



Community-Owned Solar Guidebook

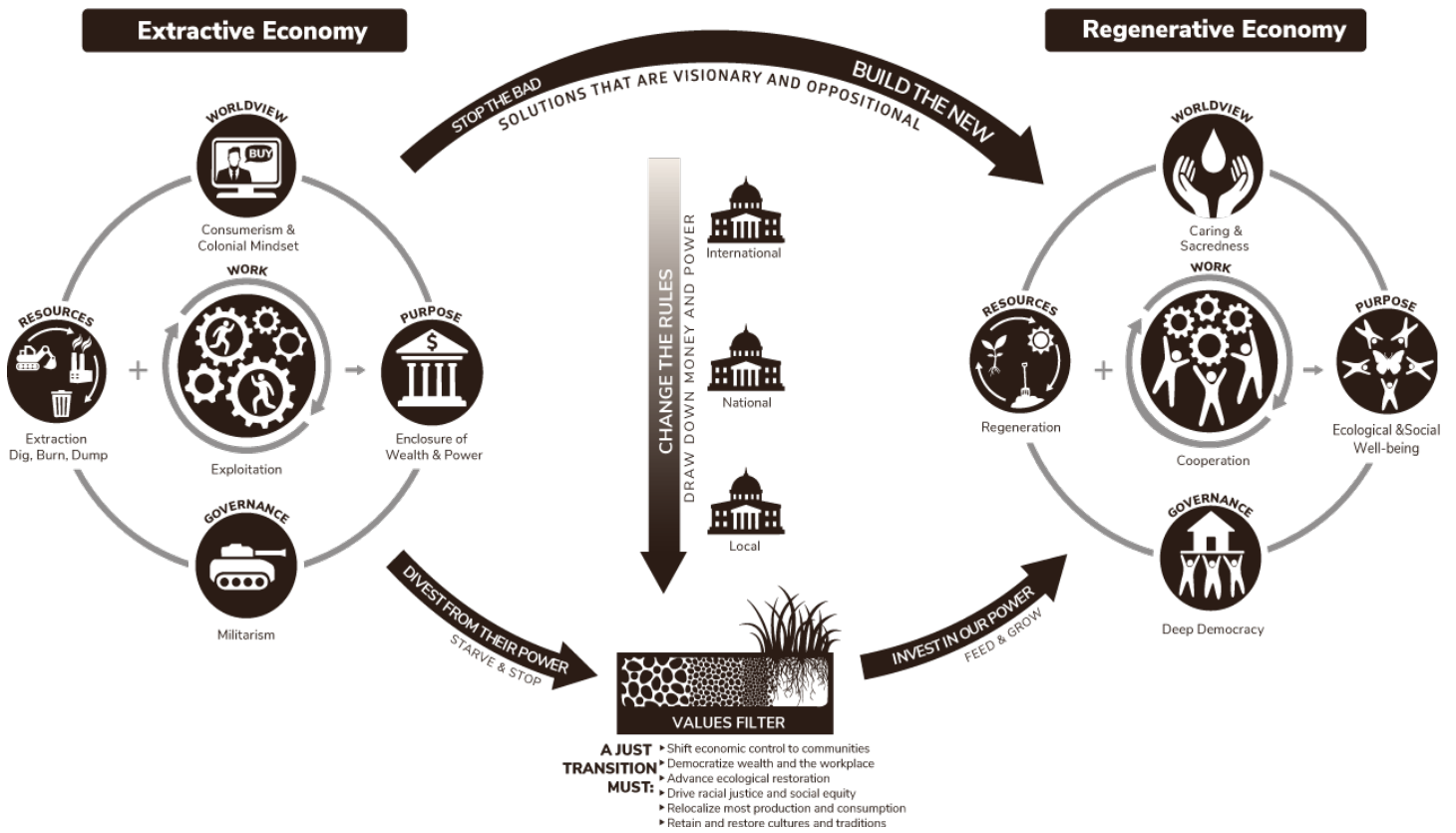
Introduction

The People's Solar Energy Fund (PSEF) is a cooperative of low income and black, indigenous and other people of color communities who are working together to build community ownership of solar.

