



Bringing Solar to BIPOC Houses of Worship - Solar Energy Innovation Network: Final Technical Report

Ashley Malyszka and Andreas Karelas

RE-volv

NREL Technical Monitor: Sara Farrar

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May 2023

BRINGING SOLAR TO BIPOC HOUSES OF WORSHIP

Solar Energy Innovation Network: Final Technical Report

Ashley Malyszka & Andreas Karelak, RE-volv

ABOUT SEIN

The Solar Energy Innovation Network (SEIN) seeks to overcome barriers to solar adoption by connecting teams of stakeholders that are pioneering new ideas with the resources they need to succeed. Teams that participate in SEIN receive direct funding and analytical support from the U.S. Department of Energy national laboratories and participate in peer-to-peer learning with other teams tackling similar challenges.



These teams are developing and documenting their solutions for solar adoption with scale in mind, so that others can adapt those solutions to their own contexts. Ultimately, the true impact of these teams' efforts will be to enable a wide array of communities to adopt solar solutions that meet their needs in their contexts.

SEIN is funded by the U.S. Department of Energy Solar Energy Technologies Office and is led by the National Renewable Energy Laboratory.

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Disclaimer

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Executive Summary

As is well documented in the research, there is a great disparity of where solar is installed in the US based on race and ethnicity. Black, Indigenous and People of Color (BIPOC) communities have significantly less solar power installed on average than non-BIPOC communities. However, when solar installations do occur in BIPOC communities, the rate of subsequent adoption by neighbors is faster on average than in non-BIPOC communities.

In addition, nonprofit organizations, such as houses of worship, have limited access to solar financing options.

The goal of this initiative by RE-volv, Interfaith Power & Light, and Green the Church is to help BIPOC-led houses of worship go solar, and in doing so, demonstrate the benefits of solar energy to their community. This report details the progress achieved during the contract term of February 2022 through May 2023.



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PROJECT OVERVIEW

As part of NREL's Solar Energy Innovation Network, this initiative was established by three nonprofits: RE-volv, Green the Church (GTC), and Interfaith Power & Light (IPL), to address three key issues facing the just clean energy transition: 1) racial and ethnic disparities of solar deployment; 2) significant barriers faced by nonprofit organizations – particularly BIPOC-led houses of worship – to go solar; 3) limited awareness and accessibility of clean energy at the community level.

BIPOC houses of worship that serve underserved communities have four distinct challenges to accessing solar financing. First, as tax-exempt organizations, they historically could not take advantage of the federal investment tax credits for solar. (However, since the passage of the Inflation Reduction Act, nonprofits can now for the first time start to monetize tax credits themselves.)

To date however, this has been a primary barrier to solar financing for all nonprofits and houses of worship. Second, congregations, like all nonprofits, are often viewed as credit risks and lack an easily understood way to demonstrate their creditworthiness (e.g., a FICO score). Third, these projects are often viewed as too small, and involving too many decision-makers, with long project timelines, making them unattractive to traditional solar financiers. Fourth, after years of mistreatment and broken promises, BIPOC communities understandably are skeptical of outside organizations coming in to offer support. In order to overcome this barrier, trust needs to be established.

Considerations for serving BIPOC Houses of Worship

Motivations for going solar

- **Stewardship - ethical and moral duty**
- **Electricity bill savings**
- **Demonstrating commitment to sustainability**

Common Barriers

- **Many stakeholders and decision makers**
- **General lack of awareness or skepticism of technology**
- **Having other priorities that require more immediate attention**

PROJECT OVERVIEW CONT.

At the same time, solar adoption rates in BIPOC communities fall far below that of the national average. Researchers at UC Berkeley and Tufts University determined that “For the same median household income, black- and Hispanic-majority census tracts have installed less rooftop PV compared with no majority tracts by 69 and 30%, respectively, while white-majority census tracts have installed 21% more. When correcting for home ownership, black- and Hispanic-majority census tracts have installed less rooftop PV compared with no majority tracts by 61 and 45%, respectively, while white-majority census tracts have installed 37% more.”

