



# Rincon Solar Microgrids

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NOVEMBER 15, 2022

# The Rincon Reservation and Community

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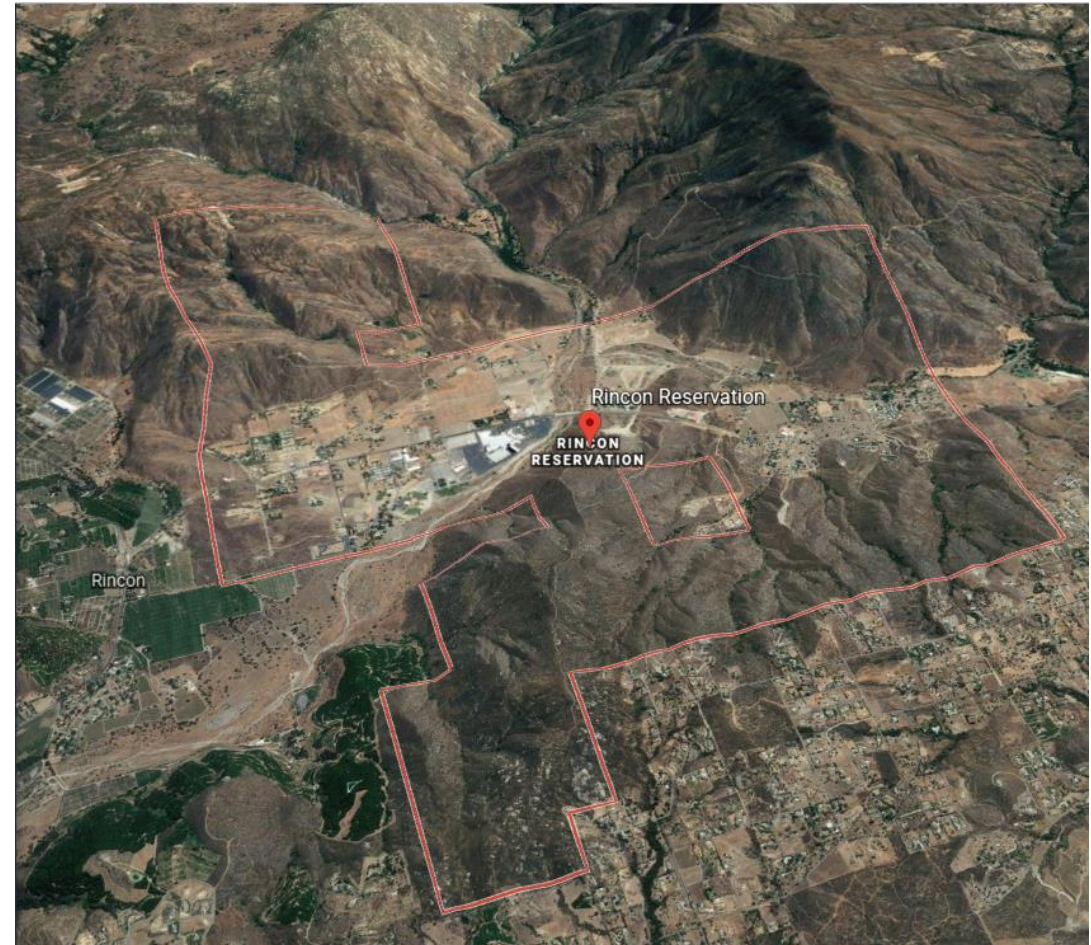
- The Rincon Reservation was established in 1875 and is located in southern California. The Reservation encompasses approximately 5,000 acres of land within the San Luis Rey River Watershed.
- The Reservation is considered a rural area of unincorporated, north central San Diego County and includes a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





# The Rincon Reservation and 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

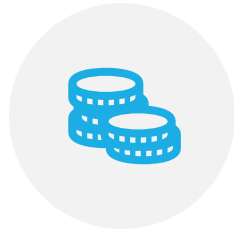
- **1 MW of solar at Harrah's Resort Southern California (HRSC) (2009)**
- **STEM Li-Ion BESS installed at HRSC (2018)**
- **Various energy efficiency measures installed at HRSC**
- **Rincon Energy Study and Strategic Energy and Resiliency Plan (2017-2019)**
- **Electric Vehicle Charging Stations**

