-profile-influence-novel-behavioral-strategies-promoting-diffusion-solar-energy>
- Purchasing Power: Best Practice Guide to Collaborative Solar Procurement. J. Woodward, R. Massaro, B. Foster, and C. Judy, 2011. [http://www.jointventure.org/images/stories/pdf/purchasing.power\\_best.practices.guide.to.collaborative.solar.procurement.pdf](http://www.jointventure.org/images/stories/pdf/purchasing.power_best.practices.guide.to.collaborative.solar.procurement.pdf)
- Smart Solar Strategies. L. Rosoff and M. Sinclair, Clean Energy Group, 2009. <http://www.cesa.org/assets/Uploads/Resources-pre-8-16/CEG-Solar-Marketing-Report-2009.pdf>
- Solar Powering Your Community: A Guide for Local Governments. U.S. Department of Energy, 2011. <http://www1.eere.energy.gov/solar/pdfs/47692.pdf>
- Solarize America: How Policy Networks Adopt and Adapt Good Ideas. Ryan Cook, Massachusetts Institute of Technology Master in City Planning, 2014.
- The Solarize Guidebook: A Community Guide to Collective Purchasing of Residential PV Systems. L. Irvine, A. Sawyer, and J. Grove, Northwest Sustainable Energy for Economic Development, 2012. <http://www.nrel.gov/docs/fy12osti/54738.pdf>

### Solarize Connecticut Resources

- CEFA – Solarize Connecticut Community Contract. Clean Energy Finance and Investment Authority. <http://www.ctcleanenergy.com/Portals/0/Attachment%20B%20-%20Solarize%20CT%20Phase%204.pdf>
- Let's Solarize: Solarize Connecticut, Phase 1 Report. SmartPower, 2013. [http://www.smartpower.org/system/resources/BAhbBIsHOgZmlj4yMDEzLzA5LzE4LzA1LzM0LzE0LzgzNS9UaGVfRmluYWxfUmVwb3J0X1NlcHRfMTdfMjAxMy5wZGY/The\\_Final\\_Report\\_Sept\\_17\\_2013.pdf](http://www.smartpower.org/system/resources/BAhbBIsHOgZmlj4yMDEzLzA5LzE4LzA1LzM0LzE0LzgzNS9UaGVfRmluYWxfUmVwb3J0X1NlcHRfMTdfMjAxMy5wZGY/The_Final_Report_Sept_17_2013.pdf)
- Request for Proposals—Solarize Connecticut Phase 4. Clean Energy Finance and Investment Authority, 2014. <http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204.pdf>
- Solarize Connecticut—Phase IV Request for Proposals from Connecticut Communities. Clean Energy Finance and Investment Authority, 2014. <http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Round%204%20RFP.pdf>
- Solarize Connecticut Phase 4 FAQ. Clean Energy Finance and Investment Authority. <http://www.ctcleanenergy.com/Portals/0/Solarize%20CT%20Phase%204%20FAQ.pdf>
- Solarize Connecticut Pilot Phase Two: Frequently Asked Questions for Communities. Clean Energy Finance and Investment Authority. [http://www.ctcleanenergy.com/Portals/0/SolarizePilot2\\_FAQ.pdf](http://www.ctcleanenergy.com/Portals/0/SolarizePilot2_FAQ.pdf)
- Webinar Recording: Solarize Connecticut Program Results and Secrets of Success. Clean Energy States Alliance, 2014. <http://www.cesa.org/projects/states-advancing-solar/solar-resource-library/resource/webinar-recording-solarize-connecticut-program-results-and-secrets-of-success>

### Solarize Massachusetts Resources

Solarize Mass resources can be accessed through the following landing page: [www.masscec.com/SolarizeMassReferenceGuide](http://www.masscec.com/SolarizeMassReferenceGuide). This landing page contains the following resources:

- Solarize Mass Community Marketing Proposals <http://www.masscec.com/content/solarize-mass-community-marketing-proposals>
- 2012 Solarize Massachusetts Program Updates <http://www.masscec.com/content/2012-solarize-massachusetts-program-update>
- Solarize Massachusetts Pilot Overview <http://www.masscec.com/content/solarize-massachusetts-pilot-overview>
- Recommendations for Permitting and Structural Review <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/solar-permitting-and-structural-review-rsc2.html>

Examples of Solarize RFP Documents:

- Template for Technical Consultant RFP <http://www.masscec.com/solicitations/2013-solarize-mass-technical-consultant-rfp-0>
- Template for Community RFP <http://www.masscec.com/solicitations/2013-round-2-solarize-massachusetts-community-rfp>
- Template for Installer RFP <http://www.masscec.com/solicitations/2013-solarize-massachusetts-round-2-installer-rfp>





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The Clean Energy States Alliance (CESA) is a national, nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members—mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.

CESA works with state leaders, federal agencies, industry representatives, and other stakeholders to develop and promote clean energy technologies and markets. It supports effective state and local policies, programs, and innovation in the clean energy sector, with emphasis on renewable energy, power generation, financing strategies, and economic development. CESA facilitates information sharing, provides technical assistance, coordinates multi-state collaborative projects, and communicates the positions and achievements of its members.

[www.cesa.org](http://www.cesa.org)

