



Agriculture, Solar, and the AgriSolar Clearinghouse: A Win-Win for the Farm Bill

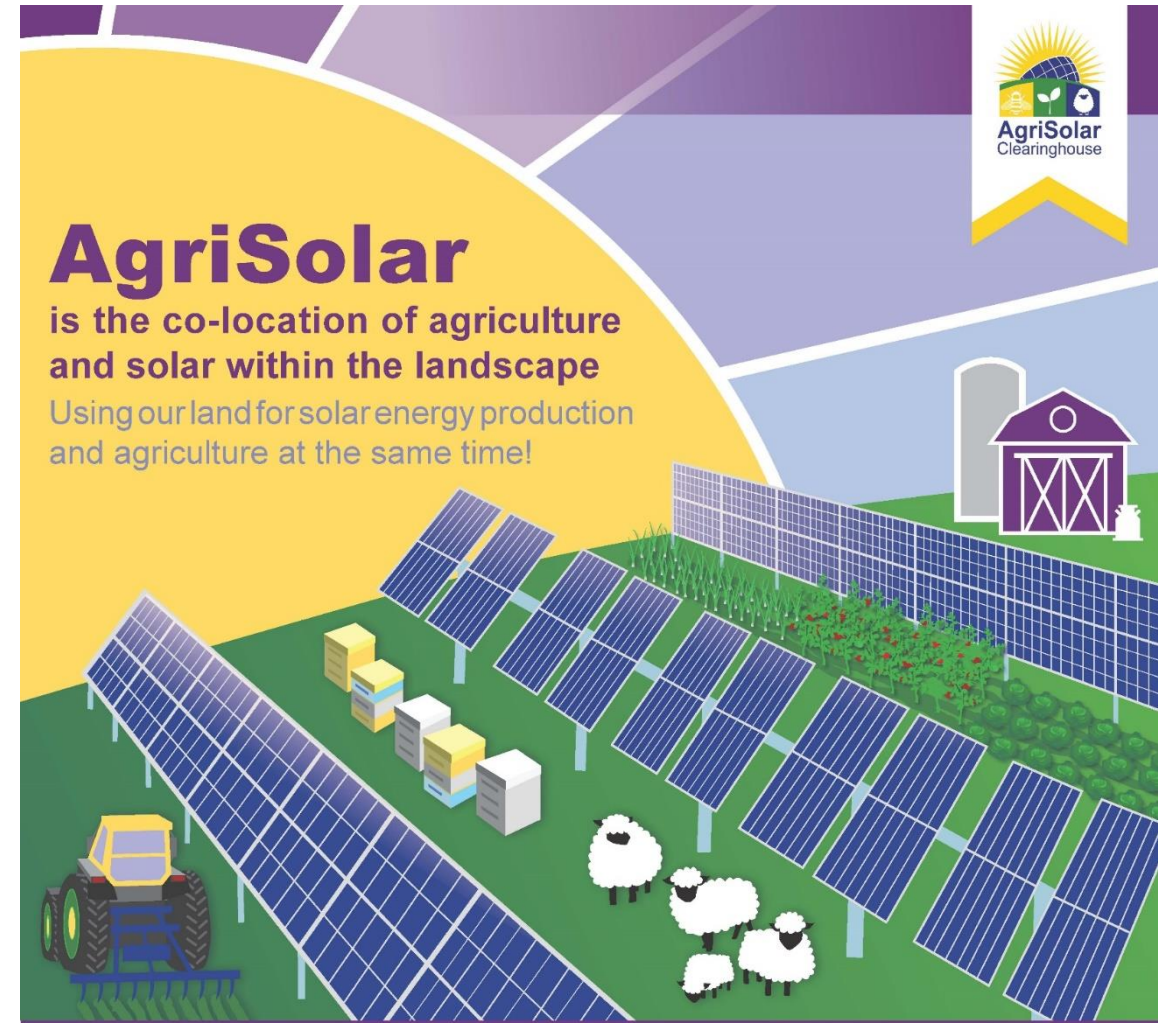
STACIE PETERSON, PHD, NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY
ENERGY PROGRAM DIRECTOR



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What is Agrisolar?

