Artificial Resilience Collaboration (ARC): Project and Community Benefits Plan

1.0 **Project Overview**

1.1 Applicant Information:

Project Manager: Joe Friendly
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1.2 **Project Location and Scope**

The project will include projects in the Santa Ynez Band of Chumash Indians (CYBCI) Reservation in the county of Santa Barbara, California, 93460. The project centers on the residential sector of the reservation, containing less than 250 people and includes Chumash Tribal community members in the surrounding region (the proposal will refer to the region as the Santa Ynez Reservation to include community members and land). The community scale system draws from the successful microgrid project in Humboldt County's Blue Lake Rancheria[1] and will include:

- 1000 kW photovoltaic array
- Two 2000 kWh battery energy storage system
- microgrid management system
- PCC protective relay
- 1 MW backup diesel generator
- Grid connectivity to Pacific Gas and Electric

2.0 Work Plan

2.1 Site and Facilities

The project will be developed on Federally designated Tribal Lands held by the Santa Ynez Band of Chumash Indians with coordination support from their Environmental Office and Chumash Foundation guidance (website). Construction of the project occurs at the end of Via Juana Road. General contracting services are provided by Schatz Energy. Due to forecasted energy instability in the region the facility is developed primarily as a microgrid system emphasizing the energy demands of the reservation community. Grid connectivity will exist to offload any additional energy that is beyond demand and battery storage capacity.

This project is part of an ongoing effort of the CYBCI to provide renewable energy and the jobs training needed to build the systems within the region. Residential and Commercial solar panels have been installed alongside energy assessments and housing retrofits.

[1] Demonstrating a Secure, Reliable, Low-Carbon Community Microgrid at the Blue Lake Rancheria

2.2 Technology Selection and Procurement

Most of the Central region of California is prone to natural disasters, with Santa Barbara County having significant issues in reliability.[2] In Santa Barbara County, the Santa Ynez Reservation is particularly vulnerable to increasing weather and climate extremes as they rely on the land for economic development, sustenance, and the maintenance of cultural traditions. Their culture is integrated with the land, with a highly complex relationship to the flora and fauna for art, medicine, economic development, sustenance, and ceremonial use. Leaving due to climate instability is simply not an option due to treaty rights, attachment to the land, and the challenge to migrate elsewhere. Due to a history of abuse, the land they live on has limited acreage and the resources are limited. Further, power generation in the region is prone to a variety of natural disasters from flooding to fires to heat. With limited resilience in the constrained transmission and subsystems, this community requires a highly adaptable microgrid system for the highly likely event that generation units and grid infrastructure will fail. Energy resilience is a serious concern to the local community and has been a focus in recent communitywide energy and hazard mitigation planning.[3]

The benefits of combining solar arrays with battery power, coupled to microgrid management, means that even with a lack of energy supply in the form of grid electricity or oil and gas limits, the community can reliably rely upon solar and battery resources. The scale of the proposed system is expected to service the entirety of the Santa Ynez Band of Chumash Indians members' critical energy needs for weeks of prolonged grid outage. Conceptual project design references Sandia National Labs recent workbook.[4]

The following is a summary of the milestones projected for the project to reach 90+% engineering design completion:

- 25% Design at Proposal Submission
- 50% Design at month 3 of Project
- 75% Design at month 6 of Project
- 95% Design at month 9 of Project

Please refer to the additional Engineering Design information submitted with this Proposal.

2.3 Agreements

There are a series of agreements that tie the partners and contractors together. The Santa Ynez Casino already operates an agreement with Simmons to determine the feasibility of solar power for the casino operations.[5] This partnership agreement has been extended to include this larger proposal as an augmentation of the existing research and development process (all referenced agreements and partnership details are contained in our attachment LETTERS OF

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[2] Support clean local energy resources and resilience in Santa Barbara County

[3] Citation 1

[4] Microgrid Conceptual Design Guidebook | March 2022)

[5] Citation 2

COMMITMENT). This project's leadership team includes a contractual agreement between the Santa Ynez Council and Schatz Energy. Schatz Energy provides all engineering design services and acts as general contractor. Due to the grid connection, PG&E has included a support letter outlining how they will include this project as part of their larger aim to boost grid reliability in the area.[6] This will receive support from the Central Coast Community Foundation, Central Coast Community Energy, and Santa Barbara County. Subcontracted services include Concentric Power for the battery subsystem, UCSB for testing and modeling of the system design and operations, Tesla for car charging infrastructure and battery system consulting, Turtle Construction Services for site planning, building array and battery infrastructure base, and maintenance of all permitting for the site, and Sunbelt for solar PV design and installation. Renewable Properties LLC will provide system maintenance through an Energy Services Agreement.