This same report also highlighted a promising phenomenon, which is that “PV installations often result in a feedback loop: When a few residents in a community get solar, known as “seed” customers, it compels others to join...” Not only that, but this seeding effect is even more effective in BIPOC communities. The researchers found that “when communities of colour are initially seeded—or have first-hand access to rooftop PV technologies—the deployment significantly increases compared with other racial/ethnic groups.”¹

With each BIPOC house of worship we help go solar and each community in which we raise visibility about solar opportunities, we make strides to address racial and ethnic disparities of solar distribution in the US.

Building upon years of project-based partnership between REvolv, Green the Church, and Interfaith Power & Light, this effort was designed to leverage each organization’s strengths and networks in order to deliver tangible environmental and economic impacts in BIPOC communities. The main outcomes sought through this initiative included:

- Develop a scalable partnership infrastructure
- Develop strategies to inform BIPOC Houses of Worship about the opportunity to go solar
- Raise capital to finance solar projects
- Finance at least two BIPOC-led houses of worship, one with each partner: Green the Church and Interfaith Power & Light
- Provide proof that these types of projects are not too risky for traditional solar financiers
- Raise awareness about solar in the communities served to accelerate equitable solar adoption
- Circulate lessons learned

1.Sunter, D. A., Castellanos, S., & Kammen, D. M. (2019). Disparities in rooftop photovoltaics deployment in the United States by race and ethnicity. *Nature Sustainability*, 2(1), 71-76.

<https://doi.org/10.1038/s41893-018-0204-z>

Progress and Results

This initiative has made incredible progress throughout the contract term. GTC and IPL referred many BIPOC-led houses of worship to RE-volv, five of which submitted electricity bills and requested a solar proposal. Of those five, three have now signed contracts for solar projects as of May 2023. Each of the projects are beginning construction shortly. Together, these projects represent nearly 50 kilowatts of solar capacity and over 2.5M lbs. of carbon dioxide emissions avoided over the lifetime of the systems. Additionally, these BIPOC-led houses of worship will save nearly \$600,000 on their electricity bills, which they can reinvest in impactful community programs, and ensure their future sustainability.

Accomplishments include:



Five BIPOC-led houses of worship submitted electrical bills and requested solar proposals from the partners



The three initial projects will create nearly 50 kW of additional rooftop solar capacity



Three of these houses of worship have now successfully signed solar finance contracts and have construction underway



The initiative has deployed \$120,000 to build three community-based clean energy projects between February 2022 and May 2023

Successes and Challenges

This initiative was successful on many fronts and exceeded the goals the partners originally set out to accomplish. Certainly, unexpected challenges arose along the way, and important lessons were learned as a result.

Raising Capital

At the onset of the initiative one of the main challenges identified by the partners was raising the capital necessary to build the projects. Thankfully, working with the SEIN program gave investors confidence in this initiative, which greatly facilitated fundraising efforts. The partners hope that this successful proof of concept will give funders confidence to invest in the expansion of this program.

RE-volv successfully raised \$3M in pre-development and construction capital from the Kresge Foundation and the Schmidt Family foundation in the form of a Program Related Investment (PRI) to build solar for BIPOC houses of worship and other community-serving nonprofits. This funding is currently financing the construction of the first three projects, and will continue to fund many more projects as this initiative extends beyond the SEIN timeframe.

Keys to success raising capital:

- Demonstrating track record
- Highlighting support from the DOE/NREL
- Emphasizing the seeding effect's role in local solar adoption



NEM 3.0

During the contract period, an unexpected policy change occurred in California. Net-metering policy was updated to NEM 3.0 which reduced the value of exported solar energy to the grid by 75%. This policy change could significantly hamper the growth of solar in California by making it more difficult for projects to be financially viable. April 13th of 2023 was the last day solar customers could submit a permitting application for a solar project that would still benefit from the previous, more valuable net metering policy, NEM 2.0. Thus, in order to help as many congregations get maximum savings from solar, the partners had to act quickly in order to recruit, educate, and work with a cohort of congregations simultaneously. Thankfully the urgency caused by the grandfathering deadline did accelerate the decision making process for the congregations that ultimately went solar.

Successes and Challenges Cont.

