

San Benito Site 18 Acres: o Wright Road, Solar, Housing and Farming

Eligibility: Justice 40, Opportunity Zone, Microgrid Incentive Program, NEVI

Tesoro Sol

Date: 6/6/2024

Developer: IDG Group - CIOproUSA

City: Hollister, CA

APNs: 0190900150

Split Solar, Housing and Agri-Solar

Potential Solutions

Solution 1: West Side Pure Solar, East Side Agrivoltaics (7.22 Acres Pure Solar)



This solution leverages pure solar photovoltaic (PV) panels on the west side of the highway and agrivoltaics on the east side. The west side's solar panels will harness sunlight to generate electricity directly. On the east side, agrivoltaics will integrate solar PV panels with agricultural practices, allowing crops to grow beneath the panels while generating electricity.

The pure solar setup on the west side of the highway will provide a consistent supply of renewable energy, while the agrivoltaics on the east side enhances land use efficiency by combining energy production with agriculture. This dual approach optimizes land utilization and supports sustainable development. The integration of these solar technologies across both sides of the highway will ensure a reliable power supply for the community and improve the resilience of our electrical infrastructure.

Key characteristics:

- **Renewable and Sustainable:** Relies entirely on solar power, a renewable energy source, making it environmentally friendly.
- **Energy Independence:** Increases energy independence by generating power onsite and reducing reliance on the grid.
- **Demand Response:** Can be used to reduce electricity consumption from the grid during peak demand times, potentially lowering energy costs.
- **Resilience:** Enhances resilience by providing a backup power source during grid outages.

Solution 2: West Side Split Solar and Multi Family Housing, East Side Agrivoltaics



- **West Side: Workforce Housing and Solar (7.22 Acres, 3.7 Acres Pure Solar Remaining Proposed Housing)**

The west side will feature workforce housing, with solar PV panels installed on and around the buildings. These panels will convert sunlight into electricity to power the housing units and common areas, ensuring a sustainable and cost-effective energy supply. This setup will provide residents with clean, renewable energy directly from the solar panels, reducing dependence on external energy sources and lowering utility costs.

- **East Side: Agrivoltaics**



(Example: Blended Solar PV and Ongoing Farming)

On the east side, we will implement agrivoltaics, which combines solar panels with agricultural practices. Solar panels will be strategically placed to allow crops to grow underneath or between them, ensuring both energy production and agricultural productivity. This approach optimizes land use and supports the dual goals of sustainable energy generation and local agriculture.

Key characteristics:

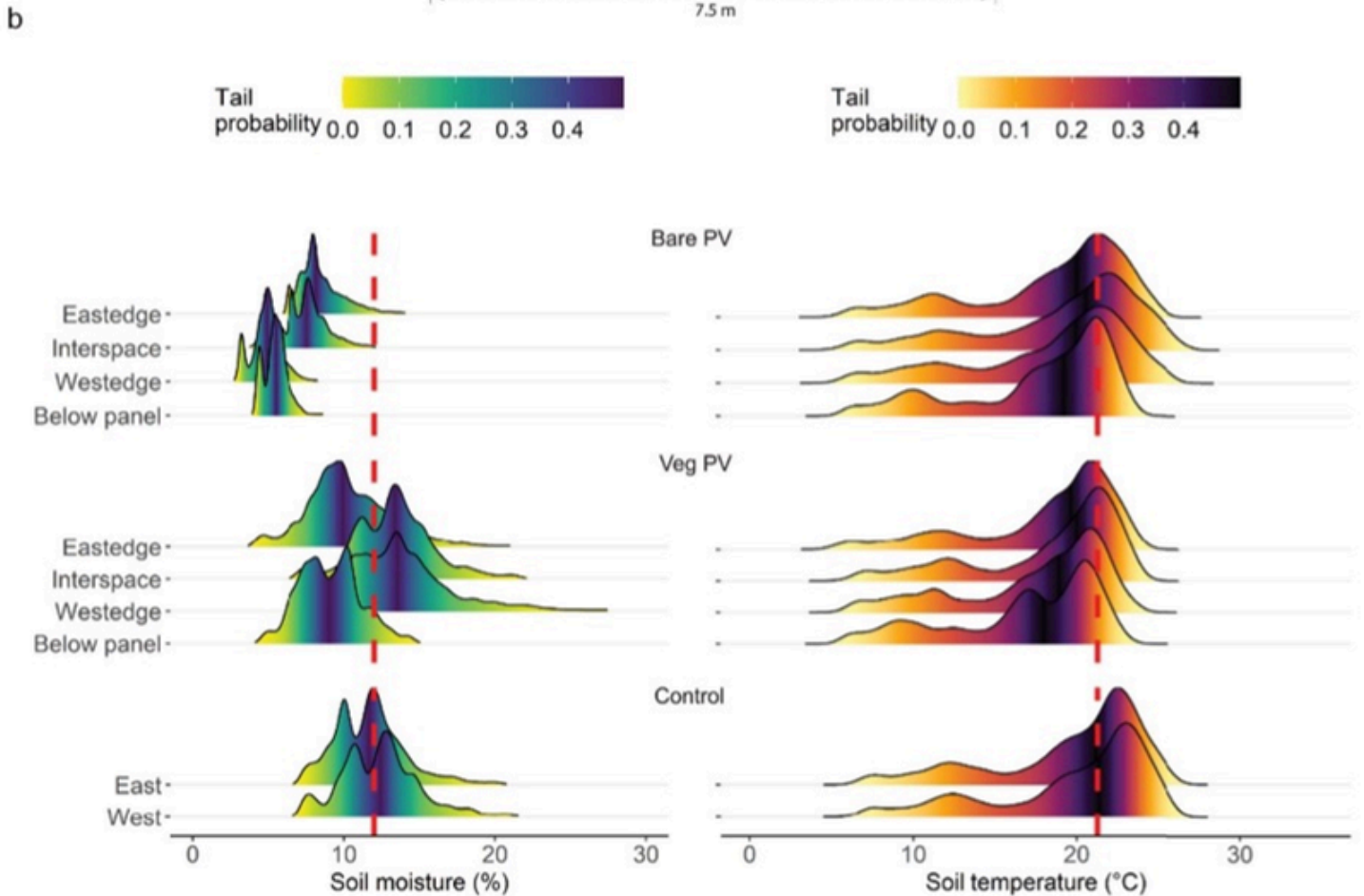
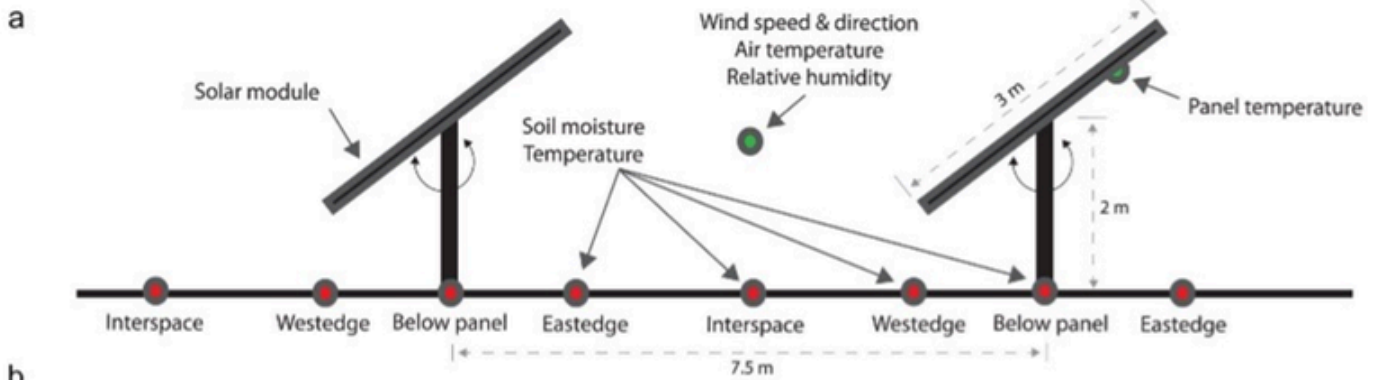
- **Hybrid Energy Supply:** Combines renewable (solar) and non-renewable (diesel) energy sources to ensure a more consistent power supply.
- **Flexibility and Reliability:** The addition of a diesel generator provides a reliable backup power source, ensuring energy supply during extended periods of low sunlight or high energy demand.
- **Energy Storage:** Incorporates LDES to store excess energy, which can be used when generation from solar and diesel sources is low or to offset higher energy prices during peak demand.

Both solutions aim to optimize energy usage, enhance reliability, and potentially offer cost savings. Would be more ideal to go with the second solution if the surrounding land for solar will not sustain the daily energy demand of the multi-use workforce housing development

What is an Agrivoltaics' Solar Farm??



Agrivoltaics pairs solar with agriculture, creating energy and providing space for crops, grazing, and native habitats under and between panels. Under the right conditions, both crops and solar production can do better when paired together, and solar installations can provide surprising economic and ecological benefits.



