

# Montecito Community Microgrids Renewable Resilience for Critical Facilities



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**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



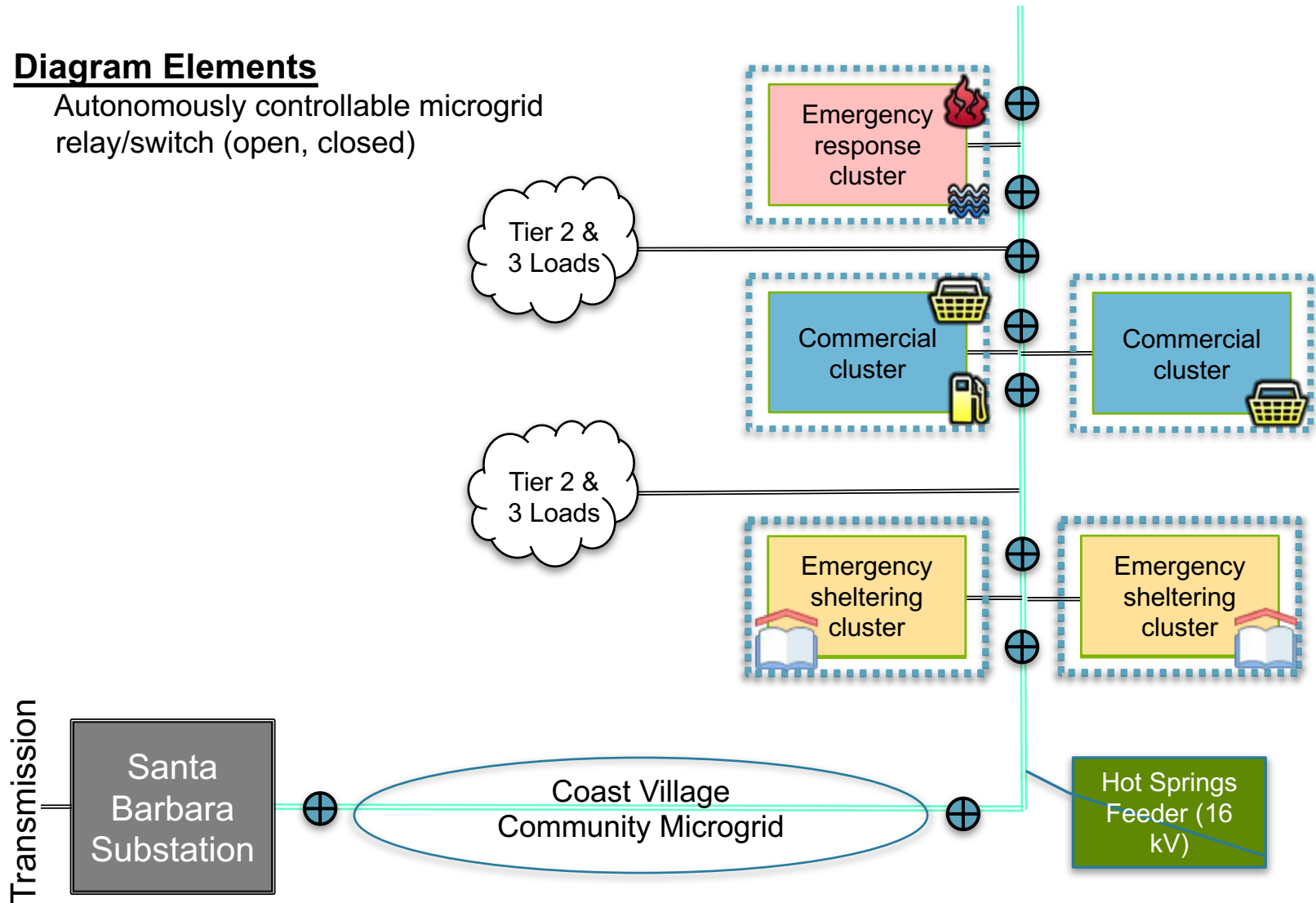
- **Back-up critical facilities with unlimited renewables**
- **Shores up existing back-up of these facilities**
- **Provides a template for renewables-driven community resiliency**
- **Continual cost savings helps system pay for itself**
- **20 year fixed price contract – great for budgeting!**
- **Siting at schools = educational/vocational opportunities**

