ADIRONDACK COUNCIL
PRESERVING WATER, AIR AND WILDLANDS

October 12, 2021

Terry Martino
Executive Director
NYS Adirondack Park Agency
PO Box 99
Ray Brook, NY 12977
(Via Electronic Submission)

RE: Support ELP Ticonderoga Solar Project, P2020-0157, and Request for Public Hearing

Dear Executive Director Martino,

In reviewing the agenda for the upcoming October Adirondack Park Agency (APA) meeting, the Adirondack Council offers the following comments and suggestions:

1. ELP Ticonderoga Solar, LLC, P2020-0157:
   The Adirondack Council supports this well sited and designed large-scale solar development, with conditions to avoid, minimize or mitigate impacts to wetlands. Smartly sited renewable energy projects in the Adirondack Park can and should deliver economic benefits to its residents and communities while protecting the ecological integrity of unfragmented forested landscapes in the Adirondacks as the state strives to meet its aggressive clean energy goals.

   The Town of Ticonderoga, as compared to many other Adirondack communities, has seen a heightened level of solar development, including this 20MW project and two recently approved 5MW projects. We believe this presents APA with a unique opportunity to examine the cumulative impacts (e.g. environmental, visual, etc.) of solar development in the Park at a digestible scale. We urge the Agency to utilize this opportunity to assess the impacts of solar while this type of development is still in its infancy.

   Additionally, in the deliberation of previous solar projects, the APA Board has had discussions regarding the need to better understand how utilizing farmland for solar development impacts communities. We echo that need for clarity and take it a step further by asking the APA ensure developers are working with agricultural stakeholders, like the Essex Farm Institute, Cornell Cooperative Extension, etc., to

determine what, if any, farmland enhancements are possible for a project, like considering dual use solar that allows for sheep grazing.

2. Update on Existing and Proposed Solar Projects and Local Land Use Controls in the Adirondack Park:
   The Council looks forward to the Agency's presentation on solar development in the Park. As noted in our October 7th comment letter (attached), the Council asks that the Agency host a general public hearing on solar development to harness the expertise and feedback of stakeholders to understand what solar development in the Adirondack Park should look like. It would be an opportunity to not only hear from in-Park stakeholders but from developers and other state agencies. The immediacy of climate change requires thoughtful, intentional and planful action up front and it cannot be siloed. The APA has the power to set a new standard of collaboration and cooperation at a landscape scale to support the health of our natural and human communities.

   Climate change is the defining environmental threat for our generation. It poses real, long-term dangers to the Adirondack Park's natural and human communities and the world, including impacting wilderness, clean water, clean air, wildlife, natural communities, natural processes, people and the economy. As the largest park in the continental U.S., the Adirondacks can be a model for a large public-private conservation landscape combating climate change. The path towards a cleaner future is rooted in natural landscape protection, harnessing natural climate solutions like carbon sequestration, and the propagation of renewable energy resources. Transitioning to a cleaner and fossil fuel free future by harnessing renewable natural resources, like solar power, is an essential piece to protecting the Adirondack Park's natural and human communities.

3. Whiteface UMP Amendment: The Council looks forward to hearing this presentation and reviewing associate materials when they become available on the proposed UMP amendment.

4. Fish Creek Campground UMP: While the Council generally supports the proposed Fish Creek Pond Campground Unit Management Plan (UMP) that will provide important and necessary facility upgrades, we continue to raise concerns regarding the lack of waterbody carrying capacity considerations included in the UMP. The State Land Master Plan (SLMP) recognizes that "waters, particularly lakes and ponds, have their carrying capacity from a physical, biological and social standpoint just as do tracts of public or private land." Given the interconnectedness of the Fish Creek Ponds with other waterbodies in the area and the high level of recreational and boating use of these waters, it is important the UMP understand how that type and level of use is impacting both aquatic and terrestrial resources to inform management decisions.

Thank you for the opportunity to provide these comments.

Sincerely,

Jackie Bowen
Associate Conservation Director

ADIRONDACK COUNCIL
PRESERVING WATER, AIR AND WILDLANDS

October 7, 2021

Ariel Lynch
Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977
(Via Electronic Submission)

RE: Support ELP Ticonderoga Solar Project, P2020-0157, and Request for Public Hearing

Dear Ariel,

On behalf of the Adirondack Council, I would like to thank you for the opportunity to provide comments on the *ELP Ticonderoga Solar Project, P2020-0157*. Smartly sited renewable energy projects in the Adirondack Park can and should deliver economic benefits to its residents and communities while protecting the ecological integrity of unfragmented forested landscapes in the Adirondacks and enabling the state to meet its aggressive clean energy goals. The Adirondack Council supports this large-scale solar development, with conditions to avoid, minimize or mitigate impacts to wetlands. This project also presents the Adirondack Park Agency with the opportunity to begin assessing the cumulative impacts of solar development in the Adirondack Park.

East Light Power Ticonderoga Solar, LLC (ELP) is seeking to develop a 20MW utility-scