Climate, Energy, and Economic Win-Wins in the Farm Bill

Wednesday, May 10, 2023

Materials will be available at: www.eesi.org/051023farmbill
Tweet about the briefing: #eesitalk  @eesionline
About EESI

Non-partisan Educational Resources for Policymakers
A bipartisan Congressional caucus founded EESI in 1984 to provide non-partisan information on environmental, energy, and climate policies.

Direct Assistance for Equitable and Inclusive Financing Program
In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs.

Commitment to Diversity, Equity, Inclusion, and Justice
We recognize that systemic barriers impede fair environmental, energy, and climate policies and limit the full participation of Black, Indigenous, people of color, and legacy and frontline communities in decision-making.

Sustainable Solutions
Our mission is to advance science-based solutions for climate change, energy, and environmental challenges in order to achieve our vision of a sustainable, resilient, and equitable world.
Policymaker Education

**Briefings and Webcasts**
- Live, in-person and online public briefings, archived webcasts, and written summaries

**Climate Change Solutions**
- Bi-weekly newsletter with everything policymakers and concerned citizens need to know, including a legislation and hearings tracker

**Fact Sheets and Issue Briefs**
- Timely, objective coverage of environmental, clean energy, and climate change topics

**Social Media (@EESIOnline)**
- Active engagement on Twitter, Facebook, LinkedIn, and YouTube
EESI Farm Bill Resources

- Congressional briefings
- Articles and podcasts
- *Climate Change Solutions* newsletter special editions
- Farm Bill hearing tracker
- Legislative side-by-side-by-sides

All resources available at: [www.eesi.org/2023-farm-bill](http://www.eesi.org/2023-farm-bill)
Briefing Series: Farm Bill in Focus

Every Other Wednesday

The Process and Path Forward for Passing a Bipartisan Farm Bill | Recording Available

Climate, Energy, and Economic Win-Wins in the Farm Bill | May 10, 1:30-3:00 PM EDT

Unlocking Rural Economies: Farm Bill Investments in Rural America | May 24, 2:00-3:30 PM EDT

The Future of Forestry in the Farm Bill | June 07, 2:00-3:30 PM EDT

Conservation Practices from Farms to Forests and Wetlands | June 21, 2:00-3:30 PM EDT
GAO’s Work on Climate Resilient Agriculture

EESI

Micah McMillan and Joe Thompson
Natural Resources and Environment Team
U.S. Government Accountability Office
High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas (GAO-23-106203)
### Two Categories of Recommendations

<table>
<thead>
<tr>
<th>Agency Mainstreaming</th>
<th>New Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water systems</td>
<td>National Climate Information System</td>
</tr>
<tr>
<td>Roads and bridges</td>
<td>Identify high-priority adaptation projects</td>
</tr>
<tr>
<td>Defense facilities</td>
<td>Address climate migration</td>
</tr>
<tr>
<td>Energy infrastructure</td>
<td></td>
</tr>
<tr>
<td>Superfund sites</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
</tr>
</tbody>
</table>
Disaster Resilience Framework

- Framework organized around 3 principles—information, integration, and incentives—and a series of questions.

- Framework principles can help:
  - Officials that manage federal agencies/programs consider actions they might take to increase resilience to natural hazards.
  - Analyze or identify gaps in existing federal efforts.
Climate Resilient Agriculture: USDA Actions

- **Federal fiscal exposure:**
  - Crop insurance program.
  - Agricultural disaster relief programs.

- **Objectives:**
  - Actions USDA has taken to enhance producer resilience.
  - Policy options available to USDA to enhance producer resilience.

- **Methodology:**
  - Literature review.
  - Interviews with experts and key stakeholders.
Climate Resilient Agriculture: USDA Actions

- Information
  - Climate Hubs regional vulnerability assessments.

- Integration
  - Action Plan for Climate Adaptation and Resilience
    - 13 agency level adaptation plans

- Indirect Incentives
  - Conservation programs.
Climate Resilient Agriculture: Potential Options

1. Collect data on practices that enhance climate resilience.
2. Expand technical assistance to prioritize and promote climate resilience.
3. Prioritize climate resilience in whole-farm conservation planning.
4. Expand the capacity and expertise of USDA’s Climate Hubs.
5. Develop an agricultural climate resilience plan that addresses regional needs.
7. Revise the Natural Resources Conservation Service’s Conservation Practice Standards to include climate resilience.
8. Expand conservation program eligibility to include and prioritize climate resilience.
9. Expand the capacity of USDA’s conservation programs.
10. Research the feasibility of incorporating climate resilience into crop insurance rating.
11. Require producer adoption of climate-resilient practices to receive crop insurance premium subsidies.
12. Offer crop insurance premium subsidies for climate-resilient operations.
13. Require producer adoption of climate-resilient practices to maintain Farm Bill Title I program eligibility.
Climate Resilient Agriculture: Potential Options

- Implementing multiple options:
  - Most potential to improve producer resilience
  - Leverages strengths and addresses limitations.
  - Timing and sequence are important.
- USDA unsure of statutory authority and resource needs for implementation.
- Comprehensive analysis would help:
  - Identify planning priorities
  - Inform Congressional decisionmaking.

Source: USDA
We recommended:

USDA should analyze options to enhance the climate resilience of agricultural producers and integrate them into USDA's future climate resilience prioritization and planning efforts. The analysis should:

- Explain USDA's decision to prioritize or not prioritize the options.
- Identify any additional authority and resources needed for implementation.
Agroforestry

Resilient Working Lands for Climate, Water, Biodiversity & Food Security

Audrey Epp Schmidt

Agroforestry Program Manager, North America
Our Vision

A world where the diversity of life thrives, and people act to conserve nature for its own sake and its ability to fulfill our needs and enrich our lives.
What Is Agroforestry?

