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 Research'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 explored and amplified 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 researched 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 were developed to assist electric co-ops and the broader industry as they deploy solar projects to benefit LMI consumers.

This case study provides an example of how one cooperative, Anza Electric Cooperative, 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 27 staff members. As of 2022, 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-member meters (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] Anza'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).

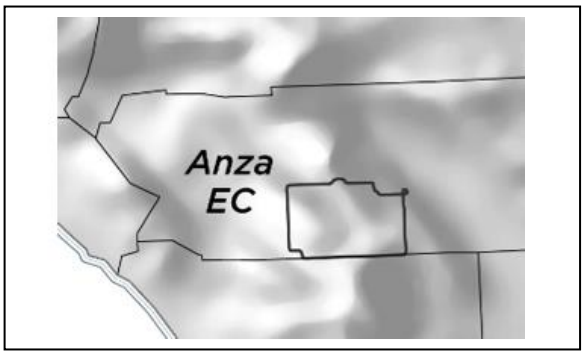

Figure 2: Topography of Anza Service Area.

Anza's estimated average poverty rate in 2020 was 13.5%, which exceeds the rate of the entire state of California at 12.6%. 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 $47,237, which is significantly lower than the median household income for the state of California of $78,672.[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%).. 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] 2020 American Community Survey 5-year Estimates Detailed tables, www.data.census.gov
[5] 2020 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 three years, 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 has been working on a project that provides broadband to LMI families with school children. This has been especially important given the increased online schooling that resulted 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 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 five Tribal members to help complete solar panel installations for the Santa Rosa Solar project.

Background to Anza's Solar Program

As of 2020, Anza had an existing 2 MW solar project, called SunAnza, and has since completed 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 owns and operates this project, with Anza having secondary control capabilities to work on-site if necessary.

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

In addition to SunAnza, the co-op also completed installation of the Santa Rosa Community Solar project in 2021. This project began with GRID Alternatives reaching out to Anza about state grant money from

[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

the California Department of Community Services and Development that could potentially be used towards a solar 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 SunAnza Solar Project
(Courtesy of Anza Electric)

Program Concept and Design

The entire 1 MW array of the Santa Rosa Solar project is owned and maintained by Anza and is 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.

Figure 5: SunAnza Solar Project
(Courtesy of Anza Electric)

The Tribe also wanted to ensure 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, participating members are encouraged to shift their energy use to times that more closely align with peak solar generation times. There is an agreement with the Tribe to allow virtual net metering for all of the 38 households on the reservation. Any additional generation will go towards other LMI members in Anza's territory. This provides an opportunity for the broader LMI community to

[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

benefit from affordable renewable energy access, and currently benefits 182 households. There currently has a waiting list.

When enrolling members in their low-income tariff program, Anza pre-qualifies members that are already enrolled in the state's Low Income Home Energy Assistance Program (LIHEAP)[9], with yearly requalification. The project also identifies LMI consumer-members who are not currently enrolled in LIHEAP to include them in this project. Anza provides non-Tribe subscribers with monthly bill credits based on average use of all residential cooperative members, which yields approximate minimum savings of 25% for each subscriber. The metering data is collected using a Supervisory control and data acquisition (SCADA) system and is correlated to member data by meter number through their billing system provided by Meridian Cooperative (known then as Southeastern Data Cooperative).[10] Since telecommunications infrastructure is required for the operation of the SCADA system, the Tribe also receives free broadband internet.

Anza's Santa Rosa Solar project achieved the following objectives:

- 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. (currently pending verification)
- 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.

Program Economics

A grant of $2.1 million from the state of California covered most of the project costs but did not cover the costs of interconnecting the array with Anza's distribution grid. Further costs were incurred from expanding broadband internet connectivity for energy use monitoring and SCADA purposes.

Anza's tariff program applies to the homes of 38 Tribal consumer-members as well as 192 additional LMI households outside of the Reservation. Tribe members receive an on-bill credit equal to up to 100% of the average energy usage of an average Anza member (~700 kWh in 2019). If a subscriber's usage exceeds average Anza member usage in a given month, the Tribal subscriber is charged at the normal residential tiered rates for their usage thereafter. The Santa Rosa tribal members are still charged the co-op's monthly membership fee of $24, regardless of their energy usage during the previous month.
Anza's non-tribal LMI subscribers receive a tiered rate that is similar to the regular residential rate but at reduced $/kWh levels. The effective rate varies based on the subscribers' overall usage and demand tiers applied for each month. Through this arrangement, Anza achieves 25% minimum savings per non-tribal LMI subscriber while maintaining the incentive to reduce overall usage and receive a higher percentage in savings by being energy efficient and managing load.

[9] https://www.acf.hhs.gov/ocs/programs/liheap/about
[10] https://www.sedata.com/

The cooperative anticipates annual savings of $1,440 for Tribal subscribers and $432 for other subscribed LMI families. For some of the non-Tribal households, this could mean up to 50% of their monthly energy bill, providing significant savings for the LMI members of the cooperative.

Anza retains the 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.

The project is expected to generate $5.93 million of cumulative savings for Anza's members over the entire 30 -year life of the project. The program costs Anza $5,000 per year for program administration and maintenance. The value of the property was considered in-kind contribution (cost share) to the State grant.

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 experiences is in regard to their single radial feed system. With just a single transmission line connecting the co-op to the larger grid, the cooperative has limited ability to 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 additional generation and storage resources into their distribution system to continue meeting the growing energy needs of their members. The Santa Rosa Community Solar project, along with other Anza solar projects such as SunAnza, are helping to partially meet this need, with even more solar and battery capacity being planned for the future. Anza is currently working with GRID Alternatives to add a 1 MW battery to the Santa Rosa project that will provide the community with much needed resiliency in the face of outages and natural disasters.

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 likely enjoy long-term 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.

[11] https://www.epa.gov/greenpower/renewable-energy-certificates-recs

Project Development

The Santa Rosa Community Solar project installation was completed in June 2021. Most of Anza's staff helped with some aspect of the project at some point. The member services team worked with GRID Alternatives to develop the outreach process for reaching possible subscribers, the government relations team was involved with marketing and public relations, and the accounting team was involved with the virtual net metering for the project.

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

During the installation process, Anza collaborated with GRID Alternatives, to offer paid positions that provided on-the-job training opportunities to five of the Tribe's members.

The timeline of the project was as follows:

- PV Installation complete – June 2021
- Commissioning – September 2021
- Income Qualified Rate Implementation – August 2021
- Completion December 2021

Key Lessons and Insights

General Manager 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 Community 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 Project Website**

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