



Solarize Michigan Final Report



January 2017



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Solarize Michigan Program Team:

Stephen Wooden, Institute for Energy Innovation
Dan Scripps, Institute for Energy Innovation
Stanley “Skip” Pruss, 5 Lakes Energy



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I. Introduction

Over the course of the last fifteen months, a project team led by the Institute for Energy Innovation with support from 5 Lakes Energy worked to develop and implement *Solarize Michigan*, Michigan's first comprehensive effort to accelerate regional deployment of rooftop solar photovoltaic (PV) systems.

Solarize Michigan targeted Michigan's Great Lakes Bay region, which is comprised of Bay, Midland, and Saginaw counties. The Great Lakes Bay region is home to a number of leading solar firms, as well as local economic development entities that have worked to position the region as a national solar leader.

Specific activities included researching best practices from other "solarization" efforts from around the country, developing a process to select contractors to participate, hosting events and other activities to educate the target communities on the benefits of installing solar and boost awareness of the *Solarize Michigan* campaign, working with participating contractors to identify potential customers, overseeing the installation process, and conducting a post-campaign assessment of the program, including a roundtable with contractors and customers.

Despite a number of obstacles – including widespread job uncertainty due to mergers involving two of the region's largest employers, legislation that would have undermined the economics of solar, and a move by some assessors to increase the taxes of homes with solar – *Solarize Michigan* achieved its goal of substantially increasing the deployment of solar in the Great Lakes Bay region, spurring a near doubling of total installed solar capacity in the region, and a 256% increase over the capacity installed in 2015, the largest year prior to *Solarize Michigan*. Indeed, more than 40% of the total solar capacity in the Great Lakes Bay region to date was installed during 2016 through the *Solarize Michigan* campaign. A list of the installations completed through the Solarize Michigan campaign is included as Appendix A.

In addition, *Solarize Michigan* built a strong foundation to encourage continued growth in solar deployment, both by catalyzing interest in solar energy systems in the Great Lakes Bay region and by developing a replicable program that other communities can use. The success of *Solarize*



Michigan should serve as a template for communities across Michigan looking for opportunities to accelerate solar deployment and unlock the economic and energy benefits solar has to offer.

The purpose of this final report is threefold: (i) to document the outcomes of the *Solarize Michigan* campaign; (ii) to outline the best practices investigated by the *Solarize Michigan* project team, as well as sharing recommendations and lessons learned through the campaign; and (iii) provide a template for future solarization campaigns in Michigan, including a copy of the request for proposals (RFP) from contractors, the RFP response form, and examples of *Solarize Michigan* promotional materials and solar assessments.

II. Program Design and Execution

A. Initial Program Development

In developing *Solarize Michigan's* structure, the project team researched previous solarization programs to identify best practices and emulate successful strategies for contractor selection, community outreach, lead development, and customer recruitment. Since the first solarization project was initiated in Portland, Oregon in 2009, a number of communities across the country have initiated solarization projects. The *Solarize Michigan* team researched all prior solarization efforts conducted around the country and held numerous conversations with organizations who had designed and managed these campaigns in an effort to understand the lessons learned and the best practices developed by earlier campaigns.

While each project has been in some ways unique, most solarization campaigns share a set of core attributes, including a competitive contractor selection process to drive down costs, community outreach and education efforts, and a limited time offer to create a sense of urgency. In structuring *Solarize Michigan*, the project team worked to include each of these elements.

In addition, *Solarize Michigan* added a number of additional elements unique to this campaign. First, *Solarize Michigan* was able to negotiate an exclusivity deal for solar panels manufactured by Suniva at their Saginaw area solar manufacturing facility, driving down costs and reinforcing



the local economic benefits of solar deployment. Ultimately, however, continuing price declines in the solar panel market overtook the negotiated price even during the project period, a testament to just how fast the market is changing.

In addition, *Solarize Michigan* was structured as a platform to connect potential customers with participating solar installers. This arrangement empowered customers, giving them the ultimate decision of which participating contractor to engage, and had the added benefit of having the installers continue to compete with one another, further reducing costs.

Third, *Solarize Michigan* licensed software from Aurora Solar to remotely identify and assess the suitability of the homes and businesses that signed up on the [Solarize Michigan](#) website. This arrangement allowed the project team to provide prospective leads with a visual representation and baseline assessment of how solar would work with their specific home.

Finally, *Solarize Michigan* utilized a number of measures to boost public awareness of the campaign, including an interactive website, digital advertising through social media, community events, and placement of stories with local media outlets. One innovative way of building awareness was by partnering with individuals who had previously installed solar to host solar open houses at their homes, which were billed as “Open Driveways.” These peer-to-peer events provided an opportunity for interested customers to ask questions of those who had been through the process, and also attracted additional media interest.

B. Competitive Bidding and Contractor Selection

Based upon the research into previous solarization efforts, the *Solarize Michigan* project team developed a request for proposals (RFP) and scoring system expressing preferences for the use of local materials and workers to ensure that the campaign provided secondary economic benefits to the local community. The RFP and scoring system are included at the end of this report as Appendix B and Appendix C, respectively.

The project team built a list of 113 solar installers in Michigan, distributed the RFP, and held an informational webinar with 30 installers. We evaluated and scored 10 proposals, and ultimately



selected three solar installers – The Green Panel, Michigan Solar Solutions, and Midland Solar Applications.

As noted above, the *Solarize Michigan* team also negotiated a discount on Suniva modules, inverters and racking systems through McNaughten-McKay, a local solar distributor, in return for an agreement to exclusively use these panels and other components. Suniva panels are manufactured in Saginaw, again supporting the effort to enhance local business opportunities. With the discounts in hand, the project team worked with selected contractors to develop a two-page overview of pricing and contractor qualifications to share with prospective solar customers.

Finally, in preparation of the public launch of the campaign, the project team met with the building inspectors in Bay City, Midland, Saginaw, and Thomas Township in an effort to streamline the building and inspection permitting through preemptive review and open channels of communication.

C. Community Outreach

Comprehensive, coordinated efforts to galvanize public interest and recruit local governmental and non-governmental partners were carried out throughout the campaign. The project team developed a communications plan to capture earned media, identify local partners and “solar ambassadors,” enroll civic organizations in our messaging and outreach efforts, and mobilize community assets to disseminate information about the campaign.

The *Solarize Michigan* project team initiated the public outreach for the campaign by holding press conferences to





unveil the *Solarize Michigan* initiative, which were widely covered by local media outlets.

