COMMUNITY SOLAR IN THE TENNESSEE VALLEY: A BEST PRACTICE PRIMER[1]

TVA recently made available two new opportunities for Local Power Companies (LPCs) to develop community solar projects within their respective territories: the EPA Solar PV Project; and a 4 megawatt carve-out within the 2015 Solar Solutions Initiative. The Southern Alliance for Clean Energy, Southern Environmental Law Center, Sierra Club, and Appalachian Voices welcome these new initiatives and look forward to engaging with LPCs to ensure the success of these projects. To that end, we offer the following "best practices" for consideration by LPCs

When designed properly, community solar programs offer a wealth of benefits to utilities and their customers.

- **Customer Benefits**. About 75% of residential rooftops in the U.S. are not suitable for hosting an on-site solar PV system, due to structural, shading, and other constraints.[2] And this doesn't even account for ownership status (e.g., renters) or financial considerations. Community solar can increase access to solar for more—if not all—utility customers, in addition to improving the economics of going solar by any single customer.
- **LPC Benefits**. For LPCs, community solar programs offer an opportunity to increase customer satisfaction and engagement, while generating local economic development. Utilities can leverage economies of scale based on preferred system size and number of participants, as well as optimize system siting based on grid benefits and public outreach goals. A community solar project also offers LPCs an opportunity to increase their understanding of solar technologies and grid integration of distributed generation.

Best Practices for Community Solar Design

1. **Participants should receive direct tangible economic benefits on their utility bills**. While some are drawn to clean energy for its environmental benefits, the reality is that most customers today invest in solar for economic reasons. For example, a recent survey[3] by the Solar Foundation found that customer demand was first driven by an interest to "save money" (51.4% of respondents); followed by a recognition that solar energy costs are now more competitive with utility rates (22.9%); followed by a desire to benefit the environment and mitigate climate change (8.6%). In most utility-sponsored community solar programs, 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.[4] Ideally, this economic benefit should

be conferred through a monetary bill "credit" on the participant's bill, rather than a direct payment (which could be subject to income tax or securities regulation), or an energy (kWh) credit (which can be complicated and more of an administrative burden).[5] Billing should allow participants to see the results of their investment directly on their bill in a simple, uncomplicated way.

2. **Participation should be within reach for a broad group of customers.** LPCs should endeavor to make participation accessible to all customers, including moderate and low income customers who typically have high energy costs in proportion to income. Project design should lower barriers to entry by allowing for a minimum subscription size of one panel; giving an option for participants to pay over time vs. an upfront payment; offering carve-outs for low income participants; and siting projects in disadvantaged communities, which are often the sites of polluting traditional power plants.
3. **Utilities should engage their customers and stakeholders in developing and implementing a program.** Public engagement in the planning phase will help gauge the motivating factors driving potential participation in local community solar programs.[6] Resulting projects should account for customers' preferences related to specific technologies, project location(s), and ownership models. Stakeholder outreach can also be leveraged to help spread market awareness and interest in a program, and to obtain feedback.
4. **Programs should be flexible to account for "portability" and "transferability" of participation.** Participants should be able to bring their subscriptions in a community solar facility with them if they move within an LPC's territory ("portability"), and be allowed to transfer their subscriptions to another customer or back to the utility if they move outside of an LPC's territory ("transferability").

Additional Considerations

In general, utilities are well-positioned to develop community solar programs because they have the legal, financial, and program management infrastructure to organize and implement a program. However, there are some important considerations to weigh when developing community solar programs, in particular for LPCs under TVA.

- **RECs.** Customer participants in community solar often desire to claim the environmental benefits—or renewable energy credits (RECs)—of using solar energy. They can only make such a claim if they receive RECs or the utility retires RECs on participants' behalf. Historically, TVA has maintained the right to any RECs generated through its solar programs. It is assumed that LPCs interested in offering RECs as part of community solar benefits will have the flexibility to do so, however this should be clarified.
- **Tax benefits.** The ability to leverage tax benefits is a key driver in solar development today. As public entities, LPCs would need to create an LLC, or partner with private organizations in order to monetize tax benefits. Note that additional considerations are raised based on whether to own a project outright, versus partner in ownership, versus simply buying the power generated from a third party developer. Under a third-party arrangement, it's unclear what flexibility LPCs would have given their relatively strict power buying requirements with TVA.
- **Securities and other tax issues.** Tax benefits aside, there are potentially additional issues that utilities need to consider regarding any securities regulation or tax implications on the utility or customer participants of a community solar program.[7]

Additional Resources

- Solar Electric Power Association, *Utility Community Solar Handbook: Understanding and Supporting Program Development*, 2013.
- Interstate Renewable Energy Council, Model Rules for Shared Renewable Energy Programs, 2013.
- U.S. Department of Energy (DOE). SunShot Outreach Solar Partnership. *Bringing Down the Cost of Solar through Community Shared Solar*, July 2012. Webinar presentation.
- National Renewable Energy Laboratory, *A Guide to Community Solar: Utility, Private, and Non-profit Project Development*, 2010.

Technical Assistance and Grants

- U.S. DOE, National Renewable Energy Laboratory, Solar Technical Assistance Team (STAT)[8]
- U.S. DOE SunShot Solar Outreach Partnership[9]
- USDA Rural Utilities Service Energy Efficiency and Conservation Loan Program[10]
- Federal Qualified Energy Conservation Bonds (QECBs)[11]
- Tennessee Department of Environment and Conservation (TDEC) Clean Tennessee Matching Grant Program[12]

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ENDNOTES

[1] Note that this "Primer" is subject to change as experience develops through the evolution of community solar opportunities in the Tennessee Valley.

[2] National Renewable Energy Laboratory, Supply Curves for Rooftop Solar PV-Generated Electricity for the United States, November 2008, available at www.nrel.gov/docs/fy09osti/44073.pdf.

[3] Solar Foundation, National Solar Jobs Census 2013: The Annual Review of the U.S. Solar Workforce, January 2014.

[4] See National Renewable Energy Laboratory, A Guide to Community Solar: Utility, Private, and Non-profit Project Development, 2010, at 8.

[5] See Interstate Renewable Energy Council, Model Rules for Shared Renewable Energy Programs, 2013, at 8-9.

[6] Solar Electric Power Association, Utility Community Solar Handbook: Understanding and Supporting Program Development, 2013.

[7] National Renewable Energy Laboratory, A Guide to Community Solar: Utility, Private, and Non-profit Project Development, 2010, and, Solar Electric Power Association, Utility Community Solar Handbook: Understanding and Supporting Program Development, 2013.

[8] See http://www.nrel.gov/tech_deployment/state_local_governments/stat.html.

[9] See http://solaroutreach.org.

[10] See http://www.rurdev.usda.gov/UEP_EECLP.html.

[11] See http://energy.gov/eere/qualified-energy-conservation-bonds.

[12] See http://www.tn.gov/environment/grants_energy.shtml.