2.4 Permitting

California's Energy Commission recently released a code book for siting and maintaining solar + battery storage systems in the state; the project will follow all the existing and proposed guidelines.[7]

2.5 Construction

Construction planning will begin with the second phase of the engineering design process, the 50% completion phase. Schatz Energy's design team will coordinate with Turtle Construction Services to render a draft of the engineering specifications and a draft construction plan. This will then be shared with the team partners for review. After post-review modification, the plans will be shared with appropriate local and state agencies for initial approval and guidance on compliance. The end of this process corresponds to the 75% completion phase. Inclusion of the input from these stakeholders leads to a comprehensive, final set of documentions including: engineering cost estimates and milestones for each subunit led by each subcontractor, construction cost estimates and milestones, environmental assessments, and reports on the stakeholder input process.

Procurement will begin after the documentation is completed, with solicitations starting during the earliest phases of the project design. The subcontracts will be in negotiation with the overall project manager at Schatz Energy and the Santa Ynez representative.

2.6 Operations and Maintenance

An Operations Guidance Document (OGD) will be developed alongside the design phases and contracting phases of the project. This document will be part of the stakeholder input process, paralleling the construction input. The OGD will contain the technical parameters at which the system must be maintained, data acquisition for each subsystem and the requisite sensors and software to manage the data, responsible parties for each system component and the contractual services provided by the subcontractors, and regulatory reporting and compliance

[6] PG&E project aimed at boosting grid | Local News | santamariatimes.com

[7] California Solar Permitting Guidebook

procedures. Several use cases will be generated that will guide systems operations through the various sensitivities the proposed system may encounter.

2.7 Challenges

Challenges include a local commitment to protecting natural resources. Heavy construction will be expected to damage the terrain. We mitigate community outrage over these harms by developing a comprehensive outreach program in connection with the Santa Ynez partners. A desire for the Santa Ynez Band of Chumash Indians to operate the microgrid will require significant training. Subcontractor services will include on-the-job training for residents with interests in joining the operations and maintenance team. Where possible, the project will draw from the multiple Chumash tribes to fill essential roles in the facility.

2.8 Integrated Schedule

Summarize 2.1 - 2.7 in a schedule of milestones required for the project's success.

Milestone	Schedule
Begin planning based on 25% proposal design.	Date
Ensure project planning includes Justice40 Initiative Goals.	
Seek subcontractors.	Date to Date
Work with subcontractors on 50% proposal design.	Date to Date
Initial procurement process	Date
Solicit feedback from key stakeholders.	Date to Date
Incorporate feedback and produce 75% design.	Date to Date
Initiate outreach plan.	Date
As an outreach plan, coordinate with community members to encourage local employment and skill training.	Date to Date
Start construction.	Date
Review alignment to DEI mission.	Date
Review alignment to Justice40.	

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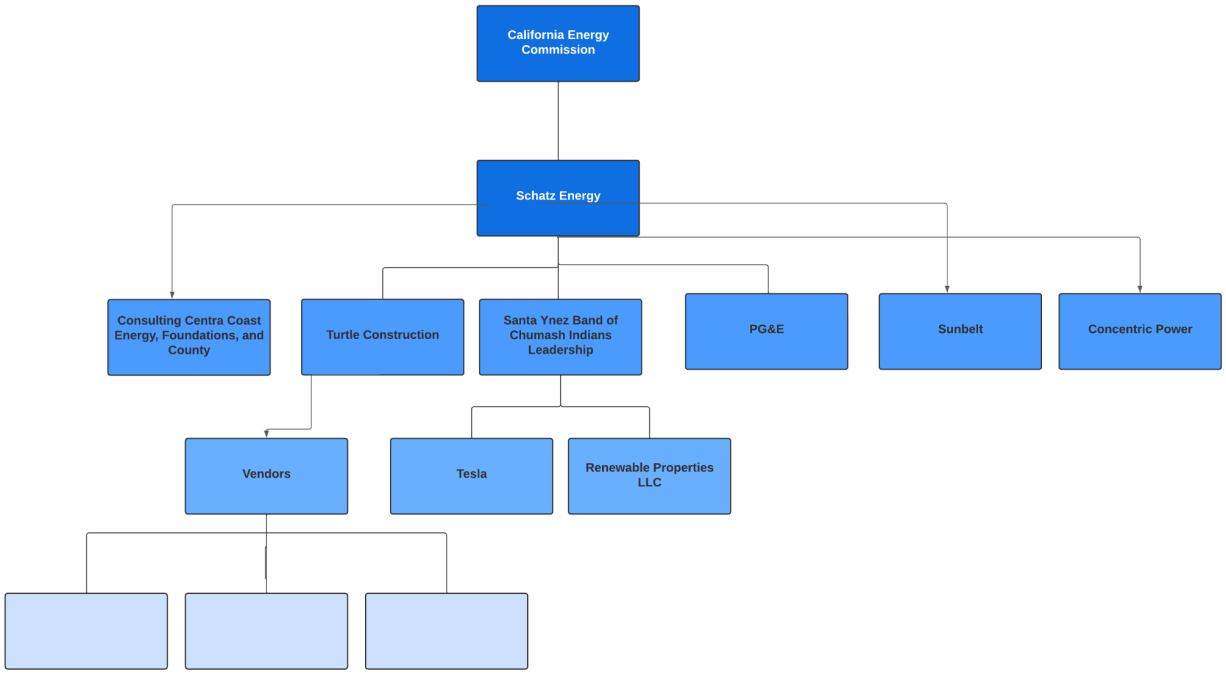
3.0 Business and Management (5 PAGES)