Solarize Michigan then hosted five workshops during the month of March – one each in Bay City, Midland, Saginaw, and Thomas Township, and a final meeting at Saginaw Valley State University. Each workshop featured presentations about solar basics, information about the installation process, an overview of the interconnection process from Consumers Energy, and information about tax credits and financing. Our partnering installers also attended these meetings in order to answer specific questions and help drive interest in the program. Presentations were also made to the Bay City Commission, Midland City Council, Saginaw City Council, Thomas Township Board, and the Midland and Bay County Commissions. The *Solarize Michigan* project team also presented to a number of local Rotary clubs, Kiwanis clubs, Lions clubs, neighborhood associations and human resources departments.

Finally, *Solarize Michigan* maintained an active media presence throughout the campaign, earning regular press coverage for the campaign launch, the community workshops, the first installation through *Solarize Michigan* in each county, a focus on the first *Solarize Michigan* project financed through Michigan Saves, and the “open driveway” events. *Solarize Michigan* also contracted with Change Media Group, a public relations firm specializing in targeted online media. Unique to the *Solarize Michigan* campaign, Change Media helped build a target group of residents in the Great Lakes Bay region who were thought to have a higher propensity to install solar at their homes. In addition, Change Media developed an online targeting drive using Facebook and Google banner advertising.

Over the course of the campaign, three external barriers clearly affected the campaign, significantly impairing efforts to recruit solar customers and limiting the number of solar systems installed. These barriers included the following:

1. Legislation that would eliminate net energy metering was introduced in the Michigan legislature. The elimination of net metering would adversely affect the value proposition of solar systems in reducing or eliminating electricity bills, significantly undermining the economics for customers. The pendency of the legislation had to be explicitly addressed in the public outreach campaign and was a significant issue not only to prospective solar



customers, but also to the local government officials and our partner economic development agencies. On December 15, 2016 – after the completion of the *Solarize Michigan* project period – the legislature adopted a version of the legislation that grandfathers existing net metering customers and establishes a process for the Michigan Public Service Commission to determine a new tariff to be added to customers with distributed generation systems in rate cases filed by utilities after June 1, 2018.

2. The announcement in December 2015 of the merger of Dow Chemical Company and DuPont and the prospect of significant layoffs within the tri-county area adversely affected customer recruitment. Dow also announced at the same time it would acquire a 100% ownership interest in Dow Corning, adding additional uncertainty regarding loss of employment. This uncertainty cast a pall over the regional economy, likely translating into the loss of interest in a subset of potential customers.
3. Some local tax assessors began to revise the state equalized value (SEV) of homes that installed solar systems. Increases in property taxes could significantly undermine the economic benefits that solar systems provide. By creating uncertainty surrounding the impact of installing solar on a person's tax liabilities, the patchwork of interpretations over the affect of solar installations on SEVs also likely chilled interest in solar deployment. To date, 36 states exempt solar systems from taxation but Michigan has yet to effectuate such a policy.

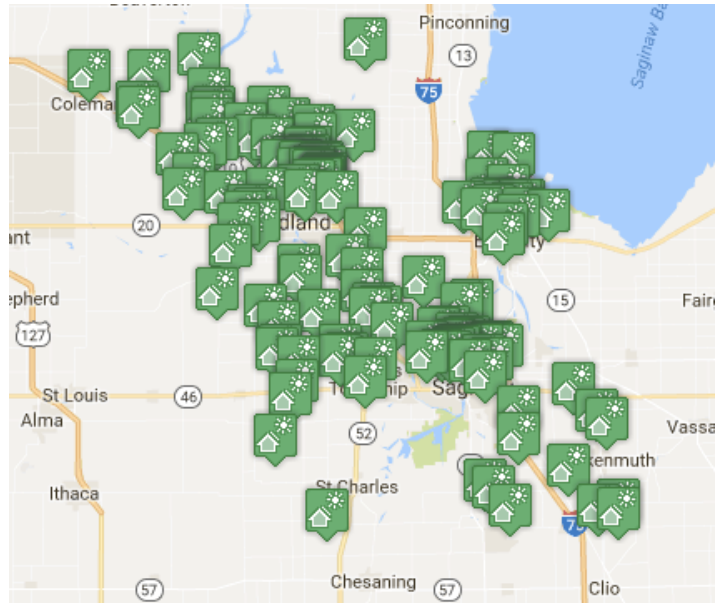
The presence of these barriers created additional challenges for the project team, and overcoming these challenges became a key focus of the project's community outreach activities.

D. Customer Identification and Lead Development

The *Solarize Michigan* campaign sought to operationalize every best practice for customer identification and lead development developed by other solarization campaigns as well as developing several of our own.



The project team published the [Solarize Michigan website](#) to provide information and allow interested parties to enroll online. *Solarize Michigan* offered free solar assessments to any homeowner or small business interested in our program through Aurora Solar, a cloud-based, remote-sensing solar engineering platform to determine the suitability of solar installation at individual properties. We then shared the results, along with the contractor pricing and qualifications comparison, with prospective *Solarize Michigan* customers, as well as sending a copy of the screen to each of our contractors, facilitating and coordinating connections to move towards installation.



As shown on the map above, 169 customers within the three counties enrolled to learn more and determine whether their home or business was a good candidate for solar. A sample solar assessment is included as Appendix E.

Another *Solarize Michigan* innovation was to enroll the support of the major businesses in the Great Lakes Bay Area to provide information about *Solarize Michigan* to their employees. The project team reached out to Dow Corning, Hemlock Semiconductor, Suniva, Nexteer and Dow Chemical to garner employee participation in *Solarize Michigan*. Similarly, the project team reached out to local units of government to encourage communication about *Solarize Michigan* to their employees.



Finally, as noted above, *Solarize Michigan* hosted three “open driveways” where nearby homeowners interested in solar systems could visit and view a local home that installed solar, see what’s involved, and talk to both installers and the homeowner about the process and benefits and costs involved. This “peer to peer” strategy yielded substantial additional interest.



III. Results and Recommendations

A. Installations through Solarize Michigan

Solarize Michigan successfully catalyzed interest in solar energy systems in the Great Lakes Bay region and led to substantial growth in both the rate of solar deployment and the total installed capacity in Bay, Midland, and Saginaw counties. The campaign educated homeowners, businesses, community leaders, and local decision-makers on the benefits and opportunities of solar energy. The campaign forged new community partnerships within local government, civic organizations, and economic development agencies. It galvanized interest by the local media and benefited local businesses. The final result was an increase in the penetration of solar energy systems in the Great Lakes Bay area.

