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Solar Ownership to the Masses, California Utility Provides Model

by Kurtis on January 27, 2011

in [Politics of Solar Energy](#)

California Sacramento's Municipal Utility District (SMUD) has pioneered a community solar program called SMUD solar shares. Sacramento electric customers who want to buy [solar](#) power but may not have access say because they have a rental unit, can buy what the utility district calls SMUD SolarShares. This is a program that makes solar power available all Sacramento customers including multi-unit buildings to buy solar electricity.

The [California](#) utility district feels that solar clean energy should be made available and affordable to everyone. If solar for a residential home is not an option, Sacramento customers can buy solar power through SolarShares which means the power is generated locally with solar. For a fixed monthly price based on the customer's usage, the community solar program gives a credit on your bill every month for solar power produced on a local utility owned solar farm.

Community solar is a concept that has lots of cheerleaders. And what's not to love? At it's best, this market-based deployment strategy can expand access to clean energy, create jobs, spur local investment, and help drive down the cost of solar panels as reported in a story by McKenna Morrigan in [Americans For Energy Leadership](#).

But while the concept of community solar has had strong support from policymakers and clean energy advocates for several years, real community solar projects have been slow to materialize. Now, two statewide community solar programs and a host of other new state and local policies to encourage community solar may be catalyzing a wave of new projects. Will the reality of community solar live up to the ideal?

Community solar energy carries all the environmental, economic, and national security benefits of clean energy in any form, but with a distinct advantage. A review of research by Northwest SEED suggests that community solar energy projects deliver 2-5 times the economic benefits of projects built by out-of-state investors. And, in places that import electricity from outside the area, community energy can also keep utility dollars in the community, with multiplier benefits for the local economy. Community energy provides distributed solar generation, with associated benefits such as increased system reliability and resilience, lower peak [power](#) requirements, minimal transmission requirements and reduced line losses.

Examples of community solar energy began in rural areas of the Midwest, where farmers joined together to capture some of the benefits of the commercial wind development boom underway at the time. These projects blazed the "community energy" trail, developing novel legal structures and forms of financing, and proving that community solar energy could be a source of job creation and economic development.

But community wind has limited applicability, given the requirements of a strong wind resource, access to transmission capacity, and lots of open space to make a project financially viable. In contrast, [solar](#) photovoltaics (PV) are well suited for modular applications of varying scales and can be placed on existing structures, making them a great fit for urban areas where retail electricity rates and demand loads are often highest.

Community solar is appealing in part because, despite broad interest among the public in solar energy, most people don't have the ability to install solar PV on their own property. 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 solar PV system after adjusting for structural, shading, or ownership issues. And in places like New York City, where home ownership rates are especially low, only a small number of people have incentives to invest in solar PV.

Community solar projects address this barrier by decoupling solar PV investment from on-site generation. Owners of community solar give funds to pay for a portion of a project, and reap benefits proportional to their investment. Community solar projects can be installed on the property of one of the project owners, on a separate private site, or on a shared location, such as local or state government property. Owners can include renters, homeowners, local businesses, even utilities.

Only a handful of community solar projects are complete, with another handful in development, so no definitive model exists. But so far, projects fall into two approaches.

The first and more common is the utility-sponsored approach for local solar. These projects are legally owned by a utility, and people voluntarily contribute funds to help finance them, either up front or on a monthly basis. In exchange, contributors receive credit on their utility bill equal to the output of electricity from their portion of the investment. Early examples of this approach include the Sacramento Municipal Utility District (SMUD) Solar Shares program and the Ellensburg, WA Community Solar Park. These public utilities have been very successful in using this approach to finance solar installation and the concept is spreading quickly.

Despite its popularity, the utility-sponsored solar approach has some significant limitations. According to an analysis by the New Rules Project at the Institute for Local Self-Reliance (ILSR), utility-sponsored projects can compare unfavorably to the economics of individual ownership. In some cases, contributors never even achieve full payback of their initial investment, making this approach much like other “green power” solar programs where utility customers simply pay a premium for clean energy. Only where there is a production incentive that generously rewards community projects (such as in Washington State) does this model seem cost-effective for contributors. Still, for those who cannot invest in solar themselves, the utility-sponsored approach is often the only option.

The second approach might be called a true community ownership solar model, where the risks and benefits of ownership are shared among individual participants, often through an ownership structure such as a cooperative or an LLC. This model is much stronger in concept, but it has proven very challenging to get off the ground, despite strong interest in many communities.