# Upper Village Community Microgrid block diagram

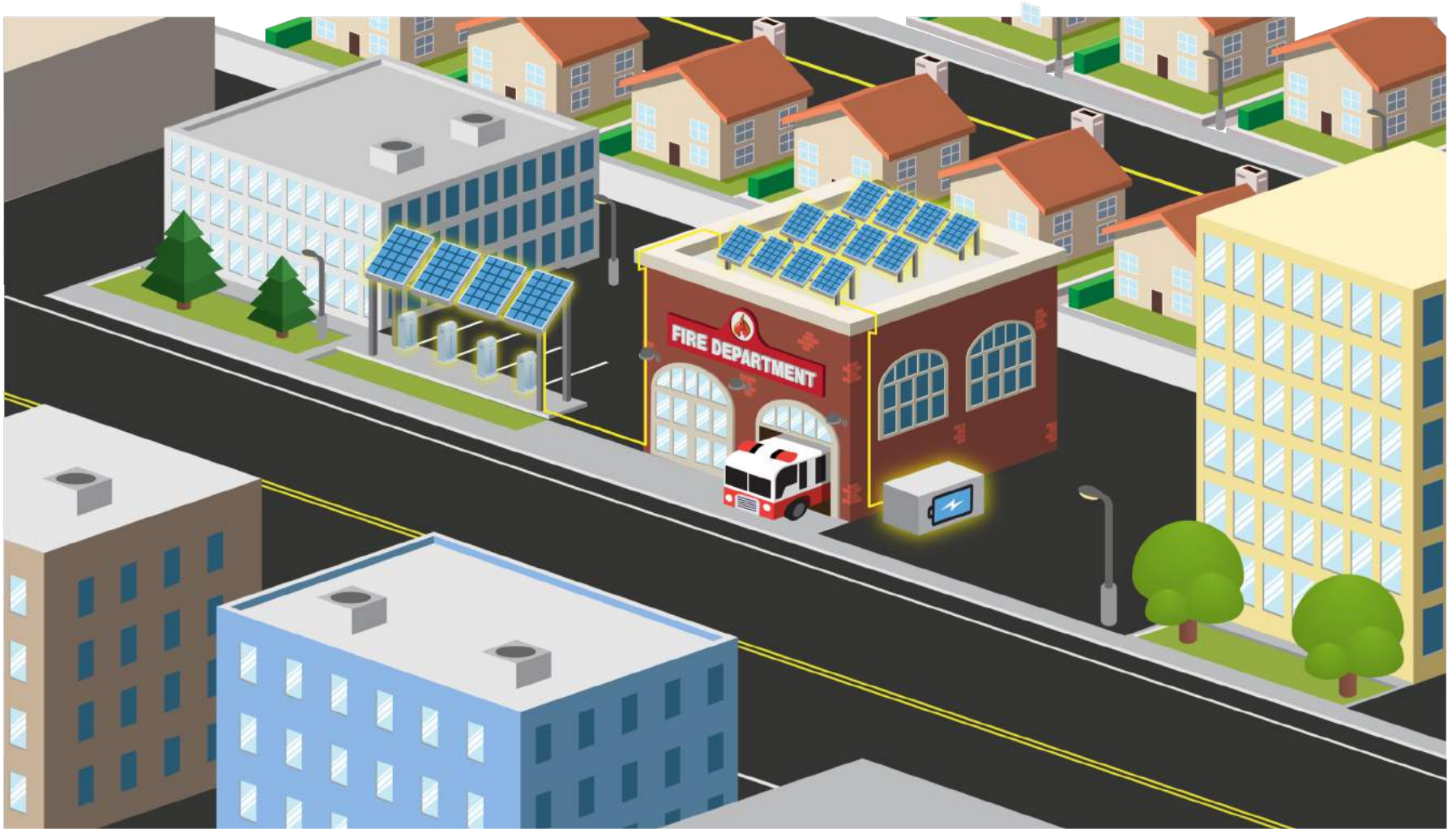


## Diagram Elements

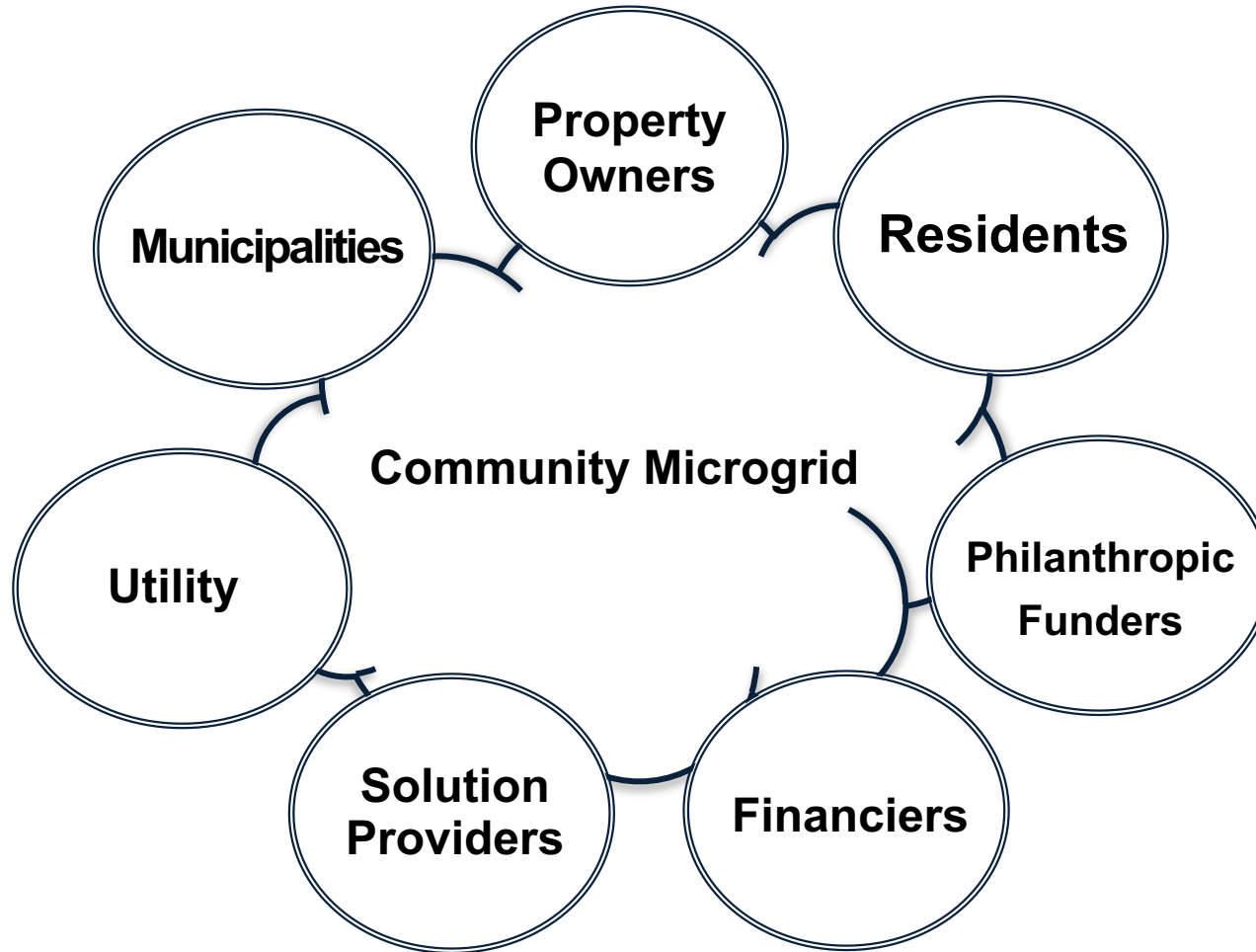
Autonomously controllable microgrid relay/switch (open, closed)



# Providing backup power to critical facilities







**Residences with solar+storage have numerous benefits.**

- **Less grid stress.**
- **On-site energy security.**
- **Possible energy sharing with adjacent properties (mini microgrid).**