Through the course of the *Solarize Michigan* campaign, 169 homeowners signed up for *Solarize Michigan's* cloud-based assessment to determine whether their homes were suitable for solar energy. Within Bay, Midland, and Saginaw counties, *Solarize Michigan's* campaign resulted in 16 new solar systems – 15 residential installations and the Wirt Public Library in Bay City. In total, *Solarize Michigan* contributed to the addition of 132.4 kW of new solar capacity in the region, nearly doubling the previous total installed capacity and representing a 256% increase over 2015 installations. *Solarize Michigan* also led to the installation of an additional 5.3 kW system outside the project area, and there are a number of installations that are scheduled for 2017 that resulted from leads generated through the campaign. Past experience also suggests a number of the individuals who had a solar assessment performed during the *Solarize Michigan*

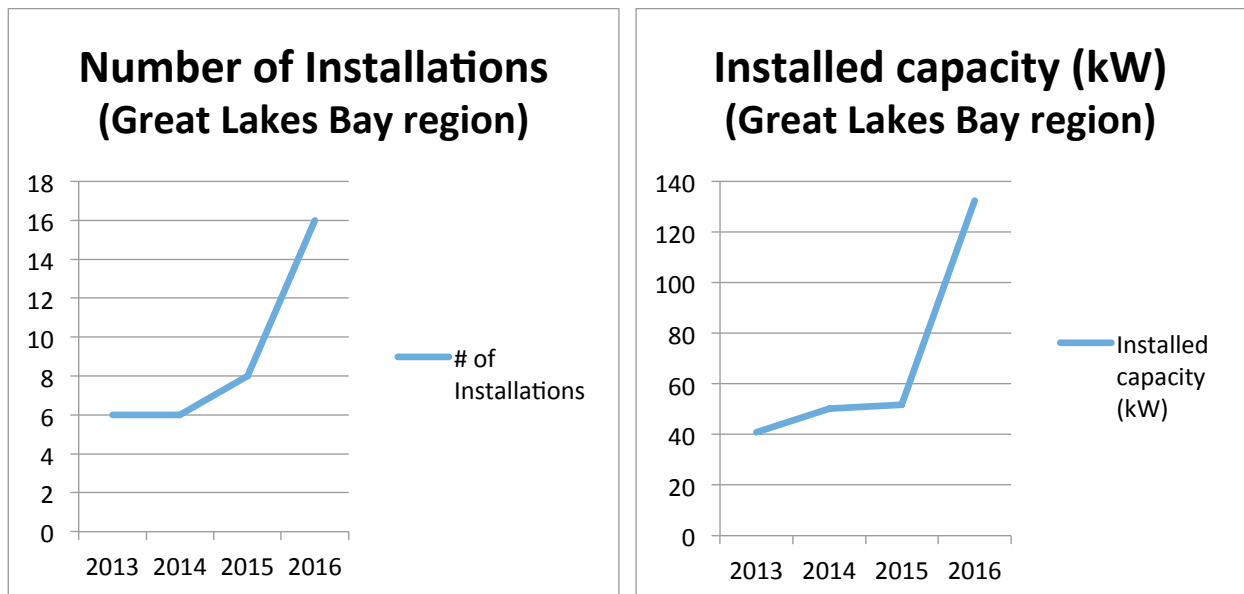


project period will ultimately install solar at their homes. Notably, the nearly 10% close rate for those who signed up for a solar assessment was twice the average close rate among participating contractors.

Solarize Michigan - By the Numbers

Number of solar assessments	169
Number of solar installations	16
Total capacity installed	132.4 kW
Total investment by Solarize clients	Approx. \$397,500
Increase in total installed capacity in region	78%
Increase in capacity over 2015	256%

Notably, the increase in installed capacity between 2015 and 2016 does not seem to be a continuation of the organic growth in solar deployment in the Great Lakes Bay region.





According to data from the Michigan Public Service Commission, there were 6 installations in the Great Lakes Bay region in 2013, for a total of 40.8 kW of capacity. In 2014 there were also 6 installation, totaling 50.3 kW, rising slightly to 8 installations totaling 51.7 kW in 2015. The jump to 16 installations totaling more than 130 kW in 2016, then, seems to be a direct result of the *Solarize Michigan* campaign. Moreover, this data only reflects projects tracked through Solarize Michigan, and does not track any other projects that were installed in the Great Lakes Bay region in 2016.

B. Potential for Continued Solar Growth in Great Lakes Bay Region

In addition to the immediate results achieved in 2016, *Solarize Michigan* will likely lead to additional growth in future years. First, social science research indicates that the diffusion of rooftop solar within a geographic area leads to accelerating penetration of solar systems, a phenomenon that has been termed “solar contagion.” The increased visibility and direct encounters with solar customers move the technology from the abstract to the tangible, with each new installation increasing potential impact and motivation to garner a greater understanding of the opportunities solar systems provide.

The research indicates that one rooftop system on a block [increases](#) the average number of installations within a half-mile radius by 0.44, and that just 10 extra installations in a zip code make it 7.8% more likely that a resident of that zip code would also install solar on their home. This “[spatial neighbor effect](#)” has been enhanced by *Solarize Michigan*, particular surrounding the Sanford community in Midland County, where there are now seven solar installations in the 49657 zip code, totaling 57.9 kW. At seven installations within the same zip code, we are approaching a “tipping point” at which solar will continue to grow organically. Notably, such a result has been documented in solarization efforts in other states, where the initial intense campaign period raised community awareness and helped spur additional solar deployment in the years following the campaign by catalyzing long-term market transformation.

In addition to spurring solar contagion and market transformation, the *Solarize Michigan* project team also worked with staff from Saginaw Future to determine to what extent state,



federal and private resources and other philanthropic dollars could be leveraged to create a solar and energy efficiency pilot for low-income homes. This effort is presently focused on rehabilitating and solarizing two homes for low-income families who are awaiting mortgage approvals. Participants in these discussions include Consumers Energy; Covenant Hospital, who is interested in revitalizing the neighbors proximate to its campus; Frankenmuth Credit Union, a local Community Development Financial Institution (CDFI); Realignment Saginaw; the Saginaw Community Foundation; the Saginaw County Youth Protection Council; the Saginaw Housing Commission; the Saginaw Land Bank; and Saginaw-Shiawassee Habitat for Humanity. *Solarize Michigan* helped to spark and further these discussions during the project period, and it is our hope that the lessons learned through the *Solarize Michigan* campaign can be applied in a way that overcomes the unique barriers to solar deployment for low-income families.

C. Replicability of Solarize Michigan model

Beyond sparking continued solar deployment in the Great lakes Bay region, *Solarize Michigan* seeks to serve as a model for other communities seeking to accelerate local solar deployment.

Throughout the campaign, the project team communicated with other solarization initiatives to stay informed and to share lessons learned. Organizations like the Midwest Energy Efficiency Alliance and SmartPower provided helpful guidance and support, sharing their best practices from other solarization campaigns. In Michigan, the project team was in regular dialogue with the Groundwork Shines campaign, a process that informed and shaped *Solarize Michigan's* efforts. Most recently, *Solarize Michigan* has shared information and resources with the Ann Arbor Energy Commission to assist in the commission's effort to develop a solarization campaign.





