



Barona Community Microgrid Projects

DOE TRIBAL ENERGY PROGRAM REVIEW
NOVEMBER 19, 2024

Barona Group of Capitan Grande Band of Mission Indians of the Barona Reservation



The Barona Ranch is the second reservation for the community now known as the Barona Band of Mission Indians.

The original reservation, Capitan Grande, was established in 1875. In 1932, the People living in Capitan Grande were forced to leave when the growing City of San Diego made a deal with the federal government to build a dam on their reservation lands. The community was paid fifty cents an acre for the lands that were flooded, including their school house and cemetery.

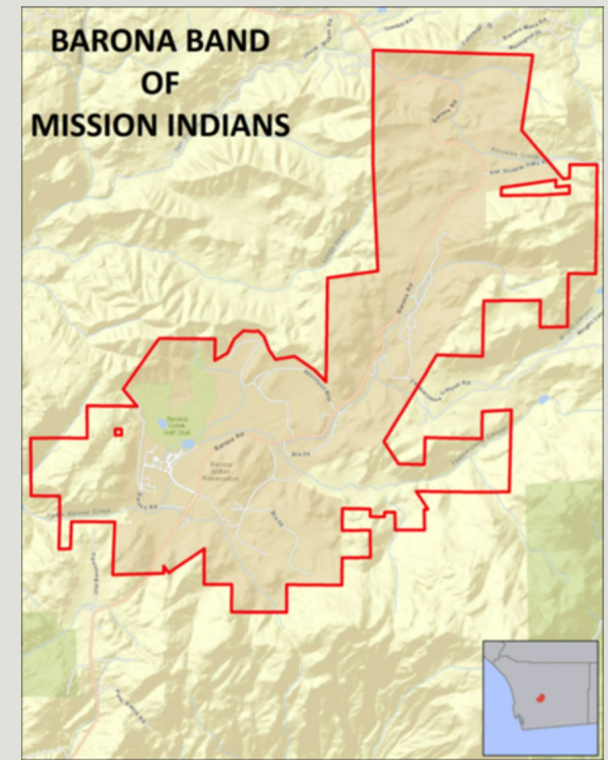
After living for many years next to a free flowing river, the majority of the families pooled their funds, purchased the Barona Ranch and moved in 1932 to an arid land having to rely on only groundwater.

- The Barona Indian Reservation, near the town of Lakeside, is about 30 miles northeast of the City of San Diego.
- For many years living without electricity and other services, the tribal members tried to create a living through the ranch and farming.
- Until the early 1990s, the Barona Tribe was still struggling economically in very rural San Diego County.
- In 1994, the tribe, opened the Barona Casino "Big Top", which eventually became the Barona Resort and Casino.
- The casino has become the means to a restoration of self-sufficiency and provides for healthcare, housing, education, water, general welfare, and youth, elder, and culture programs.



Barona Today ~

- The reservation is approximately 7,800 acres, and is comprised of mostly rocky and mountainous terrain with the middle section mostly flat and rocky.
- There are 634 tribal members, 202 are minors.
- There are 289 homes on the reservation - approximately 85% of tribal members live on reservation.
- Barona is governed by its General Council, which is comprised of approximately 432 adult voting members of the Tribe. In addition, there is a Tribal Council comprised of seven elected Tribal officials each serving four-year terms.
- The Barona community includes the Barona Government Building, Barona Cultural Center and Museum, Barona Fire Station, Barona Gas Station, Mission Church, Barona Community Center, Tribal Enforcement, Barona Indian Charter School, Barona Pre-School, Barona Tribal Water Authority and multiple walking trails, softball fields and community parks.



