

Buena Vista Community Solar Progress Report

Town of Buena Vista Trustees Work Session, April 25, 2017

Presented by Susan Greiner and Buena Vista Solar Share, a volunteer community advocacy group

Introduction

It has been a year since we began researching a community solar project for the Town of Buena Vista. Buena Vista Solar Share has been working diligently to bring forward a community solar project for the Town Trustees to consider. The following is an update on our progress, including a proposal for a community solar project.

Why Community Solar

As a brief review,

A Community Solar project, also called a Community Solar Garden, is a collection of solar panels that provides energy to Sangre de Cristo Electric Association customers. Participation is voluntary. Participants subscribe to the community solar garden and receive credit on their electric bills for the power their subscription generates.

The main advantages of community solar to subscribers include:

- It is available to people who:
 - Can't afford rooftop solar
 - Don't have rooftop space, yard space, or unshaded area to put solar panels
 - Don't want to have solar on their property
- Maintenance and insurance is taken care of by the developer of the array
- Renters as well as homeowners can participate
- Subscription moves with the subscriber inside Sangre de Cristo Electric Association territory
- Costs are shared between the participants
- The large grouping of solar panels provided by a community solar project creates an economy of scale that reduces costs for the participants

Stakeholders

The stakeholders for community solar in Buena Vista include:

- Sangre de Cristo Electric Association (SDCEA) members (customers)
- Sangre de Cristo Electric Association board of directors, employees, CEO Paul Erickson, Liaison Mike Allen.
- Former Town of Buena Vista Administrator, Brandy Reitter
- Town of Buena Vista Town Trustees
- Buena Vista Solar Share- a volunteer group of residents advocating for the community solar project.

History:

In the spring of 2016, I presented a feasibility study about community solar in Buena Vista to the Sangre de Cristo Electric Association Board of Directors, and to the Town of Buena Vista Trustees. The study was a capstone project for my Bachelor of Arts degree in Sustainability Studies from Colorado Mountain College. I studied 11 utilities in Colorado, all of which have community solar projects. My conclusion was that community solar was indeed feasible for Buena Vista

After the presentation of my feasibility study, the Buena Vista Trustees asked me to convene an advocacy group to study community solar and to bring a proposal to them for approval.

The advocacy group first met in early June of 2016. Later in the summer, we decided on the name Buena Vista Solar Share. The group consists of four core members, Susan Greiner, Eric Simons, Zach Alexander, and Ted Palpant, with two to four more people rotating in and out of regular meetings, including Jeff Jaska, Dan Murray, Jay Gingrich, and Dick Scar. A group of approximately 10 more receive regular updates by email.

Sangre de Cristo Electric Association gave us a liaison to work with on the issue; Mike Allen. Dave Volpe and Eric Gibb acted as liaisons for the Buena Vista Trustees. Eric Gibb later dropped out after his resignation from the Board of Trustees. At the suggestion of Paul Erickson, CEO of Sangre de Cristo Electric Association, we began our considerations with a 100 KW project (approximately 360 panels).

- Buena Vista Solar share group members travelled to Lake County and La Plata County to speak with community solar representatives
- We had phone conversations with Eric Wanless at the Rocky Mountain Institute, which is a group that facilitates group procurement of community solar infrastructure in New Mexico and Colorado
- We spoke on the phone with Jim Hennigan of the Delta Montrose Electric Association
- We met with Buena Vista Town Administrator Brandy Reitter and Town Planner Mark Doering
- We met with SDCEA liaison Mike Allen and the SDCEA engineer
- We consulted many documents and agencies online.

Brandy Reitter offered a potential land parcel of five acres for the project at the rodeo grounds, pending the approval of the Town Trustees when we brought a proposal to them for approval. The land has access to the necessary three-phase transmission line. A 99-year lease for a maximum of \$10/year was proposed.

In mid-August, we sent out a Request for Information (RFI) to four developers, in order to ascertain developer interest in the project and to get questions answered about the likely structure of the project. Responses came back from Colorado Solar Energy, Clean Energy Collective, and Sunsense Solar. Although the responses were disappointingly general, mostly

due to proprietary concerns on the part of the developers, they helped us to begin to define the scope and parameters of the project.

