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Guide to Community Solar: Utility, Private, and Non-Profit Project Development

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A Guide to Community Solar:

Utility, Private, and Non-profit Project Development

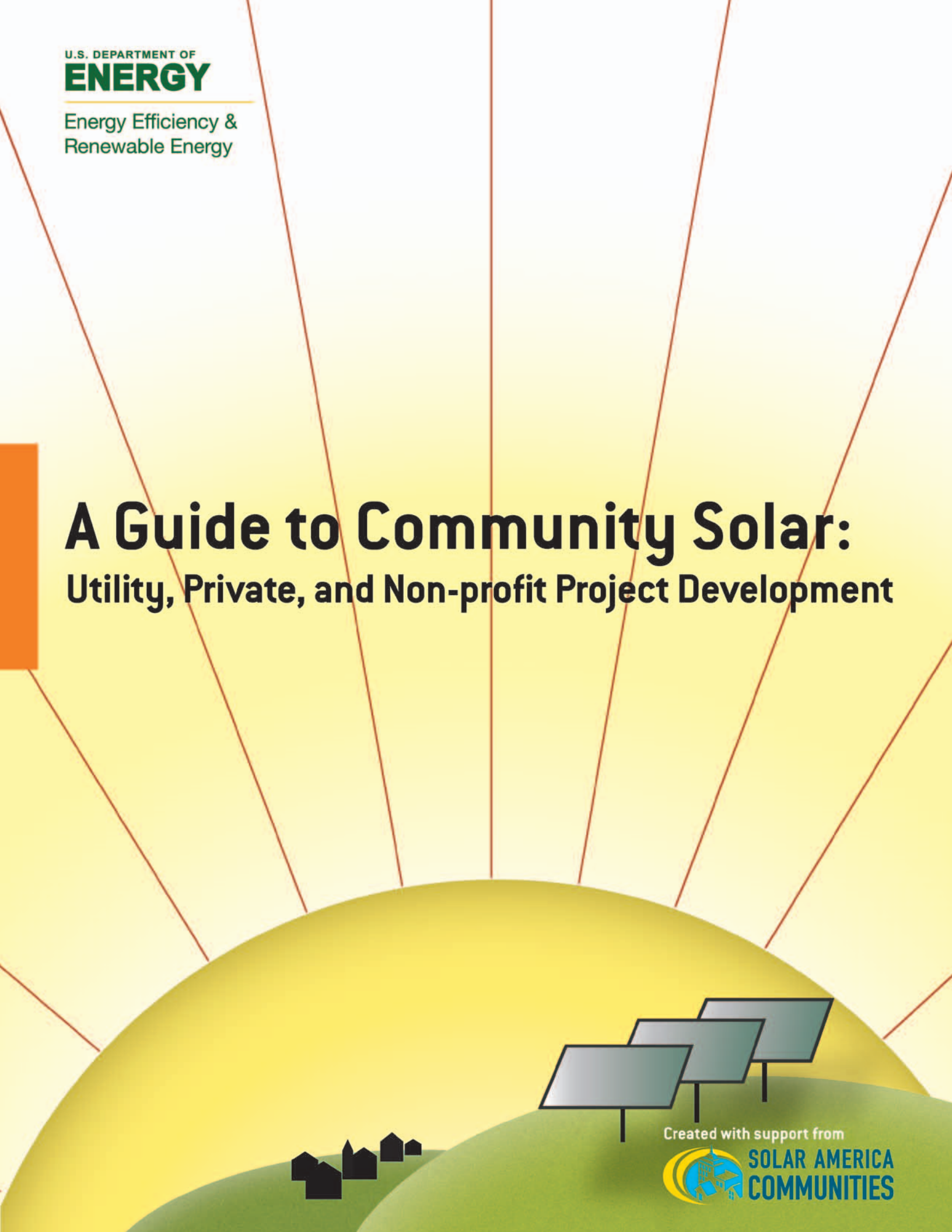

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TABLE OF CONTENTS

Introduction

PURPOSE

In communities across the United States, people are seeking alternatives to conventional energy sources. Whether they aim to increase energy independence, hedge against rising fuel costs, cut carbon emissions, or provide local jobs, they are looking to community-scale renewable energy projects for solutions. Advances in solar technology, an increase in federal and state tax incentives, and creative new financing models have made solar projects including community solar projects, more financially feasible.

This guide is designed as a resource for those who want to develop community solar projects, from community organizers or solar energy advocates to government officials or utility managers. By exploring the range of incentives and policies while providing examples of operational community solar projects, this guide will help communities to plan and implement successful local energy projects. In addition, by highlighting some of the policy best practices, this guide suggests changes in the regulatory landscape that could significantly boost community solar installations across the country.

HOW TO USE THIS GUIDE

The information in this guide is organized around three sponsorship models: utility-sponsored projects, projects sponsored by special purpose entities – businesses formed for the purpose of producing community solar power, and non-profit sponsored projects. The guide addresses issues common to all project models, as well as issues unique to each model.

The guide begins with examples of the three project sponsorship models, discussing the legal and financial implications of each model. This is followed by a discussion of some state policies that encourage community solar – ways for multiple individuals to share in the benefits of a single solar installation. The guide then reviews some of the tax and financing issues that impact community solar projects. While the guide cannot offer legal or tax advice, the authors hope to provide an outline of the legal hurdles and pitfalls that every project organizer should consider. Finally, the "Getting Started" section provides readers with practical tools and tips for planning their own project. The Appendices provide a more detailed comparison of business structures suitable for special purpose entities pursuing solar projects and the Interstate Renewable Energy Council's Model Community Renewables Program Rules.

This guide cannot possibly describe all available incentives or cite all the examples of community solar efforts nationwide. To track the most recent developments, we refer the reader to resources in Section 7.

WHY "COMMUNITY" SOLAR?

For the purpose of this guide, Community Solar is defined as a solar-electric system that, through a voluntary program, provides power and/or financial benefit to, or is owned by, multiple community members. Community Solar advocates are driven by the recognition that the on-site solar market comprises only one part of the total market for solar energy. A 2008 study by the National Renewable Energy Laboratory found that only 22 to 27% of residential rooftop area is suitable for hosting an on-site

photovoltaic (PV) system after adjusting for structural, shading, or ownership issues.[i] Clearly, community options are needed to expand access to solar power for renters, those with shaded roofs, and those who choose not to install a residential system on their home for financial or other reasons. Fairness also supports expanding programs in ways that increase options for participation. As a group, ratepayers and/or taxpayers fund solar incentive programs. Accordingly, as a matter of equity, solar energy programs should be designed in a manner that allows all contributors to participate.

This guide focuses on projects designed to increase access to solar energy and to reduce up-front costs for participants. The secondary goals met by many Community Solar projects include:

- Improved economies of scale
- Optimal project siting
- Increased public understanding of solar energy
- Generation of local jobs
- Opportunity to test new models of marketing, project financing and service delivery

Creative mechanisms to foster greater deployment of solar energy projects are not limited to those described in this guide. Readers may be interested in investigating the following efforts that employ some elements of community solar:

- Bulk purchasing efforts in Portland, OR (Solarize Portland!) and nationwide (1BOG)
- Solar services co-ops such as Cooperative Community Energy, CA
- Utility-owned distributed generation on customer rooftops, such as the Arizona Public Service Community Power Project

DEFINITION OF KEY TERMS

The following terms are defined in the context of community solar.

Renewable Energy Credits (RECs, carbon offsets, or green tags): A renewable energy facility produces two distinct products. The first is electricity. The second is the package of environmental benefits resulting from not generating the same electricity– and emissions –from a conventional gas or coal-fired power plant. These environmental benefits can be packaged into a REC and sold separately from the electrical power. A REC represents the collective environmental benefits, such as avoided mercury, CO_2 and other environmentally harmful pollutants, as a result of generating one megawatt-hour (MWh) of renewable energy.

In most cases, RECs are sold on a per MWh basis. However, some project organizers choose to sell all future rights to RECs up front, on a per installed watt basis, effectively capturing an installation rebate and forgoing any future revenue from REC sales.

Net metering: Most on-site renewable energy systems use net metering to account for the value of the electricity produced when production is greater than demand. Net-metering allows customers to bank this excess electric generation on the grid, usually in the form of kilowatt-hour (kWh) credits that can be used as needed during a given period. Essentially, whenever the customer's system is producing more energy than the customer is consuming, the excess energy flows to the grid and the customer's meter

runs backwards. Because this "netting of energy" results in the customer purchasing fewer kWhs from the utility, the electricity produced from the renewable energy system can be valued at the retail price of power. Most utilities have a size limit for net metering. Community Solar project organizers should be sure to check before assuming participants in a community solar system can net-meter. It may be that some alternative arrangement, such as group billing or joint ownership, is used to account for the value of the electricity produced by a community solar project.

Tax appetite: Individuals and businesses can reduce the amount of taxes owed by using tax credits. For a tax credit to have any value, though, the individual or business must actually owe taxes. If they are tax-exempt or merely lacking sufficient income to need tax relief, the tax credits have no value. Individuals or businesses that can use tax credits to reduce the amount they owe in taxes are said to have a "tax appetite." For example, public and non-profit organizations are tax-exempt and therefore do not have a tax appetite. In addition, tax-paying entities might be eligible to use tax-based incentives, but have insufficient tax appetite to make full use of them.

Investment Tax Credit (ITC): Section 48 of the Internal Revenue Code defines the federal ITC. The ITC allows commercial, industrial, and utility owners of photovoltaic (PV) systems to take a one-time tax credit equivalent to 30% of qualified installed costs. There is also a federal residential renewable energy tax credit (Internal Revenue Code Section 25D) but the residential tax credit requires that the PV system be installed on a home the taxpayer owns and uses as a residence, thus it would rarely, if ever, be applicable to community solar projects.

Power purchase agreement (PPA): A PPA is an agreement between a wholesale energy producer and a utility under which the utility agrees to purchase power. The PPA includes details such as the rates paid for electricity and the time period during which it will be purchased. Sometimes, the term PPA or "3rd Party PPA" is used to describe the agreement between the system owner and the on-site system host, under which the host purchases power from the system. This arrangement is not explicitly allowed in all states; in some states it may subject the system owner to regulation as a utility. To avoid confusion, in this guide, a PPA refers only to an agreement by a utility to purchase power from the solar system owner.

Solar services agreement (SSA): A solar services agreement is an agreement between the system owner and the system site host, for the provision of solar power and associated services. The system owner designs, installs, and maintains the system (a set of solar services) and signs an agreement with the host to continue to provide maintenance and solar power. The agreement is sometimes referred to as a PPA, but in this guide, we use the term SSA to indicate that the agreement between the system owner and the system site host is more than a power purchase: it is an agreement that the system owner will provide specific services to ensure continued solar power.

Securities: A security is an investment instrument issued by a corporation, government, or other organization that offers evidence of debt or equity. Any transaction that involves an investment of money in an enterprise, with an expectation of profits to be earned through the efforts of someone other than the investor, is a transaction involving a security. Community solar organizers must take care to comply with both state and federal securities regulations, and preferably, to steer clear of inadvertently offering a security. (Further information on securities is provided in Section 4, Tax Policies and Incentives.)

United Power's Sol Partners Installation, Colorado

Community Solar Project Models

People have many reasons for organizing or participating in a community solar project. Just as their motives vary, so do the possible project models, each with a unique set of costs, benefits, responsibilities, and rewards. This section reviews several project models:

- **Utility-Sponsored Model**, in which a utility owns or operates a project that is open to voluntary ratepayer participation.
- **Special Purpose Entity (SPE) Model**, in which individual investors join in a business enterprise to develop a community solar project.
- **Non-Profit "Buy a Brick" Model,** in which donors contribute to a community installation owned by a charitable non-profit corporation.

The authors of this guide hope to illustrate the pros and cons of different sponsorship models, as well as the variations within project models, so that project planners can select the model and variations that best suit their situation and goals. Before selecting a project model, every planner should consider the following issues:

Allocation of Costs and Benefits. Who will pay to plan, construct, and operate the solar system? Who will have rights to benefits, including the electricity produced, RECs, revenue from electricity sales, tax benefits, other incentives, and ownership of the project's assets (such as the solar system itself)? A table at the end of this section summarizes the options for allocating benefits within the structure of each sponsorship model.

Financial and Tax Considerations. Will money be raised through a solar fee on electricity bills, by equity or debt financing of a business entity, through charitable donations, or various other options? What kind of tax implications will there be for participants—e.g., will the project generate taxable income for participants? Will it generate tax credits or deductions for participants?

Other legal issues. How will the project design address securities regulation, utilities regulation, business regulation, and the complexity of agreements between various project participants?

The chart on the following page compares aspects of the three sponsorship models.

COMPARISON OF MODELS

Administered by	Utility	Special Purpose Entity	Non-profit
Owned by	Utility or 3rd party	SPE members	Non-profit
Financed by	Utility, grants, ratepayer subscriptions	Member investments, grants, incentives	Donor contributions, grants
Hosted by	Utility or 3rd party	3rd party	Non-profit
Subscriber Profile	Electric rate payers of the utility	Community investors	Donors
Subscriber Motive	Offset personal electricity use	Return on investment; Offset personal electricity use	Philanthropy
Long-term Strategy of Sponsor	Offer solar options Add solar generation (possibly for Renewable Portfolio Standard)	Sell system to host Retain for electricity production for life of system	Retain for electricity production for life of system
Examples	Sacramento Municipal Utility District – Solar-Shares Program United Power Sol Partners	University Park Community Solar, LLC Clean Energy Collective, LLC	Solar for Sakai

UTILITY-SPONSORED MODEL

For communities desiring to organize a community solar project, the local electric utility is a good place to start. First of all, utilities are likely to have the legal, financial and program management infrastructure to handle organizing and implementing a community solar project. Second, many utilities are actually governed by their member-customers and can be directed to pursue projects on their members' behalf. Fully one-fourth of Americans own their own electric power company, through co-ops, or city- or county-owned utilities.[ii] And, in general, publicly owned utilities have taken the lead in deploying community solar projects. But even when the utility is investor-owned or privately held, it may wish to expand customer choice with an option for community solar power. [iii]

