

HARVESTING THE SUN

A COMPREHENSIVE ANALYSIS OF AGRIVOLTAICS IN THE WESTERN UNITED STATES

Matthew Boltansky, Lindsey Johnson, Bailie Shultz, Corrine Weaver

BACKGROUND

Who are we working with?

Cloudbreak Energy Partners LLC is a Colorado-based national developer of distributed, community, and utility-scale solar and storage products.



What is an Agrivoltaic?

Agrivoltaics is the co-location of solar photovoltaic systems above or adjacent to agricultural operations (crops, pollinator habitats, and livestock) creating a synergistic system.

LITERATURE REVIEW

This literature review examines agrivoltaic (AV) practices, policies, and agricultural contexts in California, Colorado, Oregon, and Washington.

Over 100
sources
used

Interviews

Databases



BENEFITS

- Increased Land Productivity
- Water Conservation and Evaporation Reduction
- Economic Diversification
- Carbon Reduction and Climate Change Mitigation

BARRIERS

- Technological Availability and Affordability
- Lack of Economic Promise
- Social and Cultural Acceptance
- Environmental Changes
- Lack of Policy and Regulations

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BEST PRACTICES GUIDE

The Best Practices Guide aims to help Cloudbreak make informed decisions on future AV projects.

CROP SELECTOR TOOL

Data Collection and Processing

- Compiled initial background repository of data for decision matrix creation
- Sourced data points using secure search engines and government databases
- Focused on agricultural commodities and weather characteristics in:
 - California (CA)
 - Colorado (CO)
 - Oregon (OR)
 - Washington (WA)



Data Analysis

- Individual Metric Visualizations
 - Tables display each crop's preferred growing conditions
- Slicers and Filters
 - Allows users to adjust weights or prioritize criteria to see the impact on crop rankings
- Drill-Down Capabilities
 - Enable click-through on visuals for the detailed performance of each crop on all criteria
- Overview Dashboard
 - Summarizes key insights, showcasing ideal crop types and key metrics

CONSIDERATIONS

ECONOMIC

- Price Fluctuation
- Livestock and Crop Insurance
- Crop Selection

SOCIAL

- Community Engagement
- Stakeholder Relationships
- Grant Programs

ENVIRONMENTAL

- Microclimates
- Regenerative Agriculture
- Biodiversity and Ecosystem Services

KEY TAKE AWAYS

- Soil type and crop commodity should be considered first when implementing agrivoltaics.
- Fostering co-beneficial relationships with farmers and community members is vital to success.
- Accounting for both qualitative and quantitative aspects of agrivoltaics