



Pilot Overview December 2015

Background and Overview

In the winter of 2015, the Massachusetts Clean Energy Center (MassCEC) launched a pilot campaign—called Mass Solar Connect—that built upon MassCEC’s successful Solarize Mass program.¹ Similar to Solarize Mass, Mass Solar Connect was designed to support the residential solar energy market in Massachusetts by coordinating a special group purchase program for small-scale solar systems. But where Solarize Mass coordinated the collective purchase of solar systems for residents living in a particular community, Mass Solar Connect sought to test whether a similar scheme could be coordinated among members of a non-profit affinity group.

As with Solarize Mass, Mass Solar Connect aimed to increase solar adoption in Massachusetts by combining three primary factors:

1. A **simplified process** for going solar, in which a single installer selected by a trusted organization would provide a standard and simplified offer for home solar.
2. An **outreach and education** campaign coordinated by the organization to its network of members.
3. A **competitive price** offered by the installer and arrived at through a competitive bidding process.

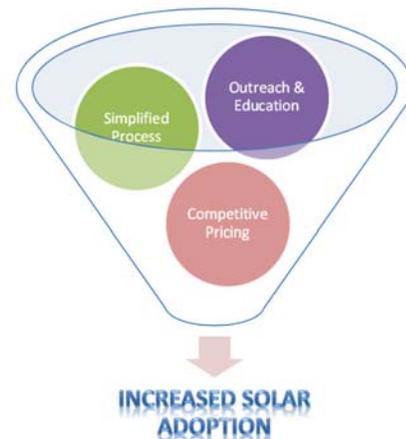


Figure 1. Mass Solar Connect key program elements.

MassCEC selected the Mass Energy Consumers Alliance (Mass Energy) as the affinity group for the pilot round of Mass Solar Connect. Mass Energy staff selected a single solar installer to work with as a partner in Mass Solar Connect and conducted an outreach campaign to their members throughout the spring and summer of 2015 which educated them about residential solar and encouraged them to enroll in Mass Solar Connect.

By the end of the pilot campaign in August 2015, 261 Mass Energy members and affiliates had signed contracts to participate in Mass Solar Connect. Combined, the solar energy systems contracted through Mass Solar Connect total 1,914 kW in capacity. The energy that these systems will generate will avoid the emission of over 1,700 metric tons of carbon every year,

¹ To date, 39 Solarize Mass programs have been conducted in 51 Massachusetts communities since 2011 (covering roughly 15% of all communities in Massachusetts). Through Solarize Mass, roughly 2,500 small-scale solar PV systems have been contracted, totaling roughly 16 MW in contracted capacity.

equivalent to the amount that 1,400 acres of forest would sequester each year and to taking 361 cars off of the road.²

Program Stakeholder Roles

Mass Solar Connect was a collaboration between MassCEC, the selected affinity group (Mass Energy), the solar installer chosen for the pilot campaign (Direct Energy Solar), and the affinity group members that participated in the campaign.