In the fall of 2016, at the request of Sangre de Cristo Electric Association and The Town of Buena Vista, Buena Vista Solar Share created a community interest survey to determine the interest level of the residents in the community solar concept. The survey was created in Survey Monkey. It was sent out in December of 2016. The survey was promoted through:

- Flyers in Town of Buena Vista water bills
- A small note on Sangre de Cristo Electric bills
- An email sent to over 3800 Sangre de Cristo Electric Association members that the coop had email addresses for
- The Town of Buena Vista Facebook page and other Facebook presence
- Articles and a notice in the Chaffee County Times

The survey was scheduled to stay open until the end of December 2016, but since the SDCEA email was somehow delayed until after the first of the year, the survey stayed open until March 1, 2017. 262 people responded to the survey, and the results were very positive. Complete results of the survey, our interpretation of those results, and answers to 75 comments and questions generated by survey respondents, are available on the Buena Vista Solar Share website at www.bvsolarshare.org.

To summarize the survey results:

- 85% of respondents were interested in getting 50% or more of their energy from solar
- The most appealing aspects of community solar to respondents were:
 - 82% like that it is good for the environment.
 - 79% like that they can have solar without putting it on their property
 - 78% like that solar reduces use of fossil fuels
 - 73% like the potential for financial benefit
 - 72% like that it is located within the community
 - 61% like that maintenance costs and upfront costs are minimal
- Saving Money on Electric Bills
 - 75% wanted community solar to save them money
 - 24% were interested if it neither saved nor cost them money
- Subscription Fees
 - 59% would pay \$500 or less for a subscription
 - 41% would pay \$750 or more
- Discouragements
 - 39% would be discouraged by high fees (the wording of this question was unclear, so results may be skewed)
 - 34% would not be discouraged by anything
 - 33% would be discouraged by lack of financial benefit
 - 17% would need more information
- Home ownership
 - 90% ownership

- 10% rent
- Household Income
 - 50% earn \$60,000 or less
 - 50% earn \$60,000 or more
- 77% live in northern Chaffee County
- 165 people requested to be added to the mailing list

Based on the results of the survey, Mike Allen agreed with our group members that Buena Vista might be able to support a larger project than 100 KW, and we began contemplating a 500 KW project (approximately 1800 panels).

Late in 2016 and early in 2017, we decided to move forward with the process of nailing down parameters for the project. We collaborated on scenarios for those parameters, and pushed for an answer from Sangre de Cristo Electric about whether we could count on a Stand-Alone net metered project with full retail price for the power our solar garden generated, which is a common scenario for community solar projects, and which Mike Allen had responded positively to early on in the process. Net metering is the term used for when the project has a meter attached to it that feeds the power generated by the project back into the grid to offset project subscribers' electric bills. Credits are figured at the full retail price for power (\$.124-.13/KWH). With an answer not forthcoming from Sangre de Cristo Electric Association, we decided to set an April date for this presentation in order to attempt to move the project forward. Sangre de Cristo responded by rejecting the Stand-Alone model as a basis for the project.

On March 2, BV Solar Share group members Eric Simons and I met with Mike Allen, our liaison at SDCEA, and Paul Erickson, CEO of SDCEA, to try to convince them of the value of using a Stand-Alone model and to hear their explanation against that idea. The biggest issue with the Stand-Alone model is that it requires SDCEA to purchase the power generated by the solar garden at full retail rate, whereas if SDCEA had purchased the same amount of power from the traditional power grid, they could have purchased it at wholesale. For this reason, the SDCEA Board of Directors did not want to erode the coop's financial solvency by basing the community solar garden on the Stand-Alone model.

Until the March 2 meeting, SDCEA held the position that the coop did not want to be involved with the community solar project at all except to distribute the bill credits onto subscribers' bills. But at the March 2 meeting, Mike Allen and Paul Erickson presented a new proposal, already agreed to by their Board of Directors, which was a complete about-face to their original position. They proposed that SDCEA develop a 2 MW utility scale solar project with a 500 KW community solar carve-out. SDCEA would take complete control of the project, negotiating a Power Purchase Agreement (PPA) with a national scale developer, with SDCEA administering the subscriptions to the community solar project.

Stand-Alone Model vs. Utility Scale/Carve-Out Model

In order to explain the differences between the Stand-Alone Model and the Utility Scale/Carve-Out Model, we have outlined their structures, advantages and disadvantages below.