- Agrisolar is the co-location of agriculture and solar within the landscape.
- Solar developments will cover over 3 million acres in 10 years.
 - If these lands become energy-only production it will impact farms, habitat, soil health, and communities.
- There is tremendous opportunity for low-impact solar development that is complementary with sustainable agriculture, known as Agrisolar.
- It includes solar co-located with crops, grazing, beekeeping, pollinator habitat, aquaculture, dairies, and crop processing.
- In addition to photovoltaics, it also includes concentrated solar.
- Other terms include: agrivoltaics, dual-use, co-location, agri-pv



With Agrisolar, You Harvest the Sun Twice.



- Once with the solar panel and again with crops, forage, honey, and habitat.
- It can help you get the most productivity out of your land, while also supporting the crops, community, and ecosystem around it.
- When designed and managed with best practices, AgriSolar can:
 - Diversify farm revenue,
 - Increase rural energy independence,
 - Decrease crop irrigation by half in heat-stressed areas,
 - Increase solar panel efficiency,
 - Promote grazing as vegetation management,
 - Increase soil organic matter and carbon accrual,
 - Improve ecosystem health and support native species,
 - Triple local pollinators like bees, butterflies, birds, and bats.



Federal Program That Support AgriSolar

- ▶ U.S. Department of Energy Solar Energy Technology's Office:
 - AgriSolar Clearinghouse
 - Innovative Solar Practices Integrated with Rural Economies and Ecosystems (InSPIRE)
 - Foundational Agrivoltaic Research for Megawatt Scale (FARMS) projects
- ▶ USDA Partnerships for Climate-Smart Commodities
 - University of Texas Rio Grande Valley: Validating Agrivoltaic Technology with Underserved Agricultural Producers (NCAT/AgriSolar Clearinghouse is a partner)
 - University of Arizona Climate Smart Food
 - Low Carbon Beef
- ▶ REAP
- ▶ Hopefully more soon!



Welcome to the AgriSolar Clearinghouse



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AgriSolar Clearinghouse

Connecting businesses, land managers, and researchers with trusted resources to support the growth of co-located solar and sustainable agriculture

An NCAT-developed, U.S. Department of Energy -funded relationship-building, information-sharing network.
Funding ends May 2024



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AgriSolar Clearinghouse Features

- Information Library
- Original Media
 - Best practices
 - Short film series
 - Technical assistance pieces
 - Fact sheets
 - Case studies and atlas
 - Financial assistance state-by-state map
 - Podcast serial
- Media Hub
- Individualized Technical Assistance
- Education
 - Webinars
 - Self-paced tutorials
 - In-person and virtual presentations
- User Forum
- Events
- Field Trips and Farm to Table Events



AGRISOLAR CLEARINGHOUSE WEBINAR SERIES

REGISTER TODAY BY CLICKING ON THE DATES!

All Webinars will occur at 11am MST via Zoom

- January 18, 2023**
Crunching Numbers on Agrivoltaics: Context and Costs of Agrivoltaics in the United States Jordan Macknick and James McCall from National Renewable Energy Laboratory.
- February 7, 2023**
Made in the Shade: Growing Crops under Solar Panels, Greg Barron-Gafford Group.
- February 21, 2023**
Ecosystem Services of Solar-Pollinator Habitat. Lee Walston, Argonne National Laboratory
- March 23, 2023**
Innovative AgriSolar Design - A Roundtable with Helical Solar, Bozeman Greenbuild, Soliculture, Sun Agri, Hyperion, Sandbox Solar, Solargik, and RUTE Agrivoltaics
- April 4, 2023**
Exploring the Food, Energy, Water Nexus: Characterizing the Agroecological Impacts of Utility-scale Solar Energy in the Arid West. Dr. Seeta Sistla and Amanda Gersoff, Cal Poly
- April 20, 2023**
Policy Approaches for Dual-use and AgriSolar Practices. Heidi Kolbeck-Urlacher, Center for Rural Affairs.
- May 4, 2023**
AgriSolar Ownership, Lease, and Land Planning, Carl Berntsen and Chris Lent, NCAT
- May 24, 2023**
AgriSolar in the Pacific Northwest, Max Greene, Renewable Northwest

SCAN ME

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Recent Publications



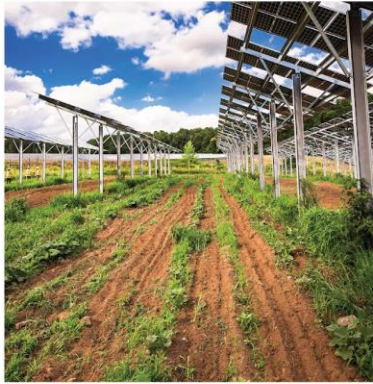
Policy Approaches for Dual-Use and Agrisolar Practices