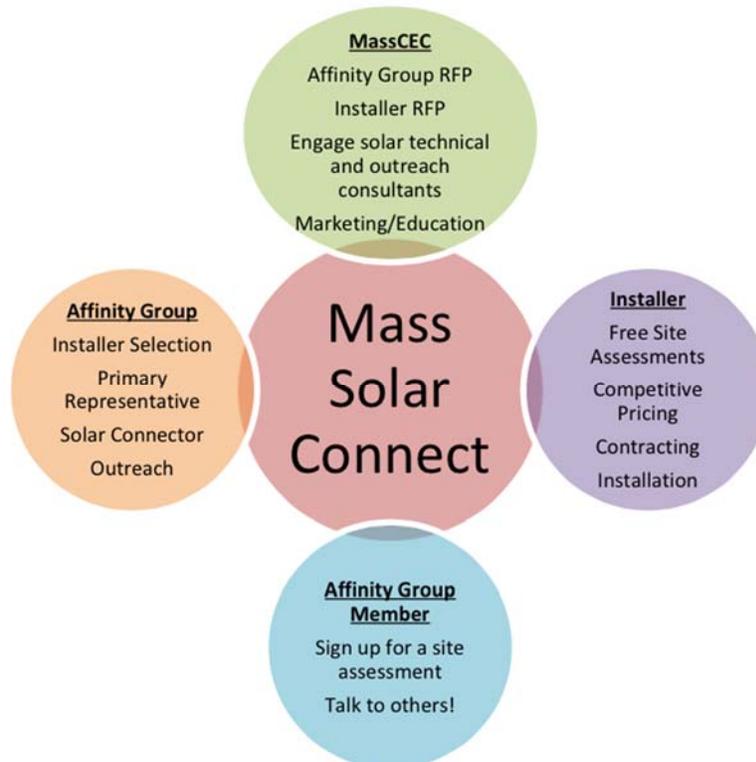


Figure 2. Mass Solar Connect Roles and Responsibilities

MassCEC’s primary role in the pilot campaign was the organize the program by selecting an affinity group, supporting the affinity group’s selection of an installer, and providing internal and external expertise and resources to support the marketing and outreach process. During the customer sign-up period, MassCEC supported the campaign through regular check-ins with other stakeholders.

As the selected affinity group, Mass Energy was responsible for selecting the solar installer that they wished to partner with to implement the campaign. During the campaign, Mass Energy was responsible for leading a marketing and outreach campaign to encourage their members to sign up for Mass Solar Connect and to act as a resource for members interested in solar.

² Environmental Protection Agency, Greenhouse Gas Equivalencies Calculator.

Through a competitive process, Mass Energy selected Direct Energy Solar (formerly Astrum Solar) as the campaign’s single solar installer. Direct Energy Solar was responsible for providing a single competitive price for Mass Energy members, for assisting with marketing and outreach efforts, and for providing free site assessments during the campaign and completing installations after participants signed contracts.

As the final program stakeholder, Mass Energy members were able to participate in the campaign by choosing to receive a free home solar assessment and, if their home was a good candidate for solar, by opting to sign a contract to install solar. Mass Energy members also supported the campaign by telling their friends and neighbors about the opportunity, increasing the impact of the campaign.

Program Timeline

MassCEC released Requests for Proposals for both affinity groups and solar installers in November 2014. By the end of January 2015, MassCEC has selected Mass Energy as the affinity group for the pilot campaign, and Mass Energy had in turn selected Direct Energy Solar as a solar installer.

The customer sign-up period for Mass Solar Connect formally opened at the beginning of March, though several Mass Energy members had expressed interest in the program before that date. Before then, MassCEC, Mass Energy, and Direct Energy Solar engaged in program planning activities, which included formalizing an outreach plan (which included a schedule for in-person informational workshops) and developing a program website and educational materials.

Mass Energy members and affiliates were able to sign contracts with Direct Energy Solar from March through August 2015. During this time, Mass Energy led a comprehensive marketing and outreach campaign, and Direct Energy Solar provided free home solar assessments to members and affiliates that signed up.

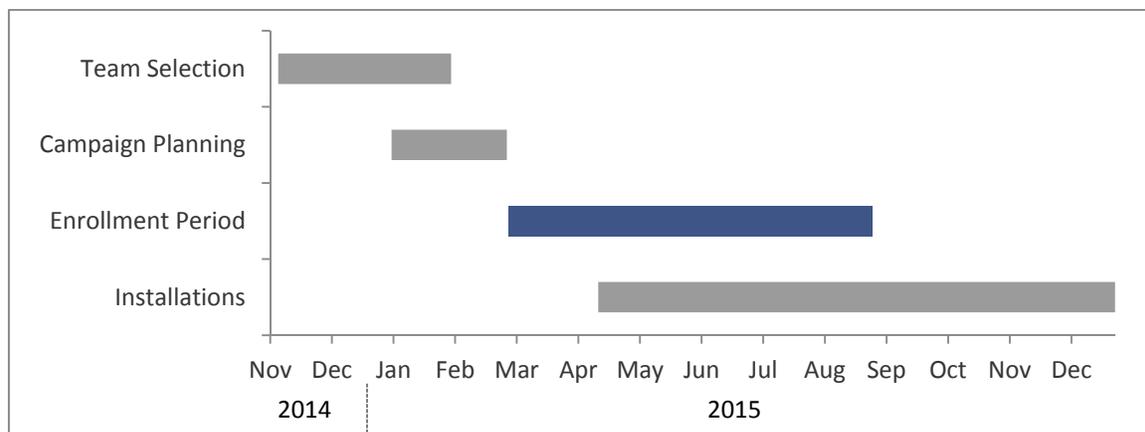


Figure 3. Mass Solar Connect pilot program timeline.