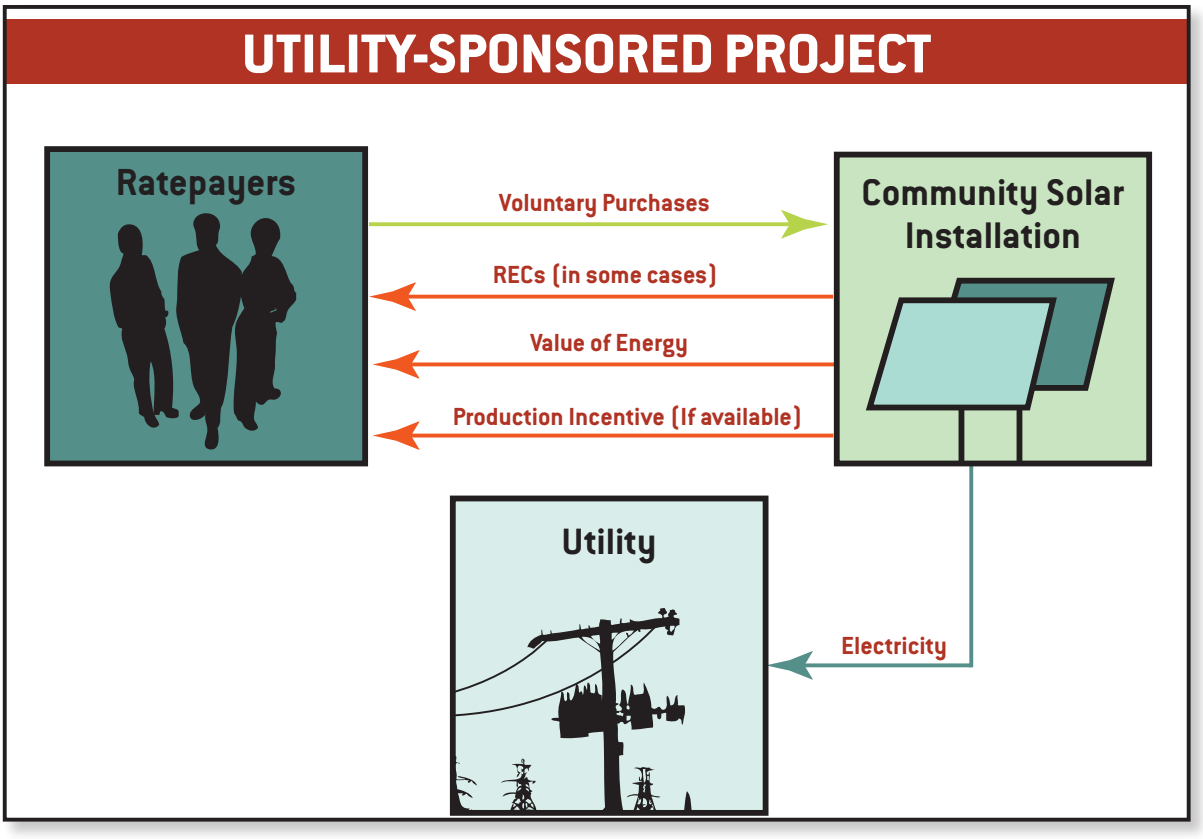
ENROLLMENT OPTIONS

- *Single payment up-front*
- *Payment spread out on Installment Plan*
- *Monthly subscription (no up-front fee)*

OVERVIEW

In most utility-sponsored projects, utility customers participate by contributing either an up-front or ongoing payment to support a solar project. In exchange, customers receive a payment or credit on their electric bills that is proportional to 1) their contribution and 2) how much electricity the solar project produces. Usually, the utility or some identified third party owns the solar system itself. The participating customer has no ownership stake in the solar system. Rather, the customer buys rights to the benefits of the energy produced by the system. Note that utility-sponsored community solar programs are distinct from traditional utility "green power" programs in that "green power" programs sell RECs from a variety of renewable energy resources; utility community solar programs sell energy or rights to energy from a specific solar installation, with or without the RECs.

Utility-sponsored programs can help make solar power more accessible by decreasing the amount of the purchase required, and by enabling customers to purchase solar electricity in monthly increments. Both Sacramento Municipal Utility District's Solar Shares and Tucson Electric Power's upcoming Bright Tucson programs allow customers to participate in community solar on a monthly basis.



TAX AND FINANCE ISSUES FOR UTILITY-SPONSORED PROJECTS

A utility project's ability to use tax incentives will depend on the individual utility's characteristics. Electric co-ops, municipal utilities and public utility districts are exempt from federal income taxes and thus cannot benefit from federal tax incentives, like the ITC and depreciation. However, they can make use of Clean Renewable Energy Bonds (CREBs) that are not available to the for-profit investor-owned or privately held utilities.

Since 2008, investor-owned utilities have been eligible to use the commercial ITC on qualifying public utility property. And as tax-paying entities, they potentially have the tax appetite to make use of them. However, normalization accounting rules limit regulated utilities' flexibility in maximizing the value of these tax benefits compared to other private developers. Normalization rules require regulated utilities to spread the benefits of investment tax credits throughout the useful life of the solar project in their rate-making process. The utility's incentive for investment is the difference between the value it receives from the tax credit up front and the value it passes on to customers over time (i.e. the time value of money). Private developers have the flexibility to pass on the benefits of the ITC sooner, which can give them a price advantage over utility solar projects. [iv]

Other legal issues for utility-sponsored projects include the following:

- **Securities Compliance**. In designing mechanisms for customer participation in solar projects, utilities must be careful to comply with securities regulations. This requires carefully considering what benefit a customer-participant receives in exchange for a financial contribution to the project and how the project is marketed. For example, customer participants may buy ownership stakes in the solar system itself or just the rights to certain benefits from the energy produced (such as credit on their electric bills, RECs, or access to a special electric rate). To avoid any appearance of selling securities, the Sacramento Municipal Utility District (SMUD) chose not to sell actual ownership of panels, but instead to credit customers for an estimated monthly output of solar electricity, specified in advance of enrollment.

- **Allocation of Incentives**. In addition to federal tax incentives, a utility-sponsored project might be eligible for a variety of state incentive programs that provide cash benefits or savings to the project. The utility must consider whether and how these incentives will be passed on to customer participants and the tax implications of how the incentives are handled. For example, in Washington State, participants in a utility-sponsored program are eligible for production incentives. While the state Department of Revenue has ruled that the incentive is not taxable, the IRS has not ruled definitively on whether or not subsidies for solar PV in community solar installations are taxable income, although the precedent is that subsidies for energy conservation measures are not taxable.[v]

- **RECs.** Customer participants in utility-sponsored projects often desire to claim the environmental benefits of using solar energy. They can only make such a claim if they receive RECs or the utility retires the RECs on their behalf. If the utility keeps the RECs for any reason, including Renewable Portfolio Standard compliance, only the utility can make environmental claims related to the solar system. The utility-sponsored project should consider and make explicit how RECs are allocated.

From a participant perspective, the tax implications are minimal.[vi] Bill credits for the value of electricity are not generally taxed; at the same time, participants in a utility-sponsored project are not eligible for the federal investment tax credit. The relative ease of participating in a utility-sponsored project may offset some of the foregone tax incentives available under other community solar ownership models.

EXAMPLES OF UTILITY-SPONSORED PROJECTS

The following examples highlight some of the project options available to those planning a utility-sponsored project.

Sacramento Municipal Utility District (SMUD): SolarShares Program

SMUD has long been a leader in solar energy deployment. The SolarShares program allows customers to purchase output from a solar project on a monthly basis. Rather than own the system, SMUD contracted with a solar developer, enXco, to build, own, and maintain a 1-MW system. enXco sells the power to SMUD under a twenty-year power purchase agreement. The electricity from this system is fed directly into the grid and SMUD uses this solar-generated electricity as the basis for its SolarShares program.

Courtesy of Rachel Huang, Sacramento Municipal Utility District

Customers pay a fixed monthly fee, based on both the amount of PV to which they want to subscribe (from 0.5 to 4 kW) and their average electricity consumption. In order to encourage conservation, SMUD makes the SolarShares less expensive for their customers who use less electricity. Once enrolled, a customer is locked in at the fixed monthly fee, for as long as they wish to participate. They receive monthly kWh credits for the estimated output of their solar subscription. Although customers currently pay a premium for solar energy, the effective rate for solar is locked in when they enroll, which maintains the ability of solar to act as a hedge against future price increases. The program is fully subscribed, with approximately 700 residential SolarShares customers. Customers can join a waiting list, and enroll when current customers drop or move out of the territory. SMUD is making plans for expansion of up to 25 MW over the next few years.

PROGRAM HIGHLIGHTS

- System Owner: enXco, with SMUD purchasing 100% of the output under a 20-year PPA
- Installed Capacity: 1 MW
- Participant Agreement: Customers pay a fixed monthly fee in return for a kWh credit. Credit varies monthly, as solar output varies, so a 12-month consecutive commitment is requested.
- Electricity: The estimated kWh generated by a customer's share is netted against his or her consumption at home, at the full retail rate.
- RECs: Retained by SMUD
- Number of Participants: Approximately 700

FINANCIAL DETAILS

- Installed Cost: NA
- Capital Financing: Handled by 3rd Party, enXco
- Tax Credits: 30% federal Business Investment Tax Credit taken by enXco, MACRS taken by enXco
- Estimated Annual Cost: Varies by customer size & array size; Output from a 0.5-kW share for the small user will cost $129/yr at today's prices. As the price for non-solar energy rises, a participant could eventually realize monthly savings on their solar purchase.

For More Information: Rachel Huang, rhuang@smud.org, (916) 732-6930, www.smud.org/

United Power: Sol Partners Cooperative Solar Farm, Colorado

United Power is a rural electric co-op[vii] serving homes and businesses throughout Colorado's northern front range. The Sol Partners Cooperative Solar Farm is located on United Power's property in Brighton. Under a program launched in the summer of 2009, co-op members can license solar panels for a 25-year period and receive credit for all the power generated by their panels. Rather than net the kWh produced by the panels against the customer's personal electricity usage, the utility will bill the customer as usual, but then add a credit at the community solar rate, which is slightly above the full retail rate.

The program will "grow as you go" with new customers providing the funds for future expansion. Although the second phase will be considerably less expensive to build, the customer agreement will be the same for both Phase I and II. Customers may lease multiple panels, up to 10 kW for residential and 25 kilowatts for commercial.

Courtesy of Jerry Marizza, United Power, Inc

PROJECT HIGHLIGHTS

- System Owner: United Power
- Installed Capacity: 10 kW with plans for Phase II
- Participant Agreement: One-time fee to lease a 210-watt panel for 25 years
- Electricity: Customers receive a monthly bill credit for the value of their panel's production at a solar rate, slightly above the retail rate (currently 11 cents per kWh vs. 10.5 cents retail)
- RECs: Retained by United Power
- Number of Participants: 25

FINANCIAL DETAILS

- Total Installed Cost: Phase I: Approximately $10/watt. Phase II: $5.50/watt
- Capital Financing: Utility financed
- Tax Credit: NA (tax-exempt)
- Grants: $50,000 from State Governor's Office for design
- One-time Subscription cost: $1,050
- Value of electricity credits over 25 years: $900 assuming a constant solar credit rate (but this solar credit rate will likely rise, as will the retail rate)

For More Information: Jerry Marizza, newenergy@unitedpower.com, (303) 637-1250, www.unitedpower.com/

OTHER UTILITY-SPONSORED COMMUNITY SOLAR PROJECTS
City of Ellensburg, WA; Florida Keys Electric Co-op, FL; St. George SunSmart, UT; City of Ashland, OR
***Coming Soon:** Seattle City Light, WA; Tucson Electric Power, AZ*

SPECIAL PURPOSE ENTITY (SPE) MODELS

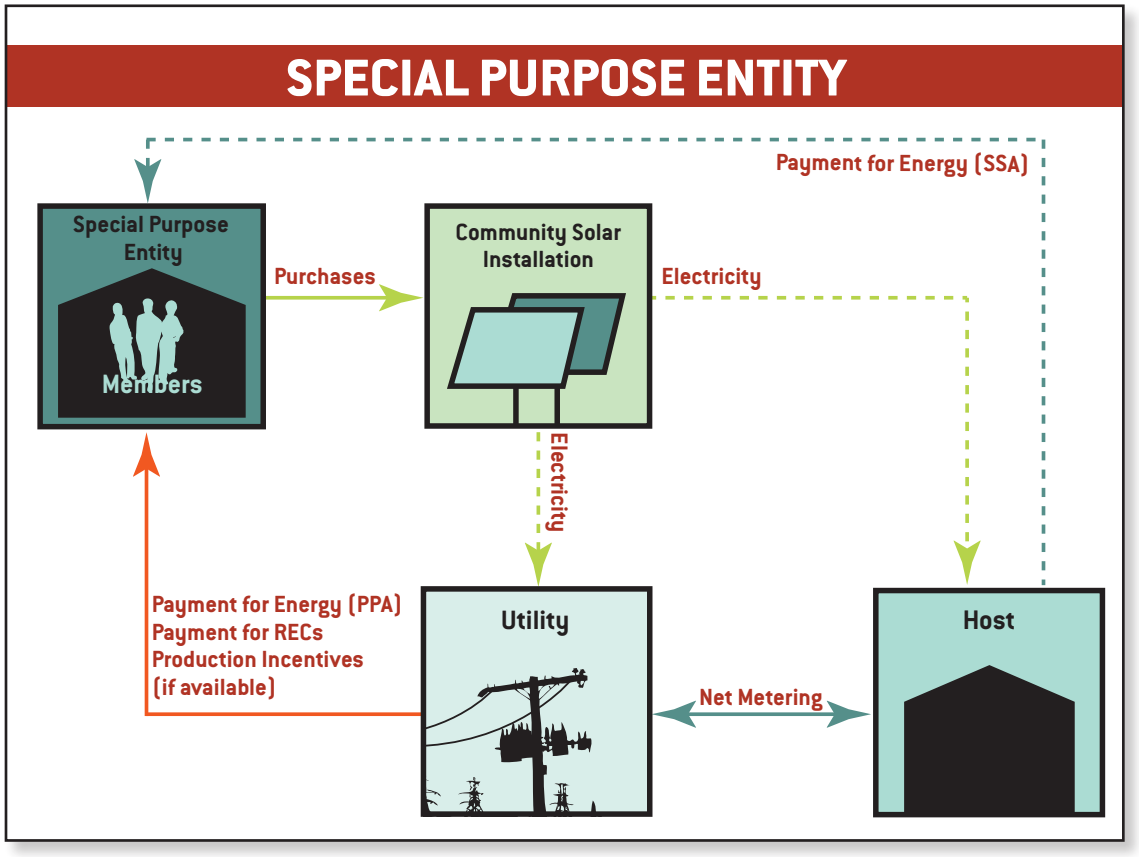
To take advantage of the tax incentives available to commercial solar projects, organizers may choose to structure a project as a business. In most states, there is a range of business entities that could be suitable for a participant-owned community solar project. (Please see Appendix A for more in-depth descriptions of these business entities.) The main challenges in adapting these commercial solar structures for community projects include:

- Fully utilizing available tax benefits when community investors have limited tax appetite, including a lack of passive income.
- Maintaining the community project identity when engaging non-community-based tax-motivated investors.
- Working within limits on the number of unaccredited investors if the project is to be exempt under securities laws.

OVERVIEW

When a group chooses to develop a community solar project as a special purpose entity, they are taking on the significant complexity of forming and running a business. The group must navigate the legal and financial hurdles of setting up a business and raising capital, while possibly having to comply with securities regulation. In addition, they must negotiate contracts between the participant/owners, the site host and the utility; set up the legal and financial processes for sharing benefits; and manage the operation of the business.

Given the complexity of forming a business, it is not surprising that many special purpose entities pursuing community solar are organized by another existing business entity with legal and financial savvy. Solar installation companies such as My Generation Energy in Massachusetts have successfully created LLCs to purchase solar installations funded by a group of investors. Although this expands the market for solar, we have not included this as an example of community solar because the benefits are limited to a small group of tax-motivated investors. In an alternative model, the Clean Energy Collective in Colorado is an LLC that has created a complex business structure that allows for individuals to buy solar panels in a common installation. While the CEC incurred significant legal costs to set up the company structure, they are now able to offer participation to an unlimited number of utility customers.



TAX AND FINANCE ISSUES FOR SPECIAL PURPOSE ENTITY PROJECTS

Federal income tax benefits offer significant value for solar projects, but they can be challenging for community projects to use effectively. Making use of tax credits or losses (from depreciation) requires a taxpayer to have significant taxable income. Moreover, passive investors in a community solar project (investors who do not take an active role in the company or its management) can only apply the ITC to passive income tax liability. As discussed below, most investors in a community solar project will likely be passive investors, and few will have passive income. As a result, most individuals cannot fully utilize federal tax benefits. In this section, we describe the major limitations on using federal tax benefits and outline potential financing structures that accommodate those limitations. However, the descriptions here are general and do not account for the many nuances that might apply to individual projects.