- **Tax benefits available to BOTH solar and storage when installed together.**
  - **Tax benefits are comprised of the federal Investment Tax Credit (ITC) and accelerated depreciation.**
  - **Storage added to existing solar are ineligible for tax benefits.**
- **Numerous vendors now offer residential solar+storage products.**



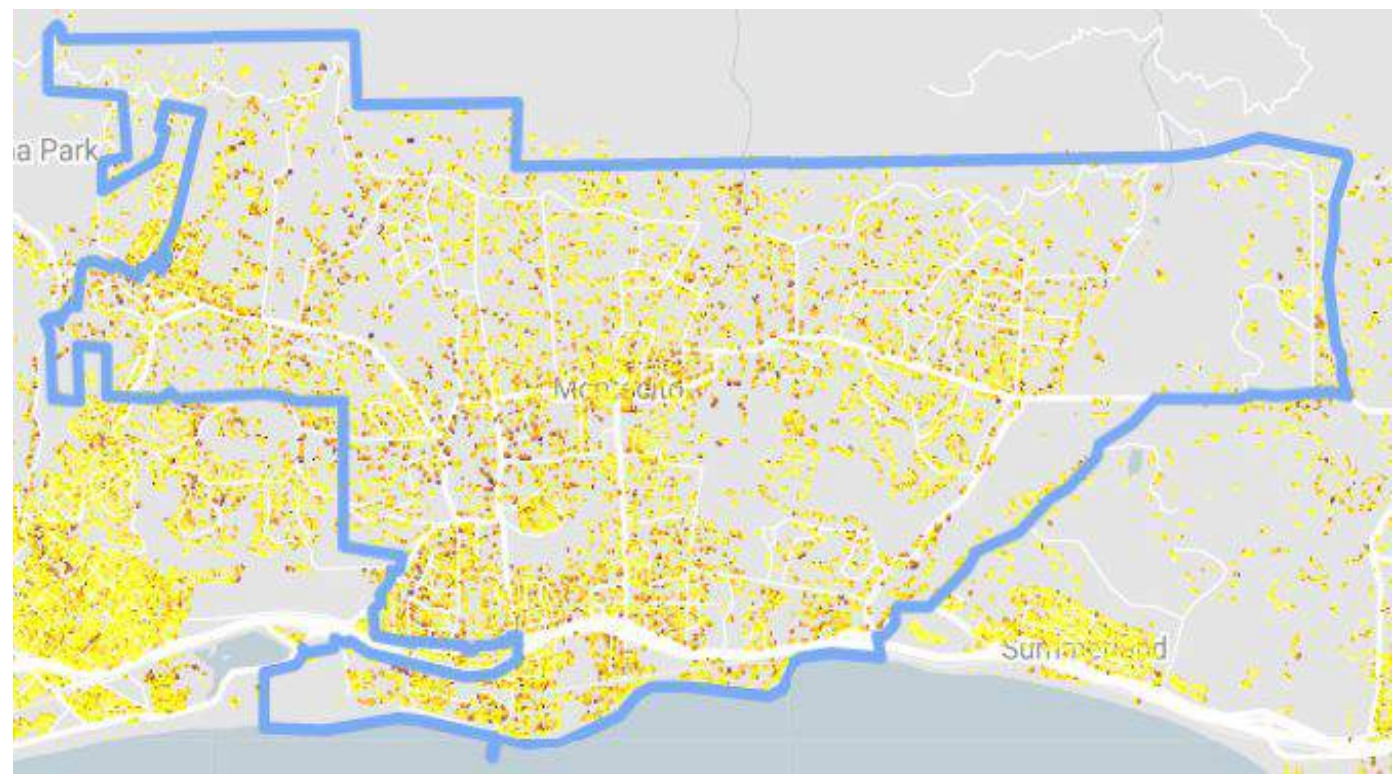
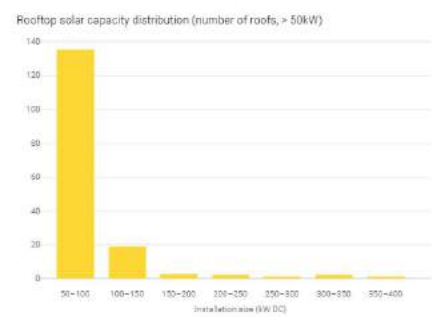
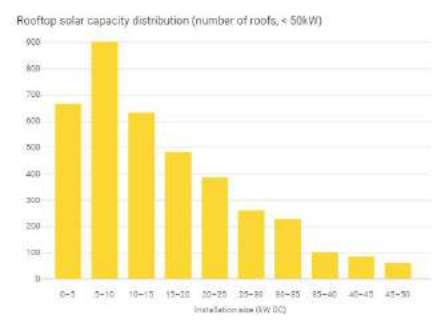
# Montecito solar capacity (Roofs only / no parking lots!)