# Project Objectives

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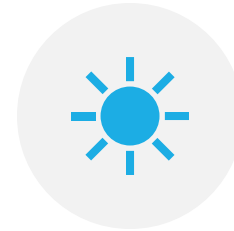
**INCREASE  
RESILIENCE**



**LOWER ENERGY  
COSTS**



**ENERGY  
INDEPENDENCE**



**CLEAN ENERGY**



**SCALABILITY**

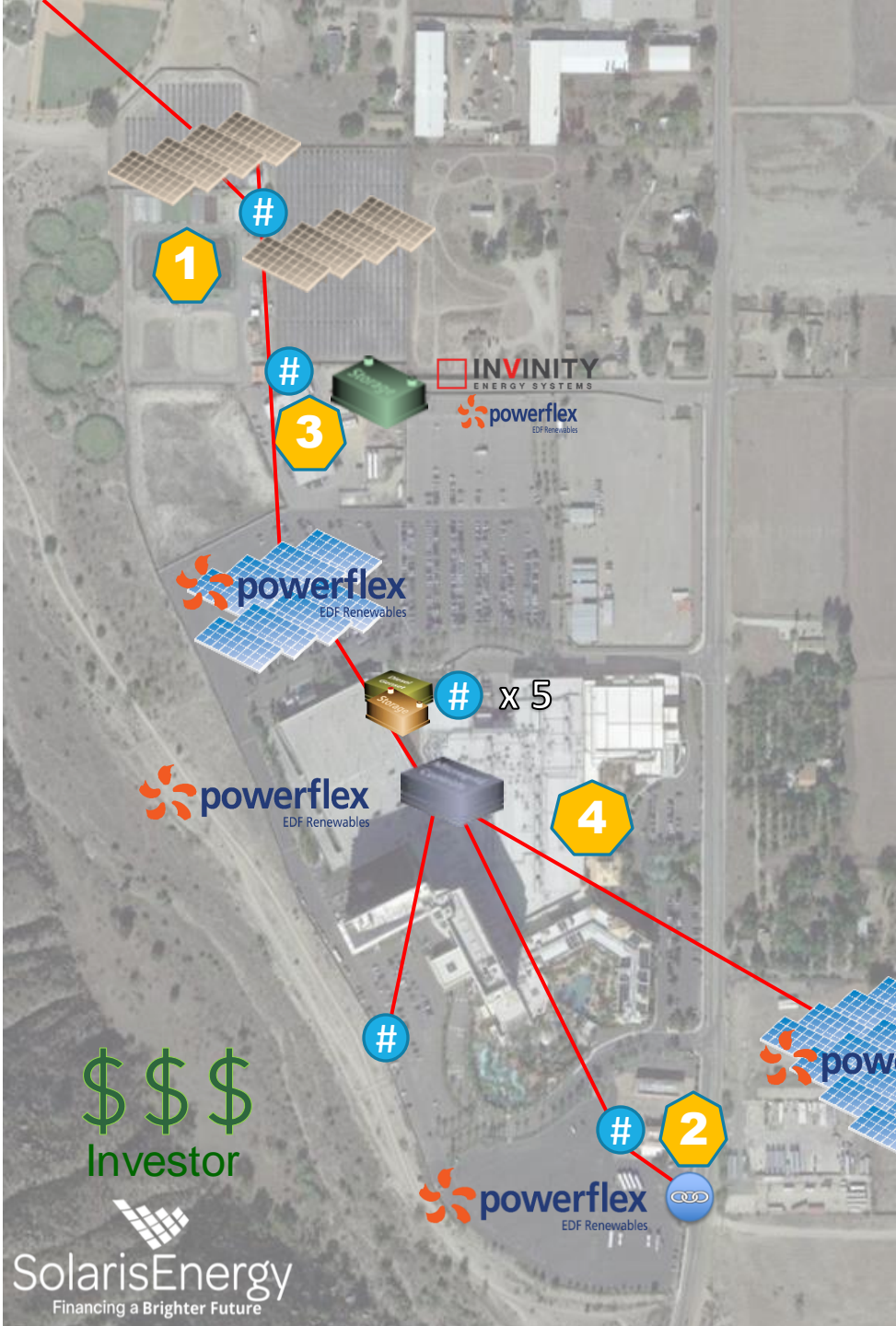
# Protecting Essential Facilities

System	Facility Details	Type	Essential Purposes	Resource Type and Capacity
<b>Fire Station Microgrid</b>	13,600 ft <sup>2</sup> , 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)
<b>PC-4 Well</b>	Public Water System	Water Well Pump	Provide domestic water for community homes and facilities	Carport/Ground-Mount PV ~63 kW Li-Ion BESS 60 kW / 132 kWh
<b>Resort Area Microgrid</b>	Resort: 1,284,619 ft <sup>2</sup> , built in phases starting in 2001	- Tribally owned casino-resort	Emergency public shelter, cooling center, emergency operations center (EOC), and emergency response and evacuation staging areas	Carport PV ~2 MW Flow Battery 1 MW / 4 MWh
<b>Rincon Government Center</b>	143,000 ft <sup>2</sup> , built in 2018	Tribal Government Center, Tribal Police Station	Tribal Police, First Response, Emergency Public Shelter, Emergency Operations Management, EV Charging	Carport/Rooftop PV ~333 kW (new) Diesel Genset 150 kW (existing) Li-Ion BESS 174 kW / 696 kWh (new)



# Original HRSC Microgrid Project

\*Not part of CEC project scope or budget for grant or match share



1

Wastewater Treatment Plant and Well Pump(s)

2