1. Stand-Alone Model

- Subscribers own their solar panels in the community solar array
- Credits are figured at the retail power rate (\$.12-.13/kwh)
- The developer sells subscriptions at \$700-900 (one-time fee)
- Return on investment (ROI) is around 7% (but might be up to 13% if the subscriber's personal income supports taking the 30% federal tax credit)
- Payback on investment is around 14 years (but might come down to 9 years if the federal tax credit can be taken)
- Operations and Maintenance costs are shared by the subscribers within the subscription price

Advantages of the Stand-Alone Model:

- Simple project structure
- The developer (who could be local) has incentive to sell subscriptions
- The 30% federal tax credit may (or may not) be available to subscribers
- The developer does all the work, SDCEA only applies subscribers' credits to their electric bills

Disadvantages to the Stand-Alone Model:

- SDCEA must buy the community solar power at retail (\$.12-.13/KWH), whereas they normally buy power at wholesale (\$.064/KWH) and resell it to their members at retail, applying the resulting margin to operating costs
- This higher cost of purchased energy must be spread among all SDCEA members
- The Stand-Alone model developer could go out of business (or pass operation on to another developer)

2. Utility Scale with Community Solar Carve-out Model

- Subscribers have a Subscription Agreement for solar panels with SDCEA
- SDCEA negotiates a Power Purchase Agreement (PPA) with a large developer (for the entire 2 MW project)
- 1500 KW will be a utility scale project, whose benefits include: environmentally sustainable clean power, energy independence, and possible savings on operations and maintenance costs
- 500 KW are set aside for community solar
- The PPA will be negotiated at approximately \$.05/KWH
- SDCEA generates the difference between the low power price of \$.05/KWH and the full retail rate of \$.124-.13/KWH by selling subscriptions at \$3.00-3.50/Watt (\$700-900 one-time fee)
- All administration of the subscriptions is handled by SDCEA
- BV Solar Share and the Town of Buena Vista help to market subscriptions
- Credits will be at or near the retail power rate (\$.12-.13/kwh)
- Return on investment (ROI) will be around 7%
- Payback on investment will be around 14 years

- Operations and Maintenance is the developer's responsibility

Advantages of the Utility Scale/Carve-out Model:

- SDCEA can get power at less than the wholesale rate (around \$.05/KWH)
- The 1.5 MW project that is not community solar has environmental and energy independence benefits for all of SDCEA's members
- Combining the utility scale project with the community solar project helps to create negotiating power for SDCEA to obtain a lower PPA price due to economy of scale.
- SDCEA and the third-party developer do all the work for the project, except subscription marketing
- There are no costs to spread among other SDCEA members
- Each subscriber is not dependent on the other subscribers. If the project is not completely subscribed, or some people drop out, it will not affect the other subscribers or their subscription rates.

Disadvantages of the Utility Scale/Carve-out Model:

- SDCEA must administer the project and its subscriptions/changes, which will require staff time on their part
- A local developer is not used
- SDCEA has no built-in incentive to sell subscriptions. Since they are a nonprofit cooperative, they will not have the staff or money to promote subscriptions, and there is no incentive for them to do so. Subscription attrition over time is possible.
- BV Solar Share and the town must market the subscriptions.
- Once the project is fully subscribed, the Town of BV would have to promote further growth of community solar.

Numeric Comparison of the two models:

For clarity, here is a numeric comparison of the two models.

Stand-Alone Model:

- Basic subscription = **\$850**/panel
- Includes **\$150** for reserve and maintenance.
- Full retail credit (**\$.124-.13**/kwh)
- ROI = **7%**
- Payback = **14.28** years
- 30% Federal Tax Credit may apply to increase ROI to **13%**, Payback to **9** years

Utility Scale/Carve-out Model:

- Basic subscription = **\$840**/panel
- (**\$3/w** x 280 w panel)
- Maintenance done by the developer, part of PPA price
- **\$.05**/kwh PPA price + SDCEA sells subscriptions (**\$3/w**) = Full retail credit (**\$.124-.13**/kwh)
- ROI = **7%**

- Payback = **14.11** years

Of the eleven utilities with community solar projects that I studied in my feasibility study, the successfully subscribed projects had an ROI of 5-9%, and a payback of 11-17 years. Both the Stand-Alone Model or the Utility Scale/Carve-out Model are capable of delivering marketable subscriptions within this range.

