



Rincon Solar Microgrids

NOVEMBER 17, 2021



THE RINCON RESERVATION & COMMUNITY

- ◆ The Rincon Reservation was established in 1875 and is located in southern California. The Reservation encompasses approximately 5,000 acres of land within the San Luis Rey River Watershed.
- ◆ The Reservation is considered a rural area of unincorporated, north central San Diego County and includes a broad range of wildlife species and vegetation communities.





THE RINCON RESERVATION & COMMUNITY

- ◆ Approximately 1,800 residents and a few small businesses are scattered throughout the Reservation, as well as Harrah's Resort Southern California which includes a 1,065 room, two 21-story hotel towers, an events center, and a gaming casino with 8 associated restaurants, a spa, and parking for patrons.
- ◆ The historic and current land uses surrounding the Reservation include agricultural, residential, and gaming, along with a small amount of light industrial.



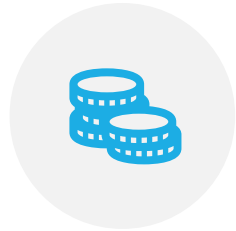
Past Activities

- 1 MW of solar at Harrah's Resort Southern California (HRSC)
- STEM Li-Ion BESS installed at HRSC (2018)
- Various energy efficiency measures installed at HRSC
- Rincon Strategic Energy and Resiliency Plan (2019)
- Electric Vehicle Charging Stations

