

The background of the entire page is a photograph of a vast solar farm. The solar panels are dark blue with a white grid pattern, stretching across the landscape towards the horizon. The sun is a bright, glowing orb in the upper center of the sky, which is a clear, light blue. The overall scene is bright and clean, representing renewable energy.

THE CITY OF ANN ARBOR

# Solarize

Program Guide

August 2022

# Contacts & Acknowledgements

Report prepared by Tara-Sky Woodward  
reDirect Fellow, Summer 2022  
taraskyw@umich.edu

In collaboration with Julie Roth  
Senior Energy Analyst  
City of Ann Arbor, Office of Sustainability and Innovation  
jroth@a2gov.org

## Special Thanks to

Professor Raymond De Young  
University of Michigan  
School for the Environment and Sustainability

Paige Porter and the reDirect Foundation  
for continued support and funding to enable the  
completion of this project

The City of Ann Arbor  
Office of Sustainability and Innovation

Fellow reDirect fellows

Jess Silber-Byrne, who's work with  
A Communication Strategy for HERD  
helped inform this report

**reDirect Foundation**  
www.redirect.org  
hello@redirect.org

# Table of Contents

01

Key Terms &  
Concepts

02

Program  
Overview &  
Background

03

Your section  
titles go here

04

Your section  
titles go here

05

Your section  
titles go here

06

Your section  
titles go here

07

Your section  
titles go here

# Key Terms & Concepts

**Solarize:** The program that facilitates group-buy solar installations

**Group-Buy:** A group of Solarize participants that go through the program together with a chosen installer to secure bulk-buy discounts

**Group-Buy Event:** The initial group-buy meeting in which the host, organizer, and installer present information on solar energy and the installation process to a group of participants

**Price per Kilowatt (PPW):** Universal standard to compare total cost of solar installation

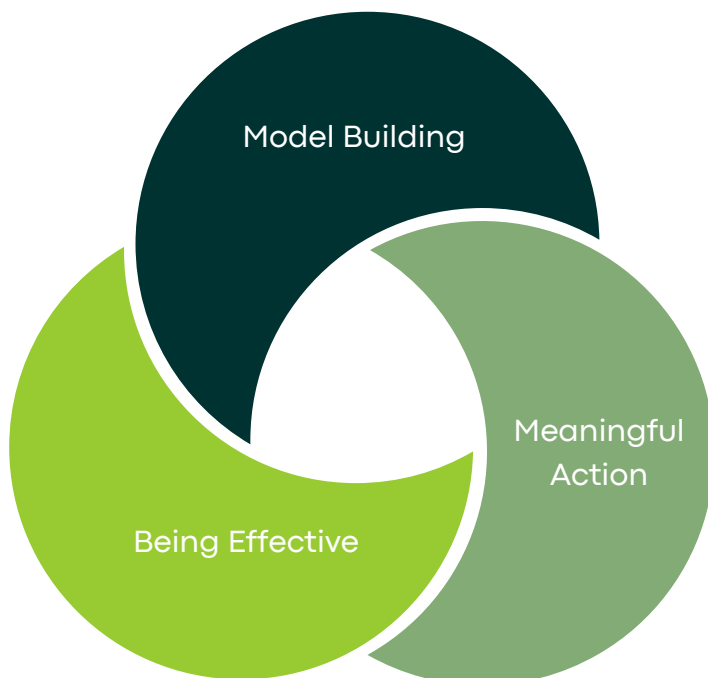
**Mental models:** Also known as cognitive maps, this term refers to the linked manner in which humans think about concepts.

**Procedural knowledge:** The knowledge of how to complete an action

**Capacity:** The ability to complete an action

**Dynamic norms:** Information about how people's behavior changes over time (Sparkman & Walton, 2017)

## Supportive Environments for Effectiveness (SEE)



SEE is a framework that supports long-term behavior change.

- Model building increases our understanding.
- We can act effectively on this understanding through increased clarity and capacity.
- Meaningfulness aids long term commitment to behavior change.

Together, these elements create a supportive environment for sustainable change.

The SEE framework aids in understanding the success of the Solarize program and informed the recommendations contained within this report.

Avik Basu, Rachel Kaplan, and Stephen Kaplan (2014)

# What is Solarize?

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has”

- Margaret Mead

(Sparkman & Walton, 2017, p. 1673)

**Solarize is a group-buy program that builds community relationships and provides residential discounts on solar installations.**

Founded in 2019 by Julie Roth, Solarize provides mutual benefits to both residents and installers.