The intentional integration of trees and shrubs into crops and animal farming systems to create environmental, economic, and social benefits.
Agroforestry Practices

- Alley Cropping
- Wind Breaks
- Silvopasture
- Riparian Buffers
- Forest Farming

Photo Source: USDA National Agroforestry Center
Why Agroforestry?

Widespread adoption of agroforestry practices will benefit climate and nature and support the well-being of farmers, ranchers and communities.
Partnerships for Climate-Smart Commodities Grant
Expanding Agroforestry Production & Markets for Producer Profitability & Climate Stabilization

$60M • 5 Years • 29 States • 27 Partners

- **Upper Midwest**
  - Savanna Institute

- **Lower Midwest**
  - University of Missouri

- **Southeast**
  - Tuskegee University

- **Mid Atlantic/Central Appalachia**
  - Virginia Tech

- **Northeast**
  - Propagate

- **Hawaiian Islands**
  - Hawai‘i ‘Ulu Cooperative

THE NATURE CONSERVANCY | North America Agriculture
Audrey Epp Schmidt
Agroforestry Program Manager, North America
a.eppschmidt@tnc.org
Context

- The average income of a Blue Island resident is $18,867 a year. The US average is $28,555 a year.

- The average income of a Robbins resident is $14,801 a year. The US average is $28,555 a year.

- Food apartheid is a concern for these two predominately Black and Brown communities that are food deserts.

- Unemployment is also an obstacle, with both cities have unemployment rates close to twice the national average.
Hope Garage
Hope Tech
Agriculture, Solar, and the AgriSolar Clearinghouse: A Win-Win for the Farm Bill

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

Funding ends May 2024
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
Policy Approaches for Dual-Use and Agrisolar Practices

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 reference 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 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, the Policy Guide seeks to identify and advance strategies that support both agrisolar development and sustainable agriculture.
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
Biochar
Agenda

- What is Biochar?
- Biochar Production
- Biochar & Climate Change
- Composting & Biochar
- Anaerobic Digestion & Biochar
- Federal support
- Where to learn more
What is biochar?
Biochar Production

- Thermochemical conversion
- Scalability
- Co-products
Biochar & Climate Change

**mitigation**
- Carbon Sequestration
- Reduced Fertilizer Use
  - Livestock
  - Landfills
- Methane Reductions
- Renewable Energy
- Waste Upcycling

**adaptation**
- Food Security
- Sustainable Agriculture
- Soil Resilience
- Green Roofs
- Water Efficiency
- Building/Infrastructure
  - Vegetation Management
    - Fire Control
    - Invasive Species
- Disaster Recovery
Climate Change: Biochar & Nitrogen

Nitrogen production

Vaporization/oxidation into AIR
- Air pollution
  - Asthma & other health impacts
- Nitrous oxide
  - GHG 300x worse than CO2
  - In atmosphere for 100+ years

Leaching into SOIL
- Groundwater contamination
- Soil Acidification
- Biodiversity loss

Run-off into WATER
- Algal blooms (more GHGs)
- Eutrophication (fish kill)

Nitrogen application

50 – 75% LOST

Benefits of biochar-based N fertilizer
- Need less N fertilizer as it improves NUE => cost and carbon savings
- Less leaching & run-off
- Improves pH (mitigates soil acidification)

• N fertilizer contributes ~2% of global GHGs
• Uses 3 – 5% of world’s fossil fuels (mostly NatGas) but projected to account for largest share of growth through 2026.
Composting & biochar

- Reduces GHGs
- Reduces odors
- Improves nutrient mgmt
- Reduces time to finished compost
- Enhances microbial diversity and activity
- Longer lasting carbon (eligible for carbon removal credits)
- Immobilizes potentially toxic metals, herbicides, organic pollutants

Figure 7.5: Incorporation of biochar in composting operations can yield multiple benefits.

Anaerobic digestion & biochar

- Reduces volume of digestate quickly
- Improve quality & quantity of CH4
- Heat can be used to heat up digester
- Longer lasting carbon

https://www.sciencedirect.com/science/article/abs/pii/S1364032121008790#undfig1
Federal Support

- NRCS Soil Carbon Amendment Protocol
- USFS support for US Biochar Initiative
Want more info?

- IBI Biochar Academy (June 19 – 30) & Field Days (June 22 – 23)
- International Biochar Initiative
- US Biochar Initiative
- US Forest Service Webinars

Kathleen Draper
biocharro2@gmail.com
Briefing Series: Farm Bill in Focus

Every Other Wednesday

The Process and Path Forward for Passing a Bipartisan Farm Bill | Recording Available

Climate, Energy, and Economic Win-Wins in the Farm Bill | May 10, 1:30-3:00 PM EDT

Unlocking Rural Economies: Farm Bill Investments in Rural America | May 24, 2:00-3:30 PM EDT

The Future of Forestry in the Farm Bill | June 07, 2:00-3:30 PM EDT

Conservation Practices from Farms to Forests and Wetlands | June 21, 2:00-3:30 PM EDT
What did you think of the briefing?

Please take 2 minutes to let us know at:
www.eesi.org/survey

Materials will be available at:
www.eesi.org/051023farmbill

Tweet about the briefing:
#eesitalk   @eesionline

Wednesday, May 10, 2023