Going forward, the Institute for Energy Innovation will offer a free use license of *Solarize Michigan* – including the RFP and response form, logo, and other intellectual property – to other communities, helping to grow deployment in communities across the state.

D. Recommendations and Lessons

The experience of *Solarize Michigan* has given the project team a better sense of the trade offs involved in various strategic decisions in establishing a project structure. In an effort to assist future solarization campaigns, the project team offers the following assessment of some of those structural considerations:

1. While solar continues to grow in Michigan, deployment of solar PV systems still represents a fraction of one percent of total utility load, and many communities still have not seen substantial deployment. As such, the process of jumpstarting and accelerating the pace of growth is both difficult and necessary, and rates of increase – both over previous years and over previous deployment totals – may be a better metric than number of systems installed, or total kilowatts. The key is to do the work of community engagement and education, to prime the pump to attract installers, and to begin to set in motion rates of growth that will lead to levels of deployment at scale.
2. The inclusion of credible local partners is an essential element of any solarization campaign. The partnership with local economic development entities played an integral role in community outreach efforts, providing the project team with introductions with civic leaders and organizations. For future efforts that are administered by a group that is not located in the community in which the solarization campaign will take place, identifying the right local partners should be prioritized.
3. A trade off exists between partnering with a single contractor and utilizing multiple contractors. While a single contractor might ensure fuller integration between the program administrator and the installer, the use of multiple contractors promoted competition and ensured sufficient capacity to meet installation targets. To be



successful, however, advance consideration should be given to how to equitably distribute leads among contractors, as well as ensuring clear communication between partners who are actively competing against each other.

4. The negotiation of exclusivity agreements, where the price of panels and other components are discounted in exchange for an agreement to exclusively use only those components, has obvious advantages in reducing costs. In the case of *Solarize Michigan*, there was the additional benefit of using locally-manufactured panels, something that was highlighted by participating customers as a positive element of the campaign. In structuring such an arrangement, it is recommended to have contractors negotiate directly with manufacturers and distributors to ensure full buy-in by all parties. Also, solar prices change quickly, and advance consideration to how to address price delines can reduce the need to renegotiate the terms of such exclusivity agreements during the actual installation period.
5. The process of developing quality leads is an ongoing and central part of any solarization effort, and requires considerable effort. In addition, the timeliness of leads is critically important, as installers need to reach customers when they are most motivated to act.
6. In deciding whether to use a full-service solar assessment tool such as Aurora Solar, it's important to recognize that additional work may be required between the project manager and installers to ensure continuous communication on the status of leads, particularly if not all installers use the same solar assessment platform.
7. While primarily focused on the residential sector, *Solarize Michigan* also generated interest within the commercial sector, leading to installation of a 25 kW array at the Wirt Public Library in Bay City, with two other large commercial projects in advanced discussions. Commercial projects often take longer, and commercial entities may be less motivated by the limited time offer included as part of many solarization campaigns.



IV. Conclusion

By driving down prices through a competitive RFP process, actively engaging the community to broaden public understanding of the benefits of solar, and spurring action through a limited time offer, *Solarize Michigan* led to a significant increase in solar deployment in the Great Lakes Bay region of Michigan. Even in the face of a number of barriers that likely impeded the overall appetite for solar among potential customers, *Solarize Michigan* saw a more than 250% increase in deployment over 2015, resulting in a near doubling of installed capacity in Bay, Midland, and Saginaw counties. In addition, by fostering “solar contagion” and helping to facilitate the development of a low-income solar pilot project, the acceleration of solar deployment in the region is likely to continue into the future. *Solarize Michigan* can also be used a template for encouraging solar deployment in other Michigan communities, and a number of other cities have already begun to structure their solar promotion efforts based on the lessons learned – and successes – of *Solarize Michigan*.



APPENDIX A:

List of Installations through *Solarize Michigan*



List of Installations through *Solarize Michigan*

County	Zip Code	Installed capacity (kW)	Installer
Bay	48708	25.0	Green Panel
Midland	48618	11.0	Green Panel
Midland	48640	7.8	Midland Solar Applications
Midland	48642	8.25	Midland Solar Application
Midland	48657	8.2	Green Panel
Midland	48657	5.5	Green Panel
Midland	48657	2.64	Green Panel
Midland	48657	13.72	Green Panel
Midland	48657	4.69	Green Panel
Saginaw	48417	3.85	Green Panel
Saginaw	48602	7.4	Midland Solar Applications
Saginaw	48603	5.7	Michigan Solar Solutions
Saginaw	48609	4.67	Green Panel
Saginaw	48609	7.0	Midland Solar Applications
Saginaw	48626	10.0	Green Panel
Saginaw	48637	7.0	Green Panel



APPENDIX B:

***Solarize Michigan* Request for Proposals from Contractors**



Solarize Campaign for the Great Lakes Bay Region

Request for Proposals from Contractors for Photovoltaic Systems

This RFP is also available online: www.solarizemichigan.com. The *Solarize Michigan* team will provide additional information about this RFP at the Contractor Briefing Webinar on February 4, 2016 (this webinar will also be recorded and posted on the website). After the briefing, questions can be submitted to stephen@instituteeforenergyinnovation.org. Please check online for any addenda to the RFP and for updates prior to completing and submitting a bid.

Opportunity Summary

The Institute for Energy Innovation (IEI), in partnership with Saginaw Future, Midland Tomorrow and Bay Future, is soliciting proposals from solar installation companies for locality-based solar energy initiative – the *Solarize Michigan* project. The primary objectives of *Solarize Michigan* are to catalyze community-wide interest in residential and commercial solar energy systems, reduce the cost of solar energy systems to homeowners and businesses, and accelerate the deployment of solar installations in the Great Lakes Bay Region through consumer education, grassroots marketing, and uniform system offerings. The program is also intended to reduce the average cost of residential and small commercial solar PV installations through bulk purchasing, economies of scale, prequalification of solar installers, and through offsetting the need for customer acquisition.

This RFP is intended to solicit bids from qualified contractors (“Contractor”) to install roof-mounted and ground mounted solar photovoltaic energy systems (“Solar PV”) on residential and small commercial properties. *Solarize Michigan* will contract with selected solar installation firms to provide the design, equipment procurement, and installation services for property owners that choose to acquire Solar PV through participation in the program. Contractor(s) chosen for *Solarize Michigan* will be asked to provide agreed upon prices, Solar PV system designs, and service delivery models within the *Solarize Michigan* timelines.