Some of these benefits include the following:

- Supporting local businesses
- Building trust through contractor vetting
- Relationship building within community networks
- Engaging meaningful action
- Developing a just transition to a new normal

Since 2019, Solarize has exponentially increased solar installations in the Ann Arbor area

Additional Solarize Information here?

# Purpose of Solarize

## Building Community Relationships

Relationship building is a key goal of the Solarize program. In Ann Arbor, city employees from the Office of Sustainability and Innovation work as organizers alongside residents and installers.

Organizers and installers lend legitimacy to the program as experts in the field, while a community member acting as host cultivates trust. This collaboration between local residents and local experts develops community relationships and supports local businesses, creating a solid foundation for sustainable change.



## Becoming a Part of Something Bigger

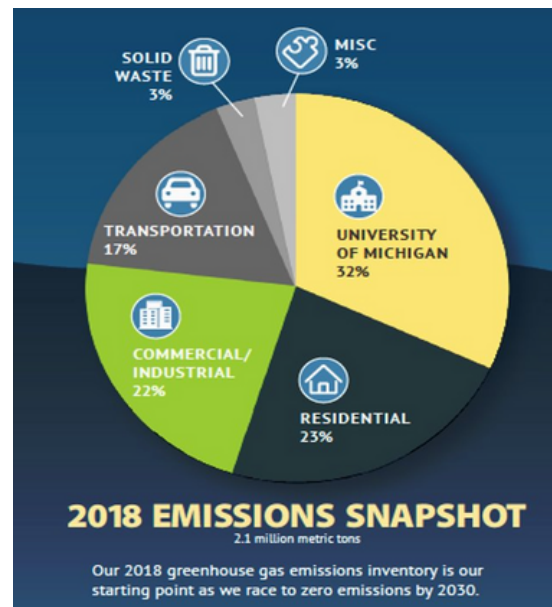
Solarize provides the opportunity for residents to engage in a movement that is self transcendent. Being a part of a cause larger than oneself can cultivate meaning, increase happiness, improve agency, and relieve anxiety (citation). Moreover, residents who are passionate about a cause can create a ripple effect within their community as agents of change.



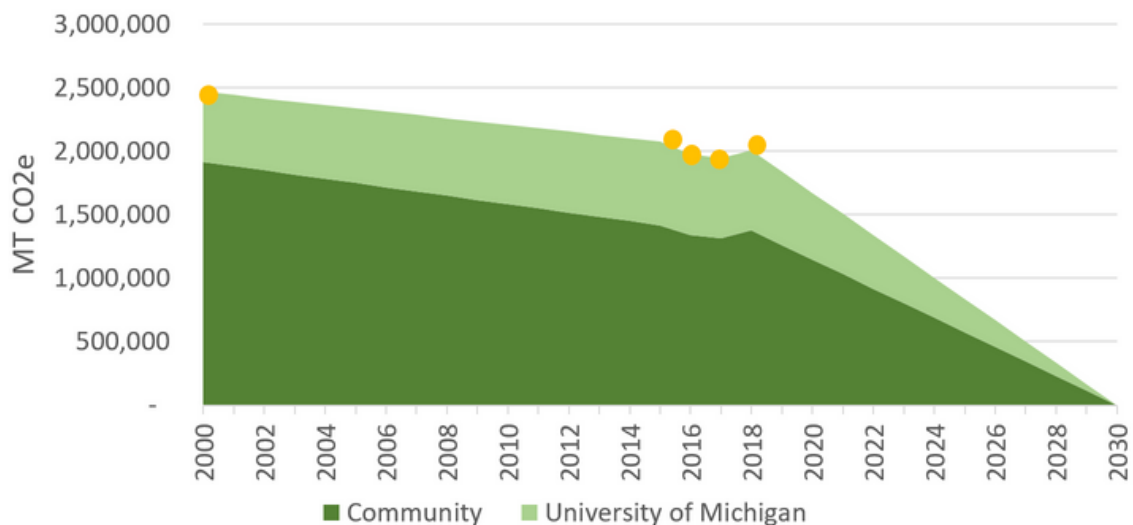


## Reducing Carbon Emissions

Ann Arbor Solarize is part of A2Zero, Ann Arbor's expansive plan to achieve a just transition to carbon neutrality by 2030. Residential emissions make up 23% of greenhouse gas emissions within the city. As such, the goals of A2Zero cannot be reached without addressing residential carbon emissions. Increased solar installations through Solarize reduces residential emissions, bringing Ann Arbor one step closer to carbon neutrality.