Discounted Price

Unlike many Solarize Mass campaigns that utilize a tiered price that declines as more participants sign contracts, Mass Solar Connect offered a flat base price of \$3.35/Watt to Mass Energy members and affiliates. In addition to approving a base price, Mass Energy and MassCEC

approved a set list of price adders that could be applied for participants whose homes required special equipment (such as rafter reinforcements or the use of micro-inverters) or who selected additional services (such as premium equipment or extended warranties). Taking these adders into account, the final average price for systems installed through Mass Solar Connect was \$3.84/W.

In comparison, the statewide average price of residential solar systems installed in 2015 to date is \$4.77/W.³ Therefore, Mass Solar Connect provided a savings of \$0.93/W, 20% under the market price of solar. This was in line with the level of savings that is typically found in Solarize Mass campaigns:

Round	Market Price (\$/W)	Program Price (\$/W)	Savings (\$/W)	% Savings
Solarize Mass 2011	\$6.00	\$4.78	\$1.22	20%
Solarize Mass 2012	\$5.23	\$4.19	\$1.04	20%
Solarize Mass 2013 Round 1	\$4.85	\$3.95	\$0.90	19%
Solarize Mass 2013 Round 2	\$5.11	\$4.04	\$1.07	21%
Mass Solar Connect	\$4.77	\$3.84	\$0.95	20%

Table 1. Comparison of price discounts achieved through Solarize Mass and Mass Solar Connect.

Campaign Outreach

Mass Energy staff led a comprehensive program marketing and outreach process that included both in-person events and mass communications. Outreach efforts included:

Mass Energy Member Communications

Mass Energy promoted the campaign with regular email updates to its large member network. This included a series of dedicated emails blasts—roughly one email per month sent to Mass Energy members—and regular posts on Mass Energy’s blog and social media accounts. Mass Energy and Direct Energy Solar also sent an initial postcard to all Mass Energy members announcing the campaign.

Dedicated In-Person Workshops

Mass Energy coordinated six in-person workshops across the state to educate members about solar energy and to promote the program. Direct Energy attended these events as well to give members the opportunity to meet the installer and answer any questions.

Promotion at Other Mass Energy Events

Mass Energy also promoted the program at their other scheduled member events, such as a wind turbine cruise near Hull and a wind turbine tour and zip-lining event in the Berkshires. Mass Energy staff also regularly table at various community events, and used this as an opportunity to promote Mass Solar Connect along with their other programs.

Community Partnerships

During the Mass Solar Connect campaign, Mass Energy developed community-specific partnerships with community organizers in Gloucester and Dalton, Massachusetts. Mass Energy promoted Mass Solar Connect through these local partnerships, and organized informational

³ MA EEA, [Solar Carve-Out II Qualified Units](#) (Updated 11/18/2015).



sessions in both communities. Direct Energy Solar also organized an installation demonstration at a home in Gloucester.

Promotion from Partner Organizations

Mass Energy leveraged its network of partner organizations to promote Mass Solar Connect as well. Mass Energy discussed the program at several Power Hour events organized by Mass Audubon, and both Mass Audubon and the Center for EcoTechnology lent their facilities for several of Mass Energy's statewide events. Mass Energy also used their membership in the Massachusetts Nonprofit Network to promote the campaign to other organizations.

Program Results

During the campaign sign-up period, 1,393 potential participants declared their interest in participating by signing up for a free site assessment either through the program website or at an in-person event—well surpassing the goal of 1,200 program leads that Mass Energy had established. By the end of August, 261 of these participants had signed contracts with Direct Energy Solar to install a home solar system, meaning that 19% of residents that signed up for the program ultimately signed a contract—a similar rate to that seen previously in Solarize Mass campaigns. In aggregate, these 261 systems will amount to 1,914 kW in capacity.

With an average system size of 7.3 kW, a typical Mass Solar Connect participant saved \$6,850 by going solar through Mass Solar Connect rather than purchasing at the market rate. In aggregate, all participants together saved \$1.8 million compared to the market rate for solar.

Most (65%) Mass Solar Connect participants chose to purchase their home solar systems with an upfront payment or arranged their own financing. Twenty-eight percent of participants financed their system with a loan product offered by Direct Energy Solar, and another 7% chose to lease systems from Direct Energy Solar.