Project Objectives



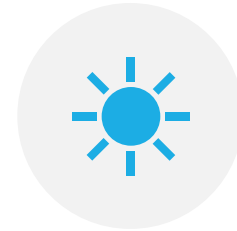
**INCREASE
RESILIENCE**



**LOWER ENERGY
COSTS**



**ENERGY
INDEPENDENCE**



CLEAN ENERGY

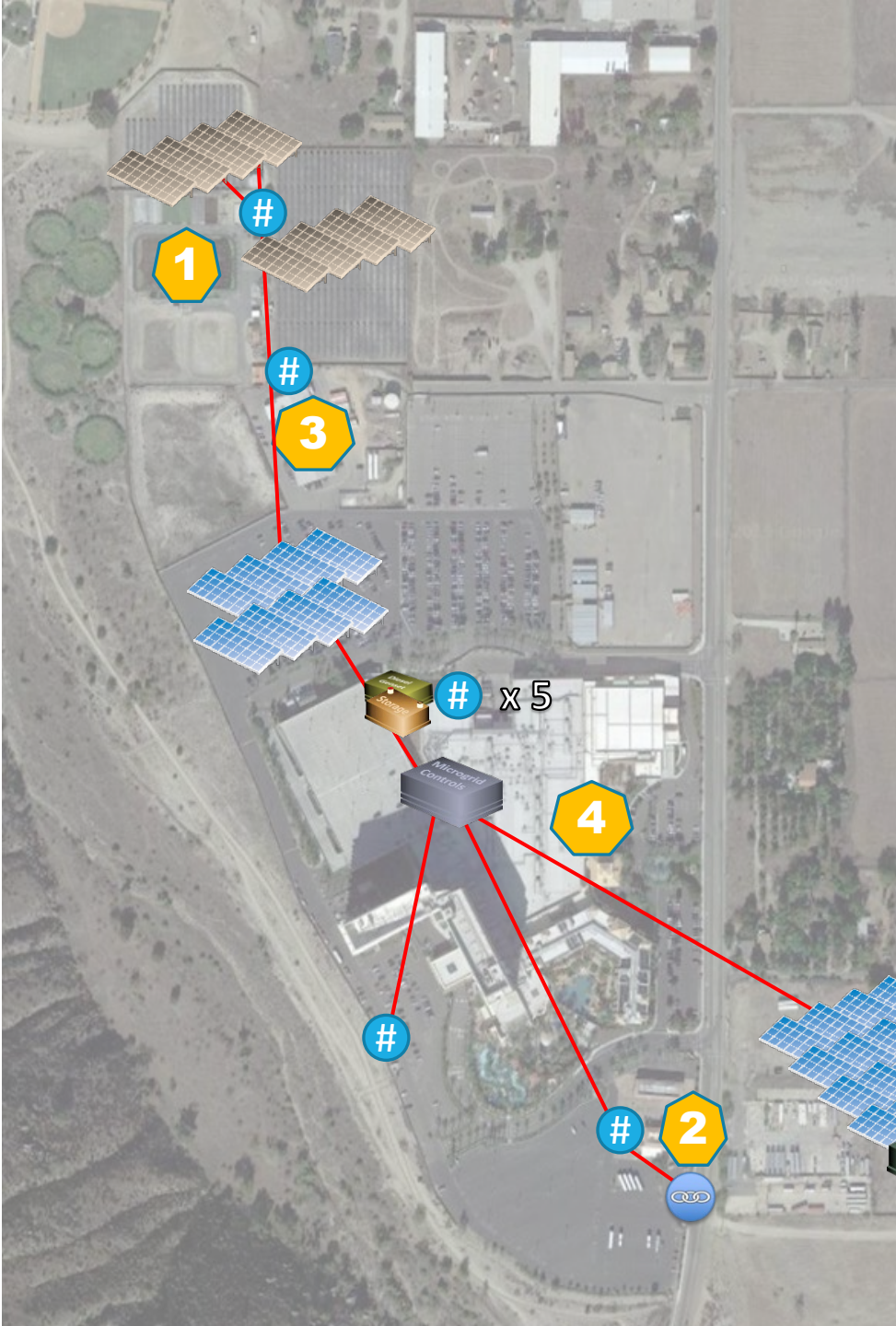













SCALABILITY

Protecting Essential Facilities

System	Facility Details	Type	Essential Purposes	Resource Type and Capacity
Fire Station Microgrid	13,600 ft ² , built in 2006	Residential fire station, 911 emergency dispatch center, and EOC	Fire protection, rescue, and 911 emergency dispatch for the Rincon Reservation and neighboring communities through mutual aid agreements.	Carport PV 81 kW (new) Diesel 420 kW (existing) Li-Ion BESS 50 kW / 132 kWh (new)
Resort Area Microgrid (HRSC, WWTP, Travel Plaza, Well Pumps)	Resort: 1,284,619 ft ² , built in phases starting in 2001 WWTP: 1,500 ft ² , built in 2000 Travel Ctr.: 5,071 ft ² , built in 2012	- Tribally owned casino-resort complex - WWTP - Water Well Pumps - Multi-use travel plaza	Emergency public shelter, emergency operations center (EOC), and emergency response and evacuation staging areas; WWTP; well pump(s); food, essentials, and fuel for emergency vehicles and generators	Carport PV 1 MW Ground PV 5 MW Ground PV 1 MW* Diesel Genset 4 MW Li-Ion BESS 4.5 MW / 1-hr Flywheel 1.2 MW / 4.8 MWh Flow Battery 1.2 MW / 4.8 MWh *Existing
Rincon Government Center	143,000 ft ² , built in 2018	Tribal Government Center, Tribal Police Station	Tribal Police, First Response, Emergency Public Shelter, Emergency Operations Management, EV Charging	Carport PV 333 kW (new) Diesel Genset 150 kW (existing) Li-Ion BESS 174 kW / 696 kWh (new)

