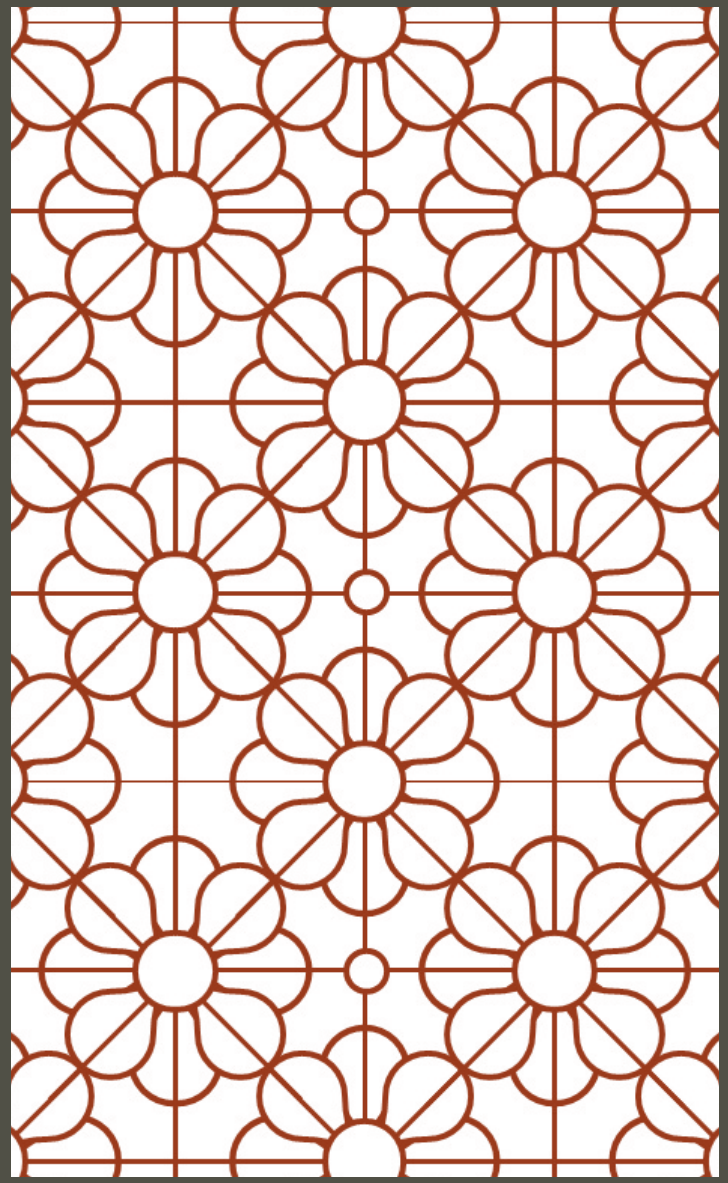


GIBSON SOLAR FARM USE PERMIT ZF#2020-0043

THURSDAY JUNE 8, 2023
DEPARTMENT OF COMMUNITY SERVICES
TRACY GONZALEZ, ASSISTANT PLANNER

PROJECT APPLICANT:
JAMIE NAGEL, PROJECT MANAGER, GIBSON RENEWABLES, LLC

REDUCED FOOTPRINT ALTERNATIVE

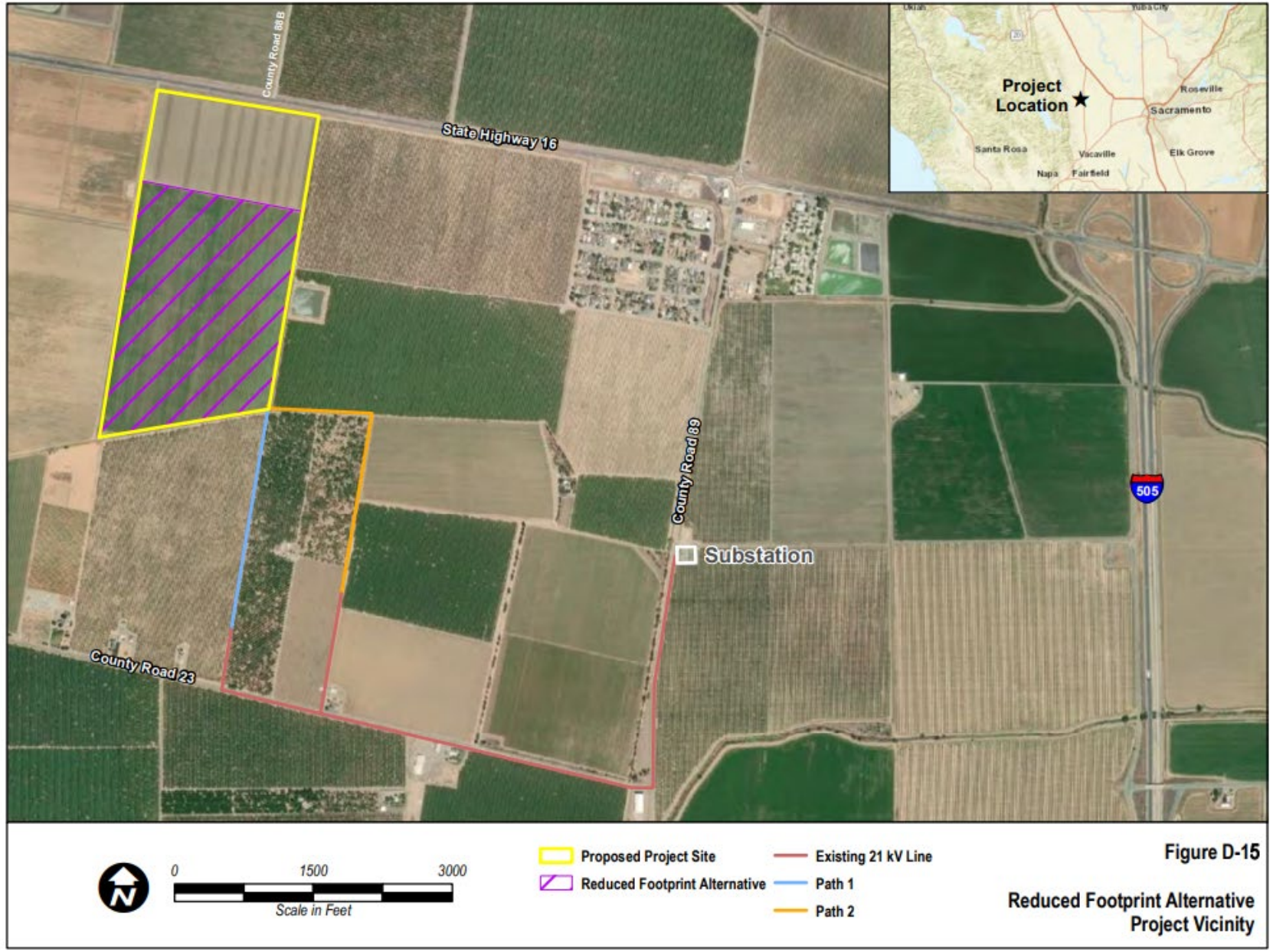
Proposed Project:

- 147 acres
- up to 20 MW solar PV with at least 6.5 MWac/26 MWh BESS

Reduced Footprint Alternative:

- 100 acres
- 13 MWac with up to 13 MWac/52 MWh BESS

- Partial Williamson Act contract cancellation to satisfy Mitigation Measure (MM) AG-2




emeren®
GIBSON SOLAR PROJECT
Generating Renewable Power Locally for Yolo County

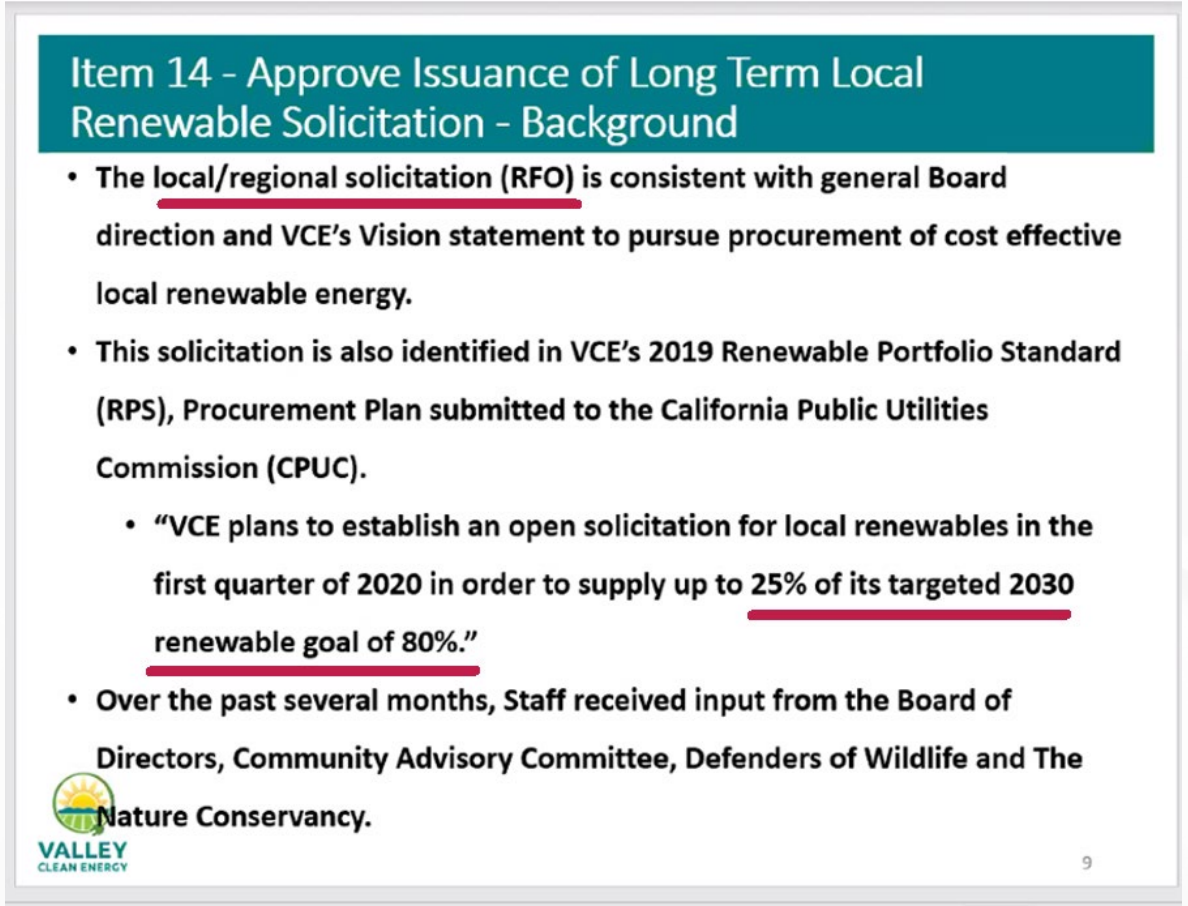
Local Policies Supporting Renewable Energy

Valley Clean Energy (VCE) Local Renewable Portfolio Standards:

- Procure 25% of renewable energy locally.
- This translates to **approximately 450 acres of solar PV**.

Yolo County General Plan & Climate Action Goals:

- Community Character Policy CC-4. 1: Reduce dependence upon fossil fuels, extracted underground metals, minerals and other non-renewable resources.
- Community Character Policy CC-4.5: **Encourage individual and community-based wind and solar energy systems.**
- Public Facilities Policy PF-10.2: Streamline the permitting process for the production of energy alternatives (including but not limited to photovoltaic, solar, wind, biofuels, and biomass), to reduce dependency on fossil fuels.
- Conservation Policy CO-8.5: Promote GHG emission reductions by supporting carbon efficient farming methods; **installation of renewable energy technologies**;
- Climate Action Plan goals to reduce carbon emissions to 27% below 1990 levels by 2030.



Source: April 2020, VCE Board Meeting Slide on Local RFO

Challenges to Siting Solar Energy Facilities

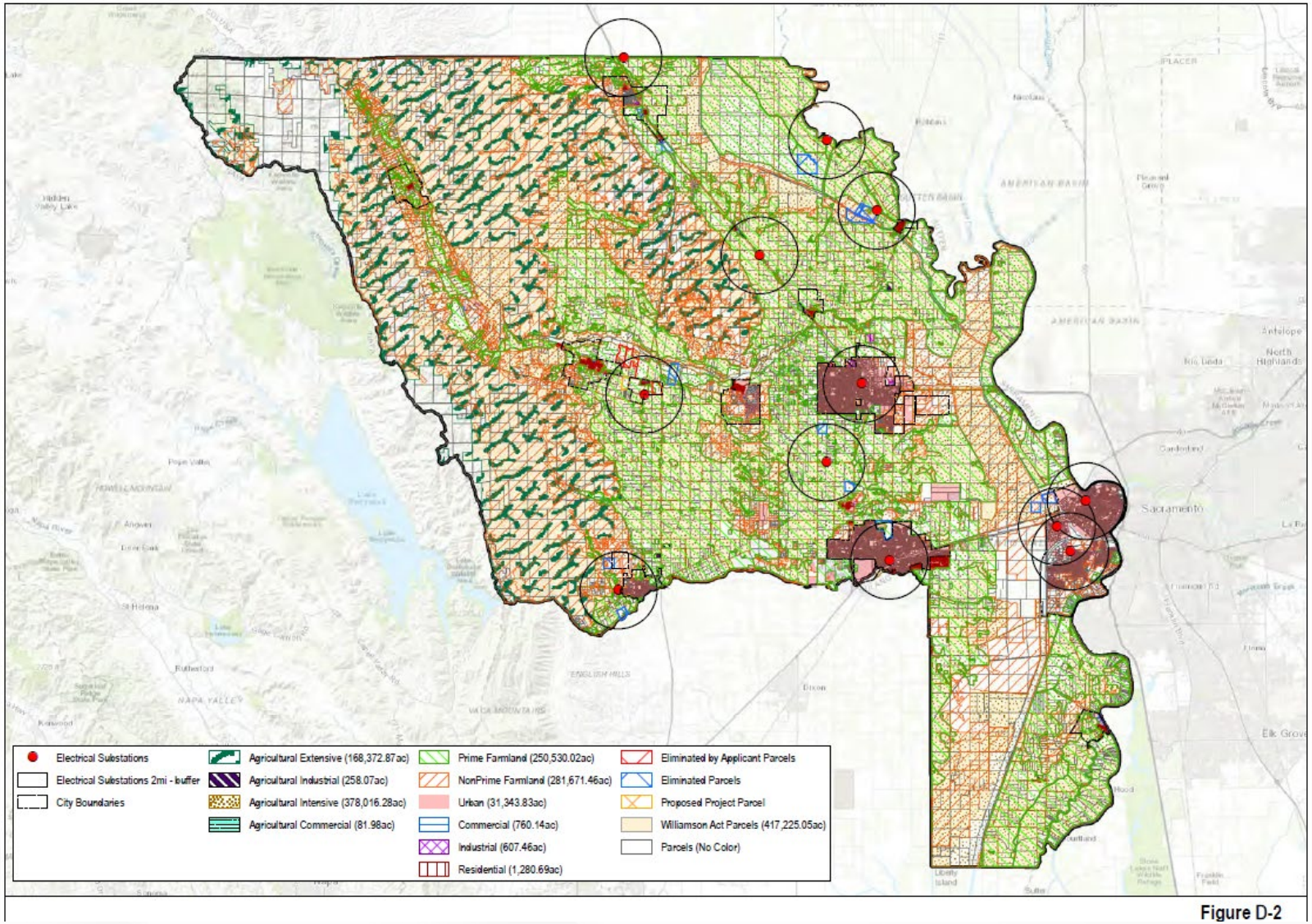


Figure D-2

Source: Gibson Solar Farm Draft EIR

Suitable land for Solar Energy Facilities (SEFs) should have the following characteristics:

- Flat terrain.
- Minimal to no shading impacts.
- Close to existing grid infrastructure.

