Final Technical Report Cover Page

Recipient Organization:	**FEDERATED INDIANS OF GRATON RANCHERIA**
Project Title:	**Graton Renewable Energy Efficient Network Project (GREEN Project)**
Date of Report:	*August 30, 2023*
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1.0 Executive Summary

Project Scope

The Federated Indians of Graton Rancheria (FIGR) is a federally recognized tribe located in Sonoma County, California, serving over 1,500 tribal citizens. The Tribe has a growing tribal land base of over two hundred acres and operates several tribal government programs to support the needs of its tribal citizens and eligible program clients. These programs fulfill the goal of restoring the Tribe's capacity to self-determine appropriate tribal services, while building added capacity with increased economic opportunity to support future tribal programs benefiting our communities served. Sustainable energy provision is a fundamental priority of the Tribe to efficiently operate governmental programs and services that support our community. Two of the Tribe's most important values are environmental stewardship and social justice. In support of these values, the Tribe sought an alternate energy development project with solar that would create a sustainable, renewable energy resource located on tribal lands.

In 2015, the Tribe commissioned a Renewable Energy Systems Analysis study that would support the Tribe's energy needs. The study analyzed available areas for solar installations, the solar resource type, the community energy use and economic factors. The study identified the Tribe's casino rooftop capacity to hold up to 1.5 MW of solar energy to serve four tribal buildings. The energy analysis also indicated a potential savings of up to 15% of annual energy costs to tribal enterprises based on the 2016 cost of purchased electricity

Early in 2016, the Tribe submitted a competitive grant application to the Department of Energy Office (DOE) Office of Indian Energy for the Graton Renewable Energy Efficient Network (GREEN) Project to install approximately 1.5 megawatts (MW) (later re-designed to 1.7 MW) of rooftop solar to provide electricity to four Tribally owned buildings on Tribal trust land located in Sonoma County. During the summer of 2016, the Tribe was awarded a three-

year grant to conduct proposed activities within the statement of project objectives through a combination of both federal and cost share matching funds from the Tribe. The awarded project would be the first solar photovoltaic (PV) installation by the Tribe on Tribal lands. The project would complement previously installed clean energy projects including multiple electric vehicle chargers located at the Tribe's economic enterprise.

The project objectives were to 1) support project management by timely grant reporting through quarterly financial and narrative reports; 2) complete a request for proposal for project installation of the solar project; 3) oversee the project installation per terms of contracted services; 4) operate and maintain the installed solar power system for a period of 12 months after commissioning; 5) conduct community outreach and education regarding the project benefits to support beneficial future renewable energy projects.

3. Project Outcomes Beneficial to the Tribe

Since April 2022, the solar power system began generating clean energy from the sun, offsetting the resort and casino's energy use, cutting FIGR's costs, while supporting the Tribe's values of good land stewardship and giving back to the community. The installed solar power system has generated a total of 2,975,944 megawatts during the previous 12-months through April 30, 2023. This has resulted in an estimated annual cost savings of $400,000 for the Tribe.

Tribal Chairman Greg Sarris recently commented for a 2022 DOE Media blog on the project, "the solar project is just an integral part" of the Tribe's approach to modeling conservationist culture through a regenerative approach to community development. As leader of the Tribe, he admired the 1.7-MW solar PV system that has optimized his view and improved the Tribe's bottom line. "Because when you're taking, you want as much to be able to give back—and solar is giving back. Solar isn't just taking. Solar isn't just draining. It's something that's sustainable."

2.0 Background

The Federated Indians of Graton Rancheria (Tribe) is a federally recognized Indian tribe whose federal recognition was restored to the Tribe in December 2000 and is now known as Federated Indians of Graton Rancheria. Since then, the seven-member Tribal Council has been focused on actively restoring its capacity and developing innovative programs that serve its over 1,500 Tribal Citizens. The Tribe brought its 254 acres of Reservation land into trust in 2010 and through the establishment of the Environmental and Planning Department, the Tribe has developed a strong capacity to support the planning of future development of its Reservation, while engaging in environmental conservation and long-range planning. Sustainable energy provision is a fundamental priority of the Tribe. In 2012, the Tribe, through the Graton Economic Development Authority Statute, created the Graton Economic Development Authority (GEDA) whose purpose is exercising the Tribe's ownership, development, management, operation and supervision of its gaming business and gaming

assets. As GEDA oversees the Tribe's capital assets, it was responsible for the project coordination.

