ACCESS Project Case Study: Anza Electric Cooperative

Shifting Peak Demand with Solar Energy to Assist Native American Economic Development

Anza Electric Cooperative, Inc.

A Touchstone Energy® Cooperative

ACCESS Program

NRECA's solar energy project, *Achieving Cooperative Community Equitable Solar Sources* (ACCESS), is the flagship project of NRECA's *Advancing Energy Access for All* initiative. This initiative spotlights the innovative ways cooperatives approach community development and support for their consumer-members, as technology advancements continue to transform our industry.

ACCESS will explore and amplify the use of innovative, cost-effective energy access programs to help increase solar affordability, with particular focus on assisting low and moderate income (LMI) consumers. ACCESS will research varying financing mechanisms and program designs to identify optimal solutions for small utilities, including field tests of diverse co-op solar projects around the country. Through this project, tools and resources will be developed to assist electric co-ops and the broader industry deploy solar projects to benefit LMI consumers.

This case study provides example of how one cooperative, Anza Electric, is working to provide solar affordability benefits to a local Tribe community.

Cooperative Profile

Anza Electric Cooperative, Inc. (Anza), founded in 1955, is a member-owned electric and telecommunications provider located in rural southwestern Riverside County, California. Anza is the smallest electric cooperative in the state and employs 26 staff members. As of the 2019, the total population in Riverside County was nearly 2.5 million, but the estimated population of Anza's rural service territory was only about 10,000.[1] Anza serves about 5,200 consumer-members (94% residential and 6% small commercial), covering 550 square miles of service territory (see Figure 1). Anza owns and maintains about 750 miles of line and four substations in their

Figure 1: Map of Anza Electric Cooperative, Inc.

[1] https://www.census.gov/quickfacts/riversidecountycalifornia

territory, with a Summer peak demand of 14 MW.[2] AEC's service area is mostly high desert with an elevation at roughly 4,000 feet where winter weather can sometimes be a challenge (See Figure 2).

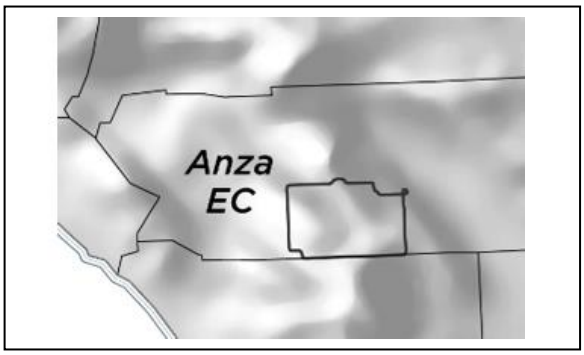

Figure 2: Topography of Anza Service Area.

Anza's estimated average poverty rate in 2018 was 12.7%, only just slightly below the rate of entire state of California at 12.8%. The percentage of Anza's membership that is low-to-moderate income (LMI)[3] is at about 18%. Additionally, the median household income for the Census tracts where Anza serves is $44,144, which is significantly lower than the median household income for the state of California of $71,228.[4]

Anza's territory is racially and ethnically diverse. 59.1% of the population is non-Hispanic White, while the remaining 40.9% are racial minorities. This includes a significant population (15.5%) that identifies their race as Other, 5.5% Native American, 5% Multiracial, and the remainder identify as Asian (1.5%) and Black (1.1%). and Asian. Ethnically, more than a quarter of the population (28.7%) of all races identifies as Hispanic. Educationally, approximately 14.8% of the population (25 years old and over) does not have a high school diploma, which is greater than the 13.1% of people nationwide without a high school diploma. 20.9% of the population is over the age of 65, compared to 12.9% for California and 14.5% for the US.[5]

Focus on Addressing Poverty and Associated Energy Cost Challenges

Research has shown that, in general, low-income households spend a disproportionately higher percentage of their income on energy bills, and that rural households throughout the U.S. spend a higher share of household income on energy bills than others in their region and urban/suburban households. In addition, more than two in five homes in Anza's territory are manufactured or mobile homes, which are generally less energy efficient than other housing stock of comparable size. While there is no widely accepted threshold used to establish energy burden, the U.S. Department of Health and Human Services (HHS) classifies the burden of energy costs greater than 6% of household income as "unaffordable."[6] Keeping this front of mind, Anza has worked for years to address the intertwined problems of poverty and energy burden and the associated impacts. Programs offered to consumer-members include:

- Enrollment assistance to obtain support through the U.S. federally-funded Low Income Home Energy Assistance Program (LIHEAP)
- Financial assistance through the Cooperative Care Program and the Smiles for Seniors Program
- Prescription and health care service discounts through the Co-op Connections Savings Program
- Kill-A-Watt Program to measure energy use of individual appliances