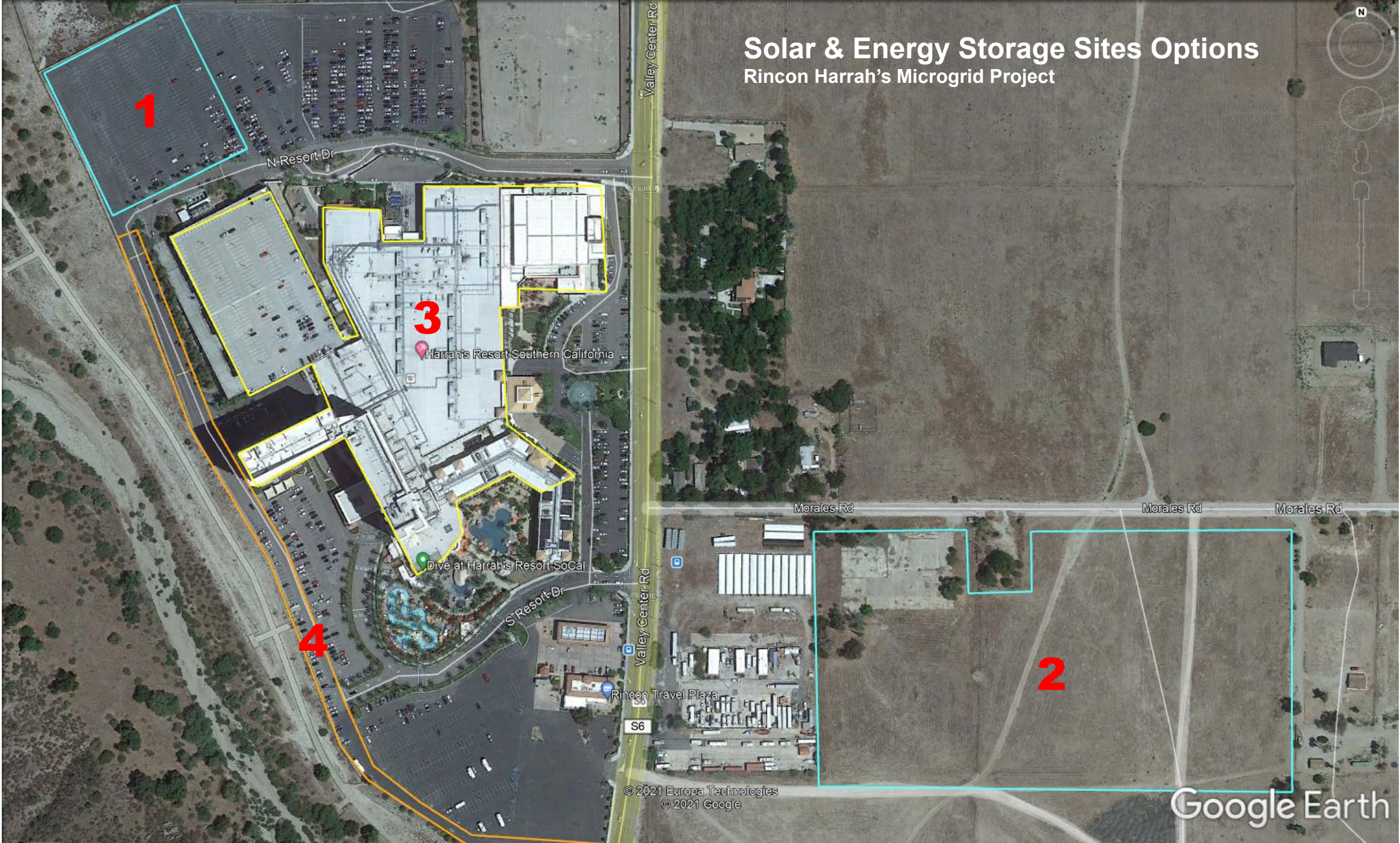
HRSC Microgrid Project



-  Wastewater Treatment Plant and Well Pump(s) (1)
-  Travel Center Gas Station and C-Store (2)
-  Butler Building (3)
-  Harrah's Resort Southern California (4)
-  6 MW Solar PV System (new)
-  1 MW Solar PV System (existing)
-  4.8 MWh Flow Battery System (new)
-  4.8 MWh Flywheel Energy Storage System (new)
-  Lithium Ion Batteries (4.5 MW / 1-hr new, 420 kW / 680 kWh existing)
-  Diesel Generators (4 MW new, 2 MW existing)
-  Microgrid Controls (new)
-  Point of Interconnection (new)
-  Meters (existing)
-  Microgrid Underground Bus (new)