3.0 Project Objectives

The Tribe, in coordination with GEDA, had to install and operate approximately 1.7 megawatts (MW) of rooftop solar power generation to reduce greenhouse gas emissions from investor-owned utility commercial power generators, while saving the Tribe approximately 15% of annual energy costs to the buildings served by the installed solar power system.

The project milestones included Reporting & Monitoring, Request for Proposals, Project Installation, Maintenance and Operations as well as Education and Outreach. The solar provides electricity to four Tribally owned buildings on Tribal trust land in Sonoma County through the Graton Renewable Energy Efficient Network (GREEN) Project.

The project consisted of five major tasks and support activities consisting of:

- ***Task 1 – Project Reporting & Monitoring:***
- ***Task 2 – Request for Proposals for Project Installation & Operations***
- ***Task 3 – Project Installation of Solar PV system atop tribal buildings***
- ***Task 4 - Maintenance & Operations of installed Solar PV systems***
- ***Task 5 - Education & Outreach to our tribal community of project benefits***

4.0 Description of Activities Performed

Project Task Activity 1 – Reporting & Monitoring:

- Quarterly reports were produced and submitted on time during the project period. The Tribe completed three project updates during the Annual Department of Energy (DOE) Program Review conference. Project team members participated in additional project monitoring calls with DOE Office of Indian Energy officials to monitor project progress and overcome project challenges. The Tribe's project team worked in concert to ensure all grant conditions were met and project outcomes achieved.

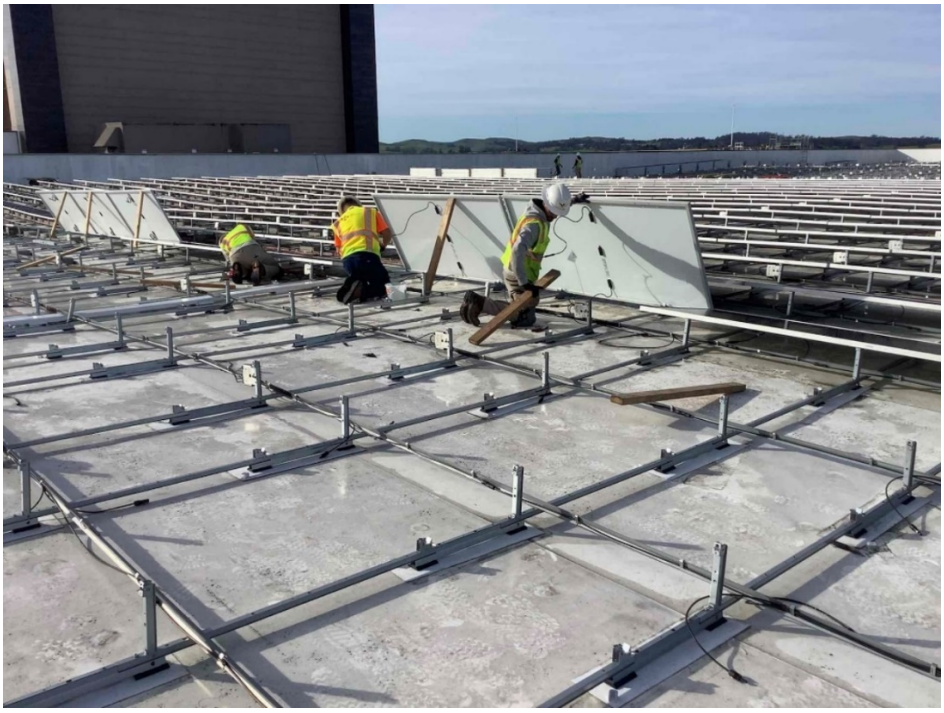
Project Task 2 Activity 2 – Request for Proposals for Project Installation & Operations

- The project planning team and their consultants developed a Request for Proposals (RFP), complying with federal and tribal procurement standards, to support Task 3 of the project. Based on the unique scope of the project, three bids were received in response to the RFP. During the planning stage to support the RFP, a considerable amount of facility down time was initially proposed to complete the interconnection phase of the project. This barrier led to a project delay to redesign the project with additional backup power funded by the Tribe to support the interconnection period of the project under Task 3.
- Due to the additional time needed to design to increase backup power capacity to support the interconnection, a project extension was submitted and approved by the DOE for the project until September 29, 2022.
- The project planning team renewed the RFP process in 2020 and selected a vendor, Borrego Solar Systems, Inc.