Solarize Michigan will focus its grassroots solar marketing efforts on residential and small commercial property owners in Saginaw, Midland, Bay City, Thomas Township. [NOTE: this focus was expanded prior to launch to include all of Bay, Midland, and Saginaw counties.]

Once selected, PV Contractors will collaborate with the *Solarize Michigan* team to roll-out a five week community outreach campaign, February 29 – March 31, 2016. Installation of the PV systems will begin in May and end October 31, 2016. All customer leads gained as a result of the outreach campaign will be forwarded to the Solarize PV Contractors for that community.

Solarize Michigan Goals

Solarize Michigan aims at making solar photovoltaic (PV) energy more accessible to homeowners and commercial property owners. *Solarize Michigan* will:

1. Lower the cost of solar energy by reducing customer acquisition costs for selected PV Contractors and transferring those savings to residents and small businesses.
2. Substantially increase the number of solar installations in the targeted communities.
3. Significantly ramp up adoption of solar throughout the Great Lakes Bay region in a way that can be sustained beyond the timeframe of the *Solarize Michigan* campaign.
4. Increase the visibility of solar energy systems within communities.
5. Encourage the adoption of solar-friendly permitting and zoning practices by municipalities throughout the Great Lakes Bay region.

Timeline

RFP Issue Date	January 21, 2016
Proposal Return Deadline	February 11, 2016
Contractor Interviews (if necessary)	February 15-17, 2016
Contractor Selection	February 18, 2016
Contractor Meeting	February 22, 2016
Community Outreach Campaign	February 29 – March 31, 2016
Solarize MI Campaign Begins	May 2, 2016
Solarize MI Campaign Ends	October 31, 2016

Scope of Services and Assurances Provided by Contractor

The selected Contractors are expected to provide the following services:

1. A Site Assessment and individual proposal for each interested property owner.
2. Turnkey installation of a complete, fully functional photovoltaic system on each eligible participating residence and business.
3. All design services, permits, materials, labor, equipment, commissioning, and incidentals necessary to install a complete turnkey photovoltaic system as specified; design services shall include (1) a structural and roofing integrity review for roof installed systems and (2) an electrical review.
4. Provide the base \$/W price the Proposer will offer to all solarization participants; for a leasing proposal, provide a tiered pricing structure expressed as \$/kWh.
5. Contractor has the capacity to performing site assessments, delivering proposals, responding to inquiries, to complete multiple installations over a short period of time.
6. The photovoltaic system shall be utility grid connected following the local electric utility's required design and installation standards for grid-tie and net metering. Contractors will prepare applications for interconnection with the local utility.
7. Photovoltaic system components shall employ best practice methods of roof mounting systems. This should include staggered mount attachments to properly distribute loads onto roof structure.

8. Contractor is required to update Customer Relationship Management software (Salesforce) at a minimum on weekly basis pertaining to Contractor's project pipeline. Solarize Michigan will provide training and a user license to Contractor for free and may restrict leads to Contractors who do not update Salesforce weekly and/or may sever contract with Contractor for noncompliance with this requirement.
9. Contractor shall respond to customer inquiries and Solarize Michigan referrals within 24 hours. Record of contact will be entered in Salesforce.
10. Contractor shall be responsible for providing the homeowner with adequate training, maintenance and warranty information covering photovoltaic modules, equipment and system components, mounting system and inverters.
11. Rooftop solar must conform to NEC 2014 requirements for rapid shutdown of all individual modules.
12. Throughout the duration of the Solarize Michigan Campaign, including the period during which the PV Contractor is installing PV systems under contracts entered into during the Solarize Michigan Campaign, the PV Contractor must maintain insurance in the amounts \$1 million (\$500,000 per event). Such insurance must be evidenced by insurance policies, each of which name the homeowner or business and Institute for Energy Innovation, 5 Lakes Energy LLC, Saginaw Future, Midland Tomorrow, and Bay Future.

Product and Installation Requirements

1. General Component Requirements

- a. All products and materials must be new.
- b. DC electrical components shall be designed for 600 Volts or higher system. AC systems shall be designed for 240 VAC or higher.
- c. All materials that are used outdoors shall be sunlight and UV resistant..
- d. All conductors will be copper; all fasteners shall be stainless steel.
- e. Roof mounted structural members shall be aluminum or stainless steel. Aluminum is naturally corrosion resistant. Ground mounts shall be aluminum, stainless steel or galvanized steel.
- f. The array shall be mounted in such a way that normal drainage of the roof area is not affected.
- g. Array installation shall not unreasonably restrict roof access to roof surface for inspection and repair, if for a roof installation.
- h. PV System must have remote monitoring capabilities with web interface so customers can monitor the performance of their systems.

2. Mounting System

- a. Mounting system shall promote ambient air circulation beneath modules to enhance panel efficiency.
- b. Modules shall be individually removable for roof access, maintenance or repair.

3. Inverters

- a. Maximum peak inverter efficiency shall be 96% or greater.
- b. Each inverter shall meet UL 1741 and IEEE 1547 and include:
 - i. Automatic operation including startup, shutdown, self-diagnosis and fault detection.
 - ii. Digital Signal Processor (DSP) based controls with self-diagnostics and LCD for display of operating status.
 - iii. Anti-islanding protection to prevent back-feeding inverter generated power to the grid in the event of a utility outage.
- c. Please provide a price quote for either string inverters, DC optimizers or micro-inverters or a combination of them in the pricing sheet Exhibit A or B to the this RFP. String inverter systems must include system for rapid shutdown that meets NEC 2014.
- d. Combiner Boxes shall have the following characteristics:
 - i. NEMA 3R enclosure if outdoors, NEMA 1R if indoors
 - ii. 600 VDC
 - iii. UL listed
- e. AC Disconnects - where required by NEC, the inverter disconnect shall be a fused disconnect, 240 V AC rated, with isolated neutral and ground. Fuses shall be class RK5, 240 V AC with a minimum interrupt capacity of 65kA.
- f. DC disconnect switches shall be 600 VDC, non-fusible, heavy duty safety switch.
- g. Wiring and Conduit
 - i. All system wiring shall be in accordance with Section 690 of the National Electric Code (NEC).
 - ii. The wires used have a temperature rating of 90 degrees C or higher.
 - iii. All electric wiring raceways and outdoor electrical conduits shall be compliant with current code.
 - iv. Exposed cables shall be UV resistant.
 - v. All indoor DC feeds must be in metal conduits.