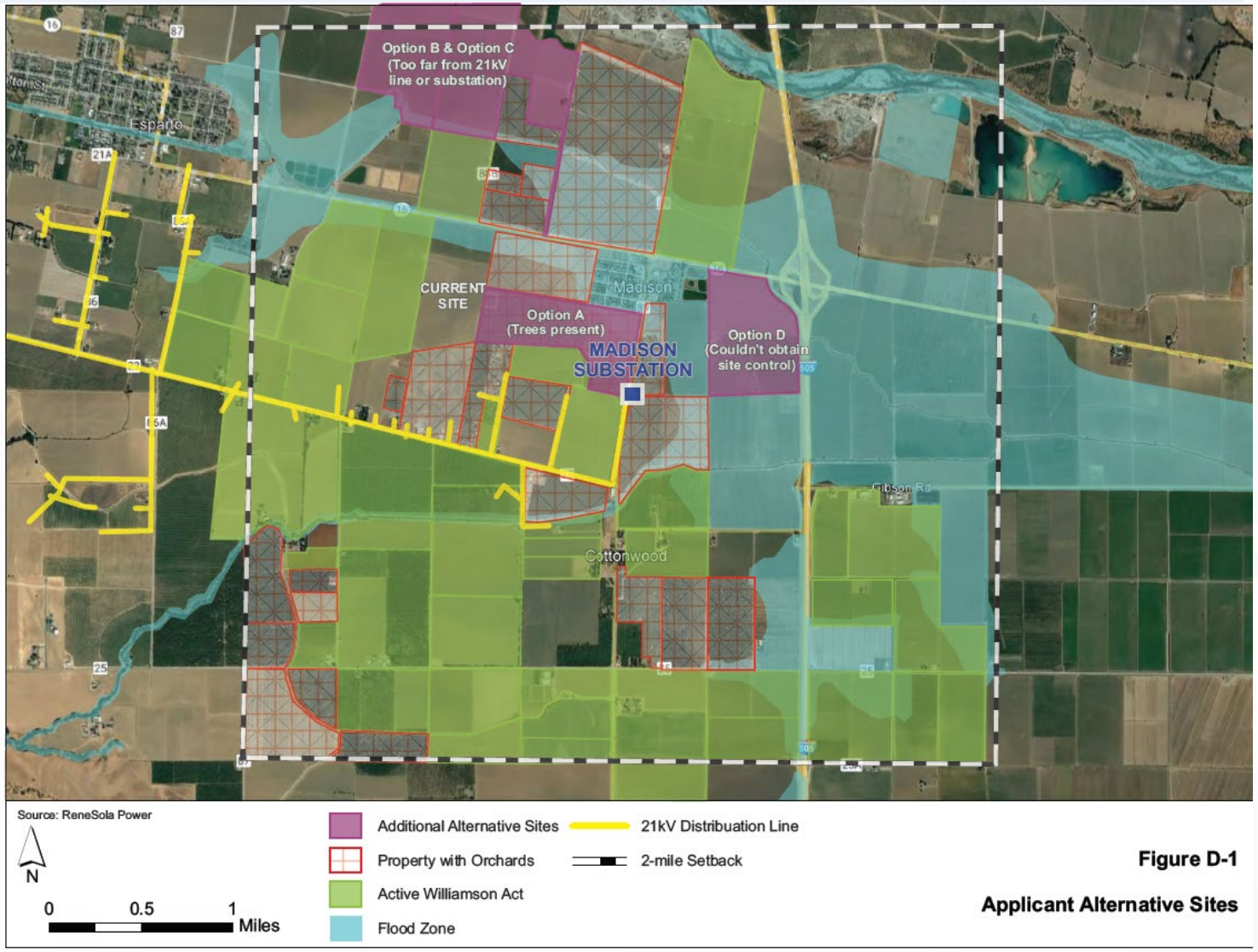
Over 85% of land in Yolo County is zoned agricultural, and of that, 75% is under a Land Conservation Contract (Williamson Act or Farmland Security Zone).

Challenges to Siting Solar Energy Facilities

Alternative locations were considered, but they lacked the necessary infrastructure or site attributes.

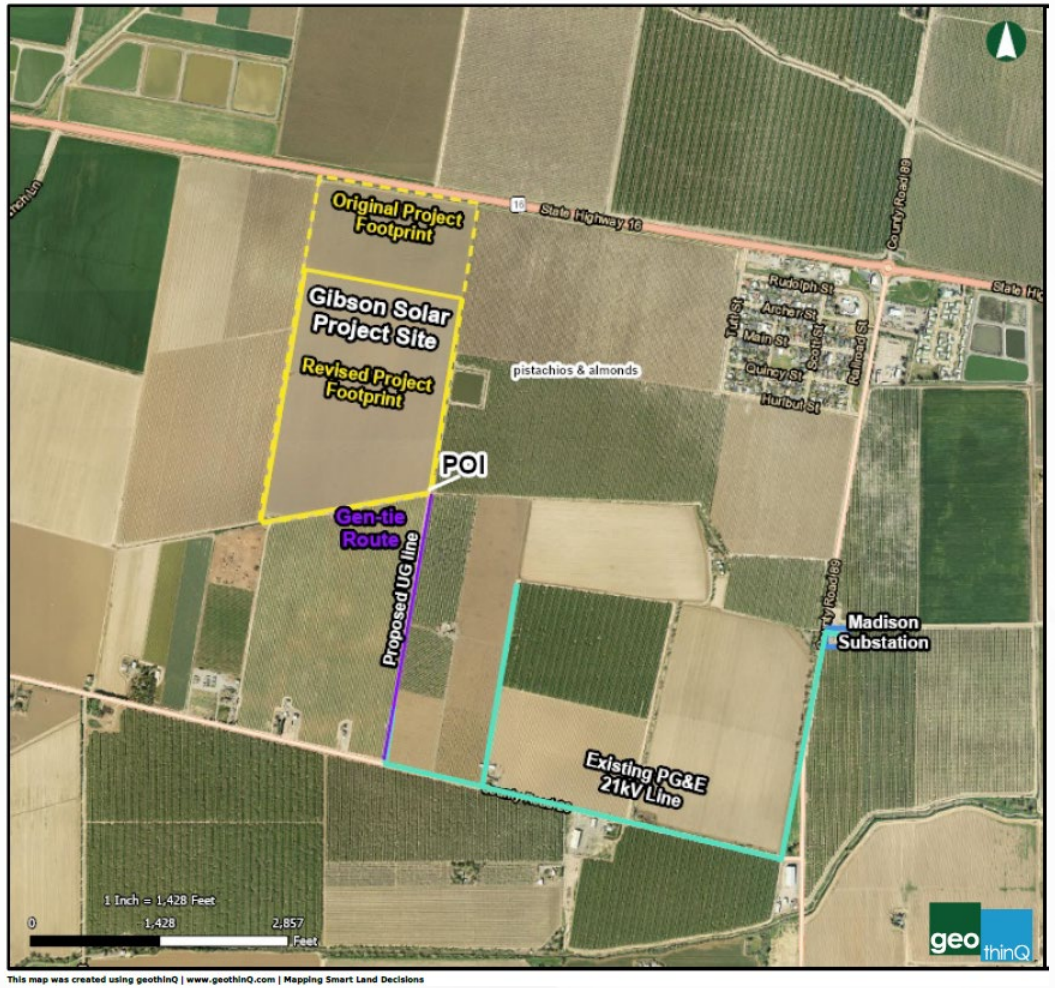
New electrical infrastructure can be prohibitive:

- Cost of over $1,000,000/mile for new conductor makes projects uneconomical.
- Can impact multiple landowners and complicate acquiring easement land.
- Can take decisions out of local lawmakers' hands.



Source: Gibson Solar Farm Draft EIR

Gibson Solar Energy Storage Facility



Site Details

- Net Parcel Acreage: ±147 acres
- Address: State Hwy 16, Esparto, CA
- Zoning: A-N (Agricultural Intensive)
- POI: Existing PG&E 21kV Distribution Line within 1 mile

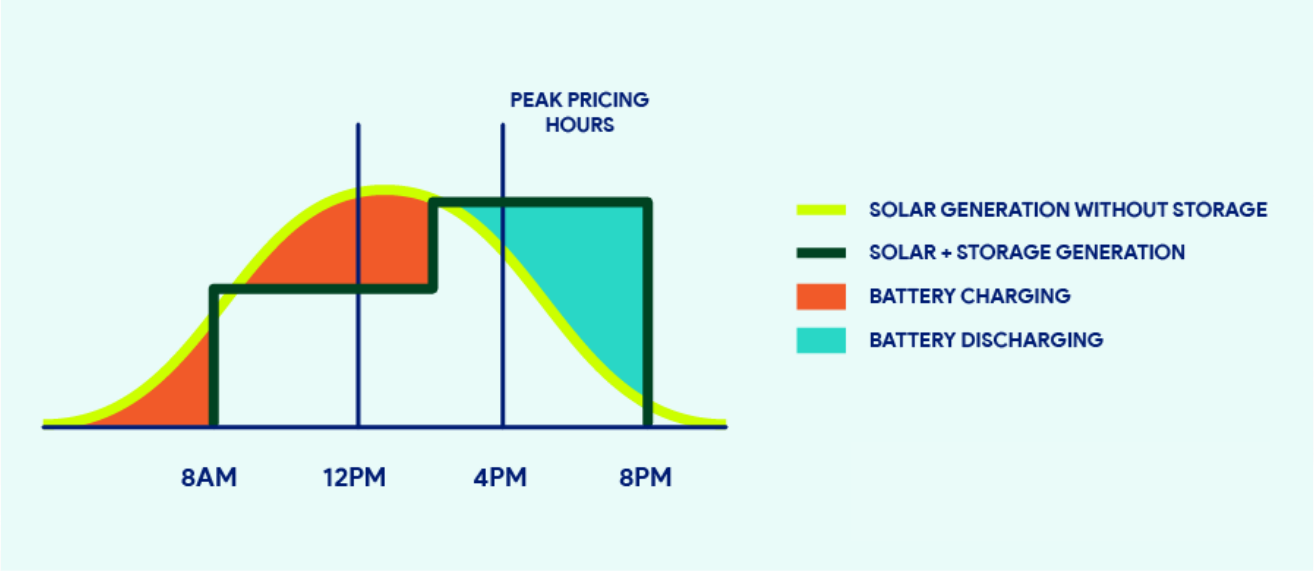
Original Configuration

- 147 Acres impacted
- 20MW AC Solar
- 6.5MW/4-hour ESS

Revised Configuration

- <100 acres impacted
- 13MW AC Solar
- 13MW/5-hour ESS
- **Preferred configuration**

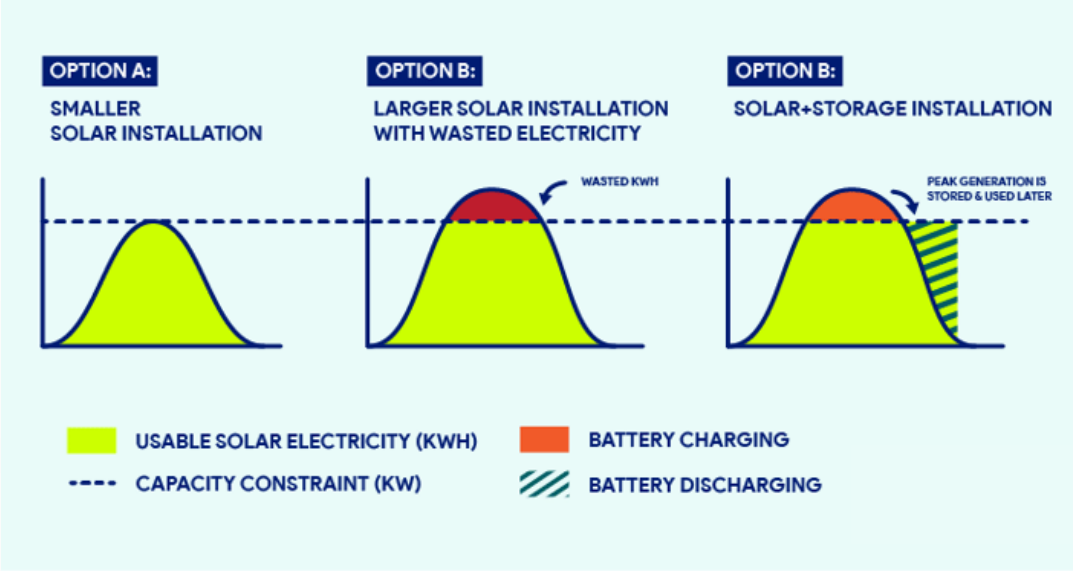
Gibson Solar Energy Storage Benefits



Source: Convergent

You can charge your battery with your solar generation, then discharge the battery to get solar power when you want it.