[2] Annual Electric Power Industry Report, Form EIA-861 detailed data files, 2019, https://www.eia.gov/electricity/data/eia861/
[3] ""Low-income" is defined as 80 percent of the median family income for the area, subject to adjustments for areas with unusually high or low incomes or housing costs." https://www.huduser.gov/portal/datasets/il/fmr98/sect8.html
[4] 2018 American Community Survey 5-year Estimates Detailed tables, www.data.census.gov
[5] 2018 American Community Survey 5-year Estimates Detailed tables, www.data.census.gov
[6] https://www.acf.hhs.gov/sites/default/files/ocs/comm_liheap_energyburdenstudy_apprise.pdf

Anza has a history of supporting their local community. Over the past year, Anza has been sponsoring a food distribution program with a local food bank. Although the donated food is free, the cooperative helps to defray transportation costs. Anza donates money to the program directly, and partners with CoBank who matches their donation. The program helps to bring food to about 400 families each month. Additionally, Anza is currently working on a new project to provide broadband to LMI families with school children. This is especially important now given the increased online schooling resulting from COVID-19 restrictions.

Anza also has a long-term relationship with the Santa Rosa Band of Cahuilla Indians. The Tribe is relatively small, with just 144 people living on the Santa Rosa Indian Reservation served by 38 co-op residential meters. Anza's partnership with the Tribe began in the 1960s when the electricity lines were initially put up to serve the Reservation. Since then, Anza has further developed their electricity service, provided broadband, and has made in-kind contributions to the Tribe's community, all helping to foster a good relationship with the Tribe. Anza, along with GRID Alternatives,[7] also created a job training development program for four Tribal members to help complete solar panel installations for the Santa Rosa Solar project. However, because of limitations from COVID-19, the job training has taken a pause.

Background to Anza's Solar Program

Anza has an existing 2 MW solar project, called SunAnza, and is adding a second phase including an additional 1.4 MW of solar capacity and a 2 MW/two-hour battery to create a microgrid to increase reliability and resiliency and reduce peak demand. Arizona G&T Cooperative will own and operate this project, with Anza having secondary control capabilities to work on-site if necessary. Anza has completed the first phase of this project and is currently developing the second phase.

Figure 3: SunAnza Phase 1
(Courtesy of Anza Electric)

In addition to SunAnza, the co-op is currently working on the Santa Rosa Solar project. This project began with GRID Alternatives reaching out to Anza about state grant money from the California Department of Community Services and Development that could potentially be used towards a solar

[7] GRID Alternatives is a non-profit focused on making clean and affordable solar power accessible to low-income communities and a partner in the NRECA ACCESS project: https://gridalternatives.org/about

energy project in the cooperative's service territory. After discussing different options, they decided to contact the Santa Rosa Band of Cahuilla Indians to ask about possibly working together to install an additional solar PV project in Anza's territory and on tribal land. Both the cost savings aspect and the renewable energy advocacy aspect of this project made it especially valuable to pursue. The project will help to enable access to affordable solar energy options for their tribal members and for Anza's other LMI consumer-members.

Figure 4: Groundbreaking for the Santa Rosa Solar Project
(Courtesy of Anza Electric)

Program Concept and Design

Figure 5: Santa Rosa Solar Project
(Courtesy of Anza Electric)

The entire 1 MW array of the Santa Rosa Solar project will be owned and maintained by Anza and located on the land owned by the Santa Rosa Band of Cahuilla Indians. Since the project site is located on tribal land, Anza did not need to go through a permitting process with the state, which helped to simplify the project development process.

The Tribe also wanted to make sure they would receive financial offsets through use of their land by advocating for virtual net metering[8] for their residential members. Currently, Anza has a problem with high daily peak demand during the evening and plans to leverage their existing and new solar energy resources to help address this issue. By developing a unique Time-Of-Use (TOU) tariff structure that uses virtual net metering. This will encourage participating members to shift their energy use to more closely align with peak solar generation times of the day. There is an agreement with the Tribe to allow virtual net metering for all residents on the reservation. Any additional generation will go towards other LMI

[8] "Virtual Net Energy Metering (VNM or VNEM) is a tariff arrangement that enables a multi-meter property owner [such as community solar] to allocate the property's solar system's energy credits to tenants." https://www.cpuc.ca.gov/General.aspx?id=5408

members in Anza's territory. This provides an opportunity for the LMI community benefit from affordable renewable energy access.

Although final guidelines are still in development, Anza will likely pre-qualify members that are already enrolled in the state's Low Income Home Energy Assistance Program (LIHEAP)[9] for Anza's low-income tariff, with an annual requalification. The project design will also try to identify LMI consumer-members who are not currently enrolled in LIHEAP to include them in this project. Anza plans to have monthly bill credits based on average use of all residential cooperative members. The metering data will be collected using a Supervisory control and data acquisition (SCADA) system, through their current billing system provided by SEDC.[10]

There are several objectives of Anza's Santa Rosa Solar project:

- Provide the LMI community with access to renewable energy.
- Shift at least 1 MW of peak consumer demand to coincide with peak solar generation times and share the financial benefit of reduced energy and capacity costs to LMI members via the TOU tariff.
- Bring benefits to all consumer-members though deferring transmission asset upgrades through reduced peak import demand.
- Keep energy costs consistent with or below current avoided costs.
- Reduce greenhouse gas emissions and mitigation costs.