Task 3 – Project Installation of Solar PV system atop tribal buildings

- Late in 2020, a project installation contract was awarded to Borrego Systems. Both project installation support and additional backup power systems were coordinated in parallel timelines to support overall project goals. The added backup power systems were completed in the fall 2021.

- Installed roof racking system to affix solar panels during Task 3 Project Installation.



- The Solar PV installation was installed and went live on May 1, 2022.

Task 4 - Maintenance & Operations of installed Solar PV systems

- The installed system was estimated to be completed by Dec. 2021. This would have allowed for the required 12 months of solar production data to be collected and reported by the project. As the installation was delayed beyond Dec. 2021, solar commission did not occur until April 2022. The additional extension of time for the project was requested and approved that allowed for both completion of a minimum of 12 months of maintaining the solar operating system and for energy power data collection required by the project. As a result, a second project extension request was submitted to and approved by the DOE until April 30, 2023.

- Monthly production logs were collected by the Grants Administrator from May 1, 2022, through the project end date of April 30, 2023. Quarterly solar production in kilowatt hours were reported quarterly to DOE via progress reports. Daily solar power generation was affected by local weather conditions resulting in lower production during winter months. Tribal facilities personnel developed operations manuals to support operations and maintain a cleaning schedule to ensure solar energy system operating efficiencies.

Task 5 - Education & Outreach to our tribal community of project benefits

- The project team developed and implemented a community outreach and education plan utilizing a multitude of medial channels to disseminate and share project successful benefits with our communities served. A total of four media products were created, along with two supporting media stories, for dissemination to Tribal Citizens, Tribal Council and regional stakeholders illustrating the benefits of the installed solar project on Tribal lands.

- (*April 15, 2023*) - Solar outreach booth by outreach consultant GRID Alternatives at Annual Tribal Spring Festival, on tribal lands.
- Direct and media distribution channels were utilized that highlighted project accomplishments and educational benefits of installing alternate clean energy projects on tribal lands. In person media displays, consultant direct outreach during an annual Tribal event (April 2023), and a lobby display of media products highlighting project accomplishments all supported this task.
- A June 2023 newsletter article sent to over eight hundred Tribal households explained project benefits of the solar project as well as the Tribe's desire to develop future additional energy projects on Tribal lands. Digital media outreach materials were also posted to the Tribal website at www.gratonrancheria.com.

5.0 Conclusions and Recommendations

The completed Graton Rancheria G.R.E.E.N. solar project was part of a phased approach to the Tribe's visionary energy transition, which began with energy efficient lighting, appliances, and electronics, as well as electric vehicle (EV) charging stations. Project goals achieved by Tribe include preserving both cultural and environmental assets, while involving a diverse and specialized group of project stakeholders to realize project outcomes. Project success was shared with our Tribal community and regional stakeholders while reinforcing the Tribe's role as a leader in environmental sustainability.

The Tribe continues to share the benefits of this project with neighboring tribes and our experience with clean renewable energy systems on tribal lands. A year later, the system is continuing to provide clean energy, reducing building electricity use by an estimated 15%, and saving about $400,000 per year in energy costs. It is estimated that savings will top $10 million over the life of the installed solar power system. The following table of solar power production shows the slight variation by month over the 12 months of power generation collected for this project.