By Heidi Kolbeck-Urlicher, Center for Rural Affairs
April 2023



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address concerns about solar on agricultural land.¹

Agrisolar, also called agrivoltaics, is the co-location of agriculture and solar within the landscape. It includes solar co-located with crops, grazing, beekeeping, pollinator habitat, aquaculture, and farm or dairy processing. In addition to photovoltaics, it also includes concentrated solar installations.² The practice of combining agriculture and solar energy systems can provide numerous economic and environmental benefits. This includes improving economic viability for landowners and agricultural entities, providing beneficial ecological services, and expanding siting

¹ Marieb, Dugan. "Dual-use Solar in the Pacific Northwest: A Way Forward!" Renewable Northwest, 2019, Accessed March 2023.

² Personal communication, Stacie Peterson, Energy Program Director, National Center for Appropriate Technology, March 2023.

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AGRISOLAR POLICY GUIDE



Introduction

The AgriSolar Policy Guide was designed to facilitate policy learning and innovation in the United States. By collating existing initiatives and key provisions, this guide serves as a resource for regulators, land use planners, decision makers, and others who are interested in state of the art agrisolar policy. The AgriSolar Clearinghouse is impartial towards policy; the intention of this guide is not to advocate for certain initiatives, but to provide a central platform for education and engagement. The goal of this guide is to support policy innovation for better co-location.

The policy initiatives included in this guide were selected to feature a full suite of state-level and a sampling of county-level regulatory strategies across different types of agrisolar practices (crops, grazing, and pollinator habitat). These policy initiatives showcase a range of approaches to drive innovation in farmland solar, including market mechanisms, scoring systems, mandates, and voluntary programs.

Despite the diversity of approaches, one common goal persists across all initiatives: to promote the expansion of renewable energy in a manner that mitigates impacts to farmland. To that end,

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AgriSolar Ownership: A Guide for Farmers, Ranchers, Communities, and Landowners to Co-locate Agricultural Production and Solar Generation

By Carl Bertsen, NCAT Energy Engineer
May 2023

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ABSTRACT

This guide serves as an introduction to the solar industry, relative to agrisolar development in the United States, community programs, and solar ownership or lease opportunities for homes, farms, and ranches. It covers ownership options for small-scale, single-user solar installations, community solar installations that distribute power throughout a community, and utility-scale installations that sell power to the utility, as well as common utility-scale land-lease components for landowners looking to allow a developer to construct and operate a solar installation on a portion of their land. Finally, using nationwide average statistics on production and cost, the guide offers a financial snapshot of a utility-scale solar installation.

INTRODUCTION

This guide serves as an introduction to the solar industry, relative to agrisolar development in the United States, community programs, and solar



ownership or lease opportunities for homes, farms, and ranches. The guide will touch on single-user systems in the 5kW – 50kW range, medium-scale solar projects in the 50kW and larger range, and utility-scale solar sites that are larger than 1MW. Utility and community solar power generation involves complex ownership structures where the solar site, solar power generating array, and power distribution network may be owned by different entities.

From 2010 to 2020, the cost of utility-scale photovoltaic (PV) systems decreased by 82%, driven mainly by lower hardware costs, and PV module prices dropped 85% (Feldman, 2021). Solar power accounted for 0.1% of all power generated in the U.S. in 2010—increasing to nearly 5% in 2022—and for 50% of new electric capacity added to the grid (SEIA, 2022). Large- or utility-scale solar installations account for most of this increased solar generation

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Win-Win

- ▶ AgriSolar can be a win-win on the ground
- ▶ On farms
- ▶ For climate, energy, and the economy
- ▶ Agrisolar/agrivoltaics is a win-win for the Farm Bill
- ▶ The AgriSolar Clearinghouse can help



Thank You

Environmental and Energy Study Institute (EESI)

U.S. Department of Energy Solar Energy Technologies Office

USDA

NCAT

AgriSolar Clearinghouse team, partners, and community

Contact: agrisolar@ncat.org

We're stronger together

A promotional graphic for AgriSolar Extra. The left side is a yellow vertical panel with white text. The right side is a photograph of solar panels on a roof with yellow flowers in the foreground. The text on the yellow panel includes the title 'AgriSolar Extra', a paragraph about signing up for news, the website 'AGRISOLARCLEARINGHOUSE.ORG', and a purple 'SIGN UP' button. At the bottom of the yellow panel is a logo with a sun and three icons: a gear, a plant, and a battery.

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