## ESTIMATED SOLAR INSTALLATION POTENTIAL



**Overall**  
Total estimated size and solar electricity production of viable roofs for Montecito, CA

Roofs	Roofs	
82%	4K	
Roof space	Capacity	Electricity
5M sq ft	71.3 MW DC	106K MWh AC per yr



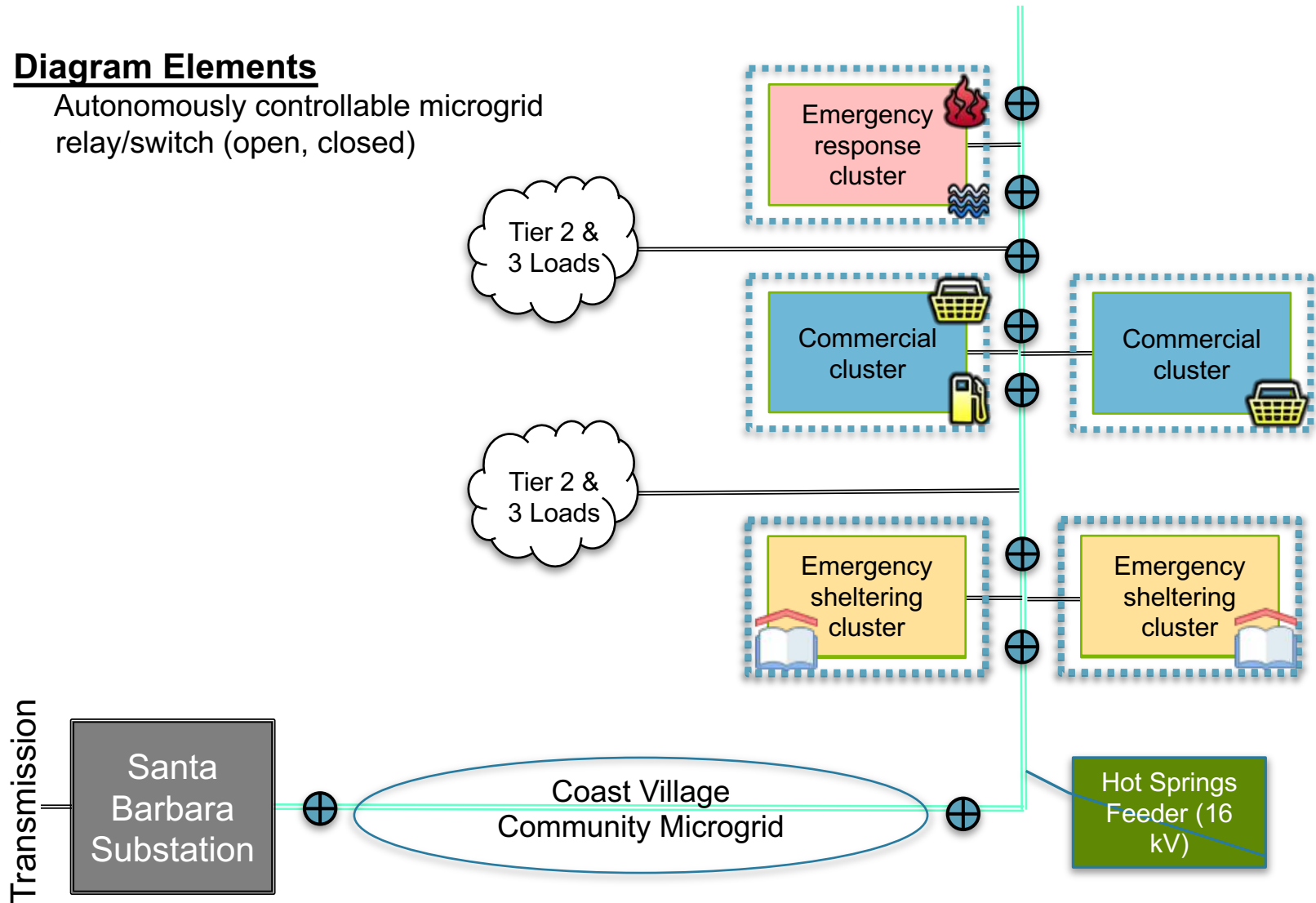
- **Over 70 MW of solar siting on Montecito rooftops.**
- **Parking lots could add 2x more additional siting opportunities.**