Mass Solar Connect participants were spread across the state, but most were located in eastern and central Massachusetts, where Mass Energy's members are concentrated. The sales closure rate differed slightly across the state, from 12% in Suffolk County to 24% in Berkshire and Bristol Counties. Generally, Mass Solar Connect had its highest sales rates in the areas around (but not in) Boston, stretching down to the South Coast, and in the Berkshires.

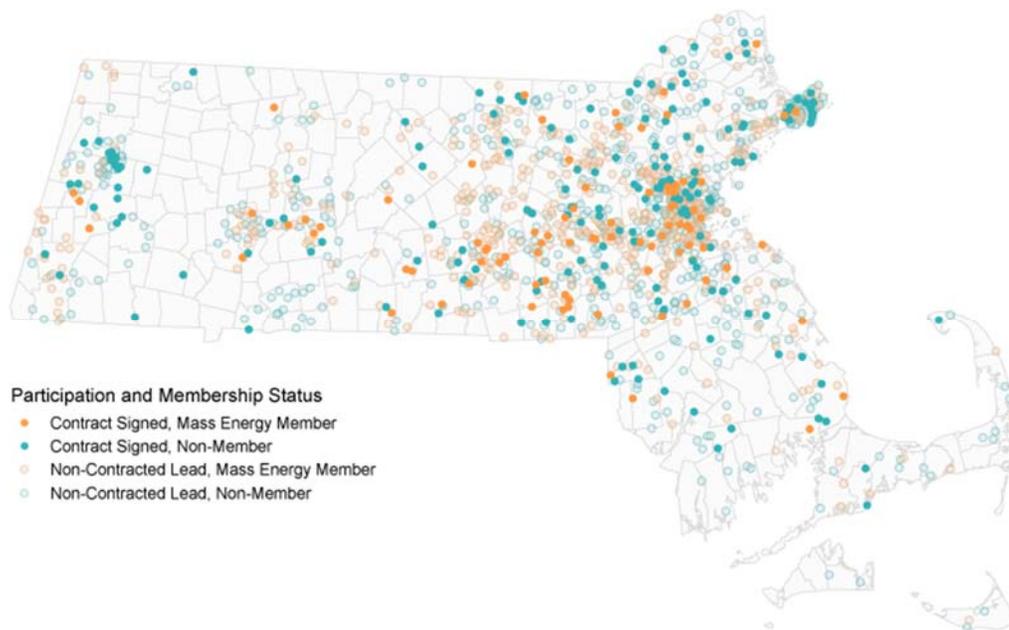


Figure 4. Distribution of Mass Solar Connect leads and sales, by membership type.

Participation in Mass Solar Connect was driven mainly by email communications from Mass Energy to members. During the campaign, Mass Energy sent five emails to their members specifically promoting Mass Solar Connect. 45% of all sign-ups from program leads came on the day of or over the two days following an email blast to members.

In a post-campaign survey, more than half of Mass Solar Connect participants (and three quarters of participants that were Mass Energy members at the beginning of the campaign) reported that they first learned of the campaign through email communications from Mass Energy. Participants also reported that these emails were the most important factor (followed by conversations with the solar installer and information on the campaign website) in convincing members to sign up.

The program saw a large initial burst of sign-ups result from Mass Energy’s initial outreach email, with an initial spike in signed contracts following shortly afterwards. As with Solarize Mass campaigns, the campaign deadline was effective in motivating participants to sign contracts, as weekly sales total reached their highest levels in the final weeks of the campaign.