Installation Requirements and Standards

1. All required over-current protection devices shall be included in the system and accessible for maintenance. Each shall have trip ratings no greater than the de-rated amperage of the conductor it protects.
2. All electrical connections and terminations shall be fully tightened, secured, and strain relieved as appropriate.
3. System switching and metering equipment shall have convenient access for resetting or repair during electrical outages, and for regular monitoring for data retrieval.
4. For roof installations, the system shall maintain roof and structural integrity. The loading impact of the array, wind, snow, etc. shall be determined before the installation.
5. The system shall have a web interface so customers can monitor the performance of their systems.
6. System installation shall conform to all Manufacturers' Installation Manuals and approved project drawings and specifications.
7. Site shall be maintained and kept secure, free of excessive debris and in safe condition during the construction period. Site should be left "broom clean" after work is complete at the end of each workday. All work will comply with the National Electric Code, the National Fire Code, and the Uniform Building Code, and shall be inspected by local inspectors at each appropriate phase.

System installers shall comply with OSHA regulations specifically including Chapter 29 CFR Part 1926.

8. The use of ferrous metals, wood, or plastic components is not acceptable, except that pipe supports made of UV---rated plastic curb---type standoffs are acceptable.
9. Any damage to the roof surface or landscaping shall be identified and repaired by the Contractor.
10. For diagnostic and troubleshooting purposes, all array strings at the combiner boxes and the combiner boxes themselves shall be uniquely tagged and identified with such tagging on the as-built drawings.
11. The Contractor will establish the initial system output to prove that the system is performing as it is designed, and to establish a baseline to be used for warranty purposes. The Contractor shall establish a first-month correlation to a nearby long-term reference PV system to establish performance.

Proposal Process

1. Proposals must be received no later than February 11, 2016. Proposals received after the aforementioned date and time may not be considered in the Project Organizer's sole discretion.
2. Proposals may be submitted electronically to Stephen Wooden at stephen@instituteeforenergyinnovation.org
3. Contractors may be required to interview with Project Organizer.

Selection Criteria and RFP Scoring

Solarize Michigan will create a selection committee to review and score the proposals. One or more Contractors will be selected to complete all of the solar PV energy systems under this RFP. Proposals will be scored in the following categories, with a maximum possible score of 100 points. The scoring of each proposal will be the exclusive discretion of the Selection Committee.

1. Competitive Pricing – The extent to which proposed pricing terms are competitive. (25 points.)
2. Contractor Experience & Qualifications – The extent to which the Contractor demonstrates certified/qualified personnel, capacity to handle volume leads, and a track record of quality customer service as well as work. (25 points.)
3. System Quality – The extent to which the Contractor incorporates high---quality, American---made panels and high quality components into their system design (20 points.)
4. Local Content – The extent to which products, services and labor is sourced from the Great Lakes Bay Region. (15 points)
5. System Warranty – The extent to which the Proposer offers strong warranties on the system components and labor. (15 points.)

Warranties

1. **Contractors Warranty** – contractor will provide a warranty on all installation labor for a minimum of five years from system commissioning, if not so covered by the manufacturers' warranties. The contractors' warranty shall include repair of any roof leaks directly attributed to the PV system installation.
2. **Manufacturers' Warranty** – Contractor shall select equipment vendors whose products meet the following minimal warranty terms: The manufacturer agrees to repair or replace PV equipment and system components that fail in materials or workmanship within a specified warranty periods.
 - a. Photovoltaic modules shall have a minimum 25 year power warranty with not more than 20% allowable degradation of power during a 25 year period.
 - b. Mounting system shall be warranted free of defects for a period of not less than five (5) years.
 - c. Inverters shall be warranted free of defects for a period of not less than ten (10) years.
3. Warranties specified above shall not deprive the homeowner of other rights they may have under other provisions of the contract or warranty documents and shall be in addition to, and run concurrent with, other warranties made by the contractor or manufacturer.

Indemnification

Contractors will protect, indemnify and hold harmless the Institute for Energy Innovation, 5 Lakes Energy LLC, Saginaw Future, Midland Tomorrow, and Bay Future from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, experts' and attorneys' fees and expenses) imposed upon, incurred by or asserted against any or all of them resulting from, arising out of or relating to the Contractor's work under the Solarize Michigan Campaign. The obligations of the Contractor under this indemnity will survive the expiration or termination of the Solarize Michigan program, and are not limited by any insurance coverage required under this RFP.



APPENDIX C:

***Solarize Michigan* RFP Response Form**

Solarize Michigan RFP Response Template

Part 1 of 2 – Template Responses

Company Name		
Primary contact name		
Primary contact phone		
Primary contact email		
Michigan Contractor's license number		
Contractor Experience and Qualifications		
1.	Describe Contractor's prior experience designing and installing solar PV energy systems	
2.	Number of years in business?	
3.	Number of years installing PV systems?	
4.	Please describe the company's key personnel and certifications (who holds them (NABCEP, RISE, Professional Engineer (PE), Master Electrician's License)?	
5.	Please provide the name, title, address and telephone number for individuals with authority to negotiate and contractually bind Contractor, and for those who may be contacted for the purpose of clarifying or supporting the information provided in the proposal.	
6.	Does Contractor have any capacity limitations for performing site assessments, delivering proposals, responding to inquiries, with the anticipation of many installations over a short	

	<p>period of time?</p> <p>NOTE: Our goal is to understand how your organization will staff and coordinate to perform multiple installations in a short time frame.</p>	
7.	How many installations does Contractor have the capacity to perform in the 6-month period May – October 2016?	
8.	<p>Is Contractor able to perform roofing work?</p> <p>Will Contractor partner with a roofing company to have roof repair/replacement included as part of solar installation?</p> <p>If partnered with a roofing company, provide company's information.</p>	
9.	Provide three (3) customer references.	<p>1.</p> <p>2.</p> <p>3.</p>
Other Contractor Services and Offerings		
10.	<p>Will you offer loan financing to participants?</p> <p>If so, Specify loan products and applicable terms</p>	
11.	Are you a Michigan Saves authorized contractor?	
12.	<p>Will you offer a Power Purchase Agreement or lease to participants?</p> <p>If so, specify starting \$/kWh price, percentage escalator, length of the contract, etc.</p>	
13.	Will you process all incentives on behalf of the participant?	