# Upper Village Community Microgrid block diagram

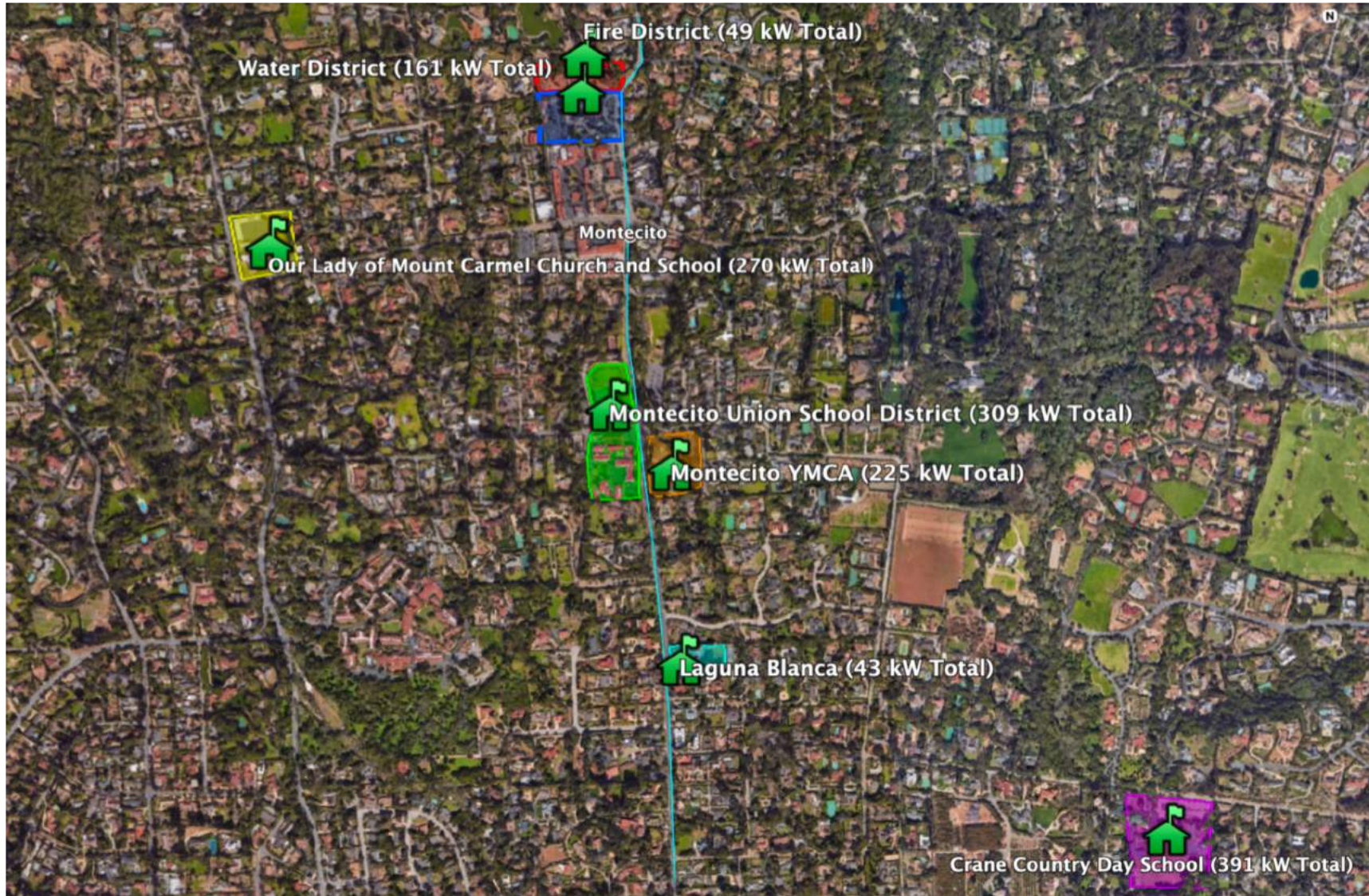


## Diagram Elements

Autonomously controllable microgrid relay/switch (open, closed)