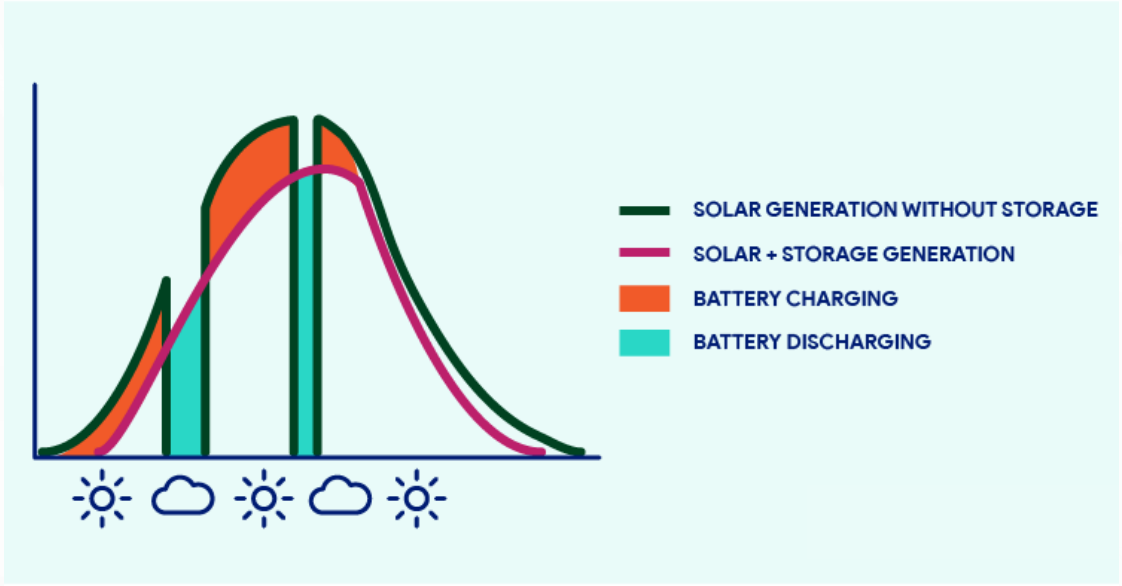
When your solar generation is limited by a constraint, such as your site's peak consumption or power line capacity, storage lets you upsize solar and bank excess power for later use.



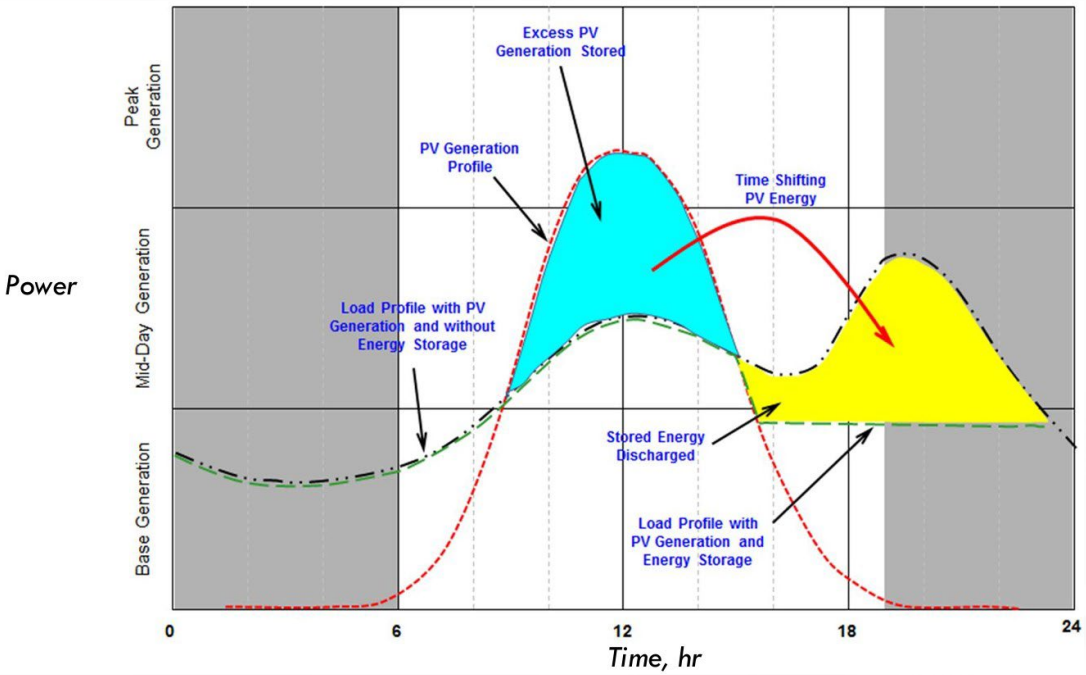
Source: Convergent

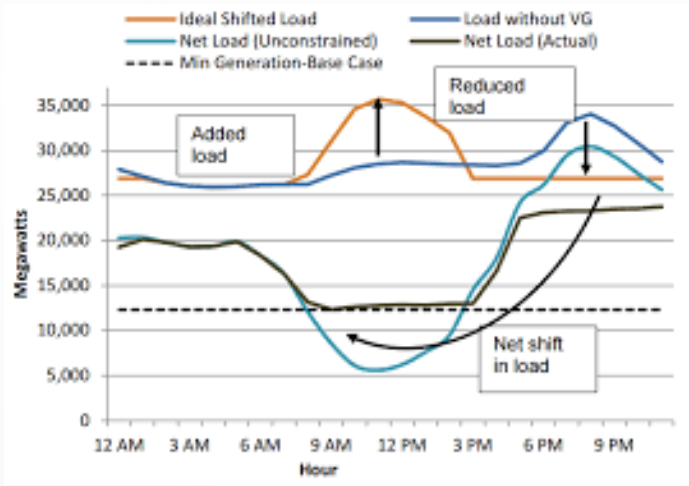
Gibson Solar Energy Storage Benefits: Reliability

Storage can discharge instantly to smooth dips in solar generation or outages and provide uninterrupted power.



Source: Convergent



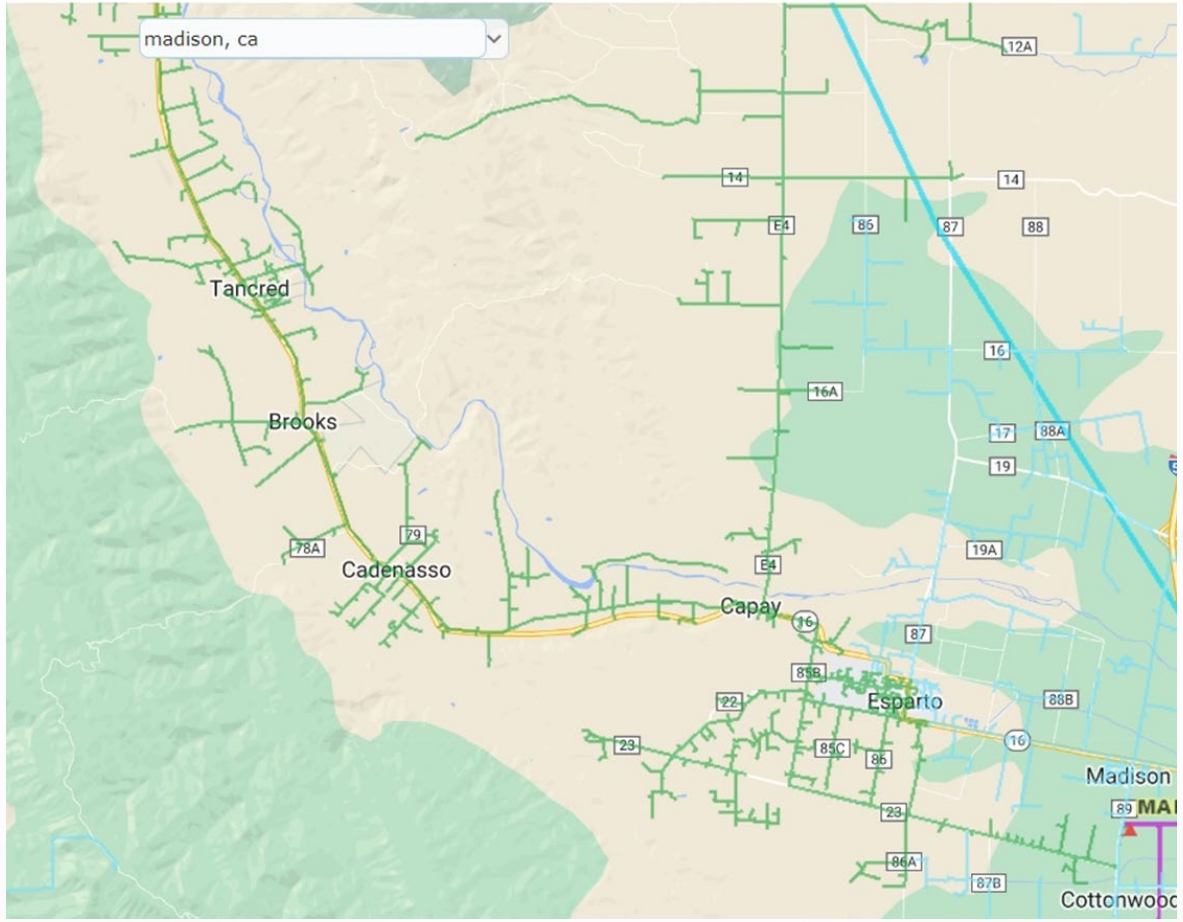


Source: Convergent

Gibson Solar Energy Storage Benefits: Reliability

The Madison Solar 2101 Circuit is one of the least reliable circuits in PG&E's entire service territory.

