

# Agrivoltaics Potential In Nevada

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# Solar Development Public Image

- Solar Development has a public image problem. What is public perception?
  - “Scorched earth” approach – “poison” the land & keep it bare (eye sore, dust)
  - Have had decades to incorporate land stewardship/shared land use practices into their business model
  - Land grab – utility scale projects impact large swaths of land
  - Unkept promises – community resource utilization, community benefits



# Alternatives to Traditional Solar Development

- Shared Land Use Projects - *incorporating* solar generation as a co-priority
  - Agrivoltaics – farming/ranching under solar panels
  - Ecovoltaics – conservation of animals, plants, environment under solar
- Different Business Models and Operations Management best practices, co-prioritizing multiple services



**Single Priority  
Solar**

**VS**

**Co-Priority  
Solar**

# Agrivoltaics Better Together?

- **The Synergy of Ag Under Solar**
  - ✓ Increased land use efficiency w/ two products
  - ✓ Crops reduce solar panel temperatures, increasing their efficiency
  - ✓ Solar panels provide shade for plants, reducing their water needs and reducing irrigation requirements
  - ✓ Shade is good for farm workers and livestock too, protecting them from heat exhaustion and reducing physiological stress



# Agrivoltaics in Western States

- Western Sustainable Agriculture Research and Education Grant
- 10 Sites Visited in AZ, CA, CO & OR
  - ✓ 1 Utility Scale Agrivoltaics Operation
  - ✓ 8 Agrivoltaics Research, Education, or Demonstration Sites
  - ✓ 1 Non-Profit Solar Panel Manufacturer



# Small Urban Scale

University of Arizona: (Tucson, Arizona)  
School Garden Workshop & Rooftop Project



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# Urban & Rural Scale

University of Arizona: Biosphere 2 Research Test Plot (Oracle, Arizona)



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# Moderate Rural Scale

## CO Agrivoltaics Learning Center At Jack's Solar Garden (Longmont, Colorado)

- Jack's Solar Garden houses the non-profit Agrivoltaics Learning Center in Longmont, Colorado
  - ✓ Largest commercial research site for agrivoltaics in the US, with 3,278 panels (on 4 acres) powering the equivalent of 300 homes
  - ✓ They power their farming and research operations, and sell the remaining electricity to subscribers for a premium
  - ✓ State and local legislation is needed to support farmers and ranchers as they incorporate AVS operations
  - ✓ Their farm workers appreciate the shade
  - ✓ Provide free leases to community partners for food programs and research. They appreciate the tenants being on site, identifying and reporting a panel that isn't tracking the sun.
  - ✓ Snow and hail clean their panels – they like both!
  - ✓ They have never had to wash their panels
  - ✓ AVS has reduced their water irrigation



# Moderate Rural Scale | Social Use

CO Agrivoltaics Learning Center At Jack's Solar Garden  
(Longmont, Colorado)

- Significant Community Engagement and Social Use
  - ✓ CSU, OSU & UA have research plots
  - ✓ Artist on the Farm
  - ✓ Dance and performances
  - ✓ Exercise classes
  - ✓ Weddings
  - ✓ Educational Workshops
  - ✓ Corporate and School Tours



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# Moderate Rural Scale

Oregon State University

North Willamette Research & Extension Center (Aurora, Oregon)

- **Education & Research**

- ✓ Of 160 acres, 5 acres have agrivoltaics research – 2.5 acres of solar panels
- ✓ They power their farm and research operations and sell the remaining electricity directly to subscribers through a state “community solar program”
- ✓ 50% of their generated power goes directly into the community, serving low income households and nonprofit organizations
- ✓ They built the solar project going through the same process a farmer would
- ✓ Panel spacing was designed to accommodate their tractors and equipment, allowing them to get within 2 inches of the structural support beams, maximizing ground area
- ✓ They have never had to wash their panels
- ✓ AVS has reduced their water irrigation



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# Moderate Rural Utility Scale

## CSU SLO, Gold Tree Solar Farm (San Luis Obispo, California)

- **University and Industry Partnership for Education & Research**
  - ✓ 4.5 megawatts from over 16,000 solar panels on 18.5 acres
  - ✓ Provides 25% of the University's electrical needs – with an estimated savings of \$17 million over 20 years.
  - ✓ Grow forage
  - ✓ Grazing ground for the University's sheep herd
  - ✓ No mowers



# Moderate Rural Utility Scale

## CSU SLO, Gold Tree Solar Farm (San Luis Obispo, California)

- **Only site that washed their panels**
  - ✓ Panel washers happened to be there during my visit
  - ✓ They are usually out there 2x annually, but had been out there 3x in the past year
  - ✓ Attributed panel washing need to the neighboring bee apiary and local cattle farms



# Large Frontier Utility Scale

Berkshire Hathaway Energy: Topaz Solar Farm (Santa Margarita, California)



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# Recommended Strategies for Nevada

- 3 Prong Approach
  - ✓ Research & Demonstration Projects
    - UNR Experiment Station
      - ❖ 8 Research Facilities on Campus
      - ❖ 2 Teaching/Research Facilities off Campus
      - ❖ 8 Field Stations
    - 10 UNR Demonstration Gardens
  - ✓ Education
    - 22 UNR County Extension Offices
  - ✓ Legislation



# Policy Considerations for Nevada

- Community Solar Legislation in Other States
  - ✓ Is there need for a policy analysis project?
- Terminology
  - ✓ Define the types of shared land use projects, with solar as a co-priority
- Land Stewardship
  - ✓ Establishing guidance and expectations
- Community Capacity
  - ✓ Sustainable industries require sustainable communities
  - ✓ The Community Sustainability and Industry Sustainability Connection





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