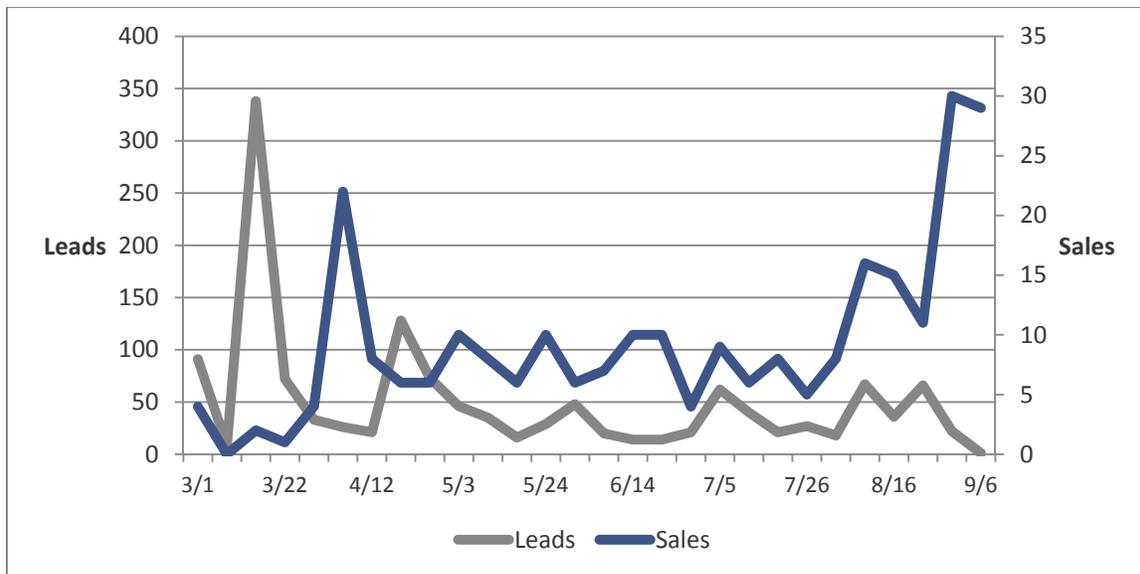


Figure 5. Leads and sales by week.

Stakeholder Feedback

Mass Energy

Mass Energy staff reported that they viewed the program as a major success, far exceeding their goals and expectations in terms of program impact, allowing them to provide a new service to their members, and helping them to forge new community partnerships.

Mass Energy noted that their manner of conducting an outreach campaign was based on the way that they normally interact with their members, who are accustomed to receiving communications with them via email. A different affinity group with a different kind of membership or a different relationship with its members could be expected to rely on different types of outreach methods. The reliance on mass communications made it possible for Mass Energy staff to administer a statewide campaign, whereas Solarize Mass campaigns are restricted on a geographic basis to one or several communities.

Providing one-on-one support to a large member group spread across the state was a time intensive process for Mass Energy, who estimated that they had spent roughly 500 hours of staff time supporting the campaign. Much of Mass Energy’s program time was spent responding to questions or requests from members.

Direct Energy Solar

As with Mass Energy, Direct Energy viewed the Mass Solar Connect pilot as a success, and reported that they were happy both with the large number of leads that they received throughout the state and the sales rate that they were able to achieve. Direct Energy felt that the Mass Solar Connect program partnership had been a success, that they felt that they worked well with Mass Energy’s campaign staff, and that they felt that MassCEC’s role in organizing and providing structure to the campaign was important.

Direct Energy noted that, compared to past Solarize campaigns, program outreach through Mass Solar Connect was comparatively easy because Mass Energy was already organized in a manner

conducive to targeted outreach to members. Direct Energy also saw a benefit to the trusted and pre-existing relationship that Mass Energy had with its members, noting that a number of participants had expressed to them that they were excited to help Mass Energy by participating in the campaign.

Direct Energy also noted that the nature of Mass Solar Connect led to several differences from the Solarize Mass model. Where Solarize campaigns allowed solar installer staff time to build relationships in a community (such as coordinating inspection times with municipal permitting staff) and schedule multiple site visits back to back in a single neighborhood, Mass Solar Connect’s larger geographic area meant that these benefits did not apply. However, Direct Energy staff felt that this was made up for by the large volume of leads that could be gained with a broader campaign and the reduced labor costs that they experienced in a campaign focused on mass communications, as Direct Energy could spend more time with site visits and less time tabling at community events.

Participants

In a survey of program participants (which was sent to everyone who requested a site assessment, the majority of whom did not sign contracts), 53% percent of participants reported having either a positive or very positive experience with the Mass Solar Connect campaign, and 12% reported having a negative or very negative experience. Of participants who signed contracts, 81% reported having a positive or very positive experience, and only a single respondent that signed a contract (2%) reported having a negative experience with Mass Solar Connect.

Overall Program Experience	All Participants		Participants Signing Contracts	
	N	%	N	%
Very Positive	36	18%	16	37%
Positive	71	35%	19	44%
Neutral	73	36%	7	16%
Negative	20	10%	1	2%
Very Negative	4	2%	0	0%

Table 2. Rating of overall program experience.