As David Brosch, lead developer of University Park Solar Community in Maryland, one of the first community solar projects in the country, said, “It took us over two years to develop our solar project structure and only two months to find our members.” The Clean Energy Collective’s Mid-Valley Solar Array in Colorado, a 77.7 kW community [solar](#) project, is another early and widely touted example of the ownership approach, which its founders hope to replicate around the country. Compared to the utility-developed solar approach, these projects have shown to be more attractive investments, with paybacks faster than would be possible through individual solar PV ownership.

While initial solar projects have shown that it is possible to build solar PV projects through community support, several things make it difficult to put community solar projects especially those using the community ownership model together. The specific policy barriers to community solar have been deftly analyzed by Billy Parish at WattHead and by Northwest SEED new [printing](#) publication guide for community solar developers, but three main issues are worth mentioning:

Securities Law: Existing securities law prohibits community projects from recruiting participants except by word-of-mouth, and caps the number of “unsophisticated” (i.e. not wealthy) investors that can be included. These limitations are in direct conflict with the concept of community solar, which is intended to allow many ordinary individuals to contribute relatively small sums of money that add up to fund a sizable solar project.

Access to Tax Credits: Even though the cost of solar panels has declined significantly in the last year, solar PV projects still require tax credits, grants or other incentives to achieve price parity with conventional electricity sources. Since 2009, the biggest source of support has come from Federal Renewable Energy Tax Credits. But most community solar projects don’t qualify, because eligibility for the credits requires either that the system be located on the taxpayer’s dwelling, or that the owner be owned by a commercial, tax-paying entity. Utility-sponsored projects owned by public utilities don’t qualify either, because those entities don’t pay federal taxes. Unless a community solar project has access to other incentives, it is difficult to make the economics pencil out without the federal credits.

Net Metering Policies: Outside of tax credits and other government solar [incentives](#), solar projects generate revenue by selling electricity to the grid. For residential and small commercial on-site projects, this is usually done through a net metering arrangement, where a utility provides a credit (either in kWh or in dollars) on the project owner's utility bill for the energy produced. Community solar requires revising the program rules, so that multiple owners can receive credit.

Most state solar support comes in the form of a community net metering (CNM) program. Whereas traditional net metering provides credit on the utility bills of individual customers with on-site solar panels, community net metering allocates credit for energy production to multiple owners of a shared system. Community net metering addresses some of the obstacles to community solar, but as the ILSR Report notes, by itself it does not make community solar more affordable.

Two states have gone further to encourage community solar. In June 2010, Colorado passed a law creating "community solar gardens" owned by ten or more subscribers and smaller than 2 MW. Instead of allocating credits through net metering, utilities are required to purchase the output and renewable energy credits (RECs) at rates comparable to those offered producers with on-site generation, and each subscriber can receive payments valuing up to 120% of their electricity consumption. In addition, investor-owned utilities in the state must purchase at least 6 MW from community solar gardens by 2013, and make a good faith effort to get participation in solar gardens from low-income ratepayers and renters.

Washington State's Community Solar Enabling Act also chose to eschew net metering in favor of providing direct production incentives to owners of community solar projects up to 75 kW. The law grants community solar projects \$0.30 for every kWh produced (twice the incentive for individual on-site production). Projects are eligible for incentive multipliers for using modules and inverters manufactured in Washington, encouraging local manufacturing as well as local ownership. To qualify for these community solar incentives, projects must be located on local government property, requiring innovative partnerships between governments, solar developers and community members interested in support solar power.

These state programs help to address some of the policy barriers to community solar, but action at the federal level is still needed to modify securities regulations and to ensure that community solar project owners can benefit from federal incentives, making it easier for anyone who wants to invest in community solar to do so.

And more work must be done at the state and local level to improve the investment environment for community solar. According to the National Renewable Energy Laboratory, homeowners who have installed on-site solar PV systems, report their primary motivation is to reduce their electricity bills. Thus, it is only logical that, in order to attract investments from similar people (i.e. those who might have interest in installing solar PV but who lack proper site characteristics, ownership, or sufficient up-front capital for an individual on-site system), community solar projects must provide a cost-effective investment opportunity: providing a return on investment over the project's life.

So far, only a few community [solar](#) projects, using the ownership model, have achieved this objective. Policymakers interested in supporting community solar on a large scale should not lose sight of the fact that making these projects a good investment for potential contributors is a critical requirement for bringing more community solar projects online.



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