

In response to review comments, the technical team added the language below to the non-technical summary to capture activities from the previous 5-year cycle of this coordinating committee.

This regional project will continue and expand on previous work in the area of ag energy. Some significant work and collaborations have occurred during the past project timeline. Some highlights include:

2021-2024

1. Research and Demonstration Projects

- **GREENBOX Urban Farming Trials** (Connecticut):
 - Lab trials on indoor year-round vegetable production.
 - Energy/water use comparison and simulation model development.
- **Agrivoltaics Projects:**
 - Research on integrating crop/livestock systems with solar energy (Rutgers, Illinois, Virginia).
 - Participation in DOE FARMS program and evaluation of NJ's Dual-Use Solar Pilot Program.
- **Bioenergy Research:**
 - Biochar and anaerobic digestion with poultry litter (Penn State, Maryland).
 - Biomass and biogas technology trials and student research (Penn State).
- **Solar Farm Development** (Illinois):
 - Completed 12.32 MW Solar Farm 2.0 with pollinator habitat under panels.
- **Geothermal Energy Tools and Outreach** (Illinois):
 - Developed a decision-support tool using geologic data; held related webinars.
- **Motor Efficiency Prototype** (Michigan):
 - Tested an alternative to variable-frequency drives for large farm motors.

2. Educational Programs and Outreach

- **Online & In-Person Educational Events:**
 - Webinars and videos on solar, anaerobic digestion, and farm energy (Maryland, Penn State).
 - Smart Meter and Energy Efficiency outreach to underserved communities (Illinois).
- **University Courses:**
 - Penn State offered courses in Bio renewable Systems and hosted the Renewable Energy Academy.
- **Guidebooks and Publications:**
 - Book: *Regional Perspectives on Farm Energy* (Penn State, 2022).

- Guide: *Planning & Zoning for Solar Energy Systems* (Michigan State).
- Two book chapters on greenhouse and on-farm renewables (Rutgers).
- **Conferences:**
 - MSU organized the 2022 National Extension Conference on Energy Efficiency.
- 3. **Technical Assistance and On-Farm Support**
- **Energy Audits & Assessments:**
 - USDA REAP Energy Audits conducted in Michigan.
 - Use of CART tool for resource assessments.
 - Maryland provided technical support for poultry litter digesters.
- **Smart Energy Management:**
 - Use of smart meters and campus energy dashboards (Illinois).
- **Infrastructure & Efficiency Upgrades:**
 - LED greenhouse lighting replacements and digester support (Rutgers, Penn State).
- 4. **Collaborative Proposals and Grant Work**
- **Multi-institutional Initiatives:**
 - Energy for the New Farm Video Series (Michigan, Penn State, Nebraska, Rutgers, Virginia, Illinois)
 - Participation in MASBio and C-Change projects.
 - USDA-NIFA Sustainable Agricultural Systems proposals.
 - Ongoing collaborations in agrivoltaics (Virginia, Maryland, NJ).
- **Solar Energy Workforce Training:**
 - MSU coordinated with industry and government on solar technician workforce needs.
 - Nebraska solar installation workforce training and solar workforce economic analysis training.