Carbon Emissions in Ann Arbor



# How Does Solarize Work?

## Organizer

The organizer is key to ensuring proper program facilitation. The organizer must be adept at administrative tasks and clear communication as they coordinate between residents and contractors. Tasks include:

- Creating online registration and scheduling meetings
- Presenting materials at group-buy events
- Creating and updating spreadsheets
- Packaging data from residents to pass to installers
- Monitoring progress for each project and addressing issues as they arise

Local non-profits can function as an organizer for this program.

In Ann Arbor, city employees from the Office of Sustainability and Innovation act as the organizer for Solarize.

## Host

An enthusiastic host is essential for gathering participants for a group-buy event. The host is local resident who is both passionate about renewable energy and eager to network with fellow community members. Tasks include:

- Reaching out to local networks to register participants for an upcoming group-buy
- Choosing a local contractor for the group-buy
- Presenting the reasons behind choosing to be a host and choosing the installer at the group-buy event

Often, group-buy participants can be enlisted as hosts for future events.

## Installer

A reliable installer is critical for creating a positive experience with solar adoption. An installer has to be willing to provide tiered discounts and have the capacity to successfully navigate a large number of projects at once.

Ann Arbor hosts choose from a list of vetted contractors provided by Michigan Saves, a local green bank.

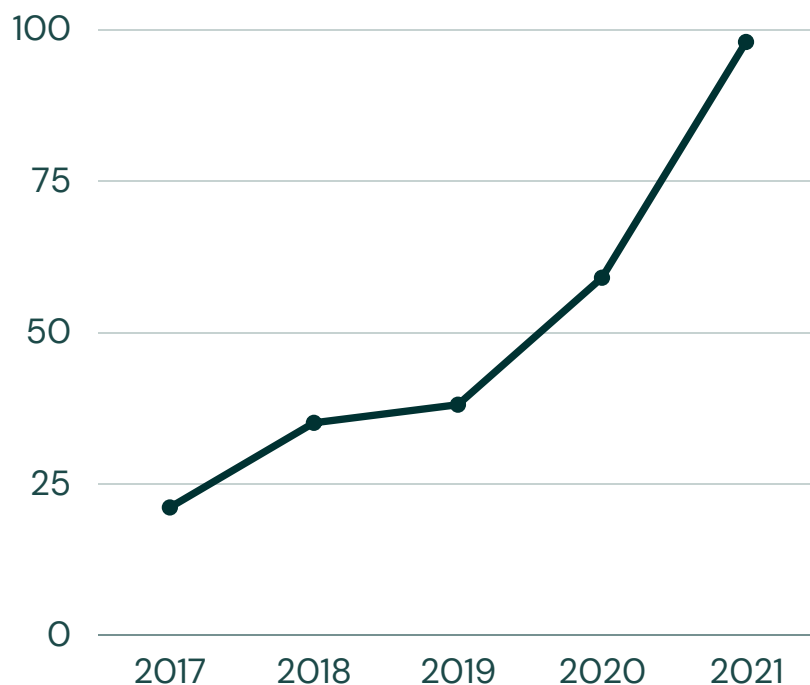
Tasks include:

- Presenting logistical information about solar installations at group-buy event
- Designing and installing projects
- Regular, clear, and prompt communication with residents and organizer
- Attending weekly meetings with organizer to discuss project updates and address any issues



## Growth of Solar

The number of residential solar installations in Ann Arbor has increased exponentially since Solarize was initiated in 2019



**1025**

Residential Estimates  
through Solarize

**440**

Residential  
Installations through  
Solarize

Important points about the growth of Solarize?

- As a Nonprofit, what problem/s are you trying to address?
- How are you addressing it? What projects or steps have you put in place?
- What are the results of your actions?
- How do you measure the success of your actions? How do you know if you've made a difference?
- What challenges did you face? How will you improve your plans?
- Based on your learnings, what steps are you likely to take in the future?