The Gibson Solar Facility can help prevent outages caused by instances of grid instability.



Source: Convergent

The Changing Nature of Farmland

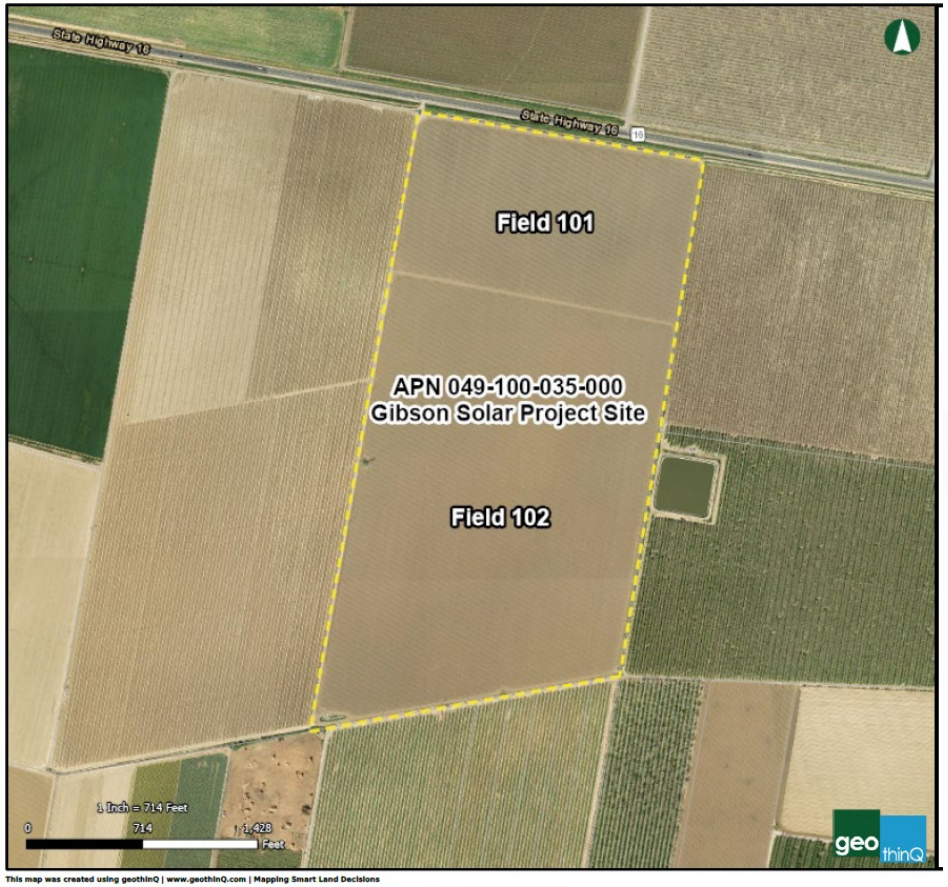
Prime Farmland, IF irrigated

- As noted in the DEIR, the project soils are classified as Prime Farmland, Class I & II soils, IF irrigated.
- The project site was not irrigated or received a reduced water allocation for the 2014, 2015, 2021 and 2022 season due to curtailed surface water deliveries from the Yolo County Conservation and Flood Control District (YCC&FCD).
- This necessitated either fallowing the fields or cultivating lower value, less water intensive crops

No Alternative Water Sources

- The project parcel does not currently have access to other sources of irrigation water.
- Test wells to 500ft did not result in sufficient water flows and deeper drilling was cost prohibitive for the Landowner.
- Data from the test wells also showed that new wells on the project parcel could have an adverse impact on existing groundwater pumping by neighboring landowners in the local basin.

Water Availability and Crop History



Year	Field	Crop	Yield (per acre)	Req'd Water (acre-feet)	YCFC&WCD Allocation
2022	101	Safflower	2063 lbs.	0.5	0.0
	102	Safflower	907 lbs.	0.5	0.0
2021	101	FALLOW	N/A	0.0	0.9
	102	Sunflower	1149 lbs.	1.0	0.9
2020	101	Alfalfa	2.2 Tons	4.0	Full
	102	Wheat	4232 lbs.	1.0	Full
2019	101	Alfalfa	7.4 Tons	4.0	Full
	102	Tomato	48.24 Tons	2.5	Full
2018	101	Cucumber	7.42 Tons	1.0	Full
	102	Sunflower	1148 lbs.	1.0	Full
2017	101	Corn	3.02 Tons	3.5	Full
	102	Garbanzo	3428 lbs.	1.0	Full
2016	101	Sunflower	1107 lbs.	1.0	Full
	102	Tomato	56.75 Tons	2.5	Full
2015	101	FALLOW	N/A	0.0	0.5
	102	Sunflower	1008 lbs.	1.0	0.5
2014	101	FALLOW	N/A	0.0	0.0
	102	FALLOW	N/A	0.0	0.0