14.	<p>Will Contractor be able to remove and reinstall the original PV installation should a participant require roof repairs or replacement at a later date independent of Proposer's PV installation?</p> <p>If so, please specify at what cost to the participant.</p>	
15.	Will Contractor observe all code and interconnection standards listed in the RFP?	
16.	<p>Is Contractor insured?</p> <p>Please name the insurance provider and the amount of coverage.</p> <p>Will Contractor provide certificates of insurance to clients?</p>	
System Quality & Sourcing		
17.	Will Contractor source materials and supplies from Great Lakes Bay Area-based suppliers?	
18.	Will Contractor use Great Lakes Bay Area-based workers?	
19.	List all model names/numbers of equipment and components Contractors intends to install including panels, roof attachments, type of racking system, and type of inverters. If you offer multiple options for panels (i.e. American-made vs. not American-made), inverters (i.e., central inverters vs. micro-inverters) or roof attachments/racking, please specify components and attachment methods used for each option.	
20.	<p>Will installed systems include monitoring and at what level (system wide or panel level)? How much will monitoring cost?</p> <p>NOTE: If monitoring charges are not included in the base pricing, be sure they are listed in the added cost section.</p>	

System Pricing/Costs		
21.	<p>Provide the base \$/W price the Contractor will offer to all solarization participants.</p> <p>Will larger systems reduce the \$/W costs??</p> <p>For a leasing proposal, provide a tiered pricing structure expressed as \$/kWh</p> <p>Other systems costs: \$/W Ground mount cost? \$/W Small System Adder for Systems < 3kW</p> <p>\$ - Electrical Service Upgrade (flat) \$ - Interior conduit run \$ - HOA or Historical Approval</p>	
22.	<p>List any optional upgrades to system components.</p> <p>\$/W – High efficiency modules \$/W – Microinverters \$/W – Other (provide detail)</p>	
23.	<p>Will there be any additional charges for securing historic permits, HOA approvals, or other permits or approvals that go above and beyond normal permitting requirements?</p> <p>NOTE: We recognize historic permitting incurs additional cost and want to ensure your costs are covered. If additional charges are required be sure they are listed in the added cost section.</p>	
24.	Will you offer battery backup?	

	If so, please quantify Proposer's experience with batteries (number of commercial and/or residential PV + storage installations).	
System Warranties		
25.	Describe production and product warranties provided for system modules. Examples: <ul style="list-style-type: none"> • Product warranty = 10 years on all defects • Production warranty = 25 year linear warranty to 80% of rated capacity 	
26.	Describe warranty provided for inverters and options for extending the warranty.	
27.	Describe warranty provided for Contractor's labor and workmanship.	
Social & Community Benefits		
28.	Provide location of Contractor's nearest regional office.	
29.	Please describe any commitments you have made or are willing to make regarding local engagement. For example, will you provide on the job internships or other training opportunities for solar job training programs?	
30.	Are you interested in participating in Campaign publicity and community outreach as part of your installation work?	
<p><i>Contractors will protect, indemnify and hold harmless the Institute for Energy Innovation, 5 Lakes Energy LLC, and Saginaw Future from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, experts' and attorneys' fees and expenses) imposed upon, incurred by or asserted against any or all of them resulting from, arising out of or relating to the Contractor's work under the Solarize Michigan Campaign. The obligations of the Contractor under this indemnity will survive the expiration or termination of the Solarize Michigan program, and are not limited by any insurance coverage required under this RFP</i></p>		

Part 2 of 2 – Additional Documentation

Required content to be included after RFP responses above:

- Spec sheets for each module and inverter type specified
- Copy of your standard contract agreement
- Copy of general liability insurance
- Copy of applicable jurisdiction licensing certificate(s)

Optional content to be included at the end of the document:

- Any additional business promotional information, warranties, performance information, installation examples, etc.

Signature of Contractor

Date:



APPENDIX D:

***Solarize Michigan* Sample Solar Assessment and Contractor Pricing Information**

Name: [REDACTED]
Address: [REDACTED], Saginaw, MI 48602
Phone: [REDACTED] Email: [REDACTED]
Project Annual Consumption: 22,380.30 kWh
Project Avg. Monthly Consumption: 1,865.03 kWh
Electric Utility: Consumers Energy Co



Map Key

Red: 1400+ kWh/m²/yr **Orange/Red:** 1200-1399 kWh/m²/yr **Orange:** 1000-1199 kWh/m²/yr
Yellow: 750-999 kWh/m²/yr **Green & Blue:** >750 kWh/m²/yr

Our Partner Solar Installers



Installer	Midland Solar Applications	Michigan Solar Solutions	The Green Panel
Contact	Mike Brown	Mark Hagerty	Mark Cryderman
Phone	(989) 430-1204	(248) 520-2474	(248) 761-6556
Email	brownengineering@yahoo.com	mhagerty@michigansolarsolutions.com	mark@thegreenpanel.com
Website	midlandsolarapplications.com	michigansolarsolutions.com	thegreenpanel.com
Experience	6 years installing solar PV	8 years installing solar PV	9 years installing solar PV
Licensed	Yes #L216161	Yes #L741713	Yes #2101196765
Insured	Yes, Auto Owners	Yes, Hastings	Yes, MI Community Insurance Agency Cincinnati Insurance
References	Yes, upon request	Yes, upon request	Yes, upon request
Assist in Financing	Wolverine Bank Chemical Bank	Dividend Solar Admirals Bank MI Saves	MI Saves PACE Financing
Warranty	Panel warranty 10 years defects Panel performance warranty 80% after 20 years Contractor's workmanship warranty 5 years Energy Production warranty None Inverter warranty 15 years	Panel warranty 10 years defects Panel performance warranty 80% after 20 years Contractor's workmanship warranty 5 years Energy Production warranty Yes 92% of estimate guaranteed (will pay for lost power at going rate) Inverter warranty 12 years	Panel warranty 10 years defects Panel performance warranty 80% after 20 years Contractor's workmanship warranty 5 years Energy Production warranty None Inverter warranty 12 years

Installer	Midland Solar Applications	Michigan Solar Solutions	The Green Panel
Pricing	<p>Residential and Commercial</p> <p>Less than 5 kw \$2.95/watt</p> <p>5 kw to 10 kw \$2.90/watt</p> <p>10 kw – 20 kw \$2.78/watt</p> <p>More than 20 kw \$2.50/watt</p> <p>Ground Mounts</p> <p>An extra .20/watt for installations under 10kW</p> <p>Additional Charges</p> <p>Micro inverters</p> <p>An extra .25/watt</p>	<p>Residential</p> <p><u>4kW and larger</u></p> <p>Composite shingled roof 8/12 and less pitch: \$3.05/ watt</p> <p>Composite shingled roof 9/12 and more pitch: \$3.15/ watt</p> <p>Metal raised rib roofs 8/12 and less pitch: \$3.25/ watt</p> <p>Metal raised rib roofs</p> <p>9/12 and more pitch: \$3.30 / watt</p> <p><u>Under 4kW</u></p> <p>Site specific, but typically about \$1000 more.</p> <p>Commercial</p> <p>Commercial 75kW systems - \$2.90 a watt</p> <p>Commercial 150kW systems - \$2.82 a watt</p> <p>Ground Mount</p> <p>4kW to 5kW: \$4.00/ watt</p> <p>Smaller than 4kW \$4.50 a watt plus \$1,250.</p> <p>Additional Charges</p> <p>Trenching is \$10 a foot up to 250'.</p> <p>over 250' will be quoted per job</p> <p>\$1,775.00 for any electrical service upgrade</p>	<p>Residential and Commercial</p> <p>\$2.95/ watt</p> <p>Discount for system larger than 20 kw</p> <p>Ground Mount \$3.20/Watt (up to 100 ft of trenching)</p> <p>Additional Charges</p> <p>\$500 for any electrical service upgrade</p>



APPENDIX E:

Solarize Michigan
Promotional Packet



FREE SOLAR POWER ASSESSMENT

See if your home or business is a good fit for solar.