# \$1,400,000

Residential Savings through Solarize Discounts

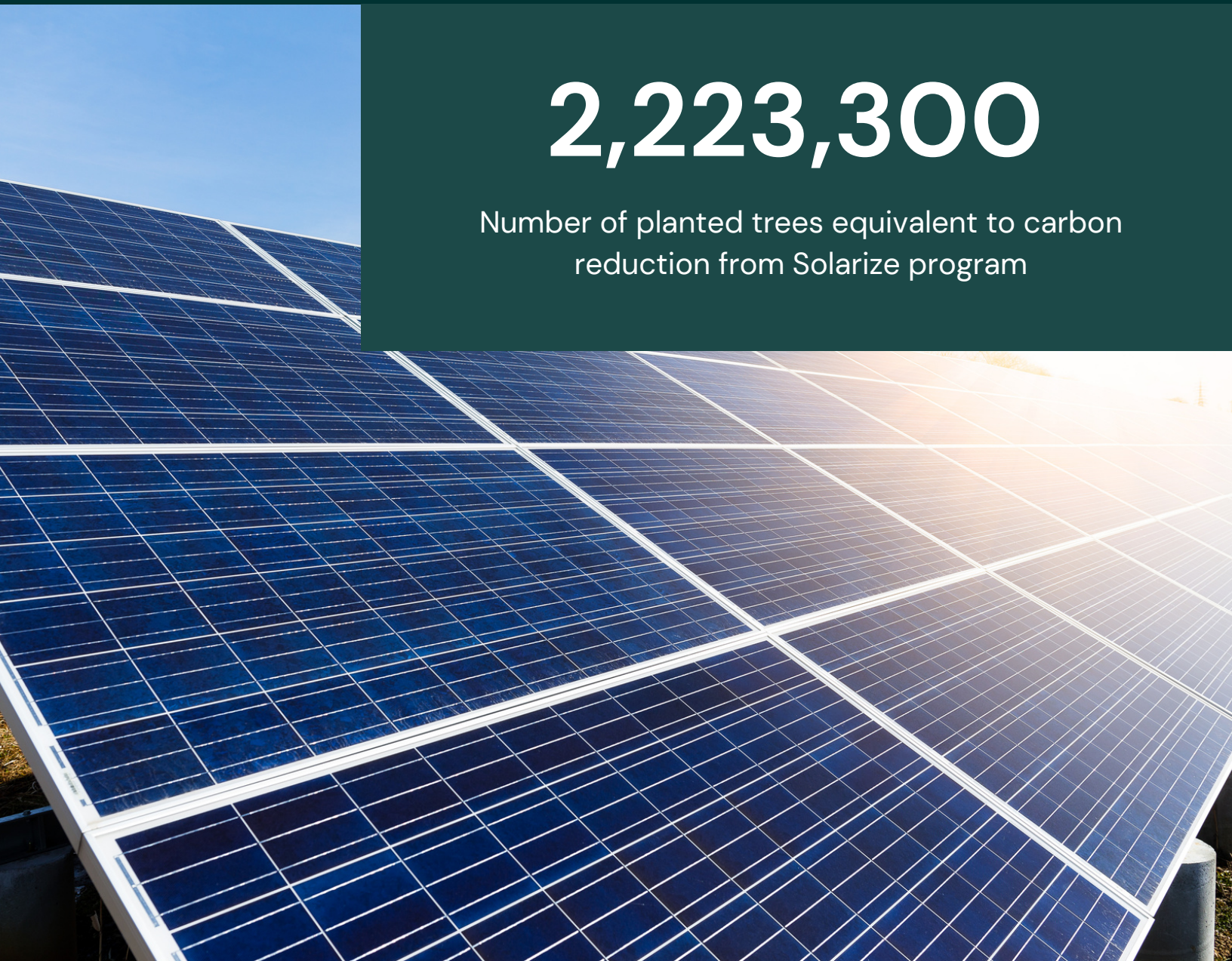
Since  
2019

# 3 Megawatts

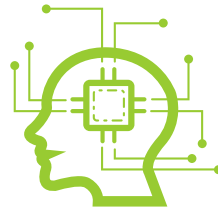
Solar installed through Solarize program

# 2,223,300

Number of planted trees equivalent to carbon  
reduction from Solarize program



# Key Elements of Success



## Increased Understanding

Expand mental concepts of renewable energy and climate change



## Capacity Building

Presence of funding  
Supportive Public Policy  
Procedural knowledge  
The program provides clear next steps and consistent direction throughout the process, r



## Meaningful Action

Engaging residents in actions of environmental stewardship cultivates long-term behavior change and builds connection to the local community.



