Clean Coalition

Making Clean Local Energy Accessible Now

Community Microgrids

Optimizing economics, environment & resilience

Craig Lewis

Executive Director

Clean Coalition

650-796-2353 mobile

craig@clean-coalition.org

Clean Coalition (non-profit) Mission

To accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise

Community Microgrids = the Grid of the Future

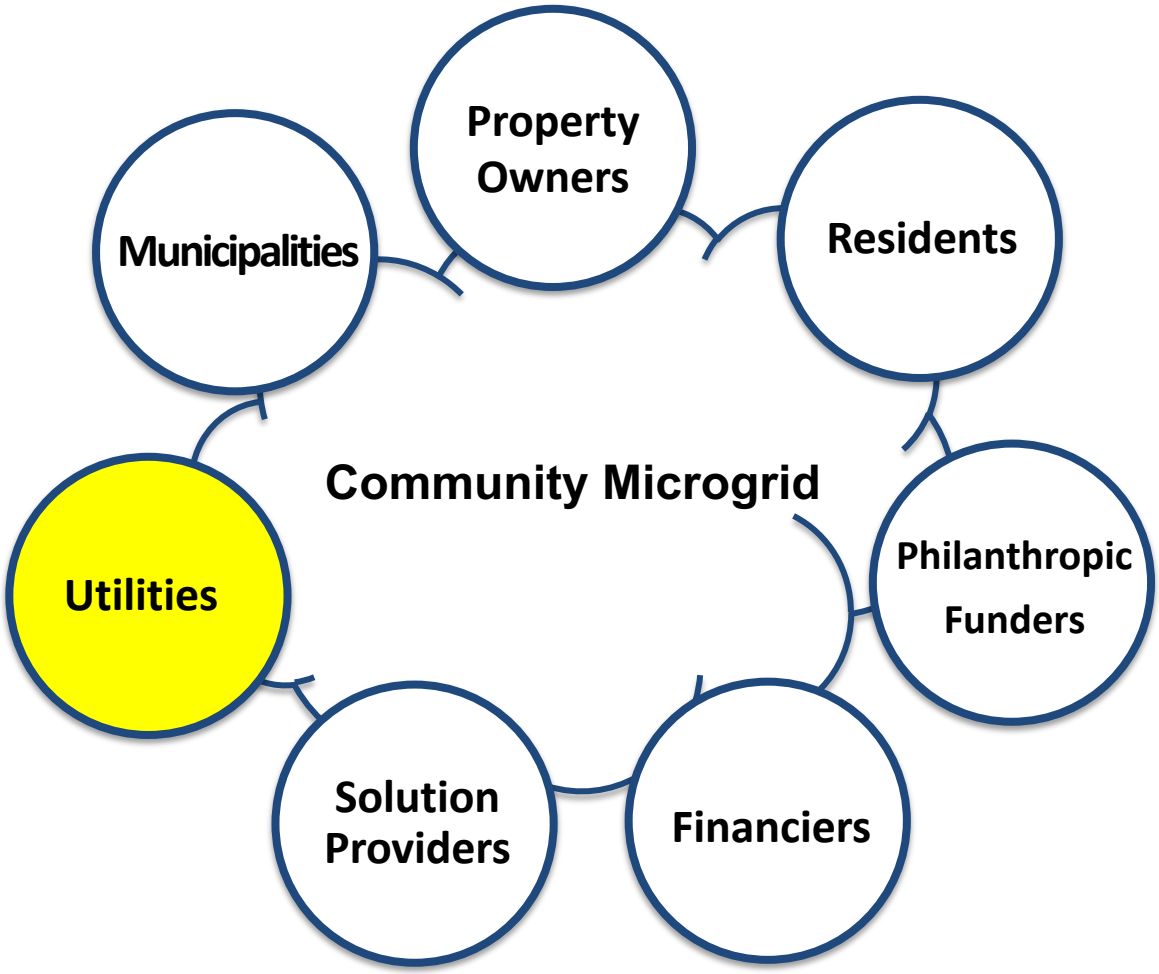
Clean Coalition

A Community Microgrid is a new approach for designing and operating the electric grid, stacked with local renewables and staged for resilience.