The actual parameters of the Utility Scale/Carve-Out Model proposed by SDCEA are still up in the air at this point. In order for subscriptions to fall in 5-9% ROI range described above, SDCEA will need to negotiate a PPA of \$.05/KWH or lower, and sell subscriptions at \$3-3.50/Watt. Also, BV Solar Share's and/or the Town of Buena Vista's will need to market subscriptions, and the cost for the land that the project is built on will need to be negligible.

In addition, to achieve the goal of making the community solar project available to low income residents, a portion of the project should have low cost subscriptions. The state guidelines for community solar gardens suggest 5% of the project be set aside for low income subscribers. One way to accomplish low income access would be to work with the State of Colorado to incorporate a Grid Alternatives low income solar array, which allows residents with qualifying income levels to pay for their community solar power for \$2/KWH, which is debited on their electric bills over time. However, all of the Grid Alternatives state project money has already been allocated, so there is none left for our project at this point. Mike Allen has said that Grid Alternatives and the state will help SDCEA with alternative ideas. Another way to provide low income subscriptions is to sell very small subscriptions, representing fractions of solar panels, to low income participants, resulting in a lower cost.

Conclusion: BV Solar Share Recommendation

Why should we want a community solar project if there will be a utility scale project, too? A utility scale project will generate power that will be spread amongst all 12,000 members of the Sangre de Cristo Electric Association cooperative. This will help to stabilize power costs and keep resident/members bills from increasing over time. A community solar garden will allow resident/members who want to have a larger percentage of their power provided by solar panels to buy as much of a share in the solar garden as they want (which can be up to 100% of their power needs if they wish). Credit for the power that each subscriber's share generates will be credited onto their electric bills, lowering their bills by that amount.

In summary, we recommend the following project features for the Buena Vista Community Solar Garden:

- Up to a 500 KW project size for the community solar project, administered by SDCEA
- Five acres of town land at the rodeo grounds, with a 30-year renewable lease, at a cost of \$10/year or less for the community solar portion of the array
- SDCEA may negotiate with the town or another property owner for 10 acres for the utility scale portion of the project (1500 KW). So, the entire 2 MW project will require 15 acres total.
- \$850 or less one time subscription rate per panel
- Full retail credit for power generated by community solar subscriptions

- A return on investment 7% or more
- A payback of less than 15 years
- 5% of project should be set aside for low income subscriptions

SDCEA has asked for our cooperation and trust as they take control of the project and attempt to successfully negotiate its parameters with a developer, in order to create a community solar project with marketable subscription rates. We have every reason to believe they can accomplish this. SDCEA is motivated to keep this project moving, because they want to get it under way before any potential rule changes from their parent cooperative, Tri-State Generation and Transmission, can take effect later in the year.

Here are the tasks that will move the community solar project forward from here:

- SDCEA will send out Requests for Proposal (RFP) this spring.
- Based on responses to their RFPs, SDCEA will choose a developer. They will also choose a land parcel, and negotiate a PPA with the developer
- Subscription rates for community solar will be set
- Hopefully construction can begin in early 2018
- The Town of Buena Vista will provide conduits for marketing subscriptions
- BV Solar Share will help the town market subscriptions for the community solar garden
- The Town of Buena Vista will be able to use community solar to help its branding as a sustainable community

It is hoped that this presentation will generate the following responses from the Town Trustees:

- Your opinions, concerns, and questions about the project and the material presented
- Your willingness to communicate directly with SDCEA concerning the project
- Confirmation of the lease of 5 acres of land for the community solar portion of the project with the Town of Buena Vista
- Direction from Trustees for going forward
- Continued communication between Buena Vista Solar Share, SDCEA and the Town of Buena Vista
- A proposed date and time to return to the Trustees with another progress report

The Utility Scale/Carve-Out proposal addresses the interests of the Town of Buena Vista, Sangre de Cristo Electric Association, and residents interested in community solar. Community Solar allows Buena Vista to become a more sustainable community that is more energy independent; a community that can show visibly that its residents care about the health of the planet we will leave to future generations. We ask that you continue to support this project and our requests surrounding it. Thank you.