



Montecito Community Microgrid Initiative: Resilience Fund Update



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The GLP is the perfect opportunity for a comprehensive Community Microgrid



The Goleta Load Pocket (GLP) spans 70 miles of California coastline, from Point Conception to Lake Casitas, encompassing the cities of Goleta, Santa Barbara (including Montecito), and Carpinteria. Because the GLP is a highly transmission-vulnerable, disaster-prone region, the GLP Community Microgrid is being designed to deliver an unparalleled trifecta of economic, environmental, and resilience benefits to the area. To achieve indefinite renewables-driven backup power that provides 100% protection to the GLP against a complete transmission outage (“N-2 event”), **200 megawatts (MW) of solar and 400 megawatt-hours (MWh) of energy storage** needs to be sited within the GLP.

Montecito Community Microgrid – overview

Overall goal is to provide renewables-driven energy resilience to critical community facilities in Montecito and to showcase the benefits of Community Microgrids for communities around the world.

Initial facilities:

- Montecito Fire Protection District headquarters
- Montecito Water District headquarters
- Montecito Union School

All designs include solar parking canopies and energy storage to deliver indefinite renewables-driven backup power to the most critical loads.



Montecito Fire
and Water
District

Commercial
Properties

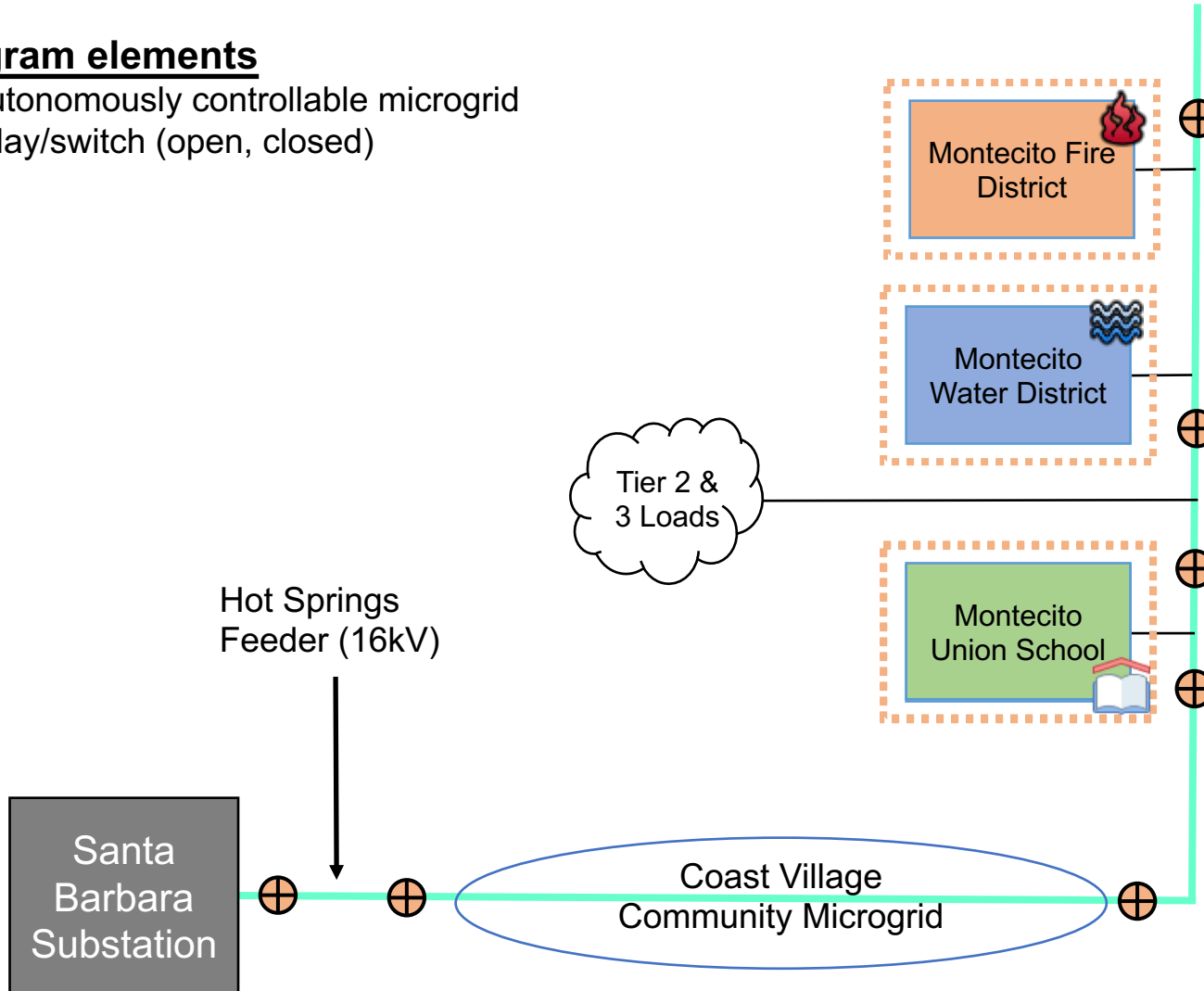
Montecito
Union School
and YMCA

Montecito Community Microgrid – block diagram



Diagram elements

Autonomously controllable microgrid relay/switch (open, closed)



- The Montecito Fire District (FD) Microgrid design is almost finalized.
- An enhanced main parking lot design is being built out at the Montecito Union School (MUS) that includes the electrical staging for electric vehicle charging infrastructure (EVCI) and a solar parking canopy.
- Designs are progressing for the Water District (WD) and MUS Microgrids, which are scheduled to follow the FD Microgrid by a few months.

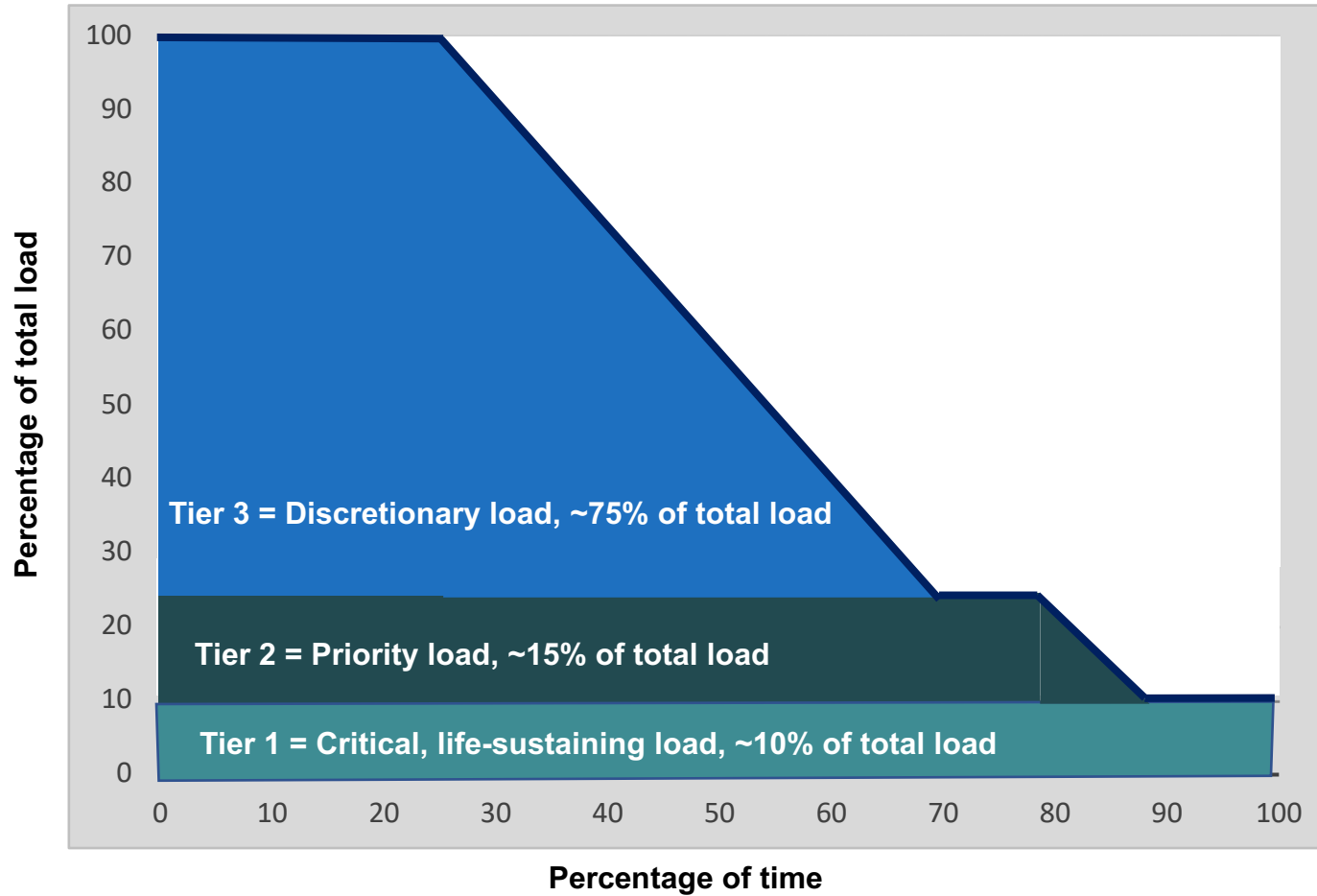
- The goal for the first three Montecito Community Microgrid sites (FD, WD, and MUS) is that they will not pay more for energy than they would otherwise pay to the utility, Southern California Edison.
- The innovative nature of the Montecito Community Microgrid designs, providing indefinite renewables-driven backup power to the most critical loads, means that there will be a premium for the initial projects.
- A Resilience Fund is being raised to cover the premium at these first three sites.
- The premium as a percentage of project cost declines rapidly for each new project, as learning is continually leveraged.
- Simultaneously, a standardized Value of Resilience (VOR) is being established to account for the tremendous value of indefinite renewables-driven backup power.