Key features:

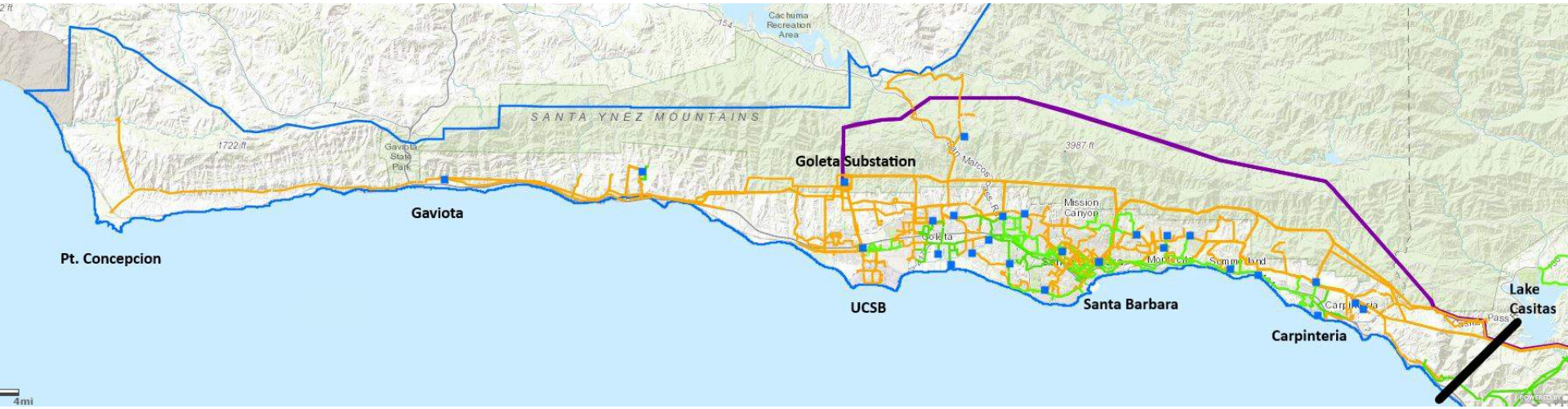
- A targeted and coordinated local grid area served by one or more distribution substations
- High penetrations of local renewables and other Distributed Energy Resources (DER) such as energy storage and demand response
- Staged capability for ongoing renewables-driven power backup for critical and prioritized loads across the grid area
- A solution that can be readily extended throughout a utility service territory – and replicated into any utility service territory around the world

Community Microgrid key stakeholders



Goleta Load Pocket (GLP)