## Dynamic Norms

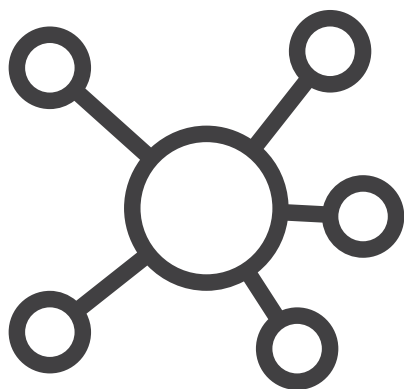
Capitalizes on public awareness of increasing community solar adoption to promote further solar adoption

# Increasing Understanding

## Mental Models

Humans process information by developing mental models. These are maps made up of linked ideas that we use to understand and engage with concepts.

Mental maps expand through interaction with information.



## Message Framing

Targeted messaging can help participants accept and engage with the topic by tying new information into existing mental maps. Some regional differences may include using language that stresses energy independence and energy freedom.

Effective framing is critical for eliciting understanding regarding the importance of solar adoption.

## Storytelling

Storytelling is an excellent tool for developing mental maps. Stories convey procedural knowledge in a natural form for easy comprehension. They also encourage personal connection to the topic.

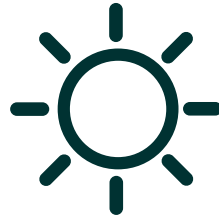
Ann Arbor has developed [Ann Arbor Solar Stories](#) as a platform to share residents' experiences with renewable energy and the Solarize program.



## Spillover Effects

Engaging with new information can create a ripple effect. As mental models expand, so does awareness of linked concepts. This creates the potential for further behavior change in other realms. In the case of solar, installation is a single behavior, which is easier to adopt than frequent behavior changes that require consistent attention. However, this single behavior can set the stage for other long-term changes, such as home electrification.

## Building Capacity



### Clarity

Procedural knowledge is essential to increasing clarity. Based on feedback, knowing **how** to install solar is a major barrier to action. The organizer provides participants with consistent communication and personalized guidance through the course of the project, reducing confusion and increasing clarity for participants. A clear, actionable step is presented at the end of the group-buy meeting. A well organized group-buy with timely follow-up supports effective action, especially in a population with limited time and attention.



### Funding

The cost of installation can be a major barrier to solar adoption.

Providing funding options can make solar more accessible and will be addressed further in the section on solar equity.



### Policy

Public policy can remove barriers to solar adoption. Furthermore, community solar initiatives can increase accessibility and boost grid sustainability.

Ann Arbor has expedited solar permitting, which reduces costs, streamlines information requirements, and increases turnaround speed.

## Cultivating Meaning



### Nurturing Place

Living well within the home. Discouragement can be a real barrier to action. -Pulled from Jess, Katie Barr resilience.org: sense of place and third places, adapting in place. Ask participants what they want their home to look like in ten years and what actionable steps they can take today that can help them get there.

### Impact Awareness

Individual action matters. Awareness of the individual impact of a participant can increase meaningfulness and strengthen attachment to environmental stewardship. This can be leveraged through apps that show the emission reductions of current solar installations, as well as sharing potential projections during project designs. Sharing specific examples during presentations that cover a range of options, from portable solar panels to large installations, would demonstrate that even small actions can have a positive impact.

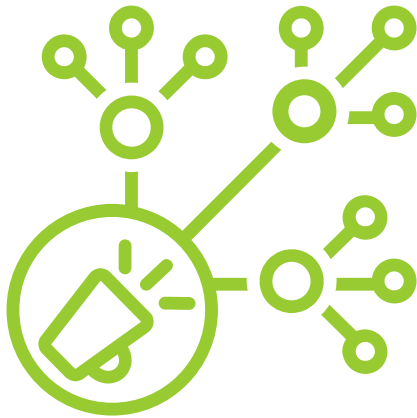
### Participation

Connecting individuals through meaningful action builds relationships and instills a sense of investment in building a sustainable community. Furthermore, research shows that being a part of a team with strong social support is predictive of pro-environmental behavior change (Staats et al., 2004).

### Agency

All of these elements work to instill a sense of individual agency.

## The Role of Dynamic Norms



When a program goes viral, dynamic norms are usually at work. A dynamic norm occurs when there is increased societal awareness that change is taking place, encouraging further action that perpetuates that change. Individuals are more likely to adopt a behavior that they see as innovative and gaining momentum within society. The growing recognition that solar adoption is increasing over the course of time is encouraging exponential growth.