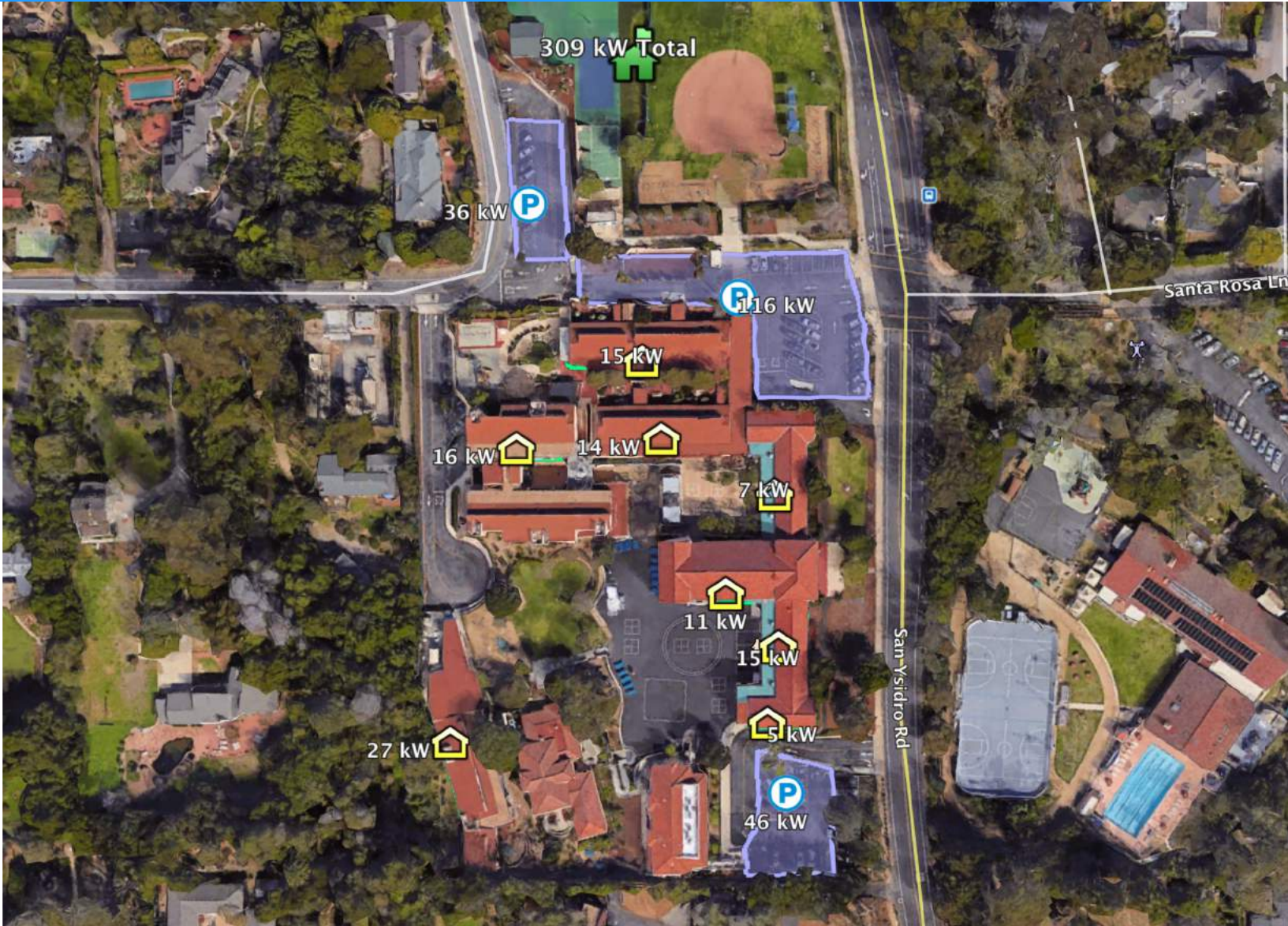
# Upper Village critical facilities include five along Hot Springs Feeder