(Source: This Example is from a Utility Scale Solar Facility, in Minnesota with blended farming and output. [NREL inSPIRE](#))

Highlights:

Justice 40 Disadvantaged: The "Justice 40 Disadvantaged Opportunity Zone" ensures 40% of federal climate and clean energy benefits support marginalized communities, focusing on sustainable growth, clean energy, and resilience.

Utility Interconnection(PG&E)

Variable	Value	Notes
Interconnection		
Name:	Hollister Substation	
Distance:	.5 Miles	
Load Capacity:	-	
Substation Upgrade:	Incoming	
Obstacles:	Air, Farm Land, Highway	

Power Lines		
Line Description: The nearest line is connected to a substation Hollister with an undisclosed remaining load capacity.		
Line Phase:	-	
Line Distance:	.29 Miles	
Voltage:	115 kV	PGE Line 1077
Connected Substation:	Hollister Substation PG&E	

System Specification

Solar: West Side PV (Without Housing)

Solar System(MW):	1.17 MW	6.54 MWh (Peak Sun for Hollister 5.6 Sun Hours Per Day)
Price Per W:		
Panel Axis Tilt(if static):		
Distance Between Tables	25 Ft	
Panels Power Output(W):	450	LG Panel 450 W (Commercial)

Solar: West Side PV (With Housing)

Solar System Max.(MW):	.6 MW	3.35 MWh (Peak Sun Hollister 5.6 Sun Hours Per Day)
With Rooftop Panels:		(Roof/Canopy Panels 650W, ASSUMING MAXIMUM EFFICIENCY)
Panel Axis Tilt(if static):		
Distance Between Tables	25 ft	
Annual Energy Production:		
Panels Power Output(W):	450	

Solar: East Side Agrivoltaics (10.5 Acres)

Solar System Max.(MW):	1.11	6.23 MWh (Peak Sun Hollister 5.6 Sun Hours Per Day)
Panel Axis Tilt(if static):		
Distance Between Tables	Variable Due to Agrivoltaics	
Panels Power Output(W):	450	This can change depending on Provider

Diesel Generators

Generator Output Min.(MW):	2	1 Generators
Generator Output Max.(MW):	20	10 Generators
Output Per Generator(MW)	2	
Oil Tank Size:	200 Gallons	
Annual Energy Production:		
Generator Width	12.5 ft	3.81 Meters
Generator Length	50 ft	15.24 Meters
Engine:		

Battery Energy Storage System

Battery Size Min(MW).:		
Battery Size Max(MW).:	30 MW	
Price Per MWh:	280,000	based on Powin 30MW quote
DC Scope	DC Stacks + Enclosure	
AC Scope	PCS + MV Transformer	
System Duration:	4MWh	
Charge Type:		
Physical Constraints:		

West-Side Option #1: (without workforce housing)

7.22 acres of land. Assuming nominal distance between panels. This corresponds to about 1.17 MW of solar capacity and about 6.54 MWh of output power (assuming 5.6 peak sun hours) per day.

West Side Option #2: (with workforce housing)

3.7 acres of land. Assuming nominal distance between panels. This corresponds to about 0.6 MW of solar capacity and about 3.35 MWh of output power (assuming 5.6 peak sun hours) per day.

East Side:

10.5 acres of land. Assuming nominal distance between AG panels. This corresponds to about 1.11 MW of solar capacity and about 6.23 MWh of output power (assuming 5.6 peak sun hours) per day.

EPC Labor and Wages

Cioprousa Imperial Development Group - Green Rock EPC:

- **CIOPROUSA**: With over 40 years of experience in Information Technology, overseeing successful projects from idealization to fruition, and having served in both Private and Public Sector atmospheres allows CIOPROUSA to be more than capable and ready to provide you with a custom solution or design
- **AGS Corp**: is a full-service general contractor and construction and engineering firm, providing the highest quality services for a diverse range of clients, which include federal, state, and local governments, Southern California Gas Company, Southern California Edison, Nonprofit Organizations, health care and publicly traded retail corporations.
- **Greenock EPC**: Greenock Energy Co., Ltd. Is a Joint Venture Between Dr. Yeh Meng-Heng and several Asian and European Private Investors. Their Goal is to provide a “one stop shop”, Including Professional Consulting, Design and Construction, Maintenance Management, Investment Planning and Project Financing of Solar Energy Systems, Professionally Integrate Design, Construction, And Promotion of Energy Transformation.

We have Requested Gas Line Infrastructure Maps from Sempra. If they have sufficient gas lines, we will be able to produce significant amounts of Power Using Martin Energy Group Enclosed Generators. Power Output between 2MW (8MWh) and 3.2MW (12.8 MWh) Per Enclosure.