Passive Activity Rules

IRS "passive activity" rules are a major challenge for community-based renewable energy investors trying to use federal tax benefits. In most cases, an individual's investment in a community solar project will be considered a passive investment. Passive activity rules allow tax credits or losses generated from passive investment to be used to offset only passive income.[viii]

Most individuals primarily have non-passive income, which includes salaries, wages, commissions, self-employment income, taxable social security and other retirement benefits. Non-passive income also includes portfolio income such as interest, dividends, annuities, or royalties not derived in the ordinary course of a business. While portfolio income may seem passive, the IRS specifically excludes it from the category of passive income.

Passive income can only be generated by a passive activity. There are only two sources for passive income: a rental activity or a business in which the taxpayer does not materially participate.

Participation generally means work done in connection with an activity in which the taxpayer owns an interest. To "materially" participate in the trade or business activity (in this case, operation of a solar project) a person must participate on a regular, continuous, and substantial basis in the operations of the activity. This is a high standard that participants likely will not be able to meet. That means most participants will be passive investors, limited to applying federal tax benefits to passive income. The community solar project itself likely will not generate sufficient income to make full use of the ITC or depreciation benefits, at least not in the early years of a project. Therefore a project intending to rely on federal tax benefits will have to seek participation of an investor with a larger tax appetite.

At-Risk Limitations

In addition to passive activity rules, at-risk rules limit the amount of losses one can claim from most activities. Specifically, one can only claim losses equivalent to one's amount of risk in the activity. The "at-risk" amount generally is the amount of cash and property one contributes to the activity. In addition, any amount borrowed for use in the activity is at-risk, so long as the borrower is personally liable for repayment of the loan or the loan is secured with property not used for the activity. Money contributed from a non-recourse loan will not be considered "at-risk."

Securities Regulation

This topic will be explored more fully in the Securities Compliance section below, but is worth mentioning here because securities regulations are a major factor in financing structures for the SPE model. To reduce the burden of securities compliance, many small projects seek a private placement exemption to registration requirements. Qualifying for such an exemption requires limiting who can invest in the project (based on assets or income for individuals) and how such an offering can be conducted. The practical effect is to limit the number of middle-income people who can invest in a community solar project. If a project is designed to produce electricity proportional to the amount used by the participants, securities issues will effectively limit the size of a project. For example, private placement exemption limits the number of "unaccredited" investors to 35 or fewer.[x] A 1-MW solar facility, in contrast, could serve far more participants, perhaps 300-500. Therefore, project developers must carefully consider how to reconcile their financing mechanism with the size of their project, the number of participants, and type of participants.

Potential Financing Structures

Special purpose entities need to plan their financing structure carefully. Structures that effectively use the ITC can be complex and tend to mimic the structures used by larger commercial solar projects. For a community SPE, potential financing structures that maximize federal tax incentives include:

- **Self-financing:** The simplest option for a community SPE is to finance the project with equity invested by community members. However, in order to fully utilize federal tax benefits, the SPE would need to have enough community investors that have sufficient tax appetite to use federal tax incentives. Given the passive loss rules and the at-risk limitations discussed above, this is not a realistic goal for community groups consisting of individuals who lack other sources of passive income. That means, the project organizers will likely have to make the project economically viable without full use of federal tax incentives (difficult without aid from a state or local incentive of similar value), or will have to use one of the more complex structures like a flip or a sale/leaseback described below. This need not take away from the community ownership, if the project can find even one community member with the financial resources and tax appetite to participate as the primary tax investor.

- **Flip Structure:** In this scenario, the community SPE would partner with a tax-motivated investor in a new special purpose entity that would own and operate the project. Initially, most of the equity would come from the tax investor and most of the benefit would flow to the tax investor (as much as 99%). When the tax investor has fully monetized the tax benefits and achieved an agreed upon rate of return, the allocation of benefits and majority ownership (95%) would "flip" to the community SPE (but not within the first five years). After the flip, the community SPE would have the option to buy out all or most of the tax investor's interest in the project at the fair market value of the tax investor's remaining interest. (The numbers provided here reflect IRS guidelines on flip structures issued for wind projects claiming the federal production tax credit; similar rules potentially could apply to solar projects claiming the ITC.)

- **Sale/Leaseback:** In this scenario, the community SPE (as the developer of the project, the site host, or both) would install the PV system, sell it to a tax investor and then lease it back. As the lessee, the community SPE would be responsible for operating and maintaining the solar system as well as have the right to sell or use the power. In exchange for use of the solar system, the community lessee would make lease payments to the tax investor (the lessor). The tax investor would have rights to federal tax benefits generated by the project and the lease payments. The community SPE might have the option to buy back the project at 100% fair market value after the tax benefits are exhausted.

There are numerous complex legal, financial, and tax issues associated with all of these financing structures. These descriptions do not begin to cover them all, but rather present the possible frameworks to work from. For further information on financing structures, see Section 7: Resources.

EXAMPLES OF SPECIAL PURPOSE ENTITY PROJECTS

The following examples represent two possible approaches; a volunteer-led LLC and a business enterprise ready to partner with utilities across the country. Both special purpose entities are structured as LLCs. Although there has been much interest in the possibility of structuring a community solar enterprise as a co-op, in fact, there are no examples of operating solar power co-ops.[xi] Several rural electric co-ops that deliver electricity to their customer/members have started "community solar" programs, but the programs are peripheral to their function as consumer co-ops for the distribution of electricity.

University Park Community Solar LLC, Maryland

The volunteer founders of University Park Community Solar spent more than two years crafting the legal and financial aspects of their business model. With expert consultation, including help from a state Senator to change the Maryland net metering law, they formed a member-managed LLC that will return their investment in five to six years. Within the group, there are both active and passive investors.

Courtesy of David Brosch, University Park Community Solar, LLC

A-22 kW system was installed on the roof of a local church in May 2010. The LLC will pass benefits to its members based on revenue from several sources: electricity sold to the church and grid, the auction of RECs, federal tax incentives, and depreciation. The LLC and the Church have signed a 20-year agreement detailing the provision of electricity, access to the solar array, maintenance, insurance, and other issues. The host has an option to purchase the system before the 20-year term is up.

The founders note that accounting and legal fees could overwhelm any return to members. To assist in establishing the LLC, the group received pro bono help from the Maryland Intellectual Property Legal Resource Center and paid approximately $12,000 for other legal and accounting expertise. Going forward, they plan to handle the accounting and tax paperwork in house as much as possible.

The LLC organizers were careful to obtain legal advice on how to gain an exemption from state and federal SEC filing requirements. They are not all "accredited" investors. In addition, they were required to create lengthy disclosure documents to ensure that investors were fully informed of the risks. Their attorneys advised them to pursue an exemption that restricted them in several aspects, including having fewer than 35 unaccredited investors, keeping the offering private, and limiting membership within the state of Maryland. (See Section 5: Securities Compliance to read more about securities compliance and private placement exemptions.)

PROJECT HIGHLIGHTS

- System Owner: University Park Community Solar LLC
- System Host: Church of the Brethren, University Park, MD
- Installed Capacity: 22 kW
- Participant Agreement: LLC passes net revenues (after expenses) and tax credits to members
- Electricity: LLC sells power to church below retail rate. Rate escalates approx 3.5%/yr. Host net meters. Annual net excess generation is compensated by the utility.
- RECs: LLC is currently negotiating the sale of RECs to the installer
- Number of Participants: 36 LLC Members

FINANCIAL DETAILS

- Installed Cost: $5.90/watt
- Capital Financing: Member financed
- Tax Credits: 30% federal ITC equivalent to $39,000
- Grants: $10,000 from State of MD
- MACRS: Will depreciate 85% of cost over six years
- Estimated Annual Income from Power Sales: $3,600 in year 1, rising 3.5% per year

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Clean Energy Collective, LLC, Colorado

Courtesy of Lauren Martindale, The Clean Energy Collective, LLC

The Clean Energy Collective (CEC) provides a member-owned model that enables individuals to directly own panels in a community solar farm. The CEC works closely with local utilities to create community-scale solar projects that combine the on-bill credits of a utility-owned project with the equivalent tax benefits and rebates of an individually owned solar project. While the 30% investment tax credit is not directly available to individuals who participate in the project, the cost to participate is adjusted to reflect the value of the tax credits. The CEC takes the 1603 Treasury Grant instead of the ITC as the initial owner of the array. Portions of the array are then sold to customers at discounted costs (reducing the cost by the proportioned Treasury Grant discount). Customers must be qualified taxpayers and cannot take a tax credit on their purchase as the grant has been taken by the CEC. Both parties are subject to recapture over the first five years if the resulting system is then sold to a disqualified or non-tax paying entity. Creating this proprietary project model, with ownership, tax and legal considerations, was quite challenging.

When individual owners purchase panels in the solar farm, the utility credits them for the power produced at or above the retail rate (net-metering economics) directly on their electric bill using the CEC's RemoteMeter™ software system. The purchase price is as low as $725, depending on available rebates and RECs. For example, in the first project, CEC sold the rights to all future RECs up-front, on a per watt basis, enabling them to offset a portion of the installed cost. The benefits of ownership are transferable: if an owner moves within the service territory, the bill credits follow them; if they move out of the territory, an owner can resell their ownership to another utility customer or back to the CEC at fair market value or donate the property to a non-profit.

The owners must be customers of the electric utility within which the community array is located and their purchase is limited to the number of panels they need to offset 120% of their yearly electric use. These rules ensure that benefits directly accrue to the local utility customers rather than outside investors. The CEC is the management company representing the community owners and maintaining the solar arrays. In order to provide "utility-grade" long-term power to the utility, a percentage of the monthly power credit value and the initial sale price fund equipment insurance, operations and maintenance escrows.

The first CEC project is a 77.74-kW array in the Holy Cross Energy service territory (western Colorado). The CEC leased the land, sold the project to customers, and negotiated a PPA with Holy Cross Energy. The PPA rate paid by Holy Cross will escalate as regular utility rates increase. CEC's RemoteMeter™ system automatically calculates monthly bill credits for customer accounts and integrates directly with the utility's billing system to apply the credits. The CEC is breaking ground soon on its next community-owned 1-MW solar array at the Garfield County Airport near Rifle, Colorado.

PROJECT HIGHLIGHTS

- System Owner: Individuals in Holy Cross Energy utility territory
- System Host: CEC leases site from the Mid Valley Metropolitan District
- Installed Capacity: 78 kW
- Participant Agreement: Minimum $725 purchase (a single panel after rebates and incentives). Panel owners receive monthly credits for the value of the electricity produced for 50 years.
- Electricity: CEC, as agent for its customers, has a PPA with Holy Cross Energy to purchase the power produced. Customers receive the resulting monetary credit on their monthly electric bill.
- RECs: Holy Cross Energy purchased rights to RECs for $500/kW (paid up-front).
- Number of Participants: 18 customers

FINANCING DETAILS

- Installed Cost: $466,000 or $6/watt (Cost to customers: $3.15/watt, includes all rebates, RECs and credits taken by the CEC)
- Capital Financing: Project built with internal CEC private capital, which is paid back as individuals buy into the project
- Federal Tax Credit: CEC takes the 1603 Treasury Grant and passes the savings to the customer
- Rebates: $1/watt plus $0.50/watt for rights to the RECs from Holy Cross Energy
- Estimated Annual Income from Power Sales: $15,444 ($198/kW), rising as regular rates rise
- Simple Payback: 12.8 years

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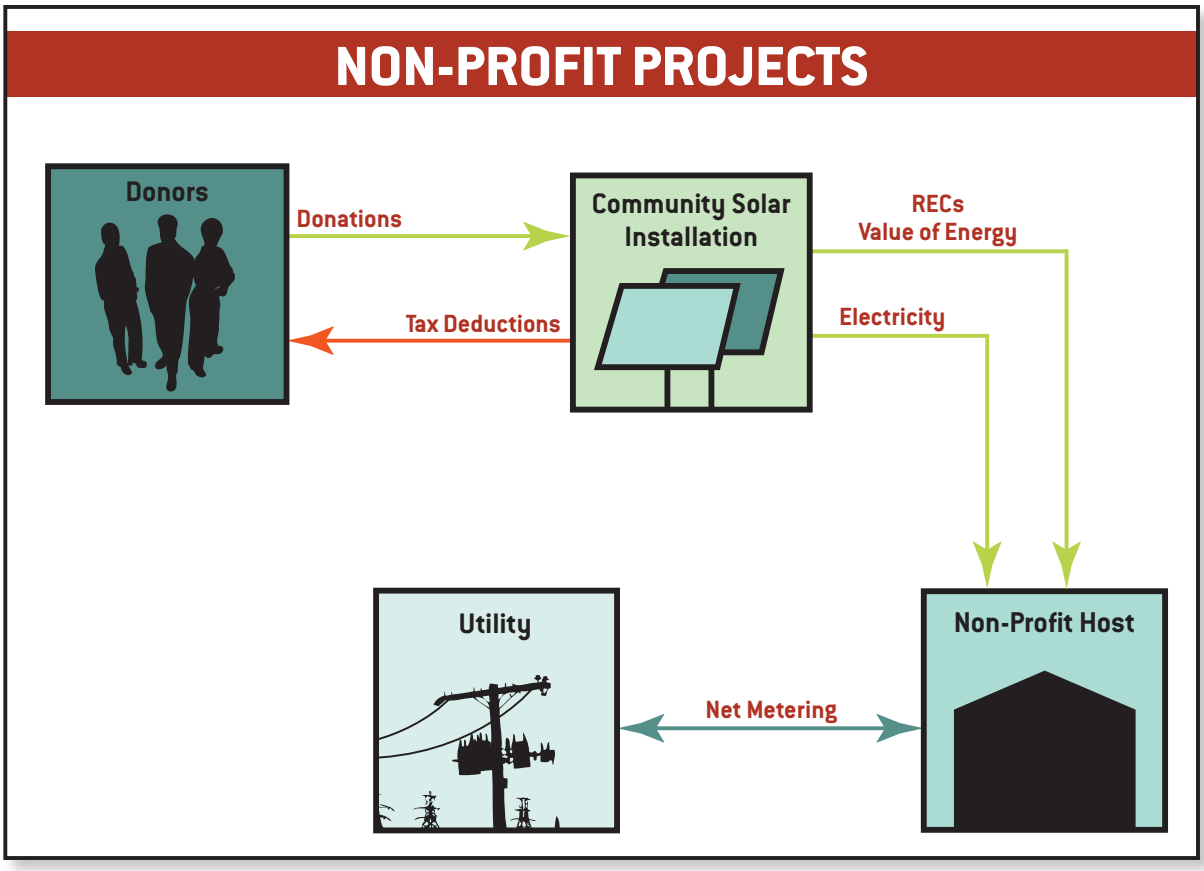
NON PROFIT MODEL

While this is not strictly "community solar" in that the donors do not share directly in the benefits of the solar installation, the donors do share indirectly, by lowering energy costs for their favored non-profit and demonstrating environmental leadership. In addition, with emerging state policies such as virtual net metering and group billing, there may be possibilities for a non-profit project sponsor to share benefits with their donor/members. In a variation on non-profit ownership, a non-profit may partner with a third party for-profit entity, which can own and install the system and take the tax benefits. This model has been deployed successfully in the California Multifamily Affordable Housing program and at other non-profit locations throughout the country. [xii]

If a non-profit were to return some benefit to donors, (for example, a portion of production incentives or a share of electric savings) this would constitute a "quid pro quo" contribution and the donor could not deduct their entire contribution.