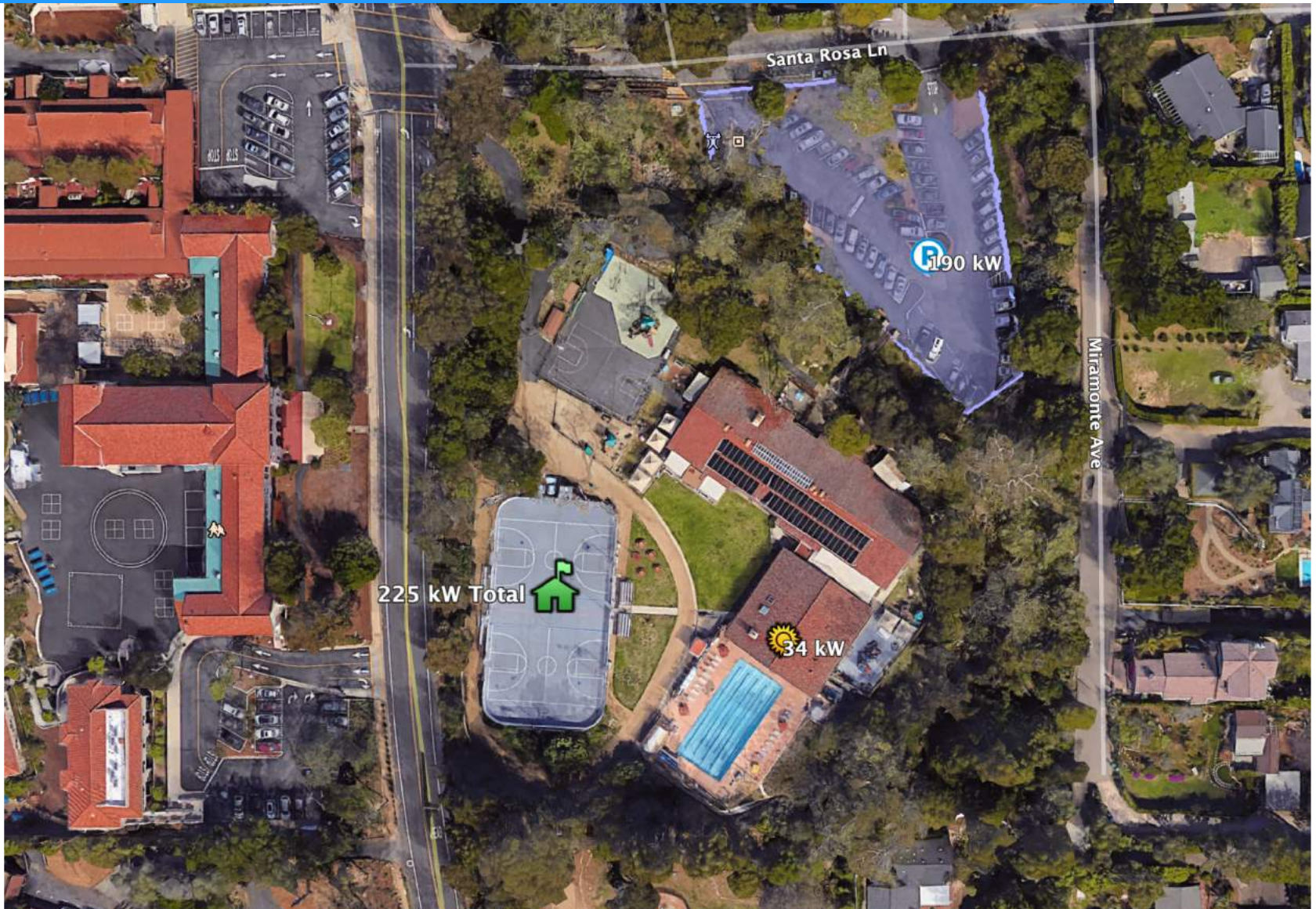


Site	Annual Historic Use	Proposed Solar PV Capacity (DC)	Solar PV Annual Production
Fire District	103,623 kWh	70 kW	102,533 kWh
Pump House	21,415 kWh	14.5 kW	21,379 kWh
WD Office	28,716 kWh	19.5 kW	28,765 kWh
WD Mech Yard	14,933 kWh	10.2 kW	15,141 kWh
Sand Lot	NA	75.9 kW	112,069 kWh
Phase 1 Total	168,687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



