

HARVESTING THE SUN

A COMPREHENSIVE ANALYSIS OF AGRIVOLTAICS IN THE WESTERN UNITED STATES

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BACKGROUND

Who are we working with?

Cloudbreak Energy Partners LLC is a Colorado based national developer of large 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 provides a comprehensive overview of the current research on agrivoltaics in the Western United States.

Context

Over 100 sources used

Methods

Details



BENEFITS

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

BARRIERS

- Technology Costs
- Affordability
- Lack of Economic Incentives
- Social and Cultural Acceptance
- Environmental Changes
- Lack of Policy and Regulations

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BEST PRACTICES GUIDE

The Best Practices Guide is intended to help OI and other stakeholders in the decision-making process for AV projects:

CROP SELECTOR TOOL

Data Collection and Processing

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



Data Analysis

- Tables display each crop's preferred growing conditions
- Slicers and Filters
 - Allows users to adjust weights or prioritize criteria to search important non-crop rankings
- Drill-Down Capabilities
 - Shows the detailed performance of each crop on all criteria
- Overview Dashboard
 - Shows 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