Solarize Michigan is a local initiative
working to make going solar a
simpler and more affordable option.

Going solar can help you save money on your
electric bill – **even eliminate it all together!**

We use cutting-
edge software to
see if your roof gets
enough sunlight in
a year to go solar.



Get this done for your home – free!

Sign-up for a free, no obligation assessment at:
www.solarizemichigan.com/sign-up



Making Solar Simple and Affordable

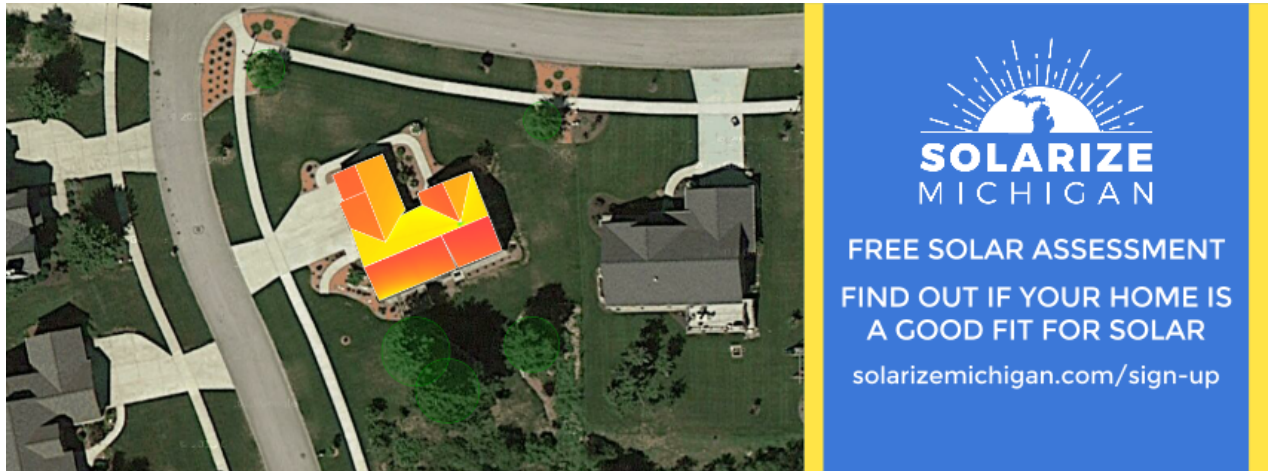
More and more, people are looking at solar power as an option to **reduce or completely eliminate their electric bill**. Frequently though, those interested don't know how to go solar or how they can pay for it.

[Solarize Michigan](#) is a nonprofit initiative run by the [Institute for Energy Innovation](#), with support from [5 Lakes Energy](#), [Bay Future](#), [Midland Tomorrow](#) and [Saginaw Future](#), to make solar a simpler and more affordable option.

Through this brief guide, you can see how you can go solar quickly, easily and make it work for your own budget.



Free Solar Assessment and Bids



By signing up at solarizemichigan.com/sign-up, you can get a **free assessment** to see if your home or business is a good fit for solar. We use new software called [Aurora](#), which allows us to see how much sunlight you get in a year.

In that report you will also get **proposals from three pre-selected installers**. If you are interested, you can choose one of those three. A previous participant already said in a [Midland Daily News article](#), "From start to finish, it was **much easier than I anticipated**," she said. "That was a very pleasant surprise."

If you have ever wondered what it would take to go solar, sign up at solarizemichigan.com/sign-up

Solar Works on Any Budget

A lot of folks see the value in buying solar. Investing in solar allows you to save money on your electric bill. Electric rates have climbed 30 percent in the last 10 years, and **going solar protects you**



from rate hikes. Studies have also shown that going solar can [increase your home resale value](#).

Like any investment, there are ways to finance it, so you can be **cash positive on day one**.



Investment Tax Credit (ITC): You can qualify for a 30 percent tax credit on your federal tax bill. If necessary, you can take the Federal credit over 5 years. You can qualify for the credit once construction is commenced, so you can write it off on your 2016 taxes!

Michigan Saves: [Michigan Saves](#) offers low-interest financing for solar projects. Their 10-year loans are matched with the estimated payback period, so your **monthly payment is roughly equal to your original electric bill**.

A recent homeowner in Midland just used Michigan Saves, and talked about [how easy it was](#).

PACE Financing: Property Accessed Clean Energy (PACE) Financing is a tool that allows commercial building owners to get low-interest loans to make them cash positive on day one. Counties will securitize the loan, placing a lien on the property, allowing the homeowners to payback the loan with a special assessment on their property taxes.

By doing this, business owners can see **savings immediately** and **protect them from rate inflation**.

Sign up now at
solarizemichigan.com/sign-up



APPENDIX F:

Summary of Media Coverage of *Solarize Michigan*



Summary of Media Coverage:

WJRT – ABC 12

- [Campaign begins to get residents to think solar \(2/29/16\)](#)
- [New solar project up and running in Midland County \(5/31/16\)](#)

WNEM – CBS 5

- [New campaign encourages solar energy in Michigan \(2/29/16\)](#)
- [Mid-Michigan resident installs solar panels to save on energy costs \(5/31/16\)](#)

Midland Daily News

- [City council topics include solar energy campaign, Putnam Park \(2/14/16\)](#)
- [Great Lakes Bay Region hosting Solarize Michigan's first campaign to promote solar installation \(3/4/16\)](#)
- [Conversation heating up about Solarize Michigan \(3/15/16\)](#)
- [Sanford homeowners first to go green with Solarize Michigan \(5/31/16\)](#)
- [Midland couple saves on solar project \(7/16/16\)](#)
- [Solarize Michigan Lauds Growth of Solar in Michigan \(9/15/16\)](#)
- [Solarize Michigan “Driveway Open House” Planned \(9/30/16\)](#)
- [Solarize Campaign Promotes Solar Installations \(10/5/16\)](#)

Mlive

- [Saginaw homeowner installs solar panels to save on energy costs \(7/28/16\)](#)
- [Solarize Michigan shows final home before sun sets on solar program \(10/4/16\)](#)

C.S. Mott Foundation

- [Mott-funded programs help Michigan harness the power of rooftop solar \(8/16/16\)](#)