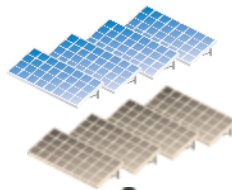
Travel Center Gas Station and C-Store

3

Butler Building

4

Harrah's Resort Southern California



6 MW Solar PV System (new)  powerflex  
EDF Renewables

1 MW Solar PV System (existing)




4.8 MWh Flow Battery System (new)  INVINITY  
ENERGY SYSTEMS



4.8 MWh Flywheel Energy Storage (new)  AMBER  
KINETICS



Lithium-Ion Batteries\* (4.5 MW/2-hr new,  
420 kW/680 kWh existing)  powerflex  
EDF Renewables



Diesel Gensets\* (4 MW new, 2 MW existing)  powerflex  
EDF Renewables



Microgrid Controls (new)  powerflex  
EDF Renewables



Point of Interconnection (new)  powerflex  
EDF Renewables



Meters (existing)



Microgrid Underground Bus (new)  powerflex  
EDF Renewables

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Investor

 SolarisEnergy  
Financing a Brighter Future

# HRSC Solar+Storage Project V2

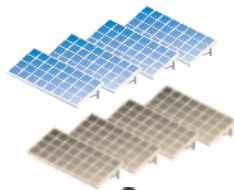


**1** ~~Wastewater Treatment Plant and Well Pump(s) (1)~~

**2** ~~Travel Center Gas Station and C-Store (2)~~

**3** ~~Butler Building (3)~~

**4** Harrah's Resort Southern California (4)



~1.86 MW Solar PV System (new) 

~~1 MW Solar PV System (existing)~~




~~4.8~~ 4.0 MWh Flow Battery System (new) 



~~4.8 MWh Flywheel Energy Storage (new)~~ 




~~Lithium Ion Batteries (4.5 MW/2 hr new, 420 kW/680 kWh existing)~~ 



Diesel Gensets (4 MW new, 12 MW existing) 



Microgrid Controls (new) 



Point of Interconnection (new) 



Meters (existing)