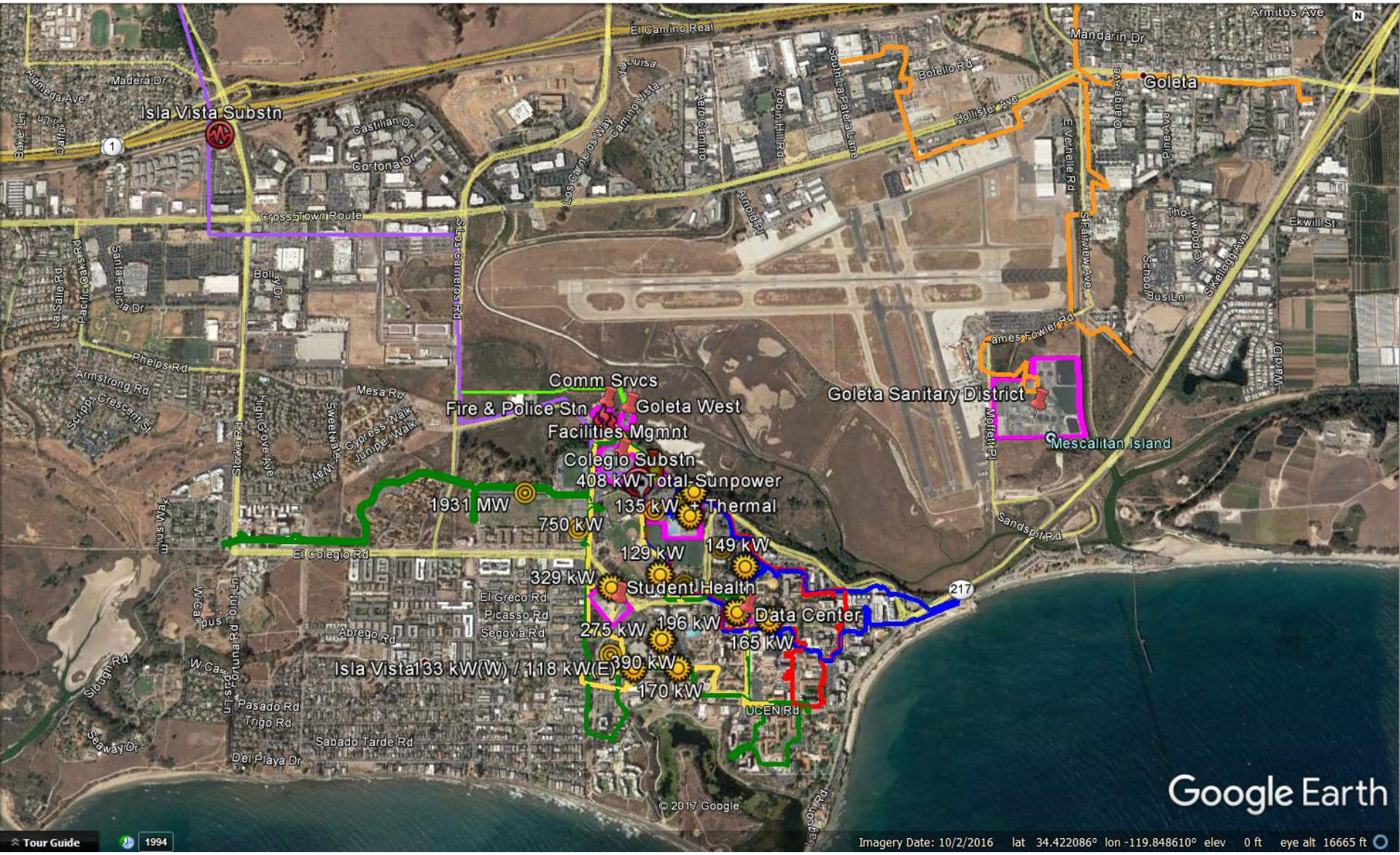
The GLP is the perfect opportunity for a comprehensive Community Microgrid