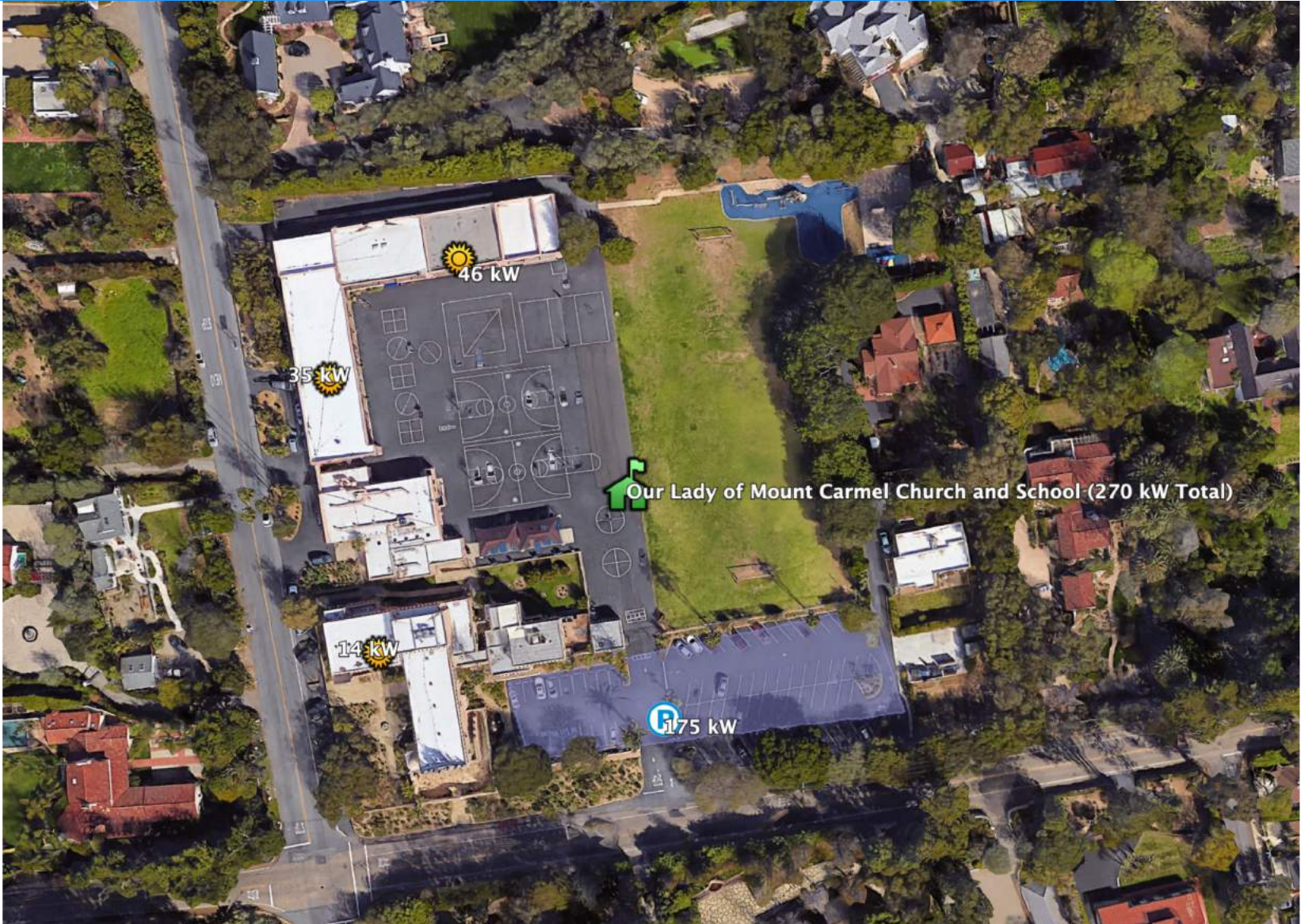












- **Resilient electric system** – mitigates climate change impacts and grows stronger as it expands.
- **Economic growth** – microgrid development and operation creates local jobs!
- **Resilient property values** – a resilient community has higher intrinsic value in a climate changed world.
- **Historic legacy moment** – MCMI is a replicable model for our distributed energy future.

## **1. First Building Block: Fire and Water Community Microgrid**

- **\$2.25 million funding required to design and deploy fire and water Emergency Response Clusters.**
- **\$1.5 million to be paid through system economic value (energy savings, tax benefits, and other incentives such as SGIP).**
- **\$750k to be raised through philanthropic contributions.**

## **2. \$7.5 million to deploy remainder of the Upper Village Community Microgrid, 75% paid by itself and the rest paid by grants & philanthropy.**

# \$750k Required for philanthropic funding



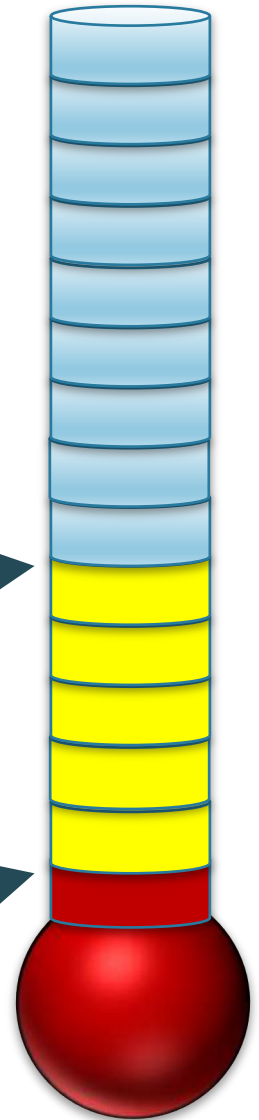
\$750k

**Kind World Foundation is offering a challenge grant for the Upper Village Community Microgrid:**

**\$150,000 to be matched**

**dollar-for-dollar!**

**\$20,000 matched (\$40,000 collected) to date**



## 1. **First Building Block: Fire and Water Community Microgrid**

- **\$300K funding required to stage and design fire station and water district microgrids.**
- **\$450K required to fund economic gap.**

## 2. **Remaining Upper Village Community Microgrid**

- **\$7.5 million to deploy, 75% paid by itself and the rest paid by grants & philanthropy.**