

January 13, 2017

Via Electronic Filing

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place E, Suite 350
St. Paul, MN 55101

**Re: Comments of the Institute for Local Self-Reliance for Community Solar
Compensation / Docket No. M-13-867**

Dear Mr. Wolf:

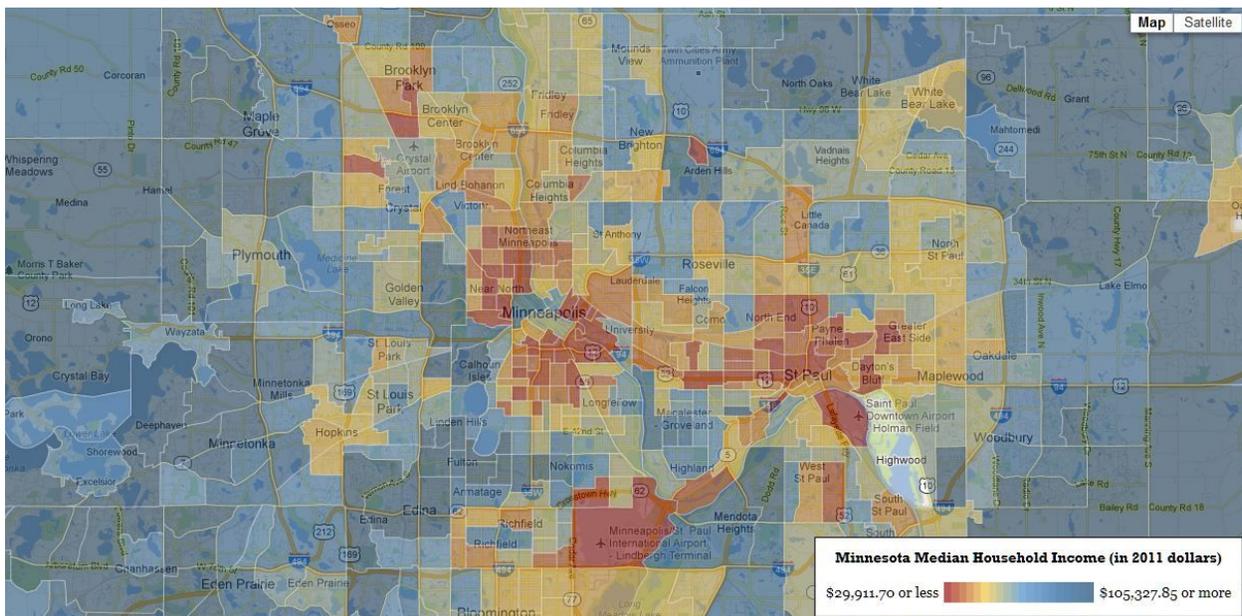
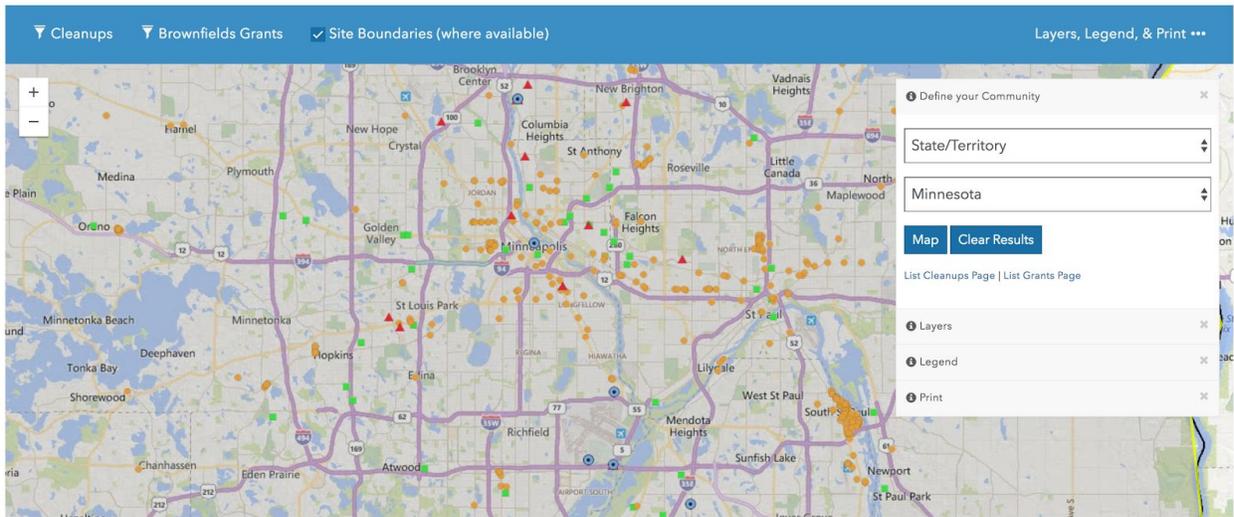
The Institute for Local Self-Reliance (ILSR) submits these Comments in response to the Commission's Notice to provide input on whether the Value of Solar (VOS) rate for use as a solar garden bill credit rate should be adjusted with positive or negative adders for select criteria.