The GLP stretches from northwest of Gaviota to southeast of Carpinteria

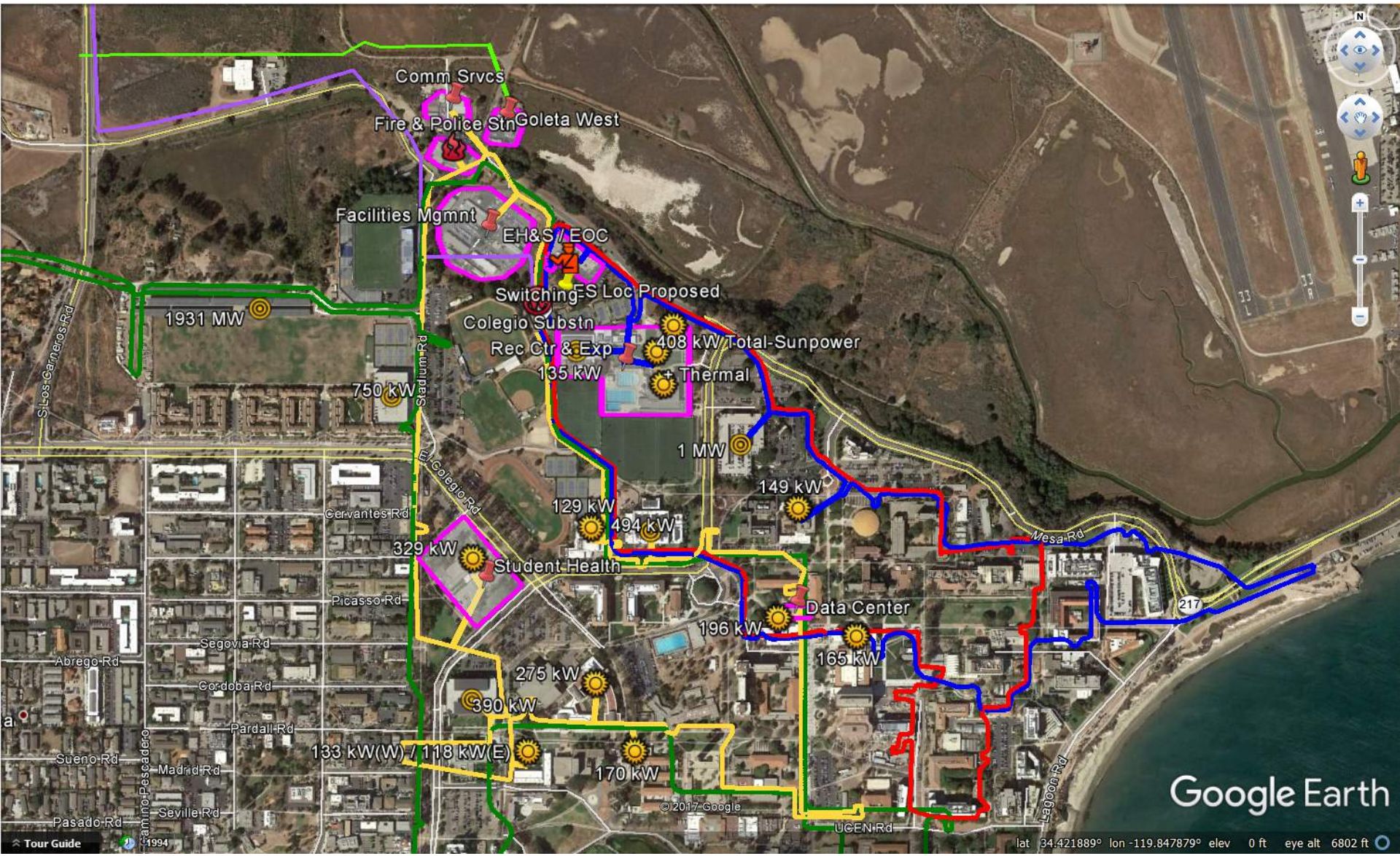
UCSB Community Microgrid – Area Map

Clean Coalition

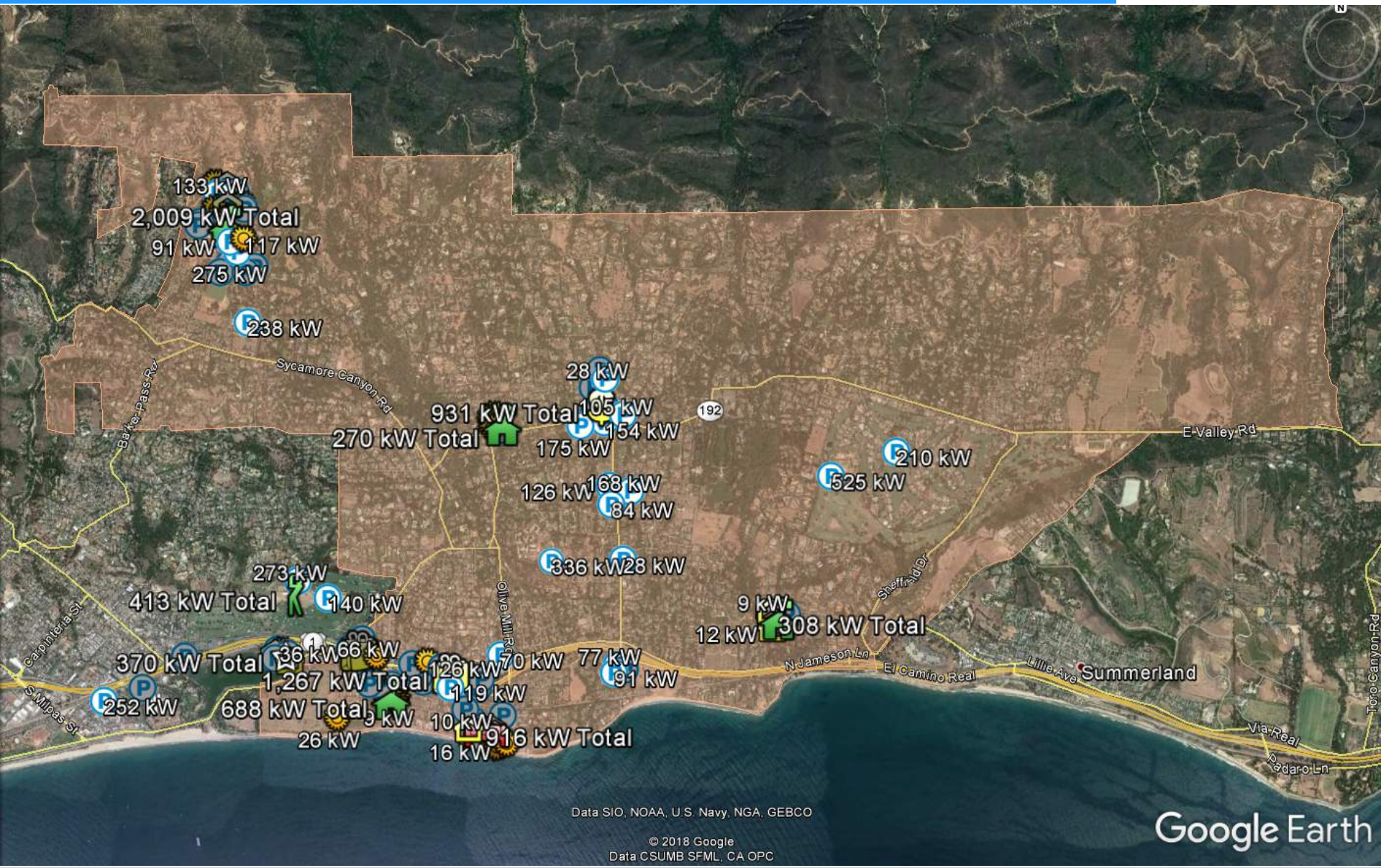


UCSB Community Microgrid – Phase 1 + 2

Clean Coalition



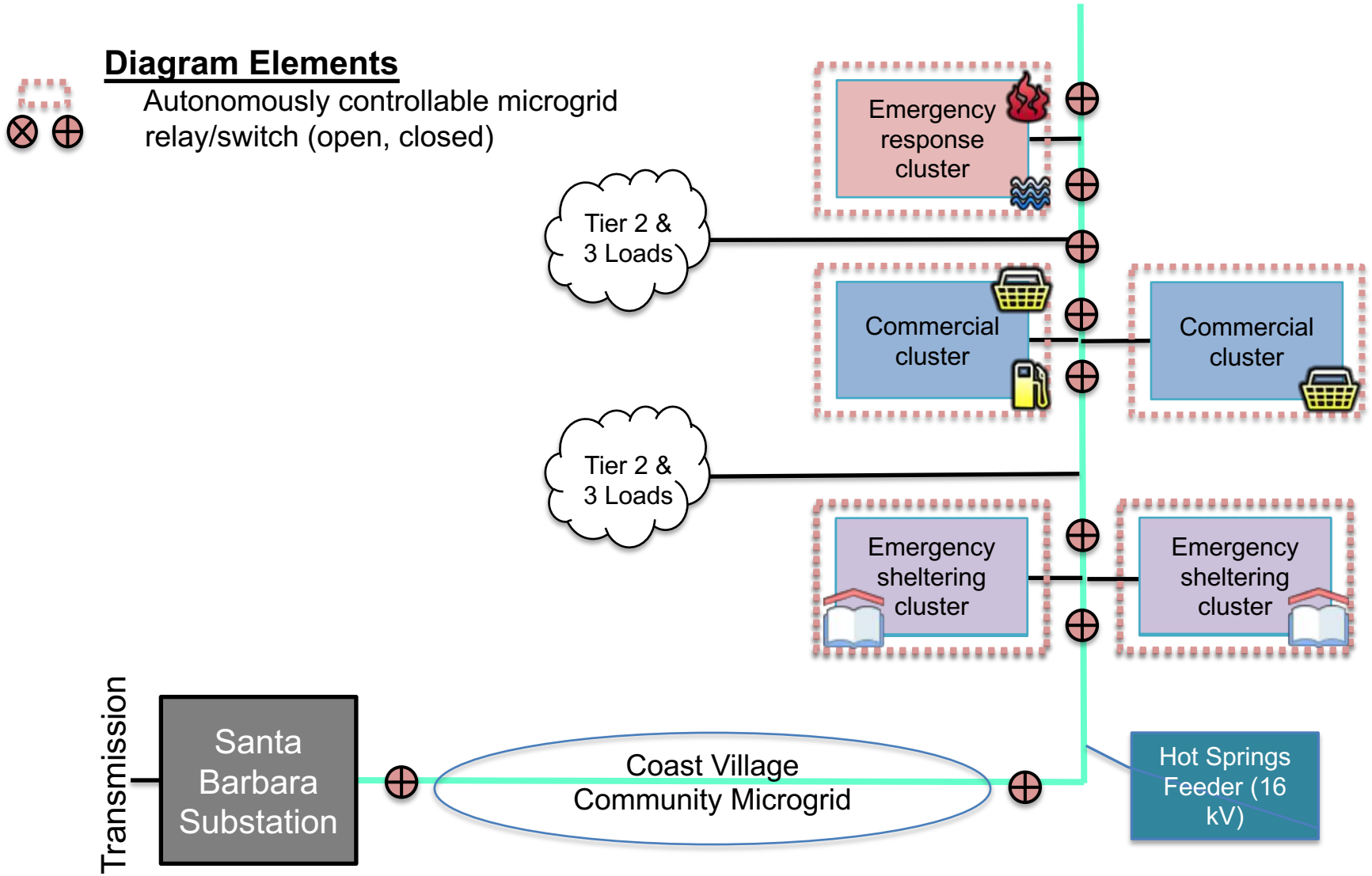