OVERVIEW

Non-profit organizations such as schools and churches are partnering with local citizens to develop community solar projects. Under this model, supporters of the non-profit organization help finance the system through tax-deductible donations. While the non-profit is not eligible for the federal commercial ITC, it may be eligible for grants or other sources of foundation funding that would not otherwise be available to a business. An example of this model is the "Solar for Sakai" project on Bainbridge Island, Washington, in which a community non-profit raised donations for a solar installation, and in turn donated the installation to a local school. [xiii]



TAX AND FINANCE ISSUES FOR NON-PROFIT PROJECTS

As non-tax-paying entities, non-profit organizations typically are not eligible for tax incentives. However, donors to a non-profit project can receive a tax benefit in the form of a tax deduction. The IRS allows taxpayers who itemize deductions to deduct verifiable charitable contributions made to qualified organizations. Of course, a tax deduction is much less valuable than a tax credit. For example, a $100 tax credit reduces taxes owed by $100 while a $100 tax deduction reduces taxes owed by $25 for a taxpayer in the 25% federal bracket.

Donors can deduct their contributions to a community solar project if the project sponsor obtains tax-exempt status as a charitable organization under the Internal Revenue Code (26 U.S.C. § 501(c)(3)). Section 501(c)(3) organizations must be organized and operated exclusively for exempt purposes such as charitable, religious, educational, or scientific purposes. Section 501(c)(3) organizations may not be operated for the benefit of private interests and are restricted in how much time they can devote to lobbying activities. The Application for Recognition of Exemption under Section 501(c)(3) is IRS Form 1023.

Solar for Sakai, Bainbridge Island, Washington

Community Energy Solutions, a non-profit organization on Bainbridge Island, Washington, led the effort to raise funds for a solar installation at Sakai Intermediate School. Twenty-six community organizations or individuals made tax-deductible donations to Community Energy Solutions. The school owns the PV system and all of the resulting power and environmental attributes.

Courtesy of Joe Deets, Community Energy Solutions

PROJECT HIGHLIGHTS

- System Owner: Sakai Intermediate School
- Installed Capacity: 5.1 kW
- Electricity: Net metered

FINANCIAL DETAILS

- Installed Cost: $50,000 or $9.80/watt
- Grants: $25,000 from utility (Puget Sound Energy)
- Donations: $30,000 via Community Energy Solutions
- Production Incentive: $0.15/kWh from State of WA

SUMMARY OF BENEFIT ALLOCATION OPTIONS BY MODEL

As evidenced by the examples above, there are many options for allocating the benefits of community solar within each sponsorship model. The following chart summarizes the most common options.

	Utility	Special Purpose Entity	Non-profit
Electricity from Solar System	• Participant receives an estimated or actual kWh credit for their portion of project (virtual net metering) • Participant receives a monetary credit for the value of production for their portion of the project	• SPE sells the electricity to the utility (PPA) • SPE sells the electricity to the system host (SSA) • SPE assigns kWh to utility accounts per agreement with utility (virtual net metering) • Electricity from the system is netted against SPE members' group bill	• Non-profit owner uses on-site and net-meters • Non-profit owner assigns to utility accounts per agreement with utility (virtual net metering) • Electricity from the system is netted against a group bill
Renewable Energy Credits	• Assigned to participants • Retired on participants' behalf • Retained by the utility	• Rights to RECs sold up-front • RECs sold on an on-going basis • Retained for participants	• Rights to RECs sold up-front • RECs sold on an on-going basis • Retained for non-profit
Federal Tax Credits and Deductions	• Neither the commercial ITC nor the residential renewable energy tax credit is available to participants • If the utility has a tax appetite, it may use the commercial ITC • Normalization accounting rules will impact the value of the ITC for regulated utilities	• SPE can pass benefits of Commercial ITC through to participants • Only of use if participants have a tax appetite for passive income offsets	• Project donors can deduct the donation on their taxes • Non-profits are not eligible for federal tax credits
Accelerated Depreciation (MACRS)	• Not available to participants • An investor-owned utility may be able to use MACRS, provided they own the system • To qualify for MACRS, regulated utilities must use normalization accounting	• SPE passes depreciation benefits through to the participants, subject to passive activity rules	• Not useful to non-profits
State and Utility Rebates and Incentives	• Utility may qualify and use rebates/incentives to buy down the project costs;, benefits are indirectly passed on to participants	• SPE may qualify and use rebates/incentives to buy down the project costs or pass through to partici-pants	• Nonprofit may qualify and use rebates/incentives to buy down the project costs

Emerging State Policies to Support Community Solar

Over the last several years, a number of states have expanded their successful on-site solar programs by instituting policies that encourage innovative community solar programs. While each of these state programs varies considerably, a number of themes are emerging. For example, all of the current state-level programs require the solar array and the group members to be located within the same utility service territory. Other requirements to participate in "group" ownership benefits vary, but may include a cap on system size, proof of partial ownership, or limits on the type of ratepayers that can participate. Billing methods also vary; some programs offer one aggregate bill for the entire group; others assign a pro-rated monetary credit on each member's bill.

State-level community solar policies can be grouped based on how the benefits of community solar are distributed. In general, there are three broad categories: group billing, virtual net metering, and joint ownership. Given the importance of these policies to the success of community solar programs, it is worth spending some time on these mechanisms for sharing benefits.

GROUP BILLING

Group billing arrangements operate much like master metering in a multi-unit residential or commercial building. Under master-metering, a landlord receives a single electric bill for all electricity usage within a building, including tenant load. The landlord then determines how to assign energy costs to individual tenants taking into account tenant leases. Group billing for community projects works much the same way except that participants do not need to reside in a single building. First, a utility produces a group bill showing all participants' energy consumption and relevant charges. Then, output from a shared PV system is netted against the group bill. The remaining costs are allocated to participants according to an agreement between the participants. Under this framework, group billing allows multiple participants to receive net-metering credits from a single renewable energy facility.

LOCAL FLAVOR

In Vermont, two well-known residents, Ben and Jerry, decided to share the benefits of one solar installation on a shared electric bill. They hired AllEarthRenewables to build a solar array on Ben's guesthouse and informed their electric utility that the output of the installation should be netted against the combined consumption of both Ben's and Jerry's homes, in one bill. The solar panels offset all of the energy consumption at the guesthouse, and the remainder of the energy is applied toward offsetting the combined use of Ben's and Jerry's homes. They get one electric bill, and split the offset 50/50. They don't have a formal contract, but it works because they are good pals with a life-long history of working together.

A drawback to group billing is that a customer representative must serve as a point of contact and an intermediary between a group of participants and a utility. The customer representative takes on such tasks as billing and dispute resolution that exposes the representative to administrative burdens. This framework may also raise concerns over the creditworthiness of a customer representative.

Vermont has expanded its net metering program to allow group billing for shared systems and this expansion has proven very popular. [xiv] In the service territories of Vermont's two largest utilities, Green Mountain Power and Central Vermont Public Service territory, over 22 groups have formed to share in the output of a renewable energy system with system sizes ranging from 1.5 kilowatts to 199 kilowatts. Vermont's program is not limited to solar energy systems; any eligible renewable energy resource within Vermont's net metering program, including wind, small hydro, biomethane, and solar, can be installed under a group billing arrangement.

VIRTUAL NET METERING

Community renewables programs in Massachusetts, California, and Maine rely on virtual net metering as a means for distributing economic benefits from a shared solar energy system. Similar to group billing, virtual net metering allows net metering credits generated by a renewable system to offset load at multiple retail electric accounts within a utility's service territory. However, under virtual net metering, credits appear on each individual customer's bill the same as they would under traditional net metering.

To date, Massachusetts has implemented the most expansive community solar program using virtual net metering. Massachusetts' program has two avenues of participation: a "neighborhood net metering" program that allows neighborhood-based facilities to serve the energy needs of a group of at least ten residential customers in a neighborhood and an alternative program that allows participating net-metered systems to allocate monthly excess generation to one or more customers within a distribution company's service territory.

Under Massachusetts' "neighborhood net metering" program, a renewable energy system must be behind a participating customer's meter. However, only a minimal amount of load needs to be present on site. In fact, even "parasitic" load needed to run a facility is allowed to count to meet on site load requirements. Kilowatt-hour credits generated by a renewable energy system are allocated to participating customer accounts by participating utilities. Utilities are not required to include the distribution component of participants' applicable retail rate within neighborhood net metering credits.

Under an alternative program, and in a departure from what is typically seen in net metering, Massachusetts allows any customer with a net-metered system to allocate credits associated with monthly excess generation from a system to other customers of the same distribution company. Customers designated by the owner of the net-metered system receive a net metering credit that reflects the host customer's fully bundled retail rate. The net metering credit offered to designated customers is calculated using the retail rate of the host customer ($ per kWh) multiplied by the allocation of kWh for the designated customer. While on-site load must be present where the net-metered system is installed, as with neighborhood net metering rules, parasitic load qualifies as on site load. Taking these rules together, the alternative program is very flexible in who can participate and offers a more financially attractive net metering credit than the neighborhood net metering program.

Under California's Multifamily Affordable Solar Housing (MASH) program, residents of multifamily, low-income complexes such as the SDCHC townhomes in San Diego (see text box) are allowed to receive bill credits from a single on site PV system.[xv] The building owner allocates net metering credits to individual tenants and a building's common load. Virtual net metering allows the building owner to avoid having to build a separate solar energy system with a separate inverter for each tenant, which saves considerable funds. According to a recent program report, issued in the summer of 2010, 179 projects eligible for participation in the MASH program and representing 10 megawatts of solar have been incentivized to date and over 10 megawatts of projects are under review. The California Public Utilities Commission has indicated that it will consider an expansion of the program to allow for participation by other customer groups.

SOLAR FOR ALL

The non-profit San Diego Community Housing Corporation (SDCHC) partnered with a third party, Everyday Energy, to put a 20-kW system on its Hacienda Townhomes property. Everyday Energy installed and owns the system on the 52-unit apartment building, taking advantage of the tax benefits that are not available to the non-profit Housing Corp. SDCHC signed a 20-year Solar Services Agreement with Everyday Energy under which they will pay a flat fee to cover maintenance and electric services from the installation. An electric meter measures the energy flow directly to the grid, and the utility (San Diego Gas & Electric) credits the tenants and common areas as directed in the Virtual Net Metering agreement. It is projected that residents will save 30% on their electric bills.

JOINT OWNERSHIP

Taking a page from successful community wind programs, a few states have begun to explore options for distributing benefits of participation in a community renewables program through frameworks akin to wholesale power sale arrangements. One of the primary motivators of the community wind movement was a desire to promote rural development by expanding opportunities for citizens to invest in renewable energy systems by allowing them to piggyback their projects onto larger wind projects in order to benefit from economies of scale. This history leads to a primary difference between the emergence of community solar and development of community wind insofar as community wind uses a technology that began as utility-scale and is only now moving into smaller scale applications. Community solar is approaching this issue in reverse—moving from on site systems to larger solutions.

Maine's Community-Based Renewable Energy Pilot Program law[xvi] allows "locally owned electricity generating facilities" with at least 51 percent ownership by "qualifying local owners" to elect one of two incentive mechanisms. Under the first, qualifying local owners can enter into a long-term contract to sell output from a facility to a transmission and distribution utility. The contract price for energy may vary over the course of a year, but the average price, weighted based on the expected output of a facility, may not exceed $0.10 per kWh. This price only includes the value of a power sale and does not include a purchase of RECs. A significant downside of this approach is that a payment for power sales to a wholesale or retail purchaser results in taxable income at a federal level and possibly at a state level. Depending on the tax bracket a particular customer faces, the taxation of payments for power sales can significantly decrease the size of benefits available to participating customers.

Under Maine's second incentive option, generation is virtually net-metered to joint owners in proportion to their ownership stake in a system. For example, a 50 percent owner would receive 50 percent of the net metering credits generated by a system via virtual net metering.

Colorado has allowed jointly owned systems for quite some time but has not formulated detailed program rules to support joint ownership.[xviii] Colorado also recently authorized a community renewables program under a subscription-based model.[xix] Implementation of the program is underway at Colorado Public Utilities Commission and it is anticipated that rules concerning community renewables will be in place by the end of 2010.

Washington's community solar rules allow for ownership of community solar projects up to 75 kW that are either jointly owned by individuals, businesses, and non-profits or owned by a utility and voluntarily funded by the utility's ratepayers. Participants receive production incentives based on their proportional share of the output of a project. In addition, in the case of utility-owned projects, participants receive the value of the electricity. Washington's community solar incentives are among the most generous in the world if projects use inverters and modules made in Washington. For such systems, the production incentive is set at $1.08 per kWh through June 2020, but is subject to dilution if incentive payments exceed 0.5% of utility gross revenue in a given year.

St. George SunSmart Program with temporary signs

Tax Policies and Incentives

It has been said that the U.S. makes its energy policy in its tax code. This is certainly true in the solar arena. Federal tax incentives for solar systems are especially valuable and tend to be a primary driver in the design of project structures and financing strategies. This section introduces some of the state and federal tax policies that impact community solar projects, as well as some of the other federal financial incentives in the form of grants, bonds, and loans. Details on tax issues specific to each ownership model can be found in Section 2: Community Solar Project Models.

Receiving any kind of financial benefit or loss from participation in a community solar project could have tax consequences for the participant. In addition, tax incentives can interact in complicated ways, and project organizers should seek professional advice before including tax incentives in a project plan.

Federal tax incentives provide significant support to solar projects, offsetting approximately 56% of the installed cost of a commercially owned PV system[xxi] and 30% of a residential installation. However, community solar project designers should be aware that federal tax incentives were developed with either individually owned PV installations or commercial-scale solar projects in mind. Community-scale projects don't fit squarely into either category, which makes it challenging to design projects that can make use of either the residential or commercial tax credits. For example, the residential Renewable Energy Tax Credit is not available to community solar projects because it only applies to taxpayers who install a solar system on their own residence.

There is proposed legislation at the federal level that could change this. Senator Mark Udall (CO) has proposed the SUN Act 2010 which would allow individuals to claim the residential tax credit when purchasing solar panels in a community solar project. For more information and updates, please consult Senator Udall's website www.markudall.senate.gov/.

Tax incentives vary widely, depending on the status of the project sponsor. For example, investor-owned utilities are eligible for tax incentives that are unavailable to municipal utilities or electric cooperatives. Non-profit projects cannot use solar tax benefits, per se, but donations to them are tax-deductible. Special Purpose Entity business projects have the greatest flexibility for taking advantage of federal tax incentives. As a result, a host of project business structures - some of which are very complicated and require significant legal expertise - have been created in order to maximize federal tax incentives. These structures are discussed in greater detail in Section 2: Community Solar Project Models.

The following federal incentives may be applicable to a community solar installation depending on the details of each project. Additional detail on each of these federal incentives can be found on the Database of State Incentives for Renewables & Efficiency (DSIRE) located at www.dsireusa.org/.