Objectives: Community Microgrid Projects



INCREASE RESILIENCE



REDUCE ENERGY COSTS



**ADVANCE SOVEREIGNTY
&
ENERGY INDEPENDENCE**














**CLEAN ENERGY &
CULTURAL
PRESERVATION**

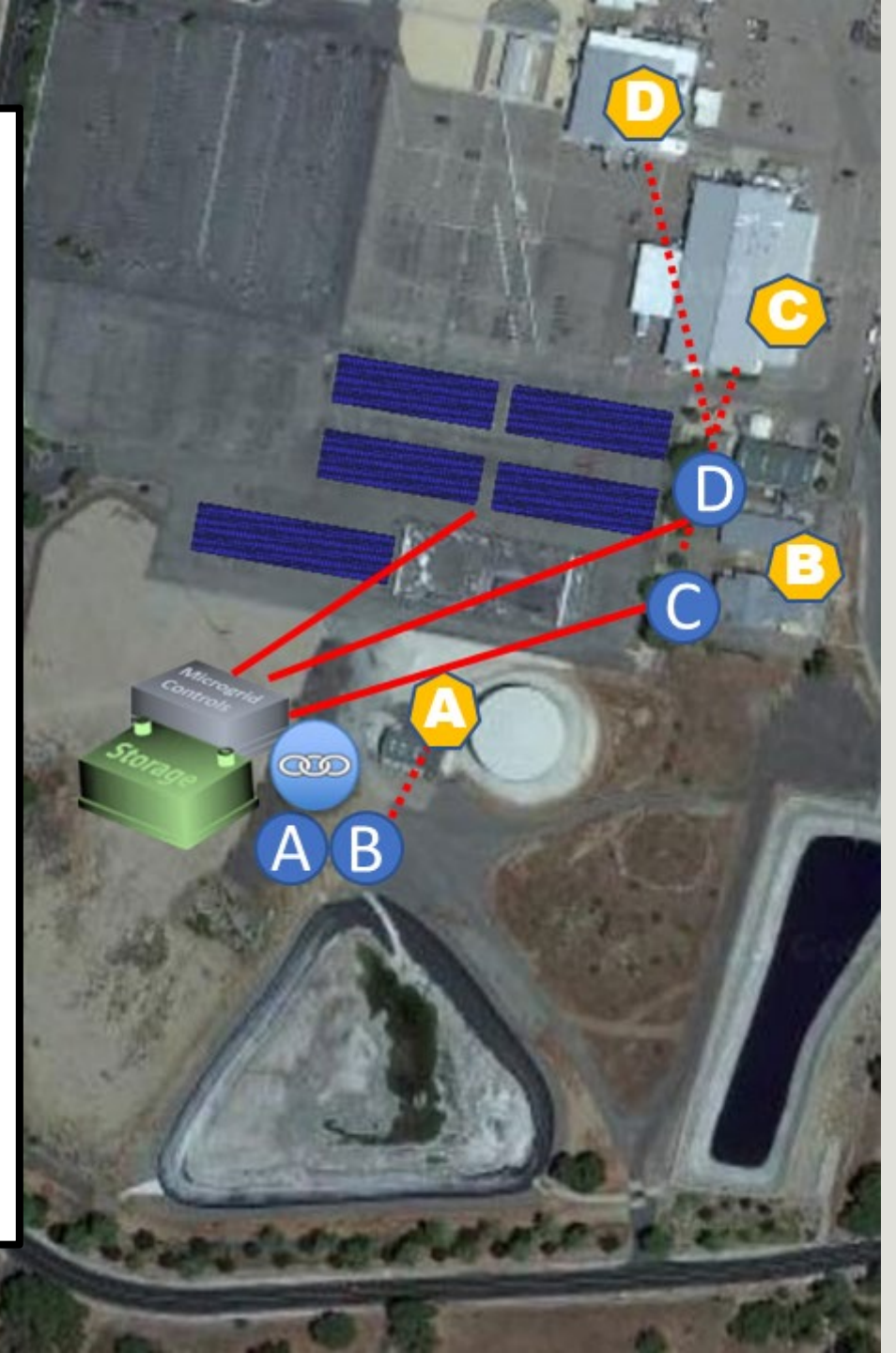


SCALABILITY

Barona Community Microgrid Map

-  Fresh Water Well Pumps (2) and Filtration System
-  Water Reclamation and Treatment Facility
-  Food and Supplies Storage Warehouse
-  Facilities Maintenance Services Building

-  921.3 kW Solar PV System (new)
-  Lithium-Ion Batteries*
(350 kW/4-hr new)
-  Microgrid Switchgear (new)
-  Point of Interconnection (new)
-  Meters (existing)
-  Microgrid Underground Bus (new)
-  Service Lines (existing)