Siting on Brownfields

The Commission should consider a positive adder, because brownfield parcels can be more difficult to develop than green space, are more likely located in urban centers near electric load, and are disproportionately in low-income areas or neighborhoods with concentrations of people of color.

This map [from the U.S. EPA](#) shows brownfield locations in the Twin Cities metropolitan area, and has a remarkable overlap with the [subsequent map](#) showing the neighborhoods with below-average household income.¹ Community solar invites economic benefits for subscribers, as discussed below, and can serve as an important economic development tool in areas starved for investment.

¹ The latter taken from RichBlocksPoorBlocks.com using U.S. Census data.



Being Located Directly in the Community the Solar Garden Serves

For several reasons, the Commission should consider a higher adder for projects located in the same communities they serve.

First, co-location of projects and subscribers reduces transmission and distribution costs compared to distant, utility-scale electricity generation. It will minimize the distance between production of electricity and its users.

Assuming successful efforts to broaden participation in community solar, locating community solar projects near subscribers also improves the predictability and lessens the variability of the fleet of solar power plants on the grid. A [2010 study by Berkeley Labs](#) found that geographic dispersion of solar projects smoothed the short-term ramping of power from the solar power fleet.² The following chart, from the report illustrates how variability on a partly cloudy day is lessened with geographic dispersion of solar arrays. The red line is electricity output from a single solar site, the blue averages five sites within the same city or county, and the black averages 23 sites spread over a much wider region.

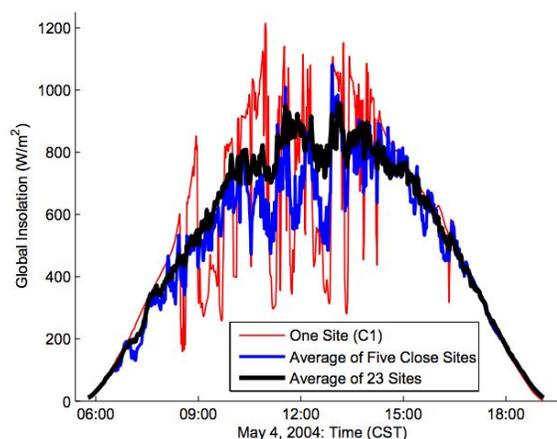


Figure 6: Example of 1-min global insolation from one site, the average of five close sites, and the average of all 23 sites in the SGP network on a partly cloudy day.

A third benefit of co-locating community solar gardens and subscribers is the significant local economic stimulus. Installation and ongoing maintenance increase opportunities for local jobs in the fast-growing clean energy sector. In fact, solar jobs last year [increased by more than 20 percent](#) for the third consecutive year.³ Where solar projects are sited, jobs follow.

In addition, generation capacity located at or near where it will be consumed ensures more energy spending will recirculate locally. A [Civic Economics study](#) published in 2012 illustrates this fact by comparing spending at local retailers, which return 52 percent of their revenue to the local economy, with national chains, who redistribute just 14 percent of their revenue into the local marketplace.⁴ Already, money saved by subscribers accrues more local benefit than money spent to purchase power from a multi-state energy holding company. At a minimum, local siting means project lease and property tax revenue will be local, and increase the opportunity for local hiring.

² Mills, Andrew and Ryan Wiser. Implications of Wide-Area Geographic Diversity for Short-Term Variability of Solar Power. (Berkeley Labs, September 2010).

³ PRESS RELEASE: The Solar Foundation's National Solar Jobs Census 2015 Finds that U.S. Solar Workforce Grew by More Than 20% for the Third Consecutive Year. (Solar Foundation, 1/12/16).

⁴ Indie Impact Study Series: Salt Lake City, Utah. (Civic Economics, August 2012).

Finally, adders may be required for geographic nearness to account for cost differences between rooftop and ground-mounted systems. Although rooftop systems are almost universally fixed-tilt and tend to cost around 7% less to install, the typical single-axis tracker installed on ground-mounted systems gives them a levelized cost of energy advantage of 12 to 20%, [according to the National Renewable Energy Laboratory](#) (page 34).⁵

Having Residential Subscribers

As it did with the applicable retail rate compensation model, the Commission should continue to ensure residential participation in community solar with a positive adder, as necessary.

Given that [roughly 50 percent of U.S. households](#) for various reasons cannot host solar, community solar projects serve as an important bridge to renewable generation access.⁶ As noted by House Research in their [summary of the statute](#), “It allows access to solar energy by renters and property owners lacking sufficient capital to install their own solar systems or whose property may be shaded or otherwise unsuitable for a solar installation.”⁷

Residential subscriber participation was a core part of the legislature’s intent for the community solar program and essential for equity of access across different customer classes.