In the same survey, participants reported that the greatest barriers that they faced in going solar—and their greatest areas of uncertainty—were in understanding how Mass Solar Connect worked and what the costs and payback of solar are. Program participants who signed up for but never received a site assessment most commonly cited a lack of certainty about the program and related incentives as their reason for not moving forward (other frequent responses were that residents had chosen to move forward with another installer or that they chose not to go solar for financial reasons). Participants that did sign contracts reported that the most challenging aspect of their decision was in understanding how the incentives and financial benefits of solar worked (followed closely by site-specific concerns about installing solar at their home

Among participants that signed contracts, over half credited the reduced price as the most important factor in their decision to participate. Twenty-nine percent reported that the most important factor was that the Mass Solar Connect installer had been vetted and approved by MassCEC and Mass Energy.

Important Factors in Participating in Mass Solar Connect	Total	
	N	%
Reduced pricing	24	57%
Installer vetted for pricing and equipment	12	29%
Mass Energy sponsored program	3	7%
State sponsored program	1	2%
Education on solar installation process	1	2%
Outreach efforts	1	2%

Table 3. Reported most important factor in deciding to participate in Mass Solar Connect.

Mass Solar Connect Lessons Learned

Judged strictly on the number of solar contracts and the amount of contracted solar capacity—both of which well exceeded the largest Solarize Mass campaign to date—Mass Solar Connect was a success. Further, Mass Solar Connect did so while providing a positive experience for all involved program stakeholders—the selected non-profit affinity group, the chosen solar installer, and program participants.

An evaluation of the impacts of Mass Solar Connect leads to several other conclusions:

- **The Affinity Group Model is viable.** Mass Solar Connect demonstrated that a group-purchasing model oriented around affinity groups can result in a significant amount of interest in solar and signed contracts. More so, the pilot program appears to have reached a demographic with significant pent-up demand that had not been reached by Solarize Mass or other solar efforts in the state to date—as a majority of program participants (as well as a majority of those living in previous Solarize Mass communities) were unaware of the Solarize Mass model. For the Mass Energy member network, Mass Solar Connect provided a “second touch” opportunity for group solar purchasing, and one that comes from a trusted and known organization.
- **Substantial Effort is Required on the Part of the Affinity Group.** Mass Energy estimated dedicating roughly 500 staff hours to the Mass Solar Connect pilot campaign, which is generally in line with the experience of many Solarize campaigns and which indicates that the high labor demands of Solarize campaigns are also true of Mass Solar Connect. As with Solarize campaigns, a community organization must be prepared to commit to a substantial effort to ensure program success.
- **Program Impacts Reach Beyond Affinity Group Membership.** While Mass Solar Connect was designed to serve Mass Energy members, non-members ultimately amounted to 55% of program leads and 67% of sales, yielding a higher sales conversion rate (23%) than that of Mass Energy members (14%). In the post-program participant survey, 52% of respondents reported telling at least one friend or neighbor about the programs, indicating that the impact of the Mass Solar Connect pilot spread beyond Mass Energy’s own member network to the personal social networks of their members, broadening the impact of the program.
- **Variability in Outreach Methods and Program Support.** The outreach methods used in Mass Solar Connect were tailored to the strengths of the selected affinity group. In potential future rounds of Mass Solar Connect, the outreach and marketing process may look very different than the campaign conducted by Mass Energy, which was based on mass communications and subsequent one-on-one consultation. Potential future campaigns organized by hospitals, universities, or other categories of affinity groups may rely on different outreach methods, and may place more of a focus on in-person events.
- **Statewide or Regional Campaigns Are Possible but Require Consideration.** Mass Solar Connect was conducted over a much larger geographic area than Solarize Mass campaigns. Non-profits that implement these campaigns may be more inclined, as Mass Energy was, to select larger installers with substantial staff capacity rather than smaller local installers. Non-profits that serve broader areas are also more likely to, again as Mass Energy did, conduct campaigns that rely primarily on mass communications rather than on in-person interaction.

- **Communications Remain a Challenge.** Program communications presented several challenges for the Mass Solar Connect program. One challenge was the continued need for customer education about solar technology and economics (true not just for Mass Solar Connect but for the solar market in general). Another challenge—particularly true given the large volume of program leads found in the pilot round of Mass Solar Connect—was participant management, as some survey respondents reported that they had been slow to receive follow-up communications during busy periods of the campaign. Finally, a number of participants reported being confused by the large number of similar sounding organizations and names involved in the campaign (e.g. MassCEC, Mass Energy, Mass Solar Connect), pointing to a need for streamlined branding.