## Citizens, not Consumers

Citizen led as opposed to consumer driven: green consumers vs green citizens



## Leveraging Dynamic Norms

### Make Change Visible

- **Panel Location** - The presence of panels are already a visible indicator of solar adoption. Increase this effect through ordinances that support street-facing installations.
- **Marketing** - Sign campaigns, flyers, and online representations of Solarize and group-buy events can increase awareness of solar adoption
- **Mapping** - Ann Arbor is developing a public Geographical Information System (GIS), providing a visual representation of the spread of solar adoption throughout the community



### The Downside of Visible Change

Visualizing change can have a negative impact if the change is not equitable. The visual nature of solar panels can serve as a visual representation of gentrification, and it can further discourage and alienate residents who do not have access to solar power.



# Solar Equity



**Equitable solar adoption is essential for creating climate resilient communities.**

Those who have done the least to increase climate change are currently carrying the bulk of the burden. If not addressed, solar adoption can actually increase inequity within the community.

Together, we can create equitable solar adoption through the following:

- Increase funding for vulnerable populations
- Provide options for tiered solar adoption
- Work to replace archaic public utility options with renewable energy
- Build community solar initiatives

## Funding Options

SOURCE	DETAILS	KEY POINTS
Tax Rebates	Federal tax rebates reduce the overall cost of solar installations	<ul style="list-style-type: none"><li>• 26% for 2022</li><li>• Dependent on future legislation</li></ul>
Green Bank Financing	Affordable financing for home energy efficiency projects	<ul style="list-style-type: none"><li>• Low interest rates</li><li>• Must qualify</li></ul>
Sustainability Grants	Potential funding for income-qualified households	<ul style="list-style-type: none"><li>• Key for equitable adoption</li><li>• Currently not widely available</li></ul>
Community Donations	Local residents or organizations provide donations for fellow residents	<ul style="list-style-type: none"><li>• Grass-roots solution to local needs</li><li>• Not easily scaled or regulated</li></ul>

## Individual

### Tiered Action Strategies

Large solar installations are not economically feasible for all residents. Providing other opportunities for residents to engage with solar where they are at is essential for promoting inclusiveness and boosting community resilience. Portable solar panels that can be used as needed or in an emergency can be an option if a whole-home installation is currently out of reach. Moreover, any community member can become a powerful agent of change through community activism and advocacy.

## Community

### Resilience Hubs

Transition existing community neighborhood centers into resilience hubs with solar and storage. This increases community resilience by providing access to solar energy during times of emergency.

### Renewable Public Utilities

Don't burden vulnerable populations. Instead, local governments and utility companies can work together to offer sustainable municipal utilities to those who need it most.

### Every Resident Matters

Community climate resilience is only possible with the empowerment of previously marginalized groups. Taking small steps and voting for policy change that promotes equity in solar adoption facilitates change and ensures that all residents know they are recognized as essential to the success of the community. Every resident has the potential to be a powerful agent of change within their community, and it is going to take all of us to create a just transition to a new normal.

# Solarize Toolkit

The Solarize Toolkit gives communities the necessary tools and support to implement a Solarize program. To properly implement this program in other communities, ensure the following:

1

Meet residents where they are at

Residents will have varying mental maps based on their distinct background. Utilize polls and targeted language to connect with existing conceptions.

Ex: Registration poll indicates the primary motivator for an upcoming group-buy is financial investment. Stress financial benefits of solar and treat climate factors as new information.

2

Clarify roles and tasks

Ensure that the organizer, host, and installer knows their tasks and how to complete them. Provide clear next steps to participants.

Tips: Host, organizer, and installer meet early in the process to divvy tasks and clarify instructions. Promptly respond to issues as they arise. Ask participants for feedback through a survey at the end of the group-buy.

3

Engage Meaningful Action

Build community relationships, emphasize the value of each participant, and provide opportunities for action.

Tips: Emphasize the importance of individual action, regardless of the size of that action. Even if purchasing solar is not feasible, a participant could become a solar or climate advocate. Do not hold informational meetings. Instead, hold a group-buy meeting with a clear, actionable step at the end.

# Additional Resources

[Creating Supportive Environments to Foster Reasonableness and Increase Well-Being](#)

Sparkman, G., & Walton, G. M. (2017). Dynamic Norms Promote Sustainable Behavior, Even if It Is Counternormative. *Psychological Science*, 28(11), 1663–1674.  
<https://doi.org/10.1177/0956797617719950>

Staats, H., Harland, P., & Wilke, H. A. M. (2004). Effecting Durable Change: A Team Approach to Improve Environmental Behavior in the Household. *Environment and Behavior*, 36(3), 341–367. <https://doi.org/10.1177/0013916503260163>

# Appendix