Analysis of HB19-1003 "Community Solar Gardens Modernization Act"

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HB19-1003 "Community Solar Gardens Modernization Act" focuses on expanding the implementation of community solar gardens (CSGs) in Colorado. The bill proposes two changes to current legislation regarding CSGs:

1. Increasing the maximum size of a CSG from 2 megawatts to 10 megawatts; and
2. Removing stipulations that require a CSG subscriber to live within the same county as the CSG to which they subscribe.

The bill retains the stipulation that subscribers must reside within the same service territory of the utility company who sponsors their CSG.

A community solar garden is a field of photovoltaic (PV) panels placed in an environmentally advantageous location, i.e. one with ample sunlight. Subscribers from nearby communities invest in a set of solar panels, either through a large up-front purchase or a monthly leasing plan, which entitle them to a solar credit on their monthly energy statement. This credit correlates to the amount of energy their solar panels create.

In sunnier months, when a subscriber's PV panels create more energy than is used by the subscriber's household, the solar credit will exceed the bill, the excess of which will carry over to the subsequent month. In less sunny months, the solar credit may only cover a portion of the household's energy bill.

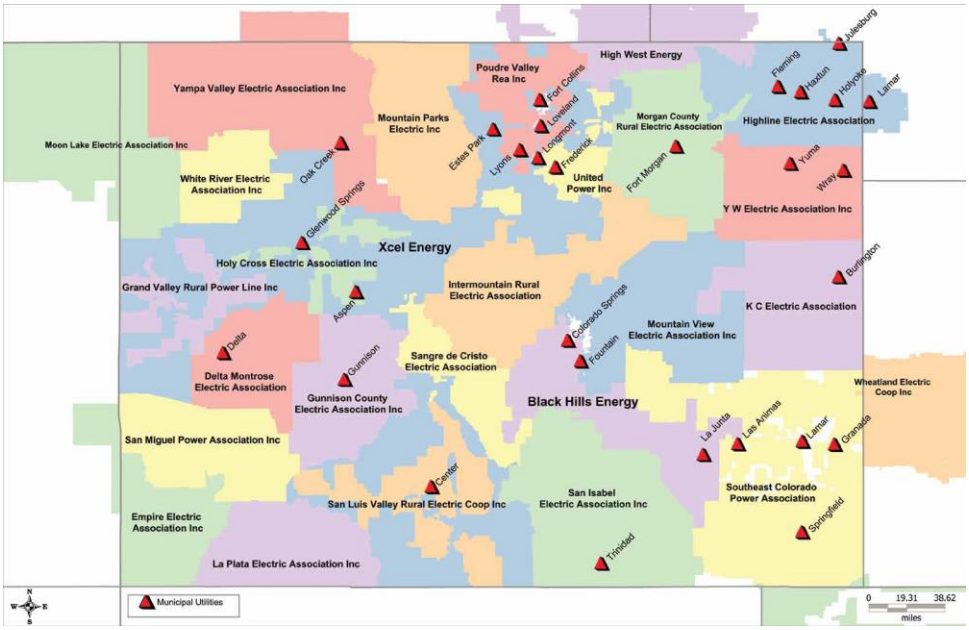
CSG subscribers also receive "a 30% residential investment tax credit for qualifying solar projects through Section 25D of the Internal Revenue Code (IRC).[1]" SunShare, one of

Colorado's premier CSG contractors, claims that on average, customers save money in comparison to their traditional energy costs due to these solar credits and the tax incentive[2]. This allows residents whose homes cannot support solar panels or who live in environmentally disadvantageous locations to promote the environmental benefits of solar energy and likely save money on the energy they consume. Due to current regulation however, opportunities to subscribe to CSGs are extremely limited.

A key factor that shapes this bill's economic impact is the competitive imbalance in the energy market. Because of its extreme economies of scale, providing energy to a wide range of households and buildings in an area is most efficiently done through a single, cohesive power grid. One study explains, "once the gargantuan fixed costs involved with power generation and power lines is paid, each additional unit of electricity costs very little; the more units sold, the more the fixed costs can be spread, creating a reasonable price for the consumer. Having two electric companies split electricity production, each with their own power source and power lines would lead to a near doubling of price.[3]" Since all customers in an area are connected to one power grid and all must pay a single overseeing company, a competitive energy market cannot exist and the price is not determined by the competitive equilibrium.

Because alternative energy sources are less pervasive than traditional methods, alternative energy costs more to produce on a small scale. Community solar gardens reintroduce the economies to scale by pooling costs and thus reducing the cost of solar energy enough to allow participation from the middle class, who could then save money on utilities and support renewable energy production.

In Colorado, 65 independent entities, most of which are run by governments of the municipalities they service, control energy creation and distribution. Below is a map of Colorado utility company distribution[4].