This Guidebook shows you what it takes to start down the road to wealth building and energy sovereignty in your community. It's a hard path on your own, but just know, at PSEF, we're all on this road together.

We work together to provide peer technical assistance, training and financing for solar project development. We pool our solar projects into bundles several times a year so that we can access affordable project financing with low transaction costs that gives you ownership of your projects within seven years and the ability to manage your customer-member's solar subscriptions during the financing period.

Leaders in your nonprofit, cooperative or municipality can roll up your sleeves and learn to be solar developers or you can contract with a developer and pay them to develop your solar project for you. In both cases, you stay in the driver's seat. You hire and oversee the developer's work. You pay the developer rather than letting them foot the bill and earn the right to control the project. You stay in charge, determining what solar projects you want, where you want them, and who you want to have benefit from them.



PSEF is dedicated to a [Just Transition](#). Too many of the businesses in our world today exist to extract labor from people and materials from the natural world in order to create and hoard wealth for large corporations and wealthy individuals without regard for the devastation they leave behind. PSEF is dedicated to repairing the damage and building a regenerative economy based on cooperation and reverence for the natural world.

We hope you'll decide to be part of this movement for a Just Transition. Creating energy sovereignty and restorative justice as you build community owned solar for your community.

The PSEF Board

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PSEF Co-Managers

Lynn Benander and Gaya Sriskanthan

Many thanks to Janelle Orsi from the Sustainable Economies Law Center for her ingenious cartoons and for SELC's pioneering work that has helped make this work possible and to the work of the Seed Commons (The Working World) and their pioneering work that PSEF has learned so much from.

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Why Own Your Own Solar?

When your community owns your own solar, you decide where your solar will be built, who will get the jobs to build and maintain it, who will buy the power generated at what price, where the profits go and what policies and regulations to lobby for. You can create jobs, new businesses, end energy poverty, and deploy energy resources in an emergency that can save lives for people in your community. You can bring economic and political power to your community.

When your community owns its own utility, owning the electric poles and wires that deliver power to all of the homes and buildings in your community, you have the power to create an energy system that transitions quickly to clean energy, reinvests profits back into the community, provides valuable jobs to community members and works with elected officials and regulators to enact laws and policies that benefit your community. If you're part of a Rural Electric Cooperative, a Municipal Utility, or another Public Utility, you already own your utility. These cooperative or public utilities are governed by their members or by an entity controlled democratically by voters. If you are served by an investor owned utility, you can own your own solar directly or together with others by creating a consumer-owned energy cooperative.

If you don't own it, someone else does.

When a for profit investor owned utility owns your solar, you're dependent on them to treat you well, keep your homes warm in the winter and cool in the summer, hire people from your community to build and manage the solar power, and keep the power on in an emergency. We know that low income communities and communities of color are the first to lose power in an emergency and lives are lost as a result. For profit businesses exist to return profits to shareholders. They cut corners on maintaining their poles and wires, fail to invest in new technology, charge higher and higher rates for the electricity they sell in order to pay the salaries of corporate executives and increase shareholder profits.

This Guidebook is designed to help you understand how to own your own solar.

Readings

[Power Lines 101](#) - a guide to the power and influence of electric utilities by LittleSis

[Hookwinked in the Hot House](#) - false climate solutions by Indigenous Environmental Network

[Meta Strategies for a Just Transition](#) - effective strategies for transitioning to a more just and resilient economy by Climate Justice Alliance

[Tribal Utilities as a driver of tribal sovereignty and economic development](#) - by Baker Tilly

Glossary of Important Terms

BIPOC - Black, Indigineous, People of Color

Energy Democracy - Energy Democracy represents a shift from the corporate, centralized fossil fuel economy to one that is governed by communities, is designed on the principle of no harm to the environment, supports local economies, and contributes to the health and well-being for all peoples. (CJA definition)

Environmental Justice Communities - Environmental Justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. (EPA definition)

Extractive Economy - Exploitation - When businesses take money, labor, goods and services, and raw materials from communities and from the earth to concentrate wealth and power in the hands of a few.