Solar Siting Survey (SSS) for Montecito



Montecito Upper Village critical facilities

Upper Village Community Microgrid block diagram

Clean Coalition



Upper Village emergency response facilities

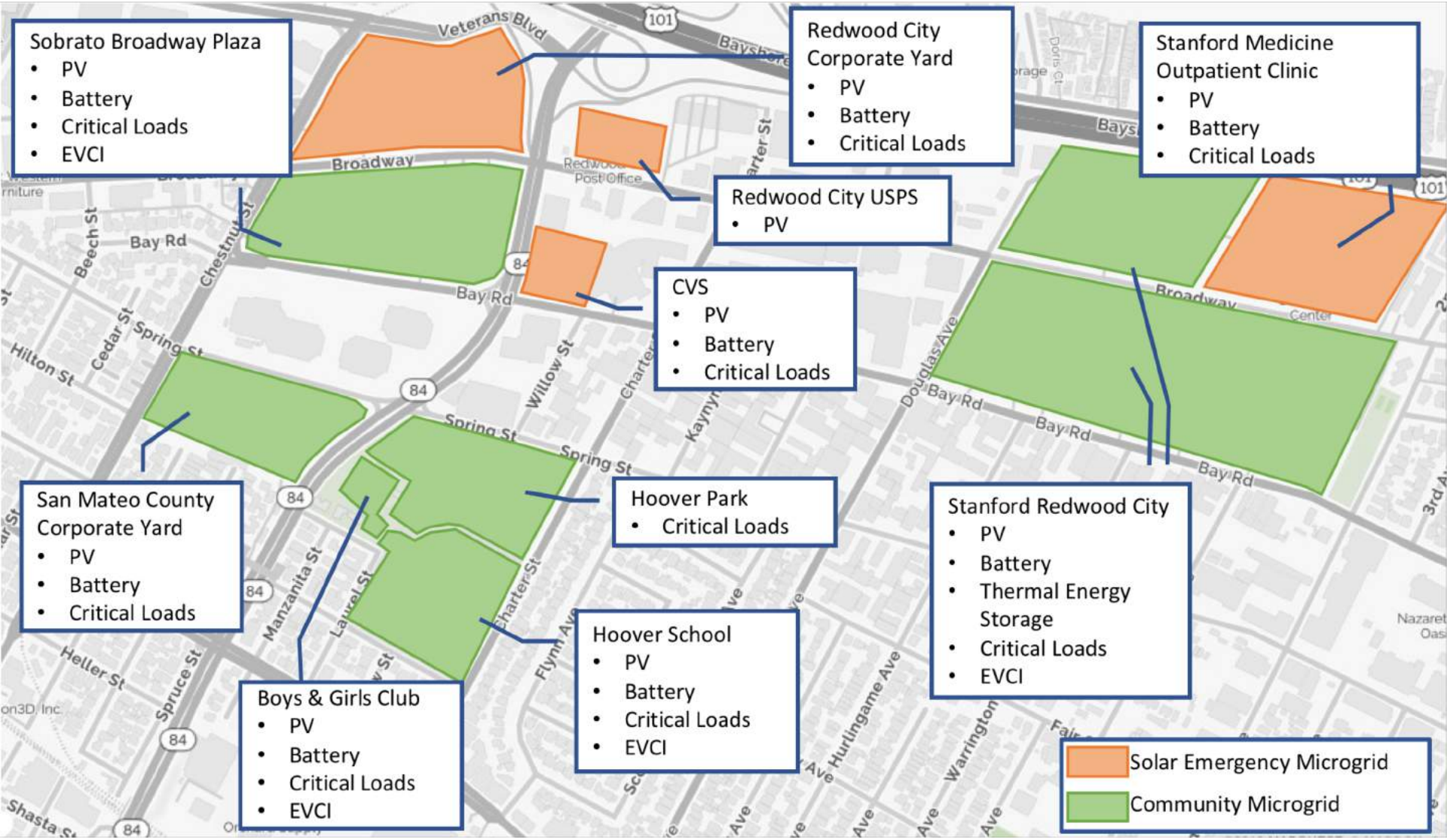
Clean Coalition

Site	Annual Historic Use	Proposed Solar PV Capacity (DC)	Solar PV Annual Production
Fire District	103,623 kWh	70 kW	102,533 kWh
Pump House	21,415 kWh	14.5 kW	21,379 kWh
WD Office	28,716 kWh	19.5 kW	28,765 kWh
WD Mech Yard	14,933 kWh	10.2 kW	15,141 kWh
Sand Lot	NA	75.9 kW	112,069 kWh
Phase 1 Total	168,687 kWh	190.1 kW	279,887 kWh

Note that the 75.9 kW Solar PV system proposed for the Sand Lot would be used to offset electricity from other municipal electric accounts, such as the Water District accounts not located in this site, via the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program.