As currently implemented, community solar gardens are sponsored by an area's predominant utility company. Colorado's primary CSG sponsor is Xcel Energy, an investor owned utility and Colorado's largest energy provider. Subscribers pay Xcel-sponsored companies who manage their CSGs. Xcel Energy then adds the solar-created energy into the grid supply and awards subscribers with a credit on their monthly energy bill.

Under current law, each CSG can produce a maximum of two megawatts of electricity. "Modernizing" CSG implementation, as the bill claims to do, includes expanding this to ten megawatts, increasing the number of possible subscribers and the amount of energy each can pay to produce. This provision also allows CSGs to more efficiently use environmentally advantageous land for PV panel use. Although this increase to a ten megawatt cap is a large step toward making solar power generally accessible, the very existence of a cap hinders possible

future growth. As there is no obvious reason to limit energy generation from CSGs, this bill would be improved by removing the cap altogether.

Currently, subscribers can only contribute enough to create 120% of their household's energy usage[5]. This limit exists to prevent a few subscribers from dominating a CSG, promoting the widespread availability of investment in solar energy, and ensuring that an increase in megawatt capacity will result in widespread investment in solar power. By expanding the consumer capacity of the market for CSG use, this bill will increase quantity sold. In other words, HB19-1003 promotes use of solar energy by allowing more consumers to exercise their power in the energy market.

Recently, a contract commissioning the construction of six new CSGs in Colorado was awarded by Xcel Energy to SunShare. "According to a release, SunShare was selected in a competitive bidding process and will be able to serve more than 2,500 residential households in the Denver metro area as well as additional municipal, governmental, and educational entities[6]." This estimate is based on the current limit of two megawatts per CSG, meaning that the increase to a ten megawatt limit could provide service to an additional 10,000 households in this type of contract.

The bill's other method of modernizing community solar garden use is expanding the area from which CSGs draw their subscribers. Current legislation states that consumers can only subscribe to CSGs located within their own county. Much in the same way that some hopeful solar-energy users are precluded from doing so because their homes cannot support photovoltaic (PV) panels, consumers who live in counties with little sunlight, challenging terrain or simply, no CSG may be excluded from CSG subscription under current law. HB19-1003 would remove this unnecessary requirement, extending the possible subscriber area to everywhere within the

electric utility's service territory. It is important to note that expanding the possible subscriber area beyond the utility's service territory would create complications in allocation of the solar credit. Because of this, the bill's proposed expansion is both effective and appropriate. By removing this barrier, HB19-1003 promotes economic efficiency by extending the opportunity to use renewable energy to thousands of Colorado residents.

Conclusion/Recommendations

HB19-1003 implements measures and removes restrictions on community solar garden implementation to increase accessibility and better reflect the true demand for solar energy among Colorado residents. Because the energy market is one that fosters natural monopolies, opportunities to support consumer power within the market are crucial. By allowing more consumers, in a larger area, to choose to support the production of solar power, HB19-1003 accomplishes this goal. The bump in maximum possible energy production for each individual CSG and the removal of the current requirement allowing only residents of the county containing a CSG to subscribe to it increase the market's consumer capacity. This allows more Colorado residents than ever before to choose solar energy over traditional methods without requiring PV panel compatible homes and likely save money in the process. My only proposed amendment to HB19-1003 would be to remove the cap on energy generation by CSGs altogether. To maintain such a limit is seemingly unnecessary and may hinder future development.

Regardless of opinion on renewable energies and their place in the modern energy market, the ability of consumers to express preference is of paramount importance to economic efficiency. HB19-1003 promotes consumer preference and therefore, I support its ratification.

Work Cited

1. Internal Revenue Service Notice 2013-70. (November 18, 2013). www.irs.gov/irb/2013-47_IRB/ar09.html
2. “Find out How Much You Can Save with SunShare.” *SunShare Community Solar Gardens | Community Solar Projects | Renewable Energy Solar Farms*, 2018, mysunshare.com/?savings.
3. Knuth, Don. “Natural Monopolies.” *Don Knuth's Home Page*, cs.stanford.edu/people/eroberts/cs201/projects/corporate-monopolies/benefits_natural.html.
4. United States, Congress, Governer's Energy Office, et al. “Colorado Utilities Report 2010.” Colorado Utilities Report 2010, 2010. rechargecolorado.com/index.php/resources_overview/publications/.
5. “Community Solar Gardens.” The Way It Works: Wind Energy | Clean Energy Resource Teams, www.cleanenergyresourceteams.org/solargardens.
6. "Xcel Energy Leverages SunShare to Build 6 New Community Solar Gardens in Colorado." Professional Services Close-Up 31 Dec. 2018. Business Insights: Global. Web. 3 Mar. 2019.