BUSINESS ENERGY INVESTMENT TAX CREDIT ("COMMERCIAL ITC")

The Commercial ITC is among the most valuable incentive available for solar energy. The Commercial ITC allows commercial, industrial, and non-public utility owners of PV systems to take a one-time tax credit equivalent to 30% of qualified installed costs. Under the Commercial ITC, the owner of the PV system for tax purposes can be different from the owner of the host property. As a result, the use of a third party to finance systems has emerged as a leading trend in the solar industry. The tax credit can be used to offset regular tax and alternative minimum tax (AMT). The Commercial ITC is currently available for systems that are placed in service prior to the end of 2016. There is no cap on the amount of the Commercial ITC. Unused credits can be carried forward for up to 20 years. Commercial entities will likely pay income taxes on any up-front rebate or cash incentive they receive. If so, they do not have to reduce the "cost basis" by the amount of the rebate before calculating the Commercial ITC. After January 1, 2017, owners of qualifying solar facilities will be eligible to claim a 10% ITC.

Available to private utilities and SPEs owing federal taxes.

Eligibility and timing issues are complex. For a discussion of these issues, as well as the basis reduction and allocation issues, please see the DSIRE website: www.dsireusa.org/solar/incentives.

U.S. TREASURY RENEWABLE ENERGY GRANT

The American Recovery and Reinvestment Act of 2009 created a cash grant alternative to the Commercial ITC. The owner of a qualified solar facility that is eligible for the ITC can instead elect to receive a grant for approximately the same value. This is especially valuable to tax-paying entities that nevertheless can't take full advantage of the ITC due to lack of tax appetite. Unless extended, the Treasury Grants will be available to new projects for only a short time longer. Projects must "begin construction" by the end of 2010 and be placed in service on or before January 1, 2017 in order to qualify. The Treasury department has issued guidance determining that beginning construction means beginning work of a physical nature or paying or incurring at least 5% of the total cost of the project by the end of 2010. Unless extended, applications for grants must be made by October 1, 2011.

Available to utilities and SPEs eligible for the ITC until December 31, 2010.

Like the ITC, the amount of the grant is equivalent to 30 percent of the tax basis (usually the cost) of the qualifying facility. Also like the ITC, the tax basis of the property is reduced by one-half the amount of the grant. The cash grant is subject to recapture if, within five years of the placed in service date, the project ownership changes hands, the system is shut down permanently, or an interest in the project is transferred to an ineligible owner such as a public entity.

The ITC cannot be claimed for a solar facility for which a cash grant is claimed. Treasury must pay grants within 60 days after the date the project owner applies for payment or the date the facility is placed in service, whichever is later. The grant will not be considered taxable income at the federal level to the recipient, though some states might tax this grant. [xx]

Non-profit organizations and federal, state, and local government entities are ineligible to receive Treasury Grants.

MODIFIED ACCELERATED COST RECOVERY SYSTEM (MACRS)

In addition to grants and tax credits, federal tax policy allows businesses (but not individuals) to depreciate their investments in solar projects on an accelerated basis. Depreciation refers to the concept that over time, assets such as equipment lose value and will eventually need to be replaced. To account for this reduction in asset value, businesses record an expense over a set period of time. For qualified solar projects, this period is five years. Subject to certain restrictions, an owner with other sources of passive income can offset that income with losses generated by accelerated depreciation deductions under the modified accelerated cost recovery system (MACRS). For projects placed in service by the end of 2010, bonus depriciation is avalable which allows the owner to deduct 50% of the adjusted basis of an eligible solar system in the first year.

Available to utilities and SPE's with a tax liability and passive income.

For projects taking the ITC, the depreciable basis must be reduced by half the value of the ITC. For example, if the ITC equals 30% of project costs, then the depreciable basis is reduced by 15%.

The IRS publishes schedules that detail how different asset classes should be depreciated. For additional information, please consult IRS Publication #946. A more detailed discussion of using tax benefits can be found in Section 2, in the discussion of the Special Purpose Entity ownership model.

TAX CREDIT BONDS

Qualified tax credit bonds are a mechanism to lower the cost of debt financing for non-tax-paying entities such as government agencies, municipal utilities and electric cooperatives. Two tax credit bonds in particular – Clean Renewable Energy Bonds (CREBs) and Qualified Energy Conservation Bonds (QECBs) – were created to finance renewable energy projects and programs. However, all available tax credits have been awarded and no additional funding is expected.

Available to non-tax paying entities such as municipal utilities and electric cooperatives.

CLEAN RENEWABLE ENERGY BONDS (CREBS):

CREBs are a tax credit bond which can be used by government entities, municipal utilities and electric cooperatives to finance solar installations and other renewable energy projects. Ashland, Oregon used the proceeds from a CREB to partially finance its Solar Pioneers II community solar project in 2008.

QUALIFIED ENERGY CONSERVATION BONDS (QECBS):

QECBs are tax credit bonds similar to CREBs. The advantage of QECBs is that in addition to using them to finance renewable energy projects, they can also be issued for energy efficiency projects and green community programs, among other things. In addition, up to 30% of a QECB allocation can be used for private sector activities. To date, the authors of this Guide are unaware of a community solar project that has used QECBs.

CREBs and QECBs can be issued in two different ways.

- **Tax credit to the purchaser of the bond:** A qualified entity issues a CREB or a QECB. Rather than receive interest on the bond from the issuer, the purchaser of the bond receives a federal tax credit. To date, the tax credit that the bond purchaser receives has not been sufficient and therefore, the bond issuer also makes a supplemental interest payment (or issues the bond at a discount).

- **Interest rate subsidy to the issuer of the bond:** A qualified entity issues a taxable CREB or QECB. The purchaser of the bond will pay taxes on the interest income. In return for issuing a taxable bond, the issuer will receive an interest rate subsidy from the federal government. For CREBs and QECBs, this subsidy is 70% of a referenced credit rate. This "direct pay subsidy" mechanism can result in a lower cost of financing than a traditional tax-exempt bond or a traditional tax credit bond.

FEDERAL GRANTS

While not necessarily a source of long-term funding, federal grants can be used to bring down the cost of a community solar project. Such grants would lower the cost of the PV system installation and/or subsidize the cost of participation in a community solar project. In 2009-2010, enhanced funding was provided for State Energy Programs and Energy Efficiency and Conservation Block Grant Programs (EECBG). In addition, there have been a number of other stimulus-related funding opportunities for PV projects and some of these funding avenues may still be open. For rural communities, there may be USDA grants and loans available through the Rural Energy for America Program (REAP).

Examples of projects benefiting from federal grant funding are Seattle City Light's new community solar initiative funded under the U.S. Department of Energy's Solar America Cities program, the second phase of St. George, Utah's SunSmart Community Solar program using Energy Efficiency and Conservation Block Grant funding, and APS's Community Power Project using a High Penetration Solar Deployment grant from the DOE's Solar Energy Technologies Program.

STATE AND LOCAL TAX CONSIDERATIONS

Tax issues vary considerably from state-to-state and among localities. However, there are several common issues that project developers should consider when planning and structuring their projects. Taxes in any of the categories below could impose a significant cost on the project. Project developers should determine which taxes will apply to their project and who will be responsible for the cost. Taxation issues can become especially complex when a project involves both taxable and tax-exempt entities.

- **Net Income Tax:** Most states impose a net income tax modeled on the federal system. Thus, any revenue generated by a project will likely be subject to both state and federal income taxes. Some states offer investment tax credits that can be taken in addition to the federal Commercial ITC or other income tax credits and deductions for renewable energy. In Utah, for example, the State's residential income tax credit is available to participants in community solar projects owned by qualifying entities (municipalities, counties, etc.), such as the SunSmart program in St. George. [xxii]

- **Sales and Use Taxes:** Most states impose a sales tax on sales of tangible personal property. Some states also impose a use tax on sales of certain services or a transfer tax on sales of real property. For a solar facility, most state sales taxes will apply to the purchase of solar equipment, but usually not to the sale and use of electricity. Many states offer sales tax incentives for solar facilities in the form of reduced rates, exemptions or rebates.

- **Property Tax:** Nearly all states impose a property tax that is assessed annually, based on the value of real property. Most states also tax tangible personal property that is used for business purposes. For property tax purposes, assessment values might be determined by a central state authority or by a local assessor's office. As with sales taxes, many states offer property tax incentives for solar facilities in the form of exemptions or special assessments.

- **Excise Taxes:** Some states and municipalities impose excise taxes that could potentially apply to a solar facility. An excise tax is special tax imposed on particular goods or activities, such as a gasoline tax or gambling tax.

INTERACTIONS AMONG STATE AND FEDERAL INCENTIVES

Both the Commercial ITC and the Treasury grants are valued at 30% of the tax basis of the solar facility. The "basis" typically means the cost of buying and installing the facility. But certain factors can reduce the basis from which the 30% is taken. Other financial incentives (such as state rebates and grants) will reduce the taxpayer's basis for calculating the ITC or Treasury grant, unless they are considered taxable income to the taxpayer. If the incentive is considered taxable income, then it does not need to be subtracted from the cost basis. These rules avoid "double-dipping" that would come from receiving both a tax-free incentive and a tax credit.

SMUD's SolarShares Installation

Securities Compliance

Community solar projects can be structured to create ownership models that monetize financial incentives, capitalize on favorable government and utility policies, and expand ownership opportunities. When devising a creative business model, though, the project organizer should consider whether or not the model involves the issuance of securities, and, if so, what federal and state securities laws may be involved. A full review of state and federal securities requirements related to small offerings is beyond the scope of this guide, but this discussion is intended to offer a foundation for project organizers to research the issue.

Any entity, no matter how small or large, that attempts to raise capital may be deemed to be issuing securities if it offers or sells stock, membership units, partnership interests or other types of participation interests. If the project is deemed to be offering a security, the project will incur substantially more time and expense in ensuring that it complies with the securities laws. The consequences of failing to comply can be severe and the project, its directors, officers, and employees involved in the offer and sale of the security may be subject to liability for such failure.

The securities laws are intended to protect persons who invest money with an expectation that they will receive profits from the efforts of others, or who invest money in a venture with the expectation of receipt of a valuable benefit when the investor does not have control over the managerial decisions of the venture. Compliance with securities laws requires registering the offering with the Securities Exchange Commission (SEC) and the applicable state regulatory agency or finding a specifically-defined state and federal exemption from the registration requirements. Most states' securities laws have parallels to the federal requirements, but many states require additional filings, even if their exemptions are similar in substance to the federal exemptions.

Registration can be a time-consuming and expensive process that includes filing a formal registration statement with the SEC and preparing extensive disclosure documents called an "offering memorandum." However, even with a registration exemption, filings and the preparation of offering documents may still be required, depending on the participants in the project and many projects will not be able to support the up-front costs of securities compliance.

The definitions of a "security" under federal and state laws include a long list of financial instruments and agreements. Federal and various state definitions are not identical, but commonly include, for example, any note, stock, bond, evidence of indebtedness, certificate of interest or participation in any profit sharing agreement, or investment contract.

A common exemption used by smaller-scale non-utility-owned projects is the private placement exemption which allows a company to raise investment capital from a certain number of investors. All private placement exemptions limit the number of individuals or entities to whom the securities can be offered. The level of the disclosure requirements is triggered according to the net worth or income level of

the investor and/or the relationship of the investor to the entity issuing the security (such as acting as the executive officer or director of the entity).

The most relevant test for analyzing whether a contract or an investment is a security under federal law is the "Investment Contract Test." Many states have additional criteria for determining the existence of a security but the basic components are similar to the Investment Contract Test: a security exists if (i) a person invests money or property, (ii) in a common enterprise (i.e. an enterprise in which the benefit to the investor is dependent upon the participation of others), (iii) with an expectation of profits, (iv) solely or primarily from the efforts of someone other than the person providing the money or, in other words, without the right to exercise practical and actual control over the managerial decisions of the enterprise.

It follows that the terminology used to describe participation in a community solar project should avoid references to "shares" or "stock," since those terms are the classic ones used to describe securities issued by a corporation and might create an expectation of profits and other rights customarily associated with stock or shares. All marketing and promotional materials used for the project should refrain from making any statements suggesting that an investment or other opportunity to make money is being offered to participants.

In a utility-owned model, where the utility enters into a contract or arrangement with its retail customer to provide electricity generated by a project, there is a risk that the contract or arrangement could be deemed a security if the customer is required to "invest money" in the project and if the customer has an expectation of getting some kind of profit over and above the value of the electricity it receives.

To the extent that a retail customer agrees to purchase solar power from a utility and to pay a specified, generally applicable rate for the solar power used and the customer is billed periodically based on recent past usage, just like the arrangements for purchasing other power, it is less likely that the customer would be viewed as making an investment of money in the project. By contrast, if the customer is required to make payments in excess of the retail market rate for the solar power, it is more likely that the customer will be viewed as making an investment of money. Therefore, the utility must take care to ensure that the rate charged for the solar power does not contain a charge for the customer's acquisition of an interest in the project. In addition, a payment is more likely to be an investment if the customer pays an amount up front in return for an undetermined amount of solar power over a period of time that may also be undetermined.

In order to reduce the likelihood that the contract is a security, payments made under the contract could be: (1) applicable to a specific, relatively short period of time (e.g. monthly, quarterly); (2) due after solar power is provided; and (3) according to a specified, generally applicable market rate per unit that does not include a component for the purchase by the customer of an interest in the project. The contract, pricing and billing arrangements and related materials, to the extent possible, should resemble a customary consumer purchase of non-solar electricity and should not be marketed to emphasize that the amount of solar power sold to customers depends on the participation of other customers or the success of the utility in obtaining subscribing customers or in operating the project.

Getting Started

As discussed in earlier sections of this guide, there are many legal, financial and project design considerations that need to be thought through to launch a successful community solar project. With so many factors to consider it can be difficult to know where to start. This section is intended to provide insight into "what it takes" to launch a community solar project so that community organizers and project developers can efficiently move concepts to completion.

> *It took us over two years to develop our project structure and only two months to find our members.*
> *- David Brosch, University Park Community Solar*

Like many construction projects, community solar project development can be broken down into phases including: **feasibility, project development, construction, operations and maintenance, and decommissioning.** It's important to note that phases can often overlap and are not necessarily completed in the order listed.

FEASIBILITY ANALYSIS PHASE

The first step is to conduct a comprehensive feasibility analysis. This analysis should determine if there is a good project site with an adequate solar energy resource to justify the project, identify a project team and supporters, prepare an initial financing plan, confirm absence of major obstacles, and gauge the local community and utility's receptivity to a project.

PROJECT DEVELOPMENT PHASE

If the feasibility analysis indicates that there are enough positive elements in place to pursue a community solar project, the project will move into the development phase. At this point, it may be helpful to document the project details in a business plan (which may be required to secure financing) or project charter.

Site selection and Resource Evaluation

Proper siting includes a site analysis for any potential shading, as well as determining optimal tilt of the modules, location of inverters and other system components, wiring distances, foundation or structural support, and security or public access requirements. The project owner must also obtain exclusive rights to build the solar project if they are not the property owner. This is usually negotiated through a land lease agreement with the property owner and/or site host. Careful consideration should be given to site selection, to minimize the environmental footprint and harmonize with existing land uses.

Understanding the amount of solar resource and the effects of climate and latitude on solar energy production is critical to finalizing the system location and obtaining estimates for financial modeling. Typically, project organizers will rely on solar resource maps or solar energy production calculators, such as PV Watts or RETScreen to get an initial assessment of the solar resource.

Financing

In order to obtain financing for a project, a financial pro forma must be created that models the proposed system's costs, revenue (from the production estimates), and the interaction of incentives and financing. This document will reveal the financial viability of the project, and is a necessary component of any project proposal. A very basic sample budget is provided after this discussion to suggest the broad categories of expenses and income that should be considered.