Multi Use Plan Features

Native Vegetation Substrate

- Serve as pollinator habitat
- Reduced water demand

Apiaries

- Supports local and regional agricultural production

Sheep Grazing

- Natural vegetation control vs chemical or mechanical means

Multi Use Plan: Native Substrate Success Factors

Native Substrate/Pollinator Habitat

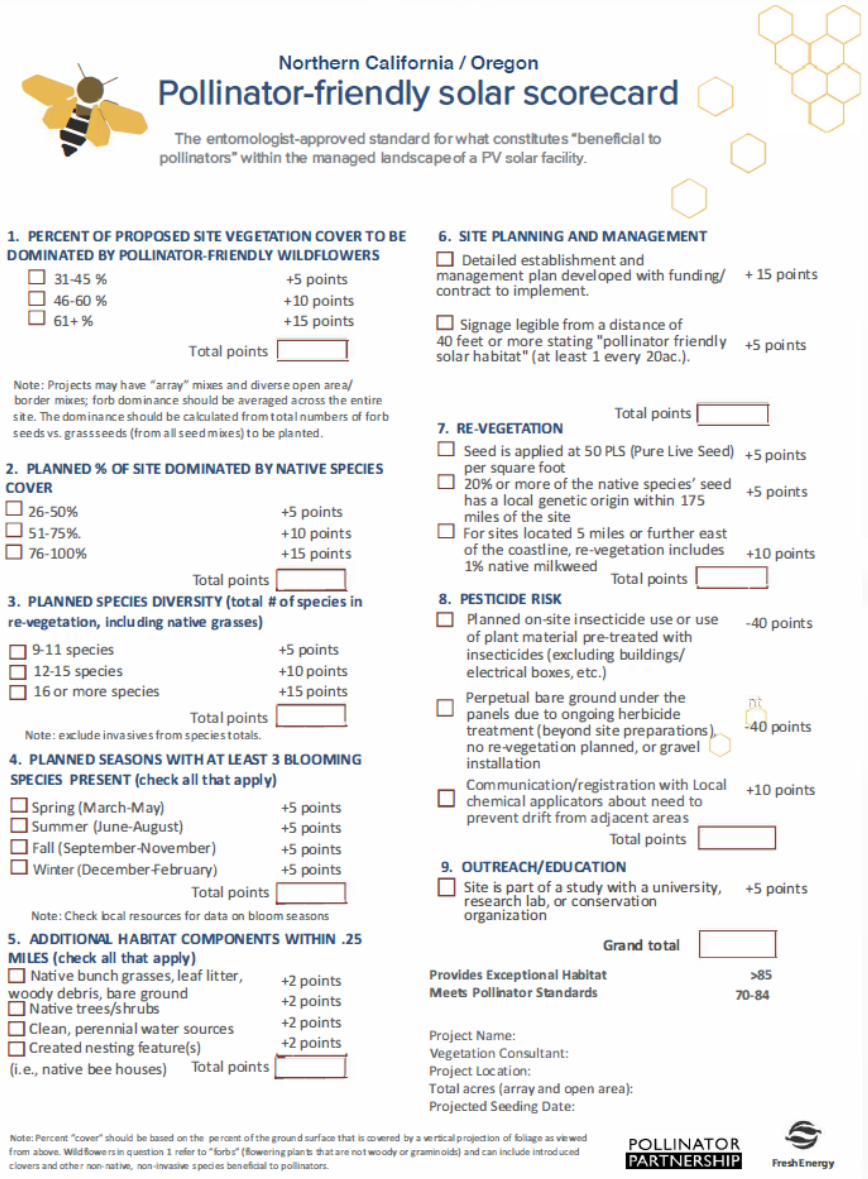
- Seeding will use a mix of plants, curated by partners at the University of California (UC) Davis, that will flower at varying times to provide an ample, stable foraging habitat for the bees.
- The plant substrate would be irrigated for the first three years to assist with plant establishment.

Pollinator Scorecard/Success Criteria

- The project PPA has a baked in requirement to achieve a minimum score of 70 on the attached Pollinator Scorecard and to provide a scorecard within 30 days of COD and within 60 days after the end of each third (3rd) contract year to demonstrate compliance.

UC Davis Partnership

- Emeren has partnered with and committed to provide funding for UC Davis to help develop and monitor the vegetation management plan. UC Davis is one of the preeminent institutions focused on research and recommendations to ensure renewable energy development is compatible with conservation and agriculture. The detailed plan will be developed after final project approval, however, UCD did apply for an additional grant, and the grant application contains a lot of detail about the research goals and objectives which will be similar to that for the Gibson project.



Northern California / Oregon

Pollinator-friendly solar scorecard

The entomologist-approved standard for what constitutes "beneficial to pollinators" within the managed landscape of a PV solar facility.

1. PERCENT OF PROPOSED SITE VEGETATION COVER TO BE DOMINATED BY POLLINATOR-FRIENDLY WILDFLOWERS

- ☐ 31-45 % +5 points
- ☐ 46-60 % +10 points
- ☐ 61+ % +15 points

Total points ☐

Note: Projects may have "array" mixes and diverse open area/ border mixes; forb dominance should be averaged across the entire site. The dominance should be calculated from total numbers of forb seeds vs. grass seeds (from all seed mixes) to be planted.

2. PLANNED % OF SITE DOMINATED BY NATIVE SPECIES COVER

- ☐ 26-50% +5 points
- ☐ 51-75%. +10 points
- ☐ 76-100% +15 points

Total points ☐

3. PLANNED SPECIES DIVERSITY (total # of species in re-vegetation, including native grasses)

- ☐ 9-11 species +5 points
- ☐ 12-15 species +10 points
- ☐ 16 or more species +15 points

Total points ☐

Note: exclude invasives from species totals.

4. PLANNED SEASONS WITH AT LEAST 3 BLOOMING SPECIES PRESENT (check all that apply)

- ☐ Spring (March-May) +5 points
- ☐ Summer (June-August) +5 points
- ☐ Fall (September-November) +5 points
- ☐ Winter (December-February) +5 points

Total points ☐

Note: Check local resources for data on bloom seasons

5. ADDITIONAL HABITAT COMPONENTS WITHIN .25 MILES (check all that apply)

- ☐ Native bunch grasses, leaf litter, woody debris, bare ground +2 points
- ☐ Native trees/shrubs +2 points
- ☐ Clean, perennial water sources +2 points
- ☐ Created nesting feature(s) (i.e., native bee houses) +2 points

Total points ☐

6. SITE PLANNING AND MANAGEMENT

- ☐ Detailed establishment and management plan developed with funding/ contract to implement. + 15 points
- ☐ Signage legible from a distance of 40 feet or more stating "pollinator friendly solar habitat" (at least 1 every 20ac.). +5 points

Total points ☐

7. RE-VEGETATION

- ☐ Seed is applied at 50 PLS (Pure Live Seed) per square foot +5 points
- ☐ 20% or more of the native species' seed has a local genetic origin within 175 miles of the site +5 points
- ☐ For sites located 5 miles or further east of the coastline, re-vegetation includes 1% native milkweed +10 points

Total points ☐

8. PESTICIDE RISK

- ☐ Planned on-site insecticide use or use of plant material pre-treated with insecticides (excluding buildings/ electrical boxes, etc.) -40 points
- ☐ Perpetual bare ground under the panels due to ongoing herbicide treatment (beyond site preparations), no re-vegetation planned, or gravel installation -40 points
- ☐ Communication/registration with Local chemical applicators about need to prevent drift from adjacent areas +10 points

Total points ☐

9. OUTREACH/EDUCATION

- ☐ Site is part of a study with a university, research lab, or conservation organization +5 points

Grand total ☐

Provides Exceptional Habitat	**>85**
Meets Pollinator Standards	**70-84**

Project Name:
Vegetation Consultant:
Project Location:
Total acres (array and open area):
Projected Seeding Date:

Note: Percent "cover" should be based on the percent of the ground surface that is covered by a vertical projection of foliage as viewed from above. Wildflowers in question 1 refer to "forbs" (flowering plants that are not woody or graminoids) and can include introduced clovers and other non-native, non-invasive species beneficial to pollinators.

POLLINATOR PARTNERSHIP

Fresh Energy

Project Partnerships and Labor Commitments

UCD Research

Gibson Renewables has partnered with University of California, Davis Wild Research Center to curate the seed mix for the project and conduct research on how co locating solar PV and apiary can positively impact the local agricultural climate.

Emeren has committed $100,000 to UC Davis to help fund this research.

Union PLA

Gibson Renewables has executed a project labor agreement with:

- Operating Engineers Local 3,
- Northern California Carpenters Regional Council on behalf of itself its affiliated local unions,
- Northern California District Council of Laborers and its affiliated local unions,
- IBEW Local 340, and
- Ironworkers Local 118.