3.1 Business and Management



Key Personnel (see RESUMES attachment)	Role
Person 1	Site Preparation
Person 2	Engineering
Person 3	Permitting
Person 4	Procurement
Person 5	Construction
Person 6	Outreach
Person 7	Interconnection
Person 8	Operations and Managements of Project

Person 9	Responsible for securing future contracts (if necessary)

Procurement Policy
Person 4 works at Turtle Corporation as the key purchasing vice president. They follow the companies' policies to ensure procurement policies to make sure the process is equitable and will include all requirements contained within the Community Benefits Plan. They will work with the Santa Ynez Tribal Contact and Council members. Local community members will be contracted wherever available. Every member of the organization has provided Letters of Commitment.

3.2 Describe the project's financial plan, including descriptions of the following:

Ownership: The project ownership will rest exclusively with a new holding company held by the SYBCI. It will be operated by Renewable Properties LLC (RPLLC). The new company will be a separate legal entity, formed to limit liability and protect the interests of project stakeholders.

Off-takers: The primary off-taker for the solar PV energy generated will be the local utility company. A Power Purchase Agreement (PPA) will be established between RPLLC and PG&E outlining the terms of energy sales at a rate matching the Day-Ahead pricing listed by the CAISO. A floor price will be set based upon long-term 5-year projects.

Other parties:

- Solar PV Panel Supplier
- Battery Manufacturer
- Microgrid installer
- EPC Contractor (Engineering, Procurement, and Construction)

Revenue

Our revenue model draws from existing community based microgrid projects.[8]

Estimated Revenue: The revenue from the solar PV array and battery storage facility will primarily come from the following sources: a) Energy Arbitrage: The battery storage facility can also generate revenue through energy arbitrage when their is excess production compared to demand; selling during peak-demand hours will maximize revenue (projected annual revenue: $XXXXXX) when energy prices are higher. b) electricity from rate community ratepayers (projected annual revenue: $XXXXX).

Use of Revenue: The revenue generated from the project will be utilized as follows: a) Debt Servicing: A portion of the revenue will be allocated to servicing any loans or debts incurred during the project's development. b) O&M Expenses: Some revenue will be reserved for

[8] How California Cities Are Driving Down Costs with Microgrids in Bulk

ongoing Operations and Maintenance (O&M) costs to ensure the system's efficiency and reliability. c) The project's financial plan will account for all applicable taxes, including income tax, property tax, and any other local or federal taxes. Tax advisors already employed by the ownership entity will be consulted to optimize tax benefits and ensure compliance with tax regulations. The tax advisors will be tasked with leveraging tax credits and incentives, such as Investment Tax Credits (ITC) or renewable energy production incentives available through federal and state agencies. These benefits are factored into the projected financial plan. d) Applicable fees, such as permitting fees or interconnection fees, are included in the project's budget and financial plan. We will request to be labeled as a micro utility according to California's Public Utilities Code.