Ownership Structure

The ownership structure of the project will need to be finalized and the business model chosen. The project owner(s) may also need to consult legal and tax professionals to ensure the entity is properly structured to minimize risks to the site host, investors and participants.

Permitting and Environmental Review

The permitting process for a community solar project will depend on the location, size, and type of project. The project will, at minimum, require an electrical permit. A building permit is often necessary, especially if the PV array is a stand-alone structure. The best course of action is to check with the local planning department early on as the permit and environmental compliance requirements may influence the design and siting of the project.

Interconnection and Power Arrangement

The local utility will be involved in interconnecting the system to the electric grid. Utilities generally follow a standard interconnection process and have agreements that must be completed prior to construction. In addition to connecting the system to the distribution system, the arrangements for transferring the power "benefits" must also be accounted for. This is usually negotiated through a power sales agreement between the project owner and the utility or host in the form of a PPA, SSA, net-metering, or other contractual arrangement.

Procurement and Contracting

For projects of this scale, it is common to issue a request for proposals (RFP). The RFP can be fairly broad, allowing solar professionals to offer their recommended system design and specifications; or fairly specific, in order to compare bids on pre-determined project specifications. After identifying solar professionals, or receiving proposals in response to an RFP, it is important to evaluate them as one would evaluate other types of installers and contractors. Professional credentials are one indication of a PV installer's knowledge and qualifications. The North American Board of Certified Energy Practitioners (NABCEP) offers a well-respected voluntary certification program for PV installers.

CONSTRUCTION PHASE

Choosing a solar contractor and/or construction manager is an important decision. In recent years it has become increasingly easy to locate and contact those in the solar field. Tools available to help identify local professionals include www.findsolar.com and the national Solar Energy Industry Association (SEIA.org).

OPERATIONS AND MAINTENANCE PHASE

Operating a community solar project requires ongoing record keeping and timely filing of paperwork. Among other things, a project administrator may have to file tax forms and business license renewals, distribute incentive payments, sell RECs, and keep the insurance, lease and other payments up to date.

Maintenance, though fairly simple for PV systems, is essential to long-term management of a community solar system. Modules may need to be cleaned, but more importantly meters and inverters need to be monitored to make sure that the system is operating as expected. Various monitoring systems are available, offering options from instant email alerts when an inverter malfunctions to on-line daily performance monitoring. A good monitoring system will enable a system manager to minimize down time, protecting the participants' investment. It's important to include a project budget for monitoring, ongoing maintenance costs and parts replacement. In particular, establishing a reserve fund for future inverter replacements may be a good idea, given how expensive it can be to replace it if the warranty has expired.

DECOMMISSIONING OR EXIT STRATEGY

Although solar panels could easily last 25 years or longer, every project must consider the ultimate disposition of the solar installation. Whether the plan is to sell the project to the host, renew a lease, or remove the panels, a solid project plan has defined the options for exiting from the community solar project and potentially restoring the site to its original condition.

COMMUNITY SOLAR PROJECT: SAMPLE BUDGET

The following budget template provides sample categories for a typical community solar project budget.

Note that the budget does not include the cost of labor to organize and develop the project. This could easily be a full time job for a year or two. Depending on how the project is developed (by a utility, an SPE or a non-profit), the developer role could be volunteer or paid.

SITE DEVELOPMENT COSTS	
Design	$
Permits	$
Electrical/Meter Upgrades	$
Fencing/Security	$
Educational Kiosk	$
PROJECT DEVELOPMENT COSTS	
Consulting	$
Legal	$
RFP	$
SYSTEM COSTS	
PV Panels	$
Inverters	$
Ground Mount/Racking System	$
Balance of System Costs	$
TOTAL INSTALLED COST	***$***
MINUS GRANTS AND REBATES	
1603 Treasury Grant	$
Commercial ITC	$
Other Grants and Rebates	$
NET INSTALLED COST	***$***
ANNUAL OPERATING EXPENSES	
Bookkeeping	$
Accounting	$
Legal	$
System Monitoring	$
Insurance	$
Lease	$
Sinking Fund: Inverter Replacement	$
Taxes	$
TOTAL ANNUAL OPERATING EXPENSES	***$***
ANNUAL INCOME	
Sale of Electricity	$
Sale of RECs	$
Production incentive, if available	$

COMMUNITY SOLAR PROJECT DEVELOPMENT WORKSHEET

The following worksheet is meant to suggest the many steps involved in organizing a project but it is not comprehensive. Project organizers will need to create their own list of steps, based on their unique circumstances.

FEASIBILITY ANALYSIS	
Assess site for solar access	
Secure control of property and/or site	
Evaluate the solar resource	
Understand participant motivation	
Conduct market research/focus groups/surveys	
Investigate interconnection options	
Research financing mechanisms	
Gauge community receptivity and support	
PROJECT DEVELOPMENT	
Prepare a financial plan	
Determine ownership structure	
Develop operating agreement between host and project owner (if different)	
Develop participant agreement	
Obtain legal and tax consultation for contracts	
Define system and other technical specifications	
Execute agreement for the sale of power	
Complete permitting and environmental compliance requirements	
Execute interconnection agreement	
Conduct an RFP for design/build	
CONSTRUCTION	
Prepare the site for construction: grading, road improvements, other	
Dig trenches, lay cables, install transformer(s)	
Install fencing and site security features	
Complete inspections and commissioning	
Restore site/surrounding vegetation	
Complete paperwork for incentives	
OPERATIONS & MAINTENANCE	
Schedule and perform panel cleaning	
Save for inverter replacement	
Monitor system output	
Distribute benefits to participants (incentives, tax credits, etc.)	
File tax returns, state production incentive paperwork	
File annual business license requirements	

Resources

This guide to community solar covers a broad array of topics, but does not go into detail on each of them. Communities interested in implementing a project will need a more thorough understanding of many of these topics. The resources listed in this section can provide much of that information.

ORGANIZATIONS & INSTITUTIONS

- Through the U.S. Department of Energy's Solar America Communities partnership,local governments are working to accelerate the adoption of solar energy technologies for a cleaner, more secure energy future. The website offers case studies, policy updates, and news of solar activities across the country. www.solaramericacommunities.energy.gov

- The Database of State Incentives for Renewables and Efficiency (DSIRE) is a comprehensive source of information on state, local, utility, and federal incentives that promote renewable energy and energy efficiency. www.dsireusa.org

- The Office of Energy Efficiency and Renewable Energy (EERE) works to strengthen the United States' energy security, environmental quality, and economic vitality in public-private partnerships. www.eere.energy.gov

- USDA Rural Development provides funding for the development and commercialization of renewable energy technologies in rural communities. The Rural Energy for America Program (REAP) offers grants and loans to help small rural businesses deploy renewable energy projects. www.rurdev.usda.gov/rd/energy

- The Bonneville Environmental Foundation (BEF) supports the development of renewable energy and watershed restoration and empowers people to shrink their carbon footprint. BEF's Project Management Group assists with the funding and construction of solar installations in communities throughout the Northwest. www.b-e-f.org

- Northwest Sustainable Energy for Economic Development (Northwest SEED) empowers community-scale clean energy through targeted technical assistance, education and outreach. Northwest SEED seeks to increase responsible use of clean, renewable energy with maximum local control by providing on-the-ground support to communities in planning and implementing clean energy projects. www.nwseed.org/

- The American Solar Energy Society (ASES) is a nonprofit organization dedicated to increasing the use of solar energy, energy efficiency, and other sustainable technologies in the U.S. This website is a good source for information about solar technology and professionals. www.ases.org/

- The Interstate Renewable Energy Council (IREC) is a non-profit membership-based organization that provides a national forum in which public and private organizations involved with renewable energy may gather, disseminate and exchange information and engage in cooperative efforts. Their website offers the latest policy and practical solutions for tough renewable energy issues. www.irecusa.org/

- The Vote Solar Initiative works at the state, federal and local level to implement programs and policies that allow strong solar markets to grow. www.votesolar.org/

PUBLICATIONS

Solar Powering Your Community: A Guide for Local Governments
U.S. Department of Energy (DOE) 2010
This guide includes case studies and lessons learned from Solar America Cities.
Report: www.solaramericacommunities.energy.gov/resources/guide_for_local_governments

Community Solar Power: Obstacles and Opportunities
John Farrell, Institute for Local Self-Reliance, September 2010.
This report examines nine community solar projects, the policies that made them possible, and the substantial barriers that remain.
Report available from: www.ilsr.org/

Financing Non-Residential Photovoltaic Projects: Options and Implications
Mark Bolinger, Lawrence Berkeley National Laboratory, January 2009.
This report examines the role of financial innovation in PV market penetration. It looks at how financing structures currently being used to support nonresidential PV deployment have, in part, emerged and evolved as a way to extract the most value from a patchwork of federal and state policy initiatives.
Report: eetd.lbl.gov/ea/ems/reports/lbnl-1410e.pdf

Lex Helius: the Law of Solar Energy (2nd Edition)
Stoel Rives, 2009 (See especially, Chapter 7: Financing)
Report: tinyurl.com/25wvwkb

Installing Panels on the Church of the Bretheren, University Park, Maryland

Appendix A

BUSINESS FORMATION AND TYPES: SPECIAL PROJECT ENTITIES FOR COMMUNITY SOLAR PROJECTS

Below are descriptions of the primary business entities suitable for community solar projects, their key characteristics, and the major advantages and disadvantages they might have. Note: We discuss characteristics commonly attributable to these business entities but legal requirements can vary from state to state. State law may also establish default rules that can be changed by agreement among the business owners.

GENERAL PARTNERSHIPS

A general partnership is an association of two or more persons working together in a common business enterprise. There are few formal requirements for establishing a partnership and if the partners fail to enter into a written partnership agreement, the default provisions of the state partnership laws will govern the relationship of the partners. However, most partners choose to enter into a written agreement.

Advantages and Disadvantages of Forming as a General Partnership

The key advantage of organizing as a general partnership is the ease of formation and the flexibility in the inter-partner relationship. General partnerships require little, if any, paperwork for formation or operation. General partnerships also allow for "pass-through" taxation, instead of the "double" taxation that corporations may be subject to. Additionally, most partnership interests will not be treated as securities because all the partners contribute equally to the decision-making processes and participate in management of the business.

General partnerships, however, have several key disadvantages. First, and most important, is that each partner is individually liable for the debts of the partnership. This means that if the partnership cannot pay its debts, the creditors can look to the individual partners to satisfy those debts. Because of the lack of limited liability, general partnerships have fallen in popularity as a business entity in recent years.

Second, the preparation of a partnership agreement requires the assistance of legal counsel and can be expensive, depending on the complexity of the partners' relationships, financial and management.

Third, because of the close personal relationships inherent in a general partnership, partnership interests cannot usually be easily transferred or sold, and unless a partnership agreement so provides, it can be challenging to admit new or substitute partners.

Formalities

As discussed above, in theory there are few, if any, formal requirements for the formation general partnerships. Similarly, there usually are few requirements for operation, but states usually establish some default rules to govern if partners do not enter their own agreement. For example, in the absence of an agreement otherwise, the default rules usually provide that partners have equal control over the business and equal share in profits and losses.

Partnerships are "pass-through" entities, which mean that profits and losses pass through to individual partners. That means the partnership is not a separate tax-paying entity; rather, the partners report profits and losses from the partnership on their individual tax returns.

LIMITED PARTNERSHIPS

A limited partnership is a business entity comprised of two or more partners who operate or manage a business together. In every limited partnership, there are two types of partners: general partners and limited partners. The general partner usually invests significantly less capital than the limited partner(s) and has a significantly smaller ownership stake. Unlike general partnerships, limited partnerships have the ability to limit both the liability risk and the business involvement of certain partners known as "limited partners" but the general partner has unlimited

liability. This feature is particularly useful for attracting "passive" investment partners who would like to participate in the profits of the business but not necessarily take on its risks or daily operations.

General partners manage the company's day-to-day operations and are liable for the debts of the partnership. Because they are responsible for any debts or lawsuits incurred by the partnership, general partners often themselves form limited liability entities such as corporations or LLCs (both discussed below) to protect themselves from liability.

Limited partners contribute capital to the partnership but do not (and generally cannot) participate in the daily operations of the company. As an added benefit, they are also shielded from company debts and other liabilities. Limited partnerships are a popular choice for individuals who lack the time or expertise to run a business but would like to share in the profits.

Advantages and Disadvantages of Forming as a Limited Partnership

There are several advantages to the limited partnership entity . The limited partners have limited liability and the limited partnership interests may be able to be sold easily without dissolving the limited partnership as an entity. The option of being a limited partner can attract investors because the investors' liability is limited. However, with certain exceptions, the limited partners have to refrain from dabbling in management; if a limited partner becomes too involved in the partnership's daily operations, the limited partner's status could be altered to that of a general partner, with the attendant loss of limited liability.

While limited partnerships are relatively easy to form, a limited partnership agreement is essential to govern the relationships of the parties, especially the contribution of additional capital and the allocation of profits and losses.

The major disadvantages of the limited partnership are first, that the general partner of a partnership assumes personal liability for the partnership's obligations and debts, and second, the passive nature of the limited partner's involvement carries the risk that the partnership interest will be deemed to be a security.

Formalities

Most states impose more requirements for forming a limited partnership than for a general partnership, such as filing a certificate of formation.

LIMITED LIABILITY COMPANIES (LLC'S)

A limited liability company, usually called an LLC, is a separate and distinct legal entity. An LLCs provides the limited liability protection for its owners (known as members) with the pass-through benefits and flexibility of a partnership. The members of an LLC are not personally liable for its debts and liabilities but also have the benefit of being taxed only once on their profits.

However, LLCs have only been around for 30 years or so and smaller banks may be reluctant to extend credit to LLCs. Further, with such a short history, many legal issues that arise in connection with the LLC format have not been settled.

An LLC may be managed by either (1) the members or (2) one or more managers. If a limited liability company is managed by the members, then the owners are directly responsible for running the company (a "member-managed" LLC). A "manager" is a person elected by the members to manage the LLC. In this context, a manager is similar to a director of a corporation. A manager can be, but is not required to be, a member. If an LLC is managed by managers, then its members are not directly responsible for running the company and the passive nature of a non-managing member's involvement carries the risk that the membership interest will be deemed to be a security.

LLC ownership can be expressed in two ways: (1) by percentage; and (2) by membership units, which are similar to shares of stock in a corporation. In either case, ownership confers the right to vote and the right to share in profits.

Advantages and Disadvantages of Forming as a Limited Liability Company

The primary advantage of an LLC is that the members are not personally liable for the debts and liabilities of the LLC. The LLC allows individuals to organize with limited liability with fewer restrictions and fewer formalities that were necessary to form "S" or "C" corporations. Also, most limited liability companies can use the cash method of accounting, which means income is not generally taxed until it is received.

An LLC can be taxed either as a "pass-through" entity, like a partnership, or as a regular corporation. A regular corporation pays a corporate tax on its net income (the first tax), and then the stockholders pay income tax on dividends (the second tax) when the corporation distributes profits. With an LLC, the profits "pass through" to the owners who pay taxes at their individual tax rates. Also, the members can deduct the business's operating losses against the member's regular income to the extent permitted by law, which can be helpful if the project anticipates losses in the first few years.