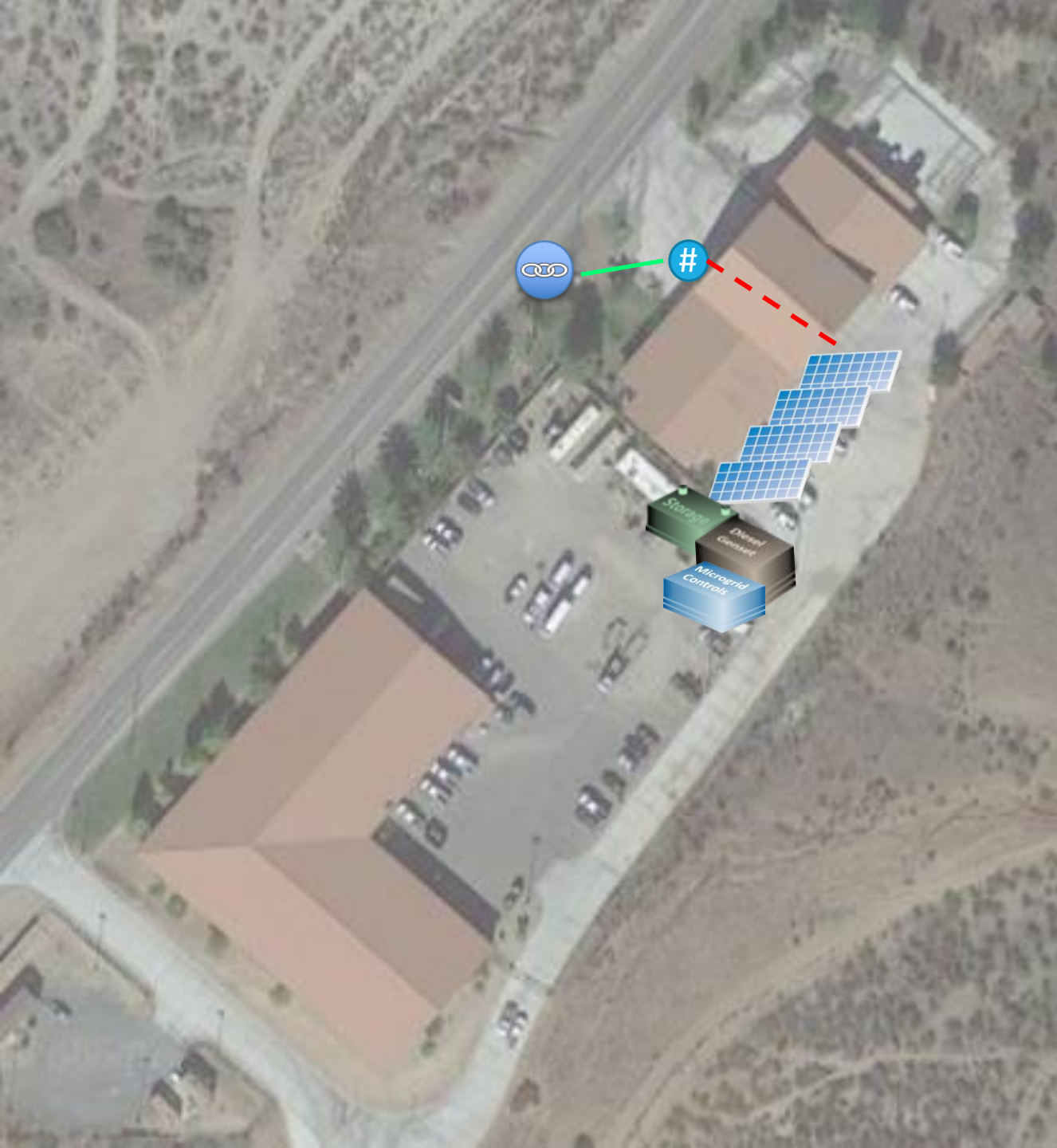
Microgrid Underground Bus (new) 

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Investor

  
SolarisEnergy  
Financing a Brighter Future



# 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



# PC-4 Well Microgrid

Proposed Resources:



~63 kW Solar PV System



60 kW / 132 kWh Battery  
Energy Storage System



# Rincon Government Center Microgrid

## Proposed Resources

~333 kW Solar PV Carports  
(investigating rooftop options that may be viable)











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

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## PowerFlex/Swell

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 (in progress for Government Center BESS)**
- 5. Operations & Maintenance, Performance Monitoring and Reporting**



# Lessons Learned

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- **Negotiating & designing complex energy systems is a significant tribal capacity challenge requiring expert support**
- **Identify experts as soon as possible and add experts to staff or establish contractual relationships**
- **Continually model project outcomes as conditions change and provide regular cost-benefit analyses to Tribal leadership**
- **Initial commitment/resources can lead to more resources (e.g. grants)**
- **Tax equity financing opportunities and challenges**
- **Existing building and electrical plans/information may be limited**
- **Rooftop solar may not be feasible (or require extra analysis)**

# Lessons Learned

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- **Define owner's project requirements before design engineering**
  - What's in, what's out?
  - Existing energy assets may not be compatible w/ microgrid (e.g. backup generators)
- **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
  - May need advanced engineering before EPC contract

# THANK YOU! QUESTIONS?

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