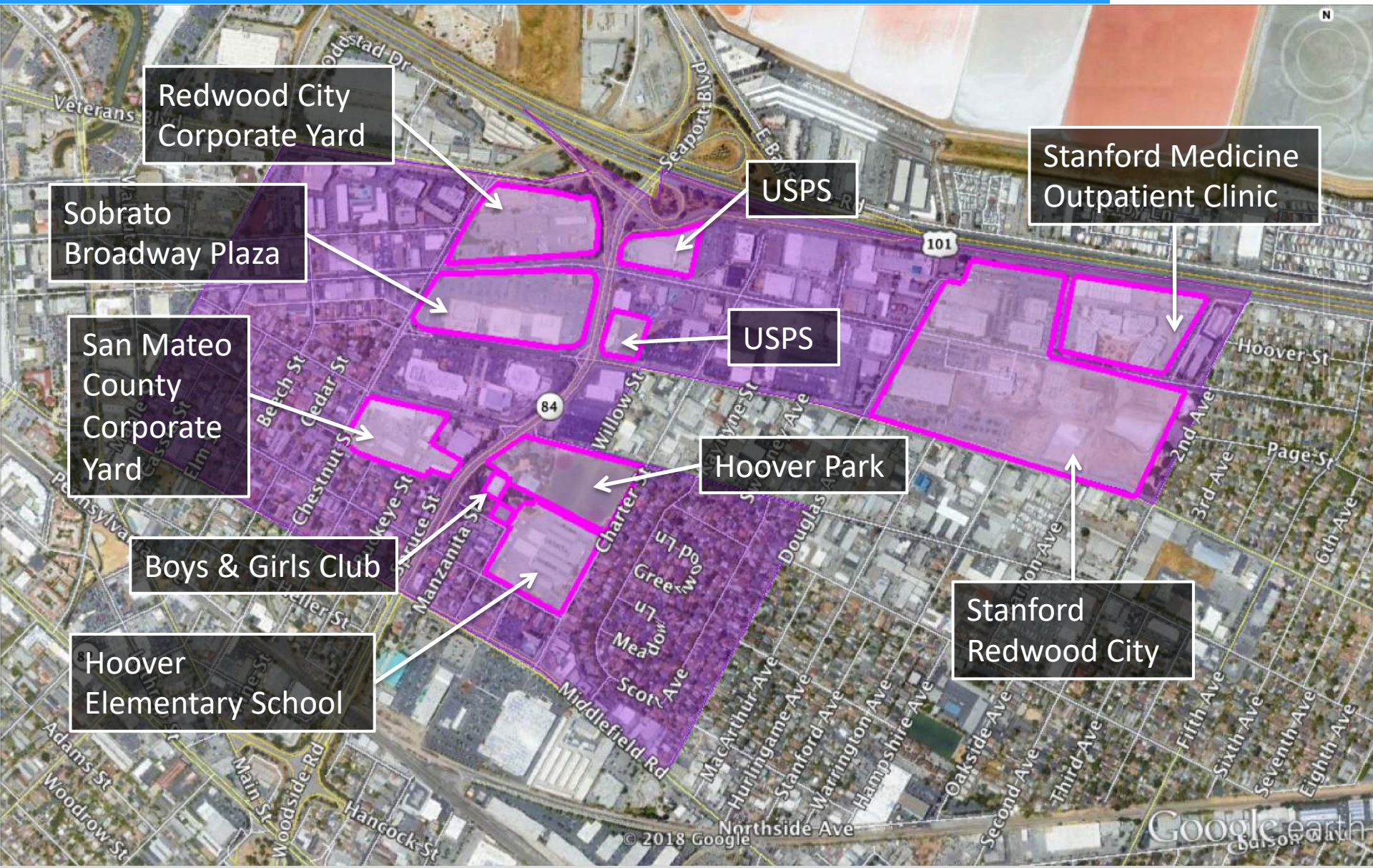
Redwood City Community Microgrid site map

Clean Coalition



Covers Redwood City's disadvantaged community

Clean Coalition



Deployment Summary

Site Name	Meters or Buildings	Critical Loads	NEM Solar [kW AC]	FIT Solar [kW AC]	Total Solar [kW AC]	Battery [kW]	Battery [kWh]	EVCI (Level 2)
Stanford Redwood City Phase 1	P1, B1-B4	Campus emergency response	886	0	886	251	2,100	52
Hoover Cluster	Hoover School	Shelter & food service	73	203	276	29	150	20
	Boys & Girls Club	Shelter & food service	11	90	101	0	0	10
	Hoover Park	Equipment staging	0	0	0	0	0	0
Redwood City Corporate Yard	Redwood City Corporate Yard	Road and public facility maintenance and repair	136	352	488	58	360	*4
San Mateo County Corporate Yard (SMC Yard)	SMC Yard Meter 1	Road and public facility maintenance and repair	65	0	65	58	240	0
	SMC Yard Meter 2		33	121	154	0	0	*4
	SMC Yard Meter 3		0	79	79	0	0	0
Sobrato Broadway Plaza	Sobrato Broadway Plaza (multiple meters)	Low income housing	0	1,197	1,197	TBD	TBD	TBD
	Sobrato CVS	Pharmacy & grocery	0	83	83	TBD	TBD	TBD
New Deployments TOTAL			**1,204**	**2,125**	**3,329**	**396**	**2,850**	**82**

With net metering, only 1.2 MW can be deployed.

With a new FIT program, an **additional 2.1 MW** of local, renewable generation could be deployed in a disadvantaged community.

Peek at the Community Microgrid future

Clean Coalition

Ecoplexus project at the Valencia Gardens Apartments in SF. ~800 kW meeting ~80% of the total annual load.