Outreach Strategies

The partners tried different approaches to educate their members and affiliates about this initiative to help BIPOC houses of worship go solar. This included newsletters, social media posts, paid social media advertising, google adwords campaigns, and direct outreach. Ultimately it was because of direct and persistent outreach to congregations that had existing relationships with GTC and IPL that three congregations signed solar contracts. One of the more successful strategies for raising awareness about the initiative and engaging with many congregations was a webinar the partners held that had over 150 registrants. On the webinar the partners presented the cohort timeline, next steps for getting solar proposals, the benefits of going solar, examples of BIPOC houses of worship that have gone solar, and answered questions directly from interested congregations.

Come to a Webinar On
Solar for CA Houses of Worship
with RE-volv, IPL, & Green The Church



Calling all Houses of Worship in California

Have you been thinking about **going solar**?
Join our webinar to learn how your House of Worship
can go solar before the **April 13 NEM 3.0 deadline**
to maximize savings.

Date & time: Thursday, February 9, 2023, 11am PT
Register: solar-CAhousesofworship.eventbrite.com

Lessons Learned

The importance of established relationships

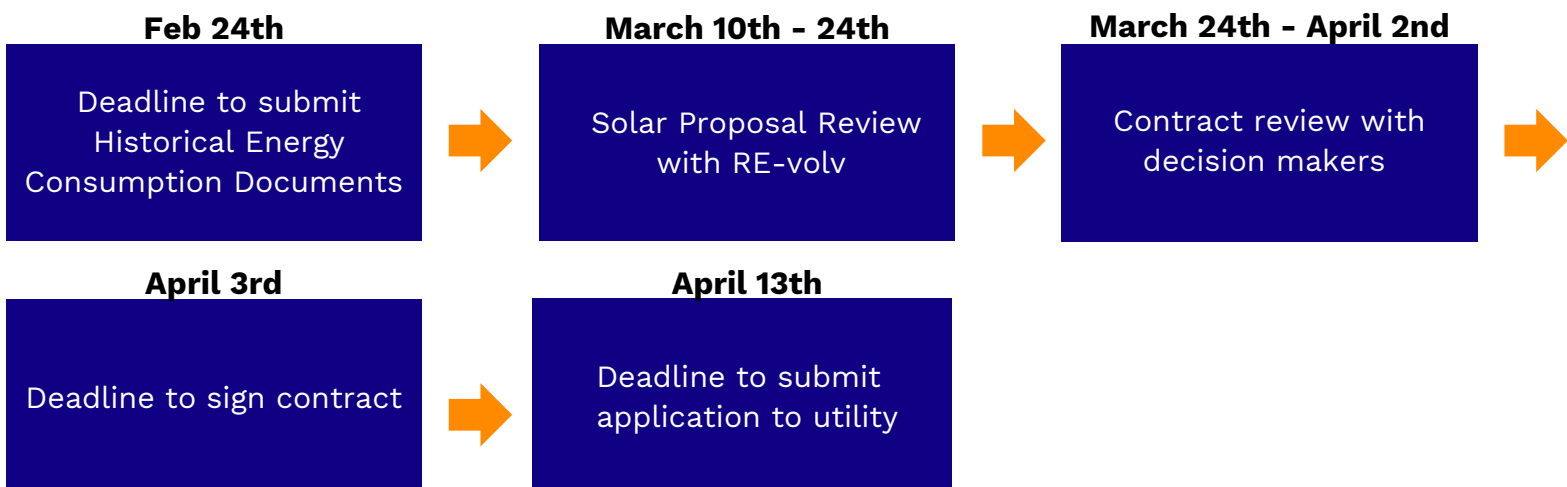
The three BIPOC-led houses of worship that ultimately went solar with RE-volv during this initiative each had long-standing relationships with IPL and GTC respectively. This confirms that clean energy initiatives at the community level benefit tremendously from working with trusted partners that have established relationships in the community.

Persistent follow up

Since these projects were on a short timeline due to the NEM 3.0 grandfathering deadline, it was imperative that the partners persistently follow up with congregations that expressed interest, in order to keep it high on the congregation's list of priorities. Faith communities and nonprofits often have far more pressing needs than a solar installation which may be considered a lower priority for them. In this case, since the NEM 3.0 deadline provided urgency, regular and persistent follow up was critical to keep up momentum towards completing the projects.

Cohort timeline

Given the urgency of the NEM 3.0 deadline the partners of the initiative developed a set timeline for all of the congregations to follow as a group. This cohort model helped projects keep momentum as there was a set timeline that we required be followed for each step of the process. This both helped RE-volv manage each stage of the cohort more easily while also giving the projects a clear timeline by which decisions needed to be made and actions needed to be taken.



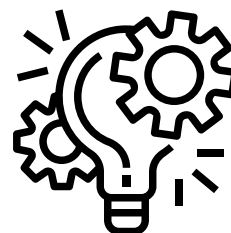
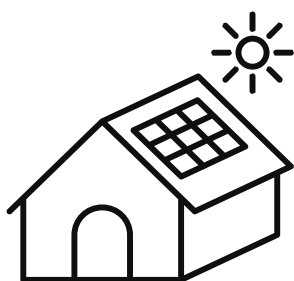
Lessons Learned Cont.

Demonstration of track record and financeable projects

Even with all of the exciting new government programs and investments flowing towards a just clean energy transition, ultimately community-based clean energy developers will still need to attract project capital from investors and lenders to build these important projects. It's important to note that investors want to see a successful track record from the project developers, as well as a developed pipeline of projects that are likely to get built, in order to invest. This takes time and is not accomplished in short order, which ultimately could slow down the clean energy transition. Hopefully, as investors see more successful solar projects in historically excluded communities with low default rates, confidence in the sector will grow, and lenders will view these projects as less risky.

Facilitation

One of the most rewarding elements of participating in SEIN was the facilitated working sessions that helped the partners align on priorities, strategy, goals, and measurable outcomes. While RE-volv, Interfaith Power & Light, and Green the Church had been partnering together for over ten years, the structured format of the facilitation sessions at the beginning and during SEIN round 3, helped set the partnership up for success. Facilitation by an outside party helped the partners see where there was alignment and where more clarity around the project was needed. Clean energy and climate justice work is complex. When working with multiple parties towards a shared vision, things naturally become even more complex, which is why facilitation, like what was provided during SEIN, can be so beneficial. It allows partners to share openly in a setting that fosters collaboration and creativity. Thankfully the initial and ongoing SEIN facilitation sessions allowed the partners to map out an agreed-upon set of responsibilities and timelines to follow during the project period. In addition, monthly check-in meetings, and at times weekly check-in meetings, allowed the partners to stay in regular communication, to build momentum towards the project goals, and ultimately to achieve the objectives set at the onset of the program.



APPENDIX

Pilot Projects

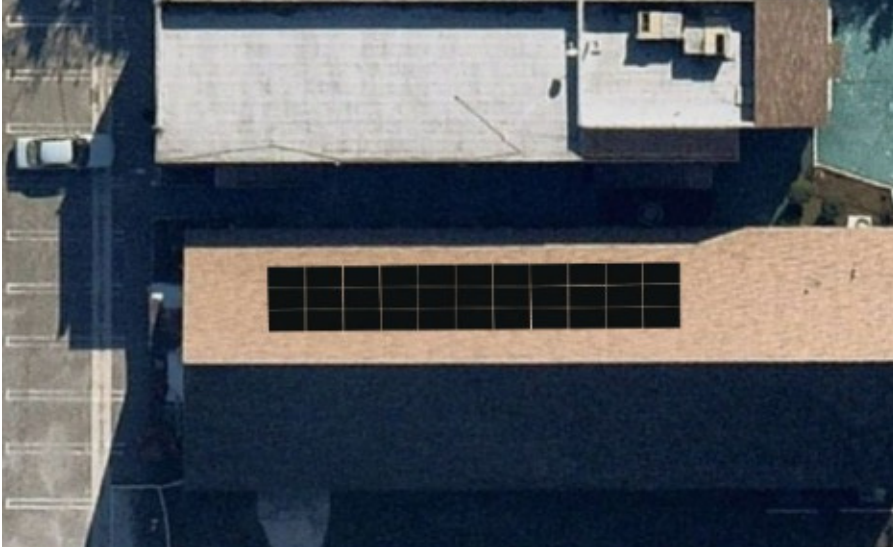
Name	City	State	Affiliate
Watts-Willowbrook Church of Christ	Compton	CA	Interfaith Power & Light
McGee Ave. Baptist Church	Berkley	CA	Green the Church
New Hope Baptist Church	Oakland	CA	Green the Church

Name	Capacity	Lifetime Savings*	Lifetime CO2 Emissions avoided	Equivalent to Trees Planted
Watts-Willowbrook Church of Christ	13.7 kW	\$197,085	823,076 lbs.	439 Acres
McGee Ave. Baptist Church	17.5 kW	\$181,530	931,556 lbs.	497 Acres
New Hope Baptist Church	14.2 kW	\$201,709	760,977 lbs.	406 Acres
TOTAL	45.4 kW	\$580,324	2,515,609 lbs.	1,342 Acres

* (Based on 25 years of solar production estimates calculated by PVWatts, with an average annual utility escalation rate of 1.9%.)

APPENDIX

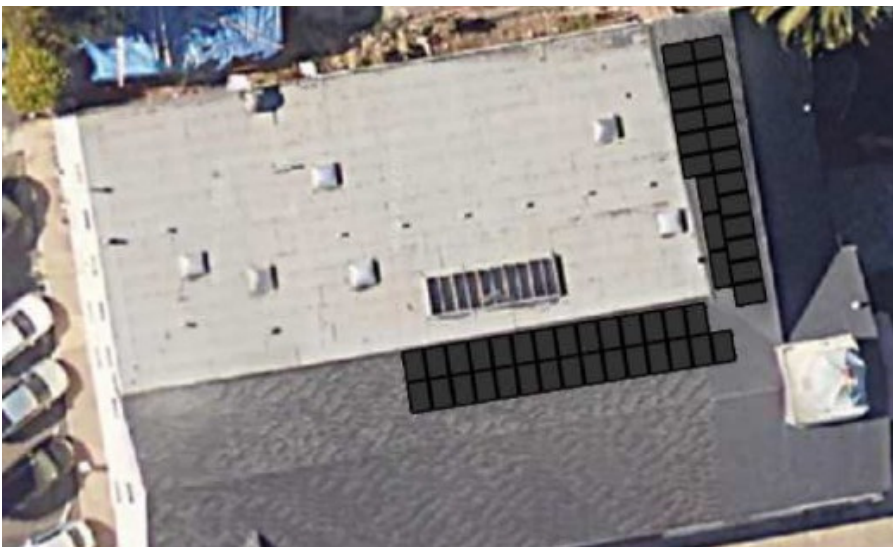
Solar System Designs



**Watts-Willowbrook
Church of Christ**



**McGee Ave. Baptist
Church**



**New Hope Baptist
Church**

APPENDIX

Criteria for Prioritizing Future Projects

Initial Criteria

- Is it a BIPOC-led house of worship?
- Does solar make financial sense in this area?
- Does the congregation own their building, or do they have permission from the owner to install solar?
- Is the roof condition and materials suitable for solar OR is there suitable land available for solar?
- Will shading be a problem?
- Is the roof oriented towards a favorable direction?
- Is the electrical service panel adequate or does it need to be replaced?
- Is the house of worship in good financial standing?
- Has the congregation already taken actions to improve energy efficiency or promote solar to congregants?
- Are they a leader in the community, motivated to demonstrate their commitment to sustainability?
- Is the congregation interested in continuing to promote solar within the community after the installation by hosting solar educational opportunities?

Additional considerations

Has the congregation already taken actions to improve energy efficiency or promote

- solar to congregants?

Are they a leader in the community, motivated to demonstrate their commitment to

- sustainability?

Is the congregation interested in continuing to promote solar within the

- community after installation of their system by hosting solar educational opportunities?

Press

News articles about the partnership

- [PV Magazine](#) “RE-volv secures investment to build solar projects for non-profits”
- [Solar Powered World](#) “NREL-backed nonprofit team to advance solar for BIPOC houses of worship”
- [Triple Pundit](#) “Community-Driven Solar Investments Bring Clean Power to Underserved Neighborhoods”
- [PV Magazine](#) “Three non-profits receive NREL support to help BIPOC houses of worship to go solar”