Source: UC Davis College of Agricultural and Environmental Sciences

Project Benefits

ReneSola Operating Project In North Carolina

- 20 MW Power Purchase Agreement (PPA) signed with VCE in Nov 2020 for project.
- Updated PPA with VCE 13MW AC Solar with 13MW/5-hour ESS
- Project will generate up to the equivalent of 75 FTE local jobs during construction.
- Yolo County will benefit from the Project related sales and use taxes.
- Allows landowner the opportunity for an alternative source of income versus fallowing their land.
- Applicant has conducted extensive outreach and committed to a multi use project plan to:
  - Reduce water demand.
  - Develop and support ample pollinator habitat via native substrate.

Aesthetics: View from Highway 16

Draft simulated view of revised project configuration. State Route 16 – Looking southeast at the proposed Project site.

Potential Awards: CDFA Microgrid Grant Opportunity

- In March 2023, VCE submitted a grant application to the California Department of Food and Agriculture (CDFA) for $5.7M to enable the Gibson project to have the capability to operate in a microgrid state
- The grant opportunity is part of the CDFA's Community Resilience Centers Program. The project would utilize the proposed Gibson project as well as additional electrical infrastructure (grant funds would support this additional infrastructure) to serve the Capay valley in times of electrical outages.
- The overall project would be called the Esparto Capay Multi-Customer Microgrid project.
- The project will serve the Capay valley via PG&Es Madison circuit 2101.
- 5 community resilience centers (CRCs) are served by this circuit and the Gibson project could serve these centers during a power outage.

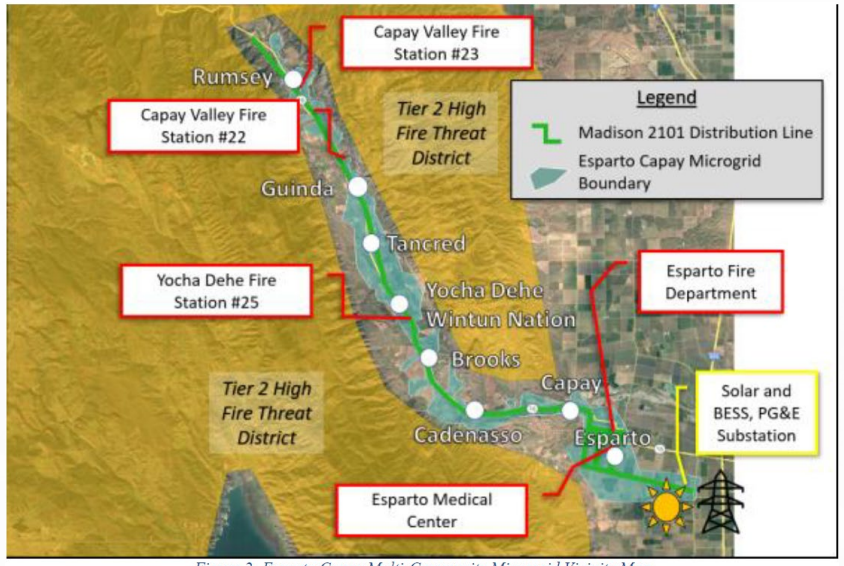


Figure 2: Esparto Capay Multi-Community Microgrid Vicinity Map

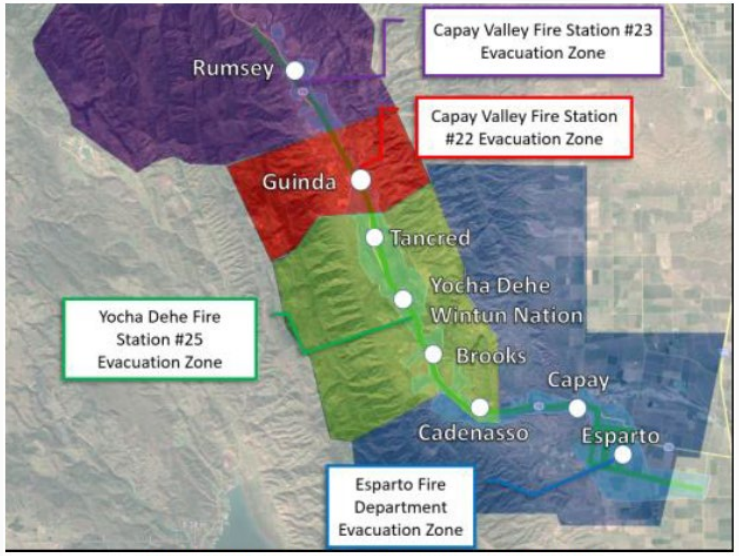


Figure 3: Yolo County Evacuation Rally Point Zone Map

Potential Awards: UCD Research Grant Opportunity

- In April 2023, the UC Davis Wild Research Center submitted a grant application to the University of California Office of Research & Innovation Research Grants Program Office (RGPO) for $2M to seek funding to answer the question: *How can a rapid renewable energy buildout be achieved while maintaining goals for conservation and food security?*
- These CA Climate Action Research Grants are intended to spur innovative applied research that addresses California's climate goals, ensures that local communities are prepared and resilient, and prevents future disasters.
- The Gibson Solar Facility would be made available to the researchers as part of this effort and would be a key component of Research Objective (4): Seed at least 40 acres of California prairie and conduct 6 months of coordinated, experimental research at UC Wild Solar GPV and FPV sites to understand, optimize, and predict how target species respond to PV infrastructure, associated habitat and connectivity changes, and on-site biodiversity-friendly mitigation strategies, under current and future solar build-out scenarios in California.
- Emeren staff would also volunteer time as "champion mentors" to postdoctoral scholars as part of this research collaboration.

Agricultural Compatibility and Community Benefits

Compatibility with Existing and Surrounding Agricultural Uses

- While not a like for like intensive agricultural replacement, pollinator habitat, honey production, and grazing are compatible with surrounding agricultural uses and improve upon existing uses by demanding less water.
- No impact to productive capability of parcel; pollinator centric agrivoltaics sites have been shown to both improve fertility and protect topsoil due to lack of chemical inputs and annual tilling.

Reduced Project Footprint

- New project design resulted in a smaller solar footprint while allowing VCE to reach additional energy reliability goals.
- Potentially keeps the northern ±47 acres in agricultural production or fallowed at landowners' discretion.

Climate

- Reduces water demand.
- Supports Yolo County General Plan & Climate Action Plan goals.

Energy

- Supports VCE's local renewable energy goals.
- Increased battery size supports facilitating more resiliency on the grid during peak demand.

Economics

- Allows the landowner an alternative income stream when farming becomes infeasible due to lack of surface water allocations.

Gibson Solar Energy Storage Facility Schedule

	Gibson Solar
Land Use Permit Process:	• Public meeting with Esparto/Madison advisory committees • Public hearings – Planning Commission (PC) & Board of Supervisors (BOS)
Land Use Permit Type:	Major Use Permit with Focused EIR
Est. Public Hearings:	Anticipated BOS Hearing – July 11, 2023
Completed Studies:	• Cultural Resources Assessment • Biological Resources Assessment • Preliminary Drainage Assessment
Interconnection:	• PG&E Fully executed interconnection agreement • CAISO Full Capacity Deliverability Study (FCDS) Allocation anticipated Q4 2023

Thank You!

STAFF RECOMMENDATION:

1. Continue the public hearing from May 11, 2023, and accept public comments; and
2. Provide a formal recommendation to the Board of Supervisors
   a) Adopt a Resolution to certify the Final EIR for the proposed Project making CEQA Findings of Fact a Statement of Overriding Considerations; adopt a MMRP;
   b) Approve a partial-cancellation of Williamson Act Agreement No. 71-206;
   c) Adopt the proposed Findings prepared for the Project; and
   d) Approve the request for a Major Use Permit, and associated Conditions of Approval for the staff-recommended Reduced Footprint Alternative.