3.3 Annual estimates of operations and maintenance
Estimates reflect experiences the project team has with community-based microgrids[9] as well as NREL calculations for California.[10]

Operation & Maintenance Category	**Amount ($/yr)**
Planned Maintenance	
Site Lease	
Unplanned Maintenance	
Insurance	
Inspections	
Management	
Utilities	
Outside Services	
Property Taxes	
Software Updates	
Subtotal	

3.4 Payment Milestones

[9] Citation
[10] https://www.nrel.gov/docs/fy21osti/78837.pdf

Project Milestone	Payment Milestone
Begin planning based on 25% proposal design.	Date
Seek subcontractors.	Date to Date
Work with subcontractors on 50% proposal design.	Date to Date
Initial procurement process	Date
Solicit feedback from key stakeholders.	Date to Date
Incorporate feedback and produce 75% design.	Date to Date
Initiate outreach plan.	Date
Start construction.	Date
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4.0 Community Benefits Plan

4.1 Project Benefits

Microgrids offer many stacked benefits, including energy cost savings, reduced greenhouse gas emissions, and increased energy resilience.

- For energy costs, we estimate savings to the community could be as high as $200,000 per year.[11]
- Greenhouse gas emissions are expected to be the equivalent of 175 metric tons of CO2e per year.
- Reliability in a highly unstable zone is a critical benefit. We anticipate loss of power to be reduced by the equivalent of 20 days per year, with increasing need for microgrid reliance as warming trends increase.

[11] Demonstrating a Secure, Reliable, Low-Carbon Community Microgrid at the Blue Lake Rancheria

- Avoidance of oil and gas generation is useful in the wildfire-prone area and a geographical location that is a challenge to maintain steady energy services.
- Job creation will occur in the short term during construction, and a boon to local employment due to the project goal of hiring and training local employees is anticipated.
- The energy produced will provide necessary cooling capacity in the hot, arid region. While difficult to fully calculate, we anticipate considerable benefits to human health as community members are able to economically provide cooling to homes and other facilities.

4.2 Community, Labor, and Tribal Engagement

Tribal and community engagement is a foundation of the project. The primary partners and the primary recipients of the benefits of the project are Tribal community members. Our COMMUNITY PARTNERSHIP document attached fully documents our plan to treat the project as a community capacity-building intervention for economic and environmental justice outcomes.

4.2 Job Quality and Workforce Continuity

Please reference 4.2 and the COMMUNITY PARTNERSHIP attachment. For an advanced facility, most of the direct jobs will be of high quality, from technical operations to management.

4.3 Diversity, Equity, Inclusion, and Accessibility (DEIA)

There are several pillars guiding our DEIA strategy:

- Employee Awareness & Training. Internal mandatory training will include guidance on maintaining effective safe, accessible, diverse, and inclusive workplaces that value and celebrate the diversity of people, ideas, cultures, and educational backgrounds. We use a restorative justice approach so that each member of the team is responsible for maintaining a caring, dialogue-based process of constant stewardship of our community health.
- Recruitment Diversity, Retention, and Mentorship. A multifaceted approach to locating and keeping employees will be deployed. Mentorship models support newer employees to find supportive guides. These responsibilities are not unpaid additions to job descriptions; individual quality of performance includes stewardship of the DEIA strategy and job tasks associated with effective inclusive, trusting spaces.
- Internships. Local adults and youth will be encouraged to apply for paid internships with the project.
- Community Advisory Board. At several moments during the project—see the Milestones listed in the Integrated Schedule in section 2.8—the advisory board will be presented with reports on the project and will be asked to provide feedback from any community members who have concerns about the project.

4.4 Justice40 Initiative

Our community-based renewable energy microgrid can significantly contribute to fulfilling the Executive Justice40 Initiative by promoting environmental sustainability and advancing social equity. The implementation of such a microgrid offers various potential benefits to the community, such as reduced greenhouse gas emissions, enhanced energy resilience, and decreased reliance on fossil fuels. These benefits are likely to accrue differently throughout the community, with vulnerable populations, including children, the elderly, and those experiencing homelessness, experiencing notable advantages. Lower-income households may benefit from reduced energy costs, while cleaner air and improved public health outcomes can particularly enhance the well-being of vulnerable groups who are disproportionately affected by pollution-related health issues.

However, it is essential to consider potential negative impacts to ensure an equitable distribution of benefits. The construction and operation of the microgrid may result in temporary inconveniences and disruptions to the daily lives of residents, particularly in the immediate vicinity of the project site. Noise, traffic, and visual disturbances could be of concern during the construction phase. Moreover, there is a possibility that vulnerable populations may face cumulative burdens and may not have adequate resources to cope with temporary displacement or potential increases in housing costs near the microgrid site. To maximize the benefits and minimize negative impacts, the project team will engage in robust community outreach and involvement from the project's conception to completion. Collaboration with community leaders and residents, particularly from vulnerable groups, will ensure their needs and concerns are considered and integrated into the project's design and implementation. The advisory council will serve as a powerful guide.