Anza has several metrics to measure success for this project, including meeting the renewable energy and financial goals of the cooperative and completing the project on time and within budget.

Program Economics

A grant of $2 million from the state will cover most of the project costs but will not cover the costs of interconnecting the array with Anza's distribution grid. A further anticipated cost will likely come from expanding broadband internet connectivity for energy use monitoring and SCADA purposes.

Anza will be finalizing their LMI tariff in the next few months, and the co-op anticipates that the tariff will apply to Tribal consumer-members as well as a couple hundred additional LMI members outside of the Reservation. The cooperative anticipates annual savings to range from $600 to $1,000 per family. This is significant, since this could mean up to 50% of savings on a family's monthly energy bill, providing significant savings for the LMI members of the cooperative.

Anza is looking into potentially using Renewable Energy Credits (RECs)[11] for further cost savings. With no retirement requirements for RECs, the cooperative can sell them on the REC market, and use the proceeds to reduce rates for all members. Even though Anza has not increased rates for their members in 11 years, the cooperative is still continually looking for ways to further reduce costs.

[9] https://www.acf.hhs.gov/ocs/programs/liheap/about
[10] https://www.sedata.com/
[11] https://www.epa.gov/greenpower/renewable-energy-certificates-recs

Since Anza utilized state grants to minimize the direct costs of the project to the cooperative, the financial benefits from this project to the cooperative could add up to $10-15 million over the entire 20 to 25-year life of the project.

Challenges and Opportunities

Every project comes with a unique set of challenges and opportunities. Fortunately, Anza has faced few major challenges in this project thus far. The main challenge Anza currently sees is their single radial feed system, with just a single transmission line connecting the co-op to the larger grid, which limits the cooperative's ability import additional power to serve growing demand. The single radial feed system is used because all other import transmission paths have been studied and eliminated as either too costly or technically infeasible. With the existing transmission line already at maximum capacity, Anza needs to build more generation on their distribution system, along with energy storage, to continue meeting the growing energy needs of their members. The Santa Rosa Solar project, along with other existing Anza solar projects such as SunAnza, will help to partially meet this need, although more battery capacity will also be needed.

The positive decades-long relationship between Anza and the Santa Rosa Tribe has helped to make the project process as smooth as possible. In the words of Kevin Short, Anza's General Manager (GM): "We've been very fortunate with Santa Rosa, their goals align perfectly as co-op members with us… Communication is always very easy with them. We've attended many tribal council meetings, and we're very welcome there."

The Santa Rosa Tribe will also likely see economic development opportunities on their Reservation as a result of this project. The community has already established a small convenience store and gas station, which contribute to the area's economic growth. The Tribe is also currently developing a health clinic and is in the process of planning other projects for their community in the future.

Project Development

The Santa Rose Solar project is still under development, and currently scheduled to be completed by January 2021. Most of Anza's staff will likely help with some aspect of the project at some point. The member services team will develop the outreach process for reaching possible subscribers, the government relations team will be involved with marketing and public relations, and the accounting team will be involved with net metering.

Figure 6: Anza Electric team working on the Santa Rosa Solar Project (Courtesy of Anza Electric)

As the project moves along, Anza will work to define eligibility for the TOU rate for LMI members that do not

already participate in LIHEAP. Anza plans to work with GRID Alternatives on the community engagement strategies for engaging the Tribe.

The timeline of the project is as follows:

- PV Installation complete – September 2020
- Battery storage installation – November 2020
- Commissioning – November 2020
- Income Qualified Rate Implementation – November 2020
- Completion January 2021

Key Lessons and Insights

Although the project is not complete, Anza has found a few initial key lessons already. GM Kevin Short recommends that for any successful project, sufficient research is crucial to ensuring a smooth project development process. He also recommends to choose project sites carefully. This was a major lesson learned from the first phase of the SunAnza project, where, the site chosen was under three jurisdictions (county, state, and federal), which made the process of developing the array much more complicated than if there was only one jurisdiction over the area.

In working with Native American tribes for electric cooperative projects, Short emphasizes the importance of having a good history with the Tribe, and building mutual respect between the two entities. Short suggests that cooperatives be careful in how they approach issues like easements: "Don't try to exert any eminent domain issues, and just be willing to do something in-kind. For example, like how we resolved one easement issue we had, we traded off the cost of developing an improved service for a casino, and in exchange we got a 50-year lease."

This case study highlights how Anza works with members to help provide services for the Santa Rosa Tribe as well as their other LMI members. The Santa Rosa Solar project aims to provide more equitable access to renewable energy, help achieve a shift in energy use habits of members, and support economic development, all while also benefitting the local Tribe and LMI members.

Additional Resources on NRECA's ACCESS Project

- **Access Website**
- **Advisory: ACCESS Project Explores Use of Federal Assistance Funds to Provide Affordable Solar Energy for Low-Income Households**

Join the ACCESS Project as an Affiliate Member

Want to stay informed of our progress with the ACCESS project, and provide your input and feedback? We welcome all NRECA members to join the project as Affiliate member. Contact our team at: SolarAccessProject@nreca.coop.

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