Barona Community Microgrid Project Estimated Costs and Expected Benefits

DOE Grant: \$4,000,000

Cost Share: \$1,804,950

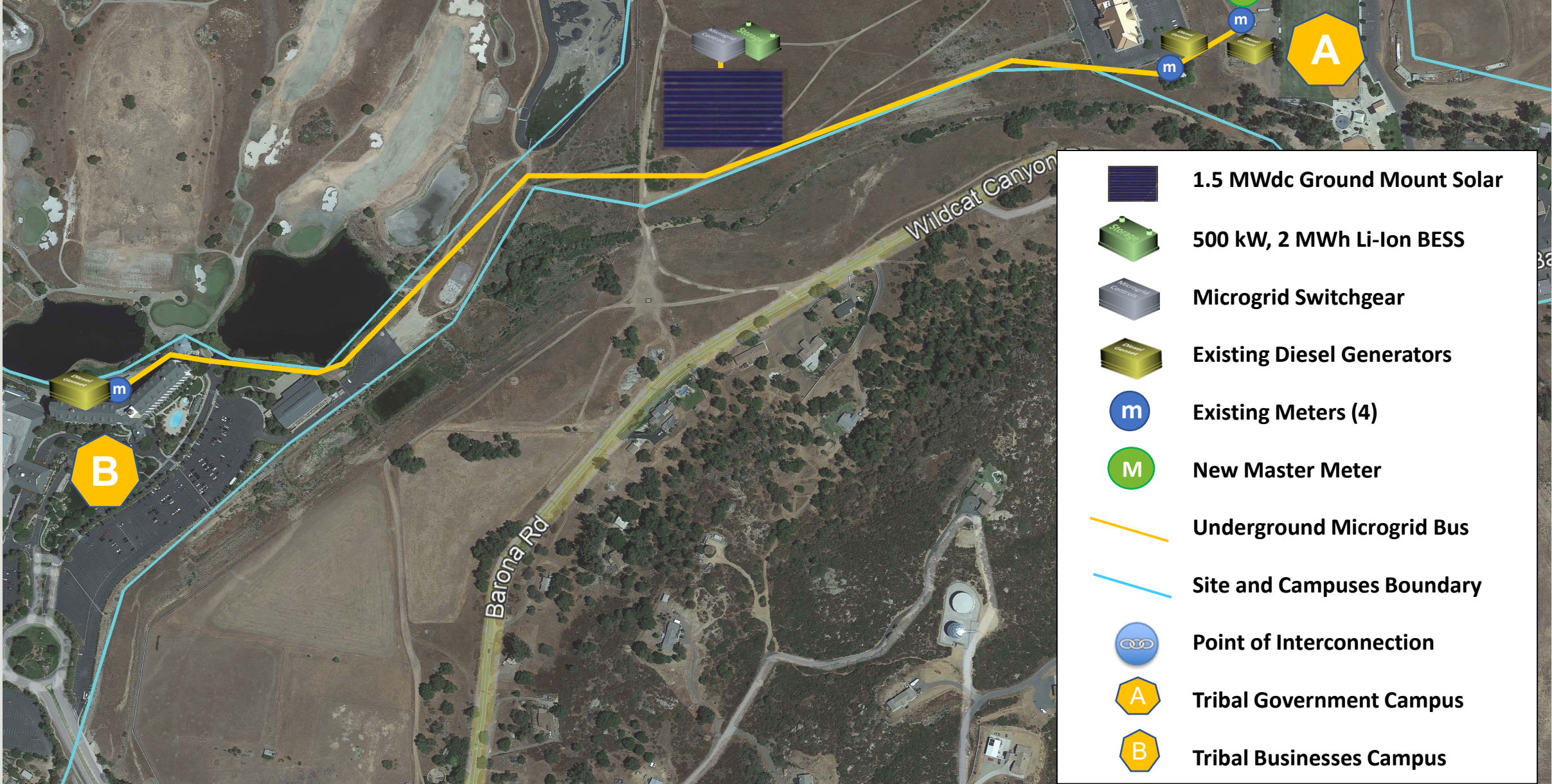
**Total Project Costs:
\$5,804,950**












Year 1 Benefits: Offset
1,556 MWh of grid
electricity and 400 tons
of CO₂; Save \$394,242

Lifetime Benefits:
Offset ~43 GWh of grid
electricity and 12,000
tons of CO₂; Save
~\$12.1M

Resiliency Benefits:
Provide 4+ hours of
back up power

Barona Scalable Community Microgrid Project Design Map



-  1.5 MWdc Ground Mount Solar
-  500 kW, 2 MWh Li-Ion BESS
-  Microgrid Switchgear
-  Existing Diesel Generators
-  Existing Meters (4)
-  New Master Meter
-  Underground Microgrid Bus
-  Site and Campuses Boundary
-  Point of Interconnection
-  Tribal Government Campus
-  Tribal Businesses Campus

Barona Community Scalable Microgrid Project Estimated Costs and Expected Benefits

DOE Grant: \$5,000,000

Cost Share: \$4,315,936

**Total Project Costs:
\$9,315,936**

Year 1 Benefits: Offset
2,629 MWh of grid
electricity and 700 tons
of CO₂; Save \$606,691

Lifetime Benefits:
Offset ~43 GWh of grid
electricity and 19,000
tons of CO₂; Save
~\$22.5M

Resiliency Benefits:
Provide 4+ hours of
back up power

Project Partners

- Prime Recipient and Site Owner: Barona Band of Mission Indians
 - Technical Contact / Director Govt Affairs: Sheilla Alvarez
 - Business Contact / General Counsel: Kathy Clenney
 - Facilities Director: Robert Key
- Owner's Representative: Prosper Sustainably
 - Lead Owner's Rep: Josh Simmons
 - Project Manager: Michael Burr, Microgrid Institute
 - Owner's Engineer: TBD
- Project Developer / EPC Firm: TBD



Prosper Sustainably

Background

PAST ACTIVITIES

- Thermal energy storage at central chiller plant
- Electric vehicle charging stations
- Extensive energy efficiency measures (e.g. lighting)
- Energy load management

**Proposed project*

RELATED EFFORTS

- Long Duration Energy Storage (LDES) system at casino resort campus
- 2.9 MW solar field serving main casino, chiller plant, parking garage (awarded)
- Solar + storage microgrids at gas station, community center, fire station*
- Community-wide EV infrastructure planning, deployments, training*

Status of Projects



**IDENTIFYING AND EVALUATING
ALTERNATIVE LDES SUPPLIERS**



**PLANNING AND ALIGNING EFFORTS
AMONG RELATED PROJECTS**

THANK YOU! QUESTIONS?

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