Additionally, the preponderance of solar gardens with a few commercial subscribers suggests that there are cost advantages compared to residential subscribers. These costs likely span customer acquisition, the administrative costs of managing subscribers, and a potentially higher cost of financing due to a higher perceived default risk.

Having Low-Income Residential Subscribers

For a number of reasons, the Commission should consider a higher adder for projects with low-income residential subscribers. This customer class is notoriously difficult to reach, and faces the highest barriers in accessing the benefits of solar generation. Yet, it is the population that stands to benefit most from such projects.

Low-income households typically pay the highest portion of their earnings toward utility bills. Across Minnesota, those earning below 50 percent of the federal poverty level [spend an](#)

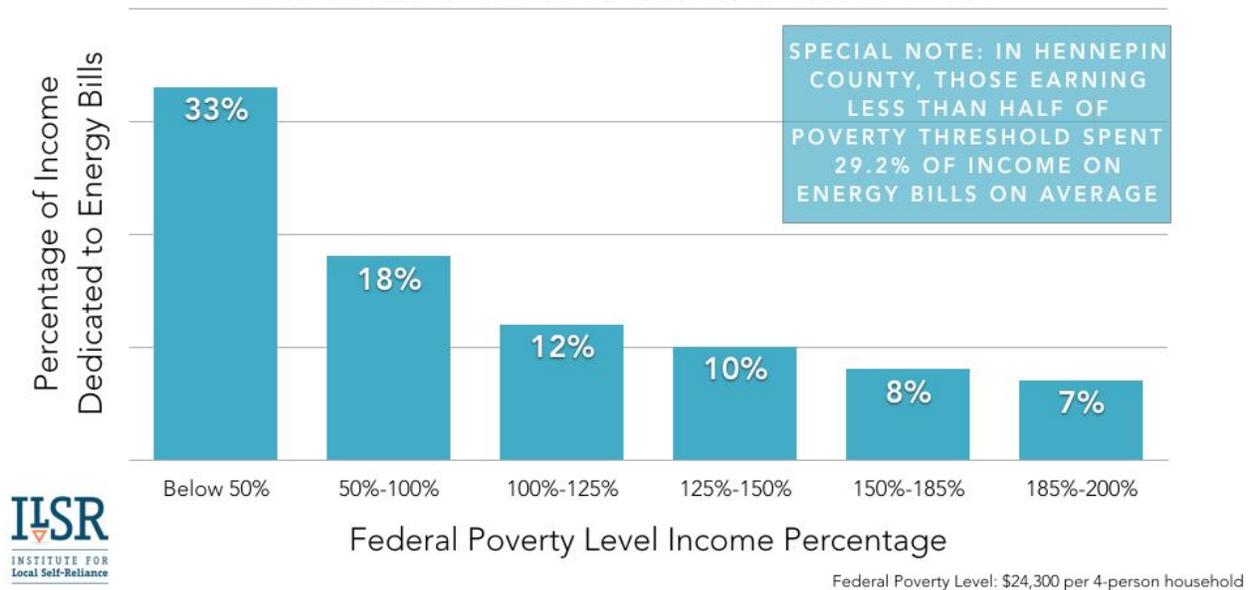
⁵ Chung, Donald, et al. U.S. Photovoltaic Prices and Cost Breakdowns: Q1 2015 Benchmarks for Residential, Commercial, and Utility-Scale Systems. (NREL, September 2015).

⁶ Feldman, David, et al. Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation. (NREL, 2015).

⁷ 2013 Solar Energy Legislation in Minnesota. (House Research, August 2013).

[average of 33 percent](#) of their income on energy bills -- well beyond the 6 percent threshold that is considered affordable.⁸

UNAFFORDABLE HOME ENERGY BURDEN BY POVERTY LEVEL IN MINNESOTA



Because community solar projects lower energy costs, ones that serve low-income households can narrow the energy spending disparity between low-income and wealthier households. Lower energy bills mean households would have a greater portion of their earnings to spend elsewhere, a boon for the local economy.

In addition, low-income residential subscribers are often renters with no pathway to installing or owning solar on their residence. Community solar projects solve this problem as well.

Averaged Payment and Credits

Although not specifically about adders and “subtractors,” ILSR suggests Xcel Energy consider offering an averaged monthly bill credit for customers on their averaged monthly payment program. This would be helpful, in particular, to electric customers who are price sensitive from month-to-month and avoid issues with having minimal electric bills during peak summer solar electricity output but much higher electric bills during the winter months.

⁸ Fisher, Sheehan, & Colton. Home Energy Affordability Gap.

Summary

To summarize, we encourage the Commission to incent community solar projects that pursue brownfield development, co-location of generation and subscribers, residential subscribers, or low-income residential subscribers.

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