GRATON GREEN SOLAR ENERGY PRODUCTION

Month	*Energy Produced (kW)*	*Month*	*Energy Produced (kW)*
May 2022	375,093.69	November 2022	143,842.75
June 2022	375,475.57	December 2022	91,648,89
July 2022	361,215.50	January 2023	110,224.25
August 2022	343,361.38	February 2023	155,901.50
September 2022	259,783.75	March 2023	221,519.75
October 2022	199,041.50	April 2023	339,836.00

Total energy generated over 12 months: **2,975,906.47 kW**

Average monthly production: 248,075.54 kW

A DOE media story was developed in July 2022 that included an interview with the Greg Sarri, Tribal Chairman highlighting the solar project as part of the pathway towards tribal restoration through supportive and sustainable environmentally friendly technologies.

Tribal Chairman Greg Sarris recently stated, "The great leveler is the environment because it does not discriminate," "If we look at the land and the sun and what's happening, it does not single out religion, race, sexual orientation, whatever. It is the thing that connects us, unites us, and will ultimately either sustain us or destroy us." This project is the story of a restored Tribe's regenerative approach to designing its future through planning, creative partnerships and supportive resources to achieve our desired results.

This DOE grant funded project was both an important path forward to a 100% clean energy future for FIGR and a visible reminder of the Tribe's commitment to environmental justice by serving as good stewards of its lands for both Tribal Citizens and our surrounding neighboring stakeholders. As a result of this project's success, the Tribe will be actively searching for more clean energy and looking at ways to combine low-impact solar with organic agriculture to create co-benefits as economic development expands on Tribal lands.

6.0 Lessons Learned

Some of the earliest challenges to the project were turnover in staff. Starting in 2017, both the business consultant to the project and technical consultants from the tribal enterprise were replaced. Other qualified staff from both the Tribe and tribal enterprises were brought in to support the grant administration and project milestones. Additional subject matter expertise was brought into better support Task 2 that required Department of Energy approval of sole source consultant services regarding analysis of bids received from qualified vendors to install the solar system. One challenge with the project was installing a rooftop solar system on an existing building. Structural engineering was required to confirm the existing rooftop could take the load of the solar system components.

Initial project design for the solar installation in 2017 revealed that extended downtime of essential tribal operations during project interconnection would be required as it could not be adequately covered with backup energy systems to the Tribe's enterprises. This barrier halted the awarding of the installation contract, as a design engineering plan was required for increased backup power supply during the interconnection phase of the project.

A 24-month project time extension was requested and approved by the Department of Energy that allowed sufficient time to design additional backup power generation (cost covered by the Tribe). Both backup power installation and the original solar project design and installation were put on parallel tracks by the Tribe to ensure keeping to a revised project schedule. In addition, the Tribe held regular meetings with DOE Office of Indian Energy project personnel to monitor progress towards project goals and to pursue solutions throughout this five-year effort.

Early in 2020, the Tribal enterprises were closed for a period of 90 days to keep Tribal employees safe because of the COVID 19 virus. Due to economic hardships caused by the COVID-19 virus, the Department of Energy offered a cost adjustment to the project in late 2021, which resulted in a lower cost share by the Tribe to better support the project. The Tribe was very grateful for this cost share adjustment.

Once a revised request for proposal for project installation was issued in late 2020, solar production efficiencies (since receiving the grant award in 2016) allowed the Tribe to

increase total solar power generation from 1.5 to 1.7 MW for this project. The project was proposed with an estimated cost savings of 15% (based on energy pricing in 2016 increasing at 5% per year of the project). However, actual local utility rates increased 25% in early 2022. Having the solar power project in place has helped the Tribe absorb these increased electric rate costs. Tribal enterprise facilities personnel stepped up to quickly learn how to maintain the newly installed solar system by creating operational manuals and troubleshooting issues related to the online energy monitoring platform through Also Energy. Every kilowatt hour generated by the hour is consumed by the tribal enterprise.

In the spring of 2023, remaining project funds allowed the Tribe to contract for consultant services under Task 5 Community Outreach and Education regarding project benefits. Both tribal and federal procurement rules were followed, and a qualified bid was received. A sole source request to DOE was approved to support development of various media materials that proved invaluable to help educate our Tribal citizens and leaders to the benefits of this project.

The Tribe is very thankful for all the guidance and support by the Department of Energy, Office of Indian Energy project team over the life of this project towards our first solar power system. The Tribe is actively reviewing other renewable energy opportunities to increase the number of future energy projects on tribal lands.