A member may become liable for LLC debts if the member personally guarantees the debts, if personal funds are intermingled with LLC funds, if the LLC has minimal insurance, or if the members do not contribute enough money to the LLC when it is formed. In order to maintain the separate form of the LLC and maintain the liability protection of its members, LLC owners must carefully maintain separate records and keep personal affairs separate from the LLCs business. In particular, the LLCs money should never be intermingled with personal money.

Formalities

Although an LLC requires fewer formalities than a corporation, there is still more paperwork involved than a sole proprietorship or partnership. An LLC agreement is essential to govern the relationships of the members, the financial arrangements and regulation of the transfer of membership interests or admission of a new member; in the absence of an LLC agreement, the state's LLC laws will be applied to the LLC.

In general, the name of an LLC must clearly indicate that is an LLC and end with the words "Limited Liability Company," "LLC," "L.L.C." or "Ltd. Liability Co."

COOPERATIVE

A cooperative is a legal entity owned and democratically controlled by its members. Members often have a close association with the enterprise as producers or consumers of its products or services, or as its employees.

A consumers' cooperative is a business owned by its customers. Employees can also generally become members. Members vote on major decisions, and elect the board of directors from amongst their own number.

Generally, cooperatives are organized as non-capital stock corporations under state-specific cooperative laws. However, they may also be unincorporated associations or business corporations such as limited liability companies or partnerships. Cooperatives often share their earnings with the membership as dividends, which are divided among the members according to their participation in the enterprise, such as patronage, instead of according to the value of their shares. However, irrespective of the amount of a member's contribution to the co-op, each member has one vote only. For tax purposes, most cooperatives are taxed as a separate entity like a corporation, though some are tax-exempt.

Advantages and Disadvantages of Forming as a Cooperative

The democratic nature of cooperatives might appeal to community solar project organizers based on compatible goals of creating a collaborative and accessible structure. But there are significant limitations to cooperative structures that have made them an unpopular choice for renewable energy projects. Traditionally, members have little input into business operations and in certain states, members have to personally benefit from the

co-op's products and services (example: REI). In those states, the co-op structure is not designed to bring in outside investment from persons that cannot partake of the co-op's products and services. However, in other states, outside investment is permitted and states are beginning to recognize the value of the co-op structure in a community solar setting.

Formalities

Usually, cooperatives are formed by filing articles of incorporation with the state. It is important to create a comprehensive set of bylaws to govern the members' relationship and the duties and obligations of the board of directors that will operate the business without significant input from the members. If the co-op is to be operated as a non-profit entity, the co-op will need to comply with the formalities for forming such an entity.

A note on the Co-op Model

While solar power production co-ops are popular in Europe, the authors have not found an operating example in the U.S. although the co-op model is currently being pursued by some companies, such as Tangerine Solar. (www.tangerinesolar.com)

One explanation for this discrepancy may be in the differing regulatory regimes. In the U.S., in order to reduce costs from state and federal securities compliance, co-op members would receive limited compensation on capital subscribed as a condition of membership. This makes the co-op model less attractive to investors looking for a monetary return.

FOR-PROFIT CORPORATIONS

A corporation is a separate and distinct legal entity, meaning the corporation does business under its own name. A corporation issues/sells voting common stock and (sometimes) preferred stock which can be voting or non-voting. The owners of the stock are called "stockholders" or "shareholders".

A corporation is managed by a board of directors elected by the shareholders, which is responsible for making major business decisions and overseeing the general affairs of the corporation. The directors appoint officers, who run the day-to-day operations of the corporation. Each corporation must have at least one director. In a small ("close") corporation, the shareholders, the directors and the officers are usually the same three or four people, but in a larger corporation, the shareholders are passive investors and, other than electing directors, have little control over the business operations of the corporation. In that situation, the stock issued to passive shareholders can constitute a security.

Directors and officers (and in some cases, the majority shareholders) of a corporation owe "duties of loyalty and care" to the corporation. Generally, this means the directors must act in good faith, with reasonable care, and in the best interest of the corporation. Directors, officers and majority shareholders must not use their position to gain personally from transactions with the corporation without complying with certain legal formalities.

Advantages and Disadvantages of Forming as a Corporation

The primary advantage of a corporation is that shareholders are not generally liable for corporate debts provided shareholders follow the rules for their particular state regarding formation of the corporate and maintenance of the corporate identity. For example, a shareholder may be liable for corporate debts if the shareholder personally guarantees the debts, if personal funds are intermingled with corporate funds, or if the corporation is undercapitalized (i.e. shareholders do not contribute enough money to the corporation when it is formed). Other actions may affect the liability of the shareholders, so anyone considering this business entity should consult a legal professional to assure that all the proper formalities are followed.

A corporation can elect to be taxed either as a "C corporation" or as an "S corporation." A "C" (or regular) corporation pays a corporate tax on its net income (the first tax), and then the stockholders pay income tax on dividends (the second tax) when the corporation distributes profits. An "S" corporation is like a pass-through entity but there are limitations on the number of shareholders and who may be a shareholder.

FORMALITIES

A corporation is required to hold annual meetings of shareholders to elect directors. In most jurisdictions, meetings can be held in person or by electronic means that allow all persons to hear the proceedings. It is important to maintain the corporation's records scrupulously to prevent creditors making claims against the shareholders. The corporation also must obtain a separate tax identification and separate bank accounts.

The name of a corporation must contain words that identify the company as a limited liability entity, such as "Inc.," "Ltd.," or "Corporation."

NON PROFIT ENTITIES

(Note: The following discussion pertains to non-profit entities that pursue solar projects as part of their core mission. For a discussion of how an existing non-profit may fund a solar project through donations, please see Section 2, Community Solar Project Models: Non-Profit Model.) A non-profit entity can be a corporation, or other form of business entity that is organized to meet specific tax-exempt purposes. Common examples of non-profits include: religious, charitable and political organizations, credit unions and membership clubs such as the Elk's Club. To qualify for non-profit status, the entity must be formed to benefit (1) the public, (2) a specific group of individuals or (3) the membership of the non-profit. If the non-profit has members, they may have the power to vote for directors and approve a sale or merger, but many smaller non-profits do not have members, due to the additional paperwork and required formalities. Even without members, donors may participate as advisors, patrons or contributors, but do not have a vote in the non-profit's operations.

Being a non-profit does not mean the entity cannot make a profit. Non-profits can sell goods or services for money and can pay competitive salaries to officers and employees. The primary limitation is that any profits generated by the non-profit's business operations cannot be distributed to members but must be retained by the non-profit and used to further its purposes and/or run its business. Non-profits are exempt from income, sales and property taxes and allow donors to deduct their donations from their taxes. Absent misuse of the non-profit's resources, directors, officers and members are not liable for the debts of the non-profit.

Although tax-exempt entities such as non-profits are not usually eligible for tax credits, they may be eligible for other grants or other sources of foundation funding that would not otherwise be available to a for-profit entity.

Advantages and Disadvantages of Forming as a Non-Profit Corporation

The largest advantage of organizing as a non-profit is that the entity is exempt from paying taxes on its profits, provided the activities of the entity continue to meet the requirements for exemption. It's important to note that simply forming a non-profit does not automatically qualify the entity for federal and state tax exemption - only an officially recognized non-profit entity can apply for federal and state tax exemption. This application is often referred to as the 501(c)(3) application since that is the IRS code section most commonly applicable to non-profits. In fact, there are more than 20 code sections for non-profit qualification. Another common one is 501(c)(7), which applies to social and recreational clubs.

Formalities

Unless a non-profit corporation files a 501(c)(3) application with the IRS, it will not be exempt from paying federal income taxes. If your non-profit's purpose qualifies under 501(c)(3), then a legal professional can help prepare the application for you. Each state also requires a tax exempt application; however, most states accept the federal tax exempt application in place of their own.

The process for forming the non-profit can take several months – generally the IRS takes three to five months to examine and approve the 501(c)(3) application.

Like any business entity, it is critical to maintain the separate corporate identity of the non-profit. This means setting up a separate bank account, maintaining good corporate records and holding regular board meetings.

SUMMARY TABLE OF BUSINESS TYPES

ENTITY TYPE	LIABILITY FOR OWNERS	TAXATION	PRIMARY ADVANTAGES	PRIMARY DISADVANTAGES
General Partnerships	Personal liability	Pass-through	Ease of formation; pass-through taxation	Personal liability of partners
Limited Partnerships	Personal liability for general partners; limited liability for limited partners	Pass-through	Pass-through taxation; limited liability for limited partners	No liability shield for general partner
Limited Liability Companies	Limited liability	Usually pass-through	Pass-through taxation; fewer formalities to maintain the LLC structure than corporations	Relatively new structure; may be harder to get financing
Cooperatives	Limited Liability	Separate tax entity	Cooperative principles	Inflexible Structure
"S" Corporations Limited liability	Limited Liability	Pass-through	Liability shield; ease of investment; ease of transfer of shares in larger, non-close corporations	Limitations on number and identity of members
"C" Corporation	Limited Liability	Separate tax entity	Liability shield; ease of investment; ease of transfer of shares in larger non-close corporations	Complexity; double taxation
Non- Profit Entities	Limited Liability	Separate tax identity; tax exempt	Tax-exempt; tax deduction for donors	No return for donors; business purposes are limited; no voting rights for donors

Appendix B

INTRODUCTION TO IREC'S COMMUNITY RENEWABLE MODEL PROGRAM RULES

Taking into account the various community solar approaches that have been implemented thus far, the Interstate Renewable Energy Council (IREC) worked closely with The Vote Solar Initiative to develop model rules for community renewable programs that are designed to assist stakeholders in developing programs that meet their diverse needs. The first part of this process was the development of a Community Renewable Power Proposal (Proposal) to generate stakeholder input on best practices in this emerging policy area. Two key principles greatly influenced the development of the Proposal. First, the Proposal was grounded in the belief that participants in a community renewables program should have an experience that is similar to that of customers investing in on-site renewable energy. Second, community renewables should be additive to successful on-site renewable energy programs and not undermine on-site renewable energy programs. It makes little sense to undermine successful on-site programs when seeking to expand options for participation. IREC's Proposal generated significant stakeholder feedback, which was used to develop the Model Program Rules. IREC intends to continue to develop and refine its Model Program Rules.

During discussions with stakeholders on the development of these Model Program Rules, five areas emerged as deserving of special attention:

ALLOCATION OF BENEFITS

Allocating benefits to program participants is a critical element of developing a successful renewables program. In considering the best method for allocating benefits to participating customers, IREC felt it was important to avoid structuring a program as a wholesale program that would result in taxable income. It makes little sense from an economic standpoint for customers to invest in greening their energy supply if benefits of doing so will be siphoned off in taxes. Additionally, many customers are motivated to offset as much of their energy bill as possible and most existing net metering programs accommodate this desire by placing net metering credits on a customer's monthly bill. While the reasons underlying this motivation are complex, bill credits maintain a direct relationship between customers' investments in renewable energy and a reduction in their utility bills. For these reasons, IREC chose virtual net metering as the best method for allocating benefits. This approach maintains a similarity in experience between customers installing on-site systems and those customers who participate in a community renewables program.

PROGRAM ADMINISTRATION

Program administration represents another critical area of program design. Existing community renewables programs have fallen into two camps with regard to who has program administration responsibilities: customer representatives or utilities. IREC believes the best approach is to allow utilities to administer a community renewables program. This framework allows an entity with significant experience in administering complex energy programs to administer the details of a community renewables program. Use of a utility administrator also avoids any concern about creditworthiness of a third-party customer representative.

FINANCING OF COMMUNITY SOLAR

A solar energy system represents a significant investment. Accordingly, an array of local, state, and federal incentives have been developed to incentivize customer investment in solar energy systems. In order to maximize the availability of funding, and to ensure available incentives are used as efficiently as possible, IREC's Model Program Rules support direct ownership, third-party ownership, and utility ownership of community renewable systems. Allowing third-party ownership of a renewable energy system can be critical to tapping into funders who are able to fully utilize available federal tax credits. Thirteen states have explicitly authorized third-party ownership of on-site renewable energy systems and legislation enacting community renewables programs in Colorado, Massachusetts, Delaware and Washington have made clear that third-party owners of community renewable energy systems are not subject to public utility regulation.

An important aspect of allowing utility ownership is a requirement that all system purchase costs, operation and maintenance costs, necessary investment returns, and other costs related to a utility-owned system must be recovered from participants enrolled in a utility program. This requirement is important to maintaining a level playing field between utility offerings and offerings of other parties by ensuring that all costs incurred by a utility to operate a community renewable system are recovered from program participants the same as occurs with other competitive providers.

VALUATION OF THE ENERGY PRODUCED BY THE RENEWABLE SYSTEM

At the heart of a successful community renewables program is the experience participants have as a result of their participation in a community solar project. In general, a threshold decision must be made on whether the net metering credits generated by a project should be transferred to participants as a 1:1 kWh offset on the customer's utility bill or whether the kilowatt-hours should be given a monetary value based on some other rate. Under most states' net metering programs, net metering credits generated by an on-site system are used to directly offset kilowatt-hours delivered by a utility when a customer-generator's consumption exceeds the energy supplied by a renewable energy system. Given most customer-generation is simply used on-site without requiring that a customer's billing meter spin backwards to earn net metering credits, this framework makes intuitive sense. However, the vast majority of participants in community solar projects will not have generation located behind a billing meter, so the link between excess production and 1:1 kWh offsets is not as important. Moreover, credits denominated in dollars and cents are often much easier for utilities to administer and often require fewer billing software changes. Accordingly, for ease of administration by utilities, IREC chose to allow kWh generated by a project to be given a monetary value that can be applied to participants' bills. In determining the appropriate monetary value to assign to kWh credits, three approaches are currently in use for community solar projects: (1) valuing a kWh credit based on the retail rate in effect where the project is located (MA does this), (2) valuing a credit based on a the retail rate in effect for the participant (CA does this), or (3) valuing a credit based on some other approach, such as the wholesale value of power production (ME's approach).

IREC chose the second approach for several reasons. First, valuing the kWh credit at the retail rate in effect for the participant maintains the ability of the project to act as a price hedge against future utility rate increases. Second, valuing the kWh credit at the participant's retail rate maintains an outcome that is as close as possible to the experience participants would have if they installed a solar energy system on-site. Third, transforming the kWh credit into a monetary credit should simplify the calculations required for customers that need to compensate a utility for the use of the distribution system. Finally, transforming kWh credits into a monetary credit allows customers that face demand charges to have their participation in solar generation recognized by valuing their kWh credits at a total aggregate retail rate.

COMPENSATING UTILITIES

One of the thorniest issues with development of community renewables programs is setting an appropriate compensation rate for utilities to administer programs. It should be relatively noncontroversial that utilities should be allowed to recoup their administrative fees. However, the propriety of allowing a utility to recover costs for distribution service is a more controversial topic, and one on which California and Massachusetts have taken different approaches.

In Massachusetts, net metering credits created by a "neighborhood net metered facility" do not contain the distribution portion of a fully bundled retail rate. As a result, participants in a "neighborhood" facility continue to pay distribution charges. However, participants do not pay transmission fees. At this point in time, the Massachusetts approach seems reasonable because neighborhood net-metered facilities are limited to 2 megawatts and participating customers may be located anywhere within a distribution utility's service territory. Although participating systems will be located close to load with no utilization of the transmission system, a utility would only need to be compensated for use of the distribution system.

Colorado's legislation appears to require a similar outcome; however, the Colorado Public Utilities Commission just began implementation of Colorado's program and this and other details are still being addressed. Thus, today it is unclear exactly how the benefits of customer participation in solar energy systems will be valued in Colorado's program.