The total Resilience Fund requirement for the FD, WD, and MUS sites is \$750k, as delineated in the following table (shown in the order of deployment with efficiency improvements in each subsequent deployment):

Site Name	Annual Load (kWh)	Project Efficiency vs FD	Resilience Fund Required
Montecito Fire Protection District (FD)	130,000	0%	\$182,150
Montecito Water District (WD)	225,000	18%	\$258,513
Montecito Union School (MUS)	315,000	30%	\$308,954
Total	670,000		\$749,617

- Everyone understands there's significant value to the resilience provided by indefinite renewables-driven backup power
 - But, nobody has yet to quantify this value of unparalleled resilience.
 - Hence, there is an economic gap for innovative Community Microgrid projects while learning is still in the early stages.
- The Clean Coalition aims to establish standardized [Value of Resilience](#) (VOR) for critical, priority, and discretionary loads that will help everyone understand that premiums are appropriate for indefinite renewables-driven backup power of critical loads and almost constant backup power to priority loads, which yields a configuration that delivers backup power to all loads a lot of the time
- The Clean Coalition's VOR approach will establish standardized values for resilience of three tiers of loads:
 - Tier 1 are mission-critical and life-sustaining loads, crucial to keep operational at all times, including during grid outages. Tier 1 loads usually represent about 10% of the total load.
 - Tier 2 are priority loads that should be maintained as long as long as doing so does not threaten the ability to maintain Tier 1 loads. Tier 2 loads are usually about 15% of the total load.
 - Tier 3 are discretionary loads make up the remaining loads, usually about 75% of the total load, and are maintained when doing so does not threaten the ability to maintain Tier 1 & 2 loads.





1. Fire District Community Microgrid online by March 2020
2. Water District Community Microgrid online 2 months following the Fire District
3. Montecito Union School Community Microgrid deployed over summer 2020 break, online 2 months following Water District

Fire District, Water District, and Montecito Union School Community
Microgrids online by mid-2020

Backup slides

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