Solar & Energy Storage Sites Options

Rincon Harrah's Microgrid Project



1

3

4

2

Harrah's Resort Southern California

Dive at Harrah's Resort SoCal

Rineen Travel Plaza

N Resort Dr

S Resort Dr

Valley Center Rd

Valley Center Rd

Morales Rd

Morales Rd

Morales Rd

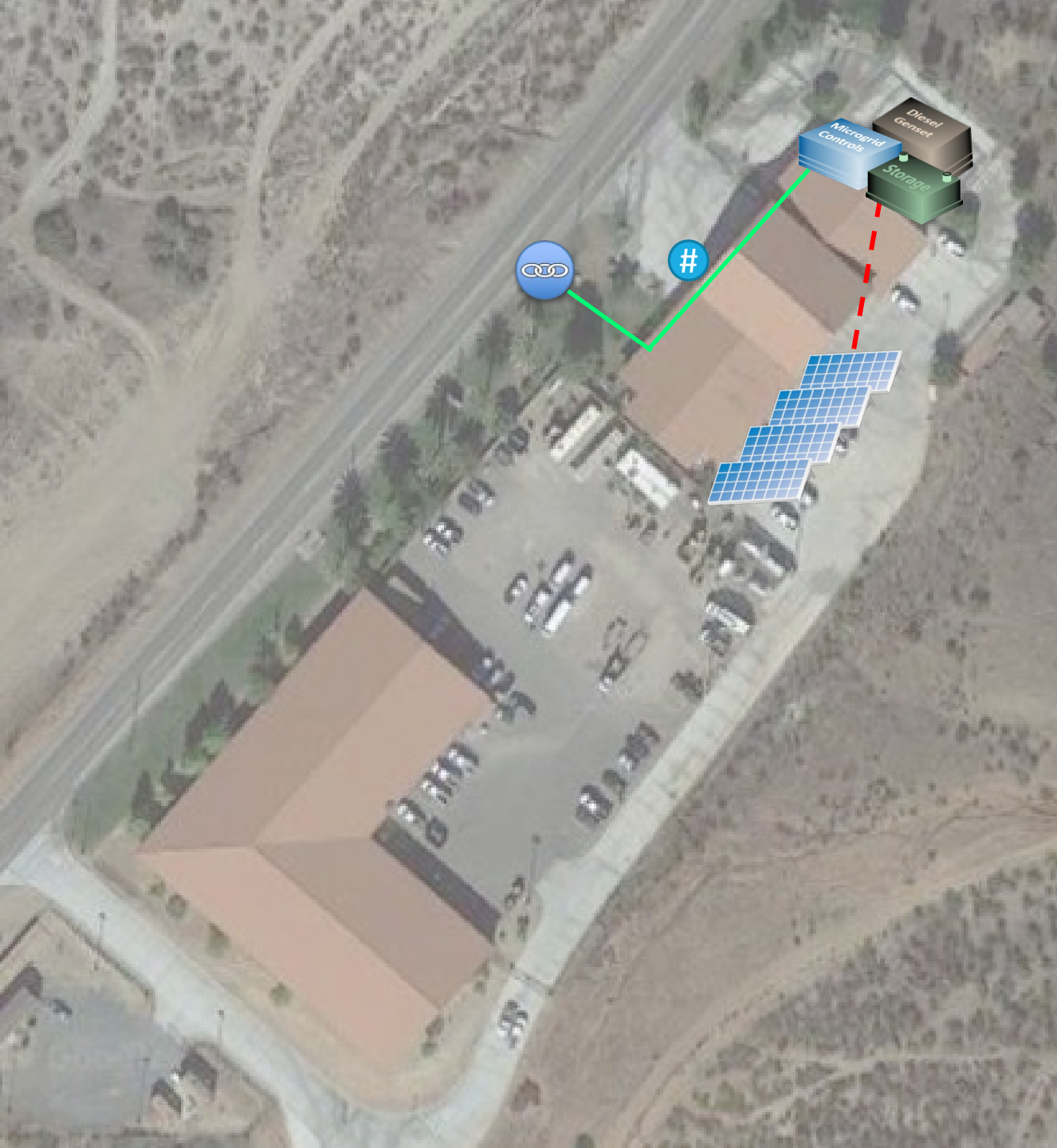
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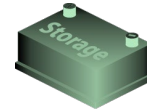
1985

Imagery Date: 7/31/2021 33°16'01.48" N 116°57'12.01" W elev 867 ft eye alt 3647 ft

Fire Station Microgrid



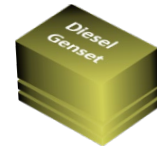
81 kW Solar PV System



50 kW / 132 kWh Battery Energy Storage System



Microgrid and BMS Controls



Diesel Generator



Point of Interconnection



Meter

*Grey icons are existing DER components to be integrated into microgrid system

Rincon Government Center Microgrid

Proposed Resources












333 kW Solar PV Carports

174 kW / 696 kWh Li-Ion BESS

150 kW Diesel Generator
(existing)



Microgrids Project Partners

Prime Recipient / Site Owner	EPCs and Technology Providers
 <p>Rincon Band of Luiseño Indians Est. 1875 Vision Unity Perseverance</p>	   
Project Mgmt/Owner's Reps	Financing Partners
   	 

Microgrid Project Agreements

PowerFlex

1. Engineering Development
2. Construction
3. Operations & Maintenance

Solaris

1. LLC Operating Agreement
2. Solar Services Agreement / Power Purchase Agreement (PPA)

Rincon-
Solaris
LLC

Project Status & Accomplishments

ACTIVITY
1. Select design build contractors and financier (completed)
2. Negotiate and finalize EPC & financing agreements (in progress)
3. Complete engineering design and permitting (in progress)
4. Complete project construction, commissioning, and deployment
4A. Install, commission, and deploy backup generators
4B. Install, commission, and deploy microgrid infrastructure
4C. Install, commission, and deploy new solar and storage
5. Operations & Maintenance, Performance Monitoring and Reporting

Lessons Learned

- **Initial commitment/resources can lead to more resources**
- **Tax equity financing opportunities and challenges**
- **Existing building and electrical plans/information may be limited**
- **Rooftop solar may not be feasible**
- **Define owner's project requirements before design engineering**
 - What's in, what's out?
 - Existing energy assets may not be compatible w/ microgrid
- **Be ultra conservative with budget and time estimates**
 - Higher than anticipated electrical infrastructure, DER, and transaction costs
- **Microgrid projects can be extra complex**
 - Abundance of technology providers, considerations, and approaches
 - Necessity of engineering before EPC contract

THANK YOU! QUESTIONS?

Josh Simmons

President, Principal Consultant, Attorney

Prosper Sustainably

(805) 617-5685

jsimmons@prospersustainably.com

www.prospersustainably.com