Regenerative Economy - Cooperation - When people in vibrant communities live in harmony with the earth and each other and restore justice, restore ecosystems, rebuild communities, reverse climate change and embrace an earth-reverent way of life.

How do you finance and own solar projects?

A solar system for the average home costs \$12,250 to \$18,250 if it's built on your home. If it's part of a community shared solar system, the panels for each family cost \$10,000 or less because of economies of scale.

There are a few ways that you can purchase a solar array. Most of the solar we finance together at PSEF use all three of these strategies together in what's called a "capital stack".

- 1) You can pay for it directly. You can pool your savings and raise money from...
 - Crowdfunding
 - Grants and donations
 - Asking people to pay up front for the power they'll receive over the next few years
- 2) You can take out a loan to pay for it and repay the loan over time using the money you're saving on your electric bill.
- 3) For large community solar arrays, you can recruit an investor who will own the system on your behalf for five years, use the Investment Tax Credit and reduce their taxable income using depreciation on the array and sell it back to you for 5% of the Fair Market Value plus transaction fees plus any remaining debt. The tax equity investor pays for about 40% of the array and you pay them less than 10% of the array for the use of their money. It's complicated, but definitely helps you get an array at a reasonable cost.

What are the risks to owning a solar array?

PSEF struggles with people who say that people with limited resources should not take on the risk of owning anything. We disagree that only people with wealth should own everything in order to protect people with limited resources from having to pay for repairs, maintenance, other liabilities, and risk losing the asset if they can't meet the demands of ownership.

This is a widespread belief system in the US. In fact, it's central to the mindset that sentences communities to generations of poverty. PSEF believes that people with limited resources need to own income producing assets, so they can accumulate wealth and we can create a more just economy in the US.

While it is true that there are risks to owning anything, if you don't take the risks, you don't create wealth.

There are risks to owning a solar array. Here are some of the risks that are in your control:

- If you don't manage the billing and collection system well, then you don't have cash to pay your bills.
- If you aren't able to replace solar customers with new ones when they leave the program, then you won't be able to bring in the revenue you need to pay your bills.
- If your solar array needs maintenance or repairs and you're not paying attention, then you won't have enough kilowatt hours to sell to your customers and you don't have cash to pay your bills.
- If your installers don't know what they're doing or they cut corners at your expense, the array might not work dependably or it might cause harm to property owned by others or to people nearby. Any of these could turn out to be a big problem for you.

The truth is that few solar developers worry about these risks. If you follow sound business practices, you can prevent these situations from happening.

There are other risks that are not in your control.

- If your state allows your local electric company to pay you less for the electricity you're putting on the grid than its worth or if they allow the electric company to charge you extra fees or extra taxes, you might not have enough money to pay your bills.
- If electricity from the grid is cheaper than the energy from your solar project, you might not have enough money to pay your bills.

Electric rates have been steadily increasing for decades and are very likely to increase in cost. It would be quite unlikely for utilities to charge less given the increasing requirements for them to as we transition away from fossil fuels. If we're organized and ask our elected officials to ensure laws and regulations are in place to ensure solar remains viable, we can mitigate these risks too.

If any of these risks were big impediments to wealth creation there wouldn't be so many for-profit companies working to own solar arrays. This is a low risk and profitable business model. Low income and BIPOC communities have a right to benefit from their tax payer and rate payer investments and own their own solar.

PSEF is a cooperative of low income and BIPOC communities who are ready to work to mitigate the small risks of owning solar and help each other through tight spots so that we can maintain and grow low income and BIPOC community ownership of solar over time. PSEF exists to create generational wealth in low income and BIPOC communities, starting with community ownership of solar.