Unlike Massachusetts, net metering credits are valued at a fully bundled retail rate in California. This outcome appears sensible because, unlike the Massachusetts' program, California's virtual net-metering program is available only to occupants of certain types of multi-tenant buildings. Thus, California participants will be located within the same building on the same distribution circuit and, as a consequence, use of the distribution system will be nonexistent or minimal.

IREC's Model Program rules take a nuanced approach to this issue by specifying that customers on the same distribution circuit as the community solar project will have their kWh credits valued at their full retail rate while also allowing a stakeholder process to determine an appropriate level of compensation for use of a utility's distribution system once a number of factors have been taken into account.

Panels on a Steep Roof, University Park, Maryland

IREC'S COMMUNITY RENEWABLES MODEL PROGRAM RULES

These rules were created by the Interstate Renewable Energy Council and The Vote Solar Initiative to serve as a guide for renewable energy stakeholders to consider during development of a community renewables policy to meet the needs of their state. They provide a framework for building a community renewables program that is additive to successful on-site renewable energy programs and uses solar, wind, hydro, biomass and other renewable energy sources to allow communities to promote local job growth. These program rules are solely the recommendation of the Interstate Renewable Energy Council and The Vote Solar Initiative and do not necessarily reflect the recommendation of the authors, the Department of Energy, or the National Renewable Energy Laboratory.

I. GENERAL PROVISIONS

(a) Subscriptions in a Community Energy Generating Facility may be transferred or assigned to a Subscriber Organization or to any person or entity that qualifies to be a Subscriber under these rules.

(b) New Subscribers may be added at the beginning of each billing cycle. The owner of a Community Energy Generating Facility or its designated agent shall inform the Electricity Provider of the following information concerning the Subscribers to the Community Energy Generating Facility on no more than a monthly basis: (1) a list of individual Subscribers by name, address, account number; (2) the proportional interest of each Subscriber in the Community Energy Generating Facility; and (3) for Subscribers who participate in meter aggregation, the rank order for the additional meters or accounts to which Net Metering credits are to be applied.

(c) A Subscriber may change the individual meters or accounts to which the Community Energy Generating Facility's electricity generation shall be attributed for that Subscriber no more than once quarterly, so long as the individual meters or accounts are eligible to participate.

(d) An Electricity Provider may require that customers participating in a Community Energy Generating Facility have their meters read on the same billing cycle.

(e) If the full electrical output of a stand-alone Community Energy Generating Facility or the excess generation from a hosted Community Energy Generating Facility is not fully allocated to Subscribers, the Electricity Provider shall purchase the unsubscribed energy at a kWh rate that reflects the full value of the generation. Such rate shall include the avoided cost of the energy, including any Locational Benefits of the Community Energy Generating Facility.

(f) If a Subscriber ceases to be a customer within the distribution service territory within which the Community Energy Generating Facility is located, the Subscriber must transfer or assign their Subscription back to their Subscriber Organization or to any person or entity that qualifies to be a Subscriber under these rules.

(g) If the Subscriber ceases to be a customer of the Electricity Provider or switches Electricity Providers, the Electricity Provider is not required to provide compensation to the Subscriber for any unused Net Metering credits.

(h) A Community Energy Generating Facility shall be deemed to be located on the premises of each Subscriber for the purpose of determining eligibility for state incentives.

(i) Neither the owners of, nor the Subscribers to, a Community Energy Generating Facility shall be considered public utilities subject to regulation by the [responsible agency having regulatory oversight] solely as a result of their interest in the Community Energy Generating Facility.

(j) Prices paid for Subscriptions in a Community Energy Generating Facility shall not be subject to regulation by the [responsible agency having regulatory oversight].

(k) A Subscriber owns the Renewable Energy Credits (RECs) associated with the electricity allocated to the

Subscriber's Subscription, unless such RECs were explicitly contracted for through a separate transaction independent of any Net Metering or interconnection tariff or contract. For a Community Energy Generating Facility located behind the meter of a participating Subscriber, the host Subscriber owns the RECs associated with the electricity consumed on-site, unless the RECs were explicitly contracted for through a separate transaction independent of any Net Metering or interconnection tariff or contract.

(l) The dispute resolution procedures available to parties in the Electricity Provider's interconnection tariff shall be available for the purposes of resolving disputes between an Electricity Provider and Subscribers or their designated representative for disputes involving the Electricity Provider's allocation of Net Metering credits to the Subscriber's electricity bill consistent with the allocations provided pursuant to Rule II.b. The Electricity Provider shall not be responsible for resolving disputes related to the agreements between a Subscriber, the owner of a Community Energy Generating Facility, and/or a Subscription Organization or any other party. This provision shall in no way limit any other rights the Subscriber may have related to an Electricity Provider's provision of electric service or other matters as provided by, but not limited to, tariff, decision of [responsible regulatory body or agency], or statute.

II. NET-METERING PROVISIONS

(a) An Electricity Provider shall not limit the cumulative, aggregate generating capacity of Community Energy Generating Facilities.[1]

(b) For a Community Energy Generating Facility, the total amount of electricity expressed in kWh available for allocation to Subscribers, and the total amount of RECs generated by the Community Energy Generating Facility and allocated to Subscribers, shall be determined by a production meter installed and paid for by the owner(s) of the Community Energy Generating Facility. It shall be the Electricity Provider's responsibility to read the production meter.

(c) For a hosted Community Energy Generating Facility, the determination of the quantity of kWh credits available to Subscribers of that facility for Net Metering, including the host Subscriber, shall be based on any energy production of the Community Energy Generating Facility that exceeds the host Subscriber's instantaneous on-site consumption during the applicable billing period and the Subscribers' Subscriptions in that Community Energy Generating Facility.

(d) For a stand-alone Community Energy Generating Facility, the determination of the quantity of kWh credits available to each Subscriber of that Community Energy Generating Facility for Net Metering shall be based on the total exported generation of the Community Energy Generating Facility and each Subscriber's Subscription in that Community Energy Generating Facility.

(e) For Subscribers that host a Community Energy Generating Facility or where participating Subscribers are located on the same distribution feeder as the Community Energy Generating Facility, the value of the kWh credits for the host Subscriber and those Subscribers on the same distribution feeder shall be calculated by multiplying the Subscriber's share of the kWh electricity production from the Community Energy Generating Facility by the retail rate for the Subscriber. For Subscribers on tariffs that contain demand charges, the retail rate for the Subscriber shall be calculated as the Total Aggregate Retail Rate for the Subscriber.

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1. This program rule is based upon IREC's Net Metering Model Rule (b)(2), which specifies that the cumulative, aggregate generating capacity net metered by on-site renewable generation facilities shall not be arbitrarily limited. Some states cap the total amount of aggregate Renewable Energy Generation that can be Net Metered for a particular Electricity Provider. Most commonly, aggregate enrollment caps are expressed as a percentage of an Electricity Provider's peak demand based on the aggregate of nameplate capacity of the generation systems (though it should be noted that capacity calculations are not standardized in their methodology across or even within states). Such percentages can vary from as low as 0.1% to as high as 20%. IREC believes aggregate caps arbitrarily and unnecessarily limit private investment in Renewable Energy Generation and needlessly curtail the flow of benefits that are associated with customer-side Renewable Energy Generation. For states that place an aggregate enrollment cap on net metered generation, that cap should be removed or expanded to ensure that community renewables programs do not undermine successful on-site programs.

(f) For all other Subscribers to a Community Energy Generating Facility, value of the kWh credits allocated to each Subscriber shall be calculated by multiplying the Subscriber's share of the electricity production from the Community Energy Generating Facility by the retail rate as charged to the Subscriber, minus a reasonable charge as determined by the [responsible agency having regulatory oversight] to cover the Electricity Provider's costs of delivering the electricity generated by the community electricity generating facility to the Subscriber's premises after taking into account the Locational Benefits and other benefits[2] provided by the Community Energy Generating Facility. The [responsible agency having regulatory oversight] shall ensure that this charge does not reflect costs that are already recovered by the Electricity Provider from the Subscriber through other charges. In no event, shall the charge, if assessed, be greater than the Subscriber's distribution service charge as determined on a per kWh basis.

(g) The Electricity Provider shall carry over any excess kWh credits earned by a Subscriber and not used in the current billing period to offset the Subscriber's consumption in subsequent billing periods until all credits are used. Any excess kWh credits shall not reduce any fixed monthly customer charges imposed by the Electricity Provider.

III. DEFINITIONS. AS USED WITHIN THESE RULES, UNLESS THE CONTEXT OTHERWISE REQUIRES:

(a) "Biomass" means a power source that is comprised of, but not limited to, combustible residues or gases from forest products manufacturing; waste, byproducts, or products from agricultural and orchard crops; waste or co-products from livestock and poultry operations; waste or byproducts from food processing, urban wood waste, municipal liquid waste treatment operations, and landfill gas.[3]

(b) "Community Energy Generating Facility" means Renewable Energy Generation that is interconnected at the distribution system level and that is located in or near a community served by an Electricity Provider where the electricity generated by the facility is credited to the Subscribers to the facility. A Community Energy Generating Facility may be located either as a stand-alone facility, called herein a stand-alone Community Energy Generating Facility, or behind the meter of a participating Subscriber, called herein a hosted Community Energy Generating Facility. A Community Energy Generating Facility may be no larger than two megawatts (MW). A Community Energy Generating Facility must have at least two Subscribers.

(c) "Electricity Provider" means the jurisdictional entity that is required to offer Net Metering service to Subscribers pursuant to [code section for applicable Net Metering rules].

(d) "Locational Benefits" mean the benefits accruing to the Electricity Provider due to the location of the Community Energy Generating Facility on the distribution grid. Locational Benefits include such benefits as avoided transmission and distribution system upgrades, reduced transmission and distribution level line losses, and ancillary services.

(e) "Net Metering" means a methodology under which electric energy generated by or on behalf of a Subscriber and delivered to the Electricity Provider's local distribution facilities may be used to offset electric energy provided by the Electricity Provider to the Subscriber during the applicable billing period.

(f) "Renewable Energy Credit" means a tradable instrument that includes all renewable and environmental attributes associated with the production of electricity from a Community Energy Generating Facility.

(g) "Renewable Energy Generation" means an electrical energy generation system that uses one or more of the following fuels or energy sources: Biomass, solar energy, geothermal energy, wind energy, ocean energy, hydroelectric power, or hydrogen produced from any of these resources.

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2. These benefits can often include capacity payments or energy market payments obtained by the Electricity Provider as provided for under the relevant independent system operator's tariff.
3. The definition of Biomass may need to be adjusted to reflect state renewable portfolio standard definitions.

(h) “Subscriber” means a retail customer of a utility who owns a Subscription and who has identified one or more individual meters or accounts to which the Subscription shall be attributed. Such individual meters or accounts shall be within the same Electricity Provider’s distribution service territory as the Community Energy Generating Facility.

(i) “Subscriber Organization” means an organization whose sole purpose is to beneficially own and operate a Community Energy Generating Facility for the Subscribers of the Community Energy Generating Facility. A Subscriber Organization may be any for-profit or non-profit entity permitted by [state] law. The Community Energy Generating Facility may also be built, owned, and operated by a third party under contract with the Subscriber Organization.

(j) “Subscription” means an interest in a Community Energy Generating Facility. Each Subscription shall be sized to represent at least one kilowatt of the Community Energy Generating Facility’s generating capacity; provided, however, that the Subscription is sized to produce no more than 120% of the Subscriber’s average annual electrical consumption. For Subscribers participating in meter aggregation, 120% of the Subscriber’s aggregate electrical consumption may be based on the individual meters or accounts that the Subscriber wishes to aggregate pursuant to these rules. In sizing the Subscription, a deduction for the amount of any existing renewable energy generation at the Subscriber’s premises or any Subscriptions owned by the Subscriber in other Community Energy Generating Facilities shall be made.

(k) “Total Aggregate Retail Rate” means the total retail rate that would be charged to a Subscriber if all electric rate components of the Subscriber’s electric bill, including any riders or other additional tariffs, except for minimum monthly charges, such as meter reading fees or customer charges, were expressed as per kilowatt-hour (kWh) charges.

End Notes

i. See www.nrel.gov/docs/fy09osti/44073.pdf, p. 4.

ii. Warren, Deborah B; and Steve Dubb. June 2010. TheDemocracy Collaborative at the University of Maryland. Growing a Green Economy for All: From Green Jobs to Green Ownership. p. 22.

iii. It may be that the tax benefits of the ITC are not readily accessible to the for-profit utilities, due to the normalization accounting rules.

iv. Alvarez, Paul and Benjamin Hodges, "Buying Into Solar" Public Utilities Fortnightly, December 2009 p. 57

v. 26 USC 136 states that subsidies from public utilities for energy conservation measures are not taxable. For example, Washington state's production incentive was ruled to be not income. See apps.leg.wa.gov/WAC/default.aspx?cite=458-20-273.

vii. Rural electric co-ops are consumer co-ops, formed for the purpose of delivering electric service to rural communities and financed by federal loans; these are distinct from a special purpose entity cooperative, formed to produce solar power and sell it to a utility. In the case of the rural electric co-op, the member/customers do not provide financing, they merely purchase electricity. In the case of a special purpose entity co-op, the members would provide the capital to build the project and they would not necessarily purchase any of the output.

viii. See www.irs.gov/businesses/small/article/0,,id=146330,00.html for more information on passive income.

ix. To see a list of IRS material participation tests and other details about passive activity and at-risk rules, see IRS Publication 925, available at www.irs.gov/pub/irs-pdf/p925.pdf.

x. For an individual to be considered an accredited investor, he or she must have either: 1) a net worth of more than $1 million or 2) an annual income of $200,000 ($300,000 jointly with a spouse) in each of the most recent two years and a reasonable expectation of having the same income level in the current year.

xi. Tangerine Solar, LLC, based in Washington State has created a legal and business model for a solar power co-op but has not built any projects yet.

xii. The Portland Habilitation Center Northwest, a non-profit organization partnered with U.S. Bancorp Community Development Corporation who will own and finance an 870 kW system to provide energy to the non-profit.

xiiii. Please see the Northwest Community Solar Guide for more information on this project. www.nwseed.org/Educational%20 Resources/publications/default.asp.

xiv. See Vermont Public Service Board Rule 5.100 available at: psb.vermont.gov/sites/psb/files/rules/OfficialAdoptedRules/5100 adoptedrule_2.pdf.

xv. See generally Multifamily Affordable Solar Housing Semiannual Report, January 20, 2010 available at: www.cpuc.ca.gov/ NR/rdonlyres/B3644285-F573-428F-AA0A-A2497A30401B/0/MASHSemiAnnualReport.pdf.

xvi. See www.mainelegislature.org/legis/bills/bills_124th/chapters/PUBLIC329.asp.

xvii. See mpuc.informe.org/easyfile/easyweb.php?func=easyweb_docview&docid= 77134&img_rng=217284&vol_id=2.

xviii. See 4 CCR 723-3 Rule 3652 (c).

xix. See Colorado House Bill 10-1342 available at: www.leg.state.co.us/.

xx. See www.stoel.com/showalert.aspx?Show=6569.

xxi. Bolinger, Mark, Financing Non-Residential Photovoltaic Projects: Options and Implications, LBNL January 2009, eetd.lbl. gov/EA/EMP/reports/lbnl-1410e.pdf.

xxii. See Utah Code 59-7-614.3 www.le.state.ut.us/~code/TITLE59/htm/59_07_061403.htm.

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