Steps to Own Your Own Solar

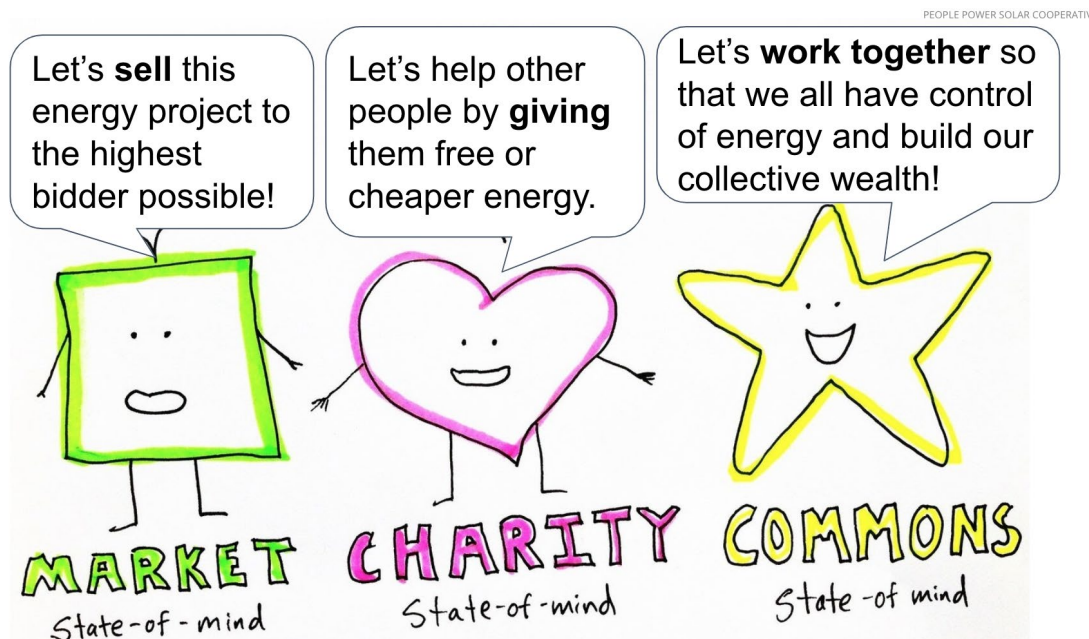
There are four phases you'll go through to own your own solar. As Members of PSEF, you'll have support from the other PSEF Members and from a PSEF TA Provider and PSEF Trainer to support you through the process.

Phase #1 - Organizing for Energy Democracy

First, you educate your community about Just Transitions, about how community ownership of solar is an antidote to the extractive energy economy that has harmed environmental justice communities across the US. This should help you see if your community is interested.

If there is interest, your community would then evaluate its energy needs and understand its solar and storage options and then work together to choose which solar options are the best suited for what you need.

This is the phase where you're developing the muscles you need to build energy democracy and climate justice in your community. This is a lot of work, but if the community doesn't understand what you're doing and if they're not active participants in the planning, design and implementation of their community solar projects, then you'll be nothing more than another company developing solar projects to sell to the community.



This work is not about selling solar credits. It's not about charity. It's about working together for a Just Transition, for Energy Democracy. It's about building and owning an energy commons that gives our communities control of the energy we depend on. It's part of a movement for community empowerment and ownership, where we own the things we depend on . . . our energy systems, food systems, our homes, our education and health care, our jobs... so that we can care for ourselves with dignity, sharing resources between regions around the world, working together for the common good, building collective wealth, equity, and restorative justice.

Phase #2 - Choosing your Ownership Organization

If you're going to own solar projects to meet your community's energy needs, you'll need an organization to own it on your behalf. You'll want the leaders of that organization to represent your community, to be accountable to your community, to be committed to your mission and vision, to ensure promises made to people in your community are kept, and to ensure the community is informed and involved in the development process and ongoing operations. You can work through an existing organization or you can form a new one.

How can you ensure an organization will do this for decades going forward? Well, it's actually no easy task. If you choose a for-profit, you'll have little recourse if they stray off course. But if you choose a nonprofit, cooperative or public ownership structure, you can use the provisions in the by-laws to ensure community needs are being served.

Nonprofits, cooperatives and public entities that have been set up to serve us can also sometimes fail to serve their communities and they feel more like an occupying force than an organization established for the common good.



The truth is that our nonprofits, cooperatives and public entities are only as good as we require them to be.

And so, no matter what entity we work with or create to own our solar projects, we do have to use the tools of democracy to keep it accountable to our community's needs, to ensure the benefits we created our solar projects for are delivered. If you establish a member-focused, community-focused, common good-focused culture of democratic participation, with ongoing member education and community service right from the beginning, you won't have to work so hard to call it back to its founding mission later on.

So, in this phase, you figure out which nonprofit, cooperative or public entity in your community or in your region would make the best host for your solar projects. If there's not an obvious choice, you establish a new energy cooperative or a public or tribal utility to own your solar projects. Your PSEF Technical Assistance Provider and Trainer can work with you to understand the options and establish your ownership entity using best practices to build a culture that will keep it democratically accountable to your community.

Phase #3 - Developing Solar Projects

Milestones

Solar development projects go through a number of important milestones.

Community Planning: Circle back to the community planning to coordinate a democratic process to determine what kind of community solar project you will build.

Secure the Solar Sites: Secure a signed agreement with the site owners where you want to build your solar projects. Once you secure your site(s), you can apply for a forgivable loan from PSEF to cover the costs of project development until you're able to finance your project. Your project then becomes part of the PSEF aggregation of projects and members work together to get the lowest cost financing available for you when your project is ready to finance in a few months.

Hire your EPC: Hire an EPC (the Engineering, Procurement, and Construction company that will design your system, train new workers, purchase the equipment, and build the system).

Design the Solar System: Have your EPC design the system according to your specifications.

Secure your Permits and Interconnection Agreements: Secure your permits from the town and your interconnection agreement from the local utility giving you permission to connect to the grid.

Sign up your Members: Recruit and sign-up members who will use the power you're producing in your solar array.

Secure Incentives: Secure agreements for any incentives available from your local, state, and federal government and from your utility.

Secure Financing: Secure financing for your project with help from the other Members of PSEF as part of a larger aggregation of solar projects.

Train Workers and Build your Solar Arrays: Once you have the money to build your solar array(s), you train people in your community to work on the system, have the equipment delivered to the site, and have people in your community work with your EPC to install the system.

Power up your Solar Arrays: Once the system is built, your town/city inspectors come to see that it's all been installed according to their specifications and your utility will come to inspect and commission the system. When it's ready to turn on, your utility will give your system PTO (Permission to Operate) and your EPC will turn it on.

The community support saves you a lot of time and money in this Solar Project Development Phase. Community members help identify great solar sites. They talk with their landlords, their elected officials, the businesses they patronize, people who go to their house of worship, one of their colleagues and find all of the best solar locations in their community. They have relationships with the town planner, the electrical inspectors, people who work at the utility and they can speed up the permitting processes and the process for getting an interconnection agreement with your utility that allows you to connect your solar array to the grid and access state and federal solar incentives that are required to build your solar arrays. And, they can sign up

their neighbors and friends and colleagues and fill the solar subscriptions in a snap. They aren't selling those subscriptions, they're just letting people they know and love about a great opportunity.

Your Solar Project Team

You'll set up a team at the beginning to oversee the development of your solar projects. You'll recruit at least five team members to serve in the key roles required for successful solar project development.

You'll need a team member to take on each of these Roles. They don't have to be experts in these areas. They just need to be someone who wants to learn more about the role so that, over time, your team will have the expertise needed to oversee the development of solar projects on your own.

- **Team Builder** - organizes the team to get the milestones completed and get the energy co-op up and running
- **Community Organizer** - organizes the community around the community owned solar project to be built
- **Workforce Developer** - builds relationships with prospective job trainees, conducts job training and oversees job placement
- **Policy and Legal Expert** - researches and understands local solar ordinances and policies as well as incentives; coordinates pro bono legal team to negotiate contracts on behalf of the Community Energy Co-op
- **Solar Technician** - resident expert in solar design and modeling to oversee EPC and ensure the EPC's work is aligned with community needs
- **Business/Financier** - oversees business model development and financial projections

These **Team Members** play different roles for each Milestone:

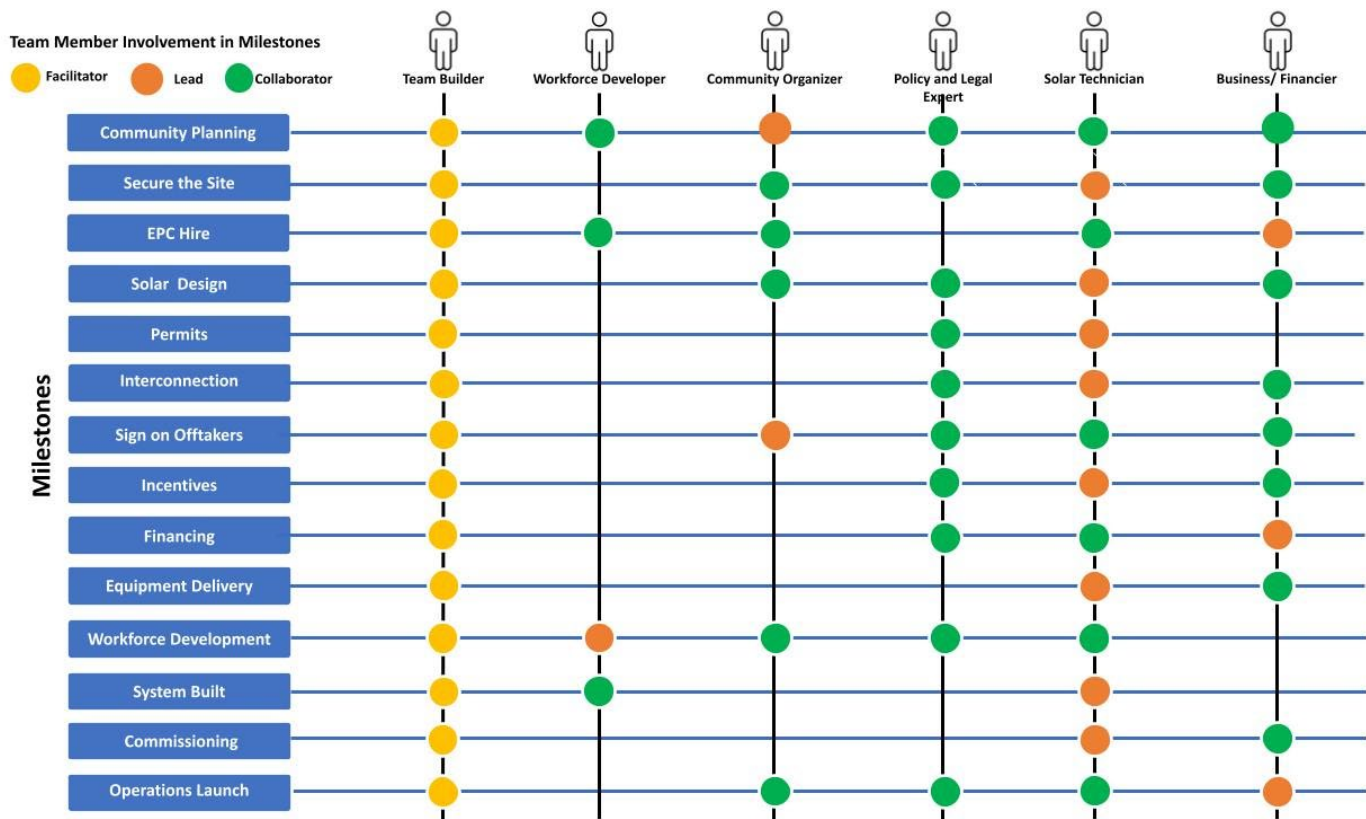
- **Lead** - The project manager that gets the project through this milestone (content)
- **Facilitator** - Convenes the Lead and Collaborators to work on each milestone (inclusive process)
- **Collaborator** - Plays a key role in helping the lead accomplish the milestone (supporters)

Ownership Organization you set up in Phase 2 -- The entity that will own the energy assets on behalf of the community, that's organized with a not-for-profit mission, that exists for the common good (a nonprofit, cooperative or municipality). This entity will have a **Board of Directors** that represents the community and negotiates and signs the project legal documents.

PSEF staff and consultants who support Community Based Solar Developers and help them get their projects done well:

- **TA Provider** -- The PSEF TA Provider who is walking you through each step of the solar development process, assisting you in achieving each milestone.
- **Trainer** - TA Providers also help you access training materials and set you up with a Trainer to help you learn more about each development stage.

Here's a chart that shows how each of these Solar Project Team members participate in the activities in each Milestone. The Team Builder serves as the facilitator (yellow) for all milestones. Each of the other team members take turns taking the lead (orange) on the milestones included in their role and they collaborate (green) on the other milestones related to their role.



Phase #4 - Operating Your Solar Array

People Power



Once we've built a solar array we start delivering benefits to our community.

First we set up Operations.

- Customer/Member Service - Staying connected with your Members. Giving them ongoing status reports. Providing networking and education opportunities. Answering their questions. Solving any problems they may have. Looking for other ways to bring your community benefits.
- Solar Subscription Management - PSEF has software you can use to manage all of your solar subscribers - communicating with the utility about your subscribers, sending your subscribers bills each month for the power they receive or for the credits on their electric bills, crediting their accounts, tracking the benefits they receive.
- Solar Asset Management - Monitoring your solar arrays to ensure they're working properly, producing the power projected. Contacting your maintenance contractors if something goes wrong.
- Financial Management - Reporting to the board about the financial health of your organization. Paying bills. Monitoring the amount the utility is crediting on accounts to ensure all is being done properly.

We continue our Energy Democracy programs and Governance structures.

- Establish Board Meeting Schedules, Member Orientations and Member Meeting Schedules.
- Crafting Agendas for each meeting to support ongoing education and authentic Cooperative Member Ownership.

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- Providing ongoing opportunities for Member education, consultation and feedback.

Then we drive Economic Power to our community. We...

- Create jobs and provide training and support for people in our community to succeed in them
- Eliminate fuel poverty by providing affordable electricity, energy efficiency, and other home upgrades
- Prepare life saving services for power outages
- Share profits and invest in our community

And we drive Political Power to our community. We...

- Tie into our power base - connect with other groups in the movement for Energy Democracy, Climate Justice, Economic and Social Justice
- Establish community friendly federal, state, local and utility legislation and regulations

And we collect data, establish clear success measures, and provide easy to access reports to let the board and members know how well we're building economic and political power in our community.

Financing - Loans for PSEF Members

The People's Solar Energy Fund (PSEF) is a nonprofit cooperative of BIPOC communities and Multi-Race, Multi-Class Energy Cooperatives who came together to bring innovative financing strategies to support community-led, community-owned solar in low income and BIPOC communities in the US. After years of financing projects as one-offs, we've pooled our resources and our projects to create rinse and repeat financing tools for the communities we serve.

PSEF Membership is open to any non-profit, cooperative, or municipal organization that is interested in developing community-led, community-owned solar that's accessible to low income and BIPOC communities.

Here's an overview of the 5 loans we have developed to offer our Members:

PHASE THREE: PRE-DEVELOPMENT FUNDED WITH SHORT TERM DEBT

Once you have a building owner or landowner willing to send you a letter that says they are willing to let you build a solar array on their property, you can apply for a Pre-Development Loan. You commit to seeing the project through to completion if the project is feasible. The loan can be forgiven if the project turns out not to be feasible. We are thinking we will have a 2% closing fee and an 8% interest rate so that we can generate money to pay staff to process these loans and have enough to replenish the loan pool for the loans we need to forgive. We're expecting loans to be repaid within six months for small projects and within two years for larger projects.

- The **Forgivable Pre-Development Loan** gives you money so that you can:
 - sign a lease agreement
 - educate your community about community-led, community-owned solar and work with them to establish the goals and parameters for your project(s)
 - create an RFP to recruit a solar installer including the community goals and parameters and the workforce training requirements
 - recruit and sign a contract with an installer
 - oversee your installer designing the system
 - oversee your installer securing the permits, interconnection agreement with the utility, and state/utility incentive agreements
 - recruit and sign agreements with the people/businesses who are going to pay you for the power produced by the array at a discount off their electric bill
 - work with CEF to put together a full set of financial projections once you have all the costs confirmed (or do the financials on your own)

PHASE THREE: CONSTRUCTION FUNDED WITH SHORT TERM DEBT

Once you've completed all of the Pre-Development tasks, you'll be ready to close on financing. All of the loans for both construction and operations are closed at the same time. Construction loans are short-term loans. We're expecting these loans to be repaid within six months for small projects and within two years for larger projects.

- The **Construction Loan** pays back the Pre-Development Loan and gives you money to build and commission the system.

PHASE FOUR: PROJECT FINANCING FUNDED WITH LONG-TERM DEBT

Once you've completed construction, the **Sponsor Equity Loans**, **Term Loans**, and **Tax Equity investments** give you money to repay the Construction Loan and fund operations.

- The Sponsor Equity Loan lends you money to pay for your downpayment on the solar array if you're unable to raise the money from your members or from grants. It's paid in as soon as you're able to raise it because it's your lowest cost capital and the most forgiving.
- The money people/businesses pay for the power produced by the array pays back the Term Loan, Sponsor Loan, and Tax Equity Investment

Here's a copy of the [loan agreements](#) you'd sign to access these loans.

PHASE FOUR: PROJECT FINANCING FUNDED WITH TAX EQUITY

PSEF works with you to secure tax equity for your solar projects. Tax equity is less expensive than debt, so it's often useful to bring into your project. There are several different models for tax equity financing. Here's a good [reference document](#) that describes the different models. PSEF's preferred model is the tax equity partnership flip model because communities gain the most economic value using this model. Here's a good reference document that describes the [tax equity partnership flip model](#).

In the partnership flip model, tax equity provides 30-40% of the total project costs and is invested after the project has been built. Most PSEF members have secured tax equity investments for closer to 40% of the project costs. The project term debt and equity first repay the pre-development loan and construction loan, fund required reserves, and provide the capital to launch operations at the closing. PSEF members have secured tax equity with no closing costs and a dividend as low as 2% a year for five years. Tax equity investors can also charge a lot more, depending on the investor.

One of the most valuable member benefits for being part of PSEF is being able to secure debt and equity for your projects as part of a project bundle. When we can put together a bundle of 10 to 20 MW's, we can access lower cost financing for all of our projects.

You can access PSEF's training materials on how to recruit a tax equity investor locally, bring on an attorney (often pro bono support is available) and get support from your TA provider to negotiate tax equity financing for your project (like becoming a mechanic to fix your car.)

OR

You can contract with PSEF staff to talk with potential tax equity investors you've identified or other potential investors to negotiate tax equity financing for your project on your behalf (like hiring a mechanic to fix your car.)

OR

You can contract with PSEF to add your project to the next bundle of projects to access low-cost tax equity and debt terms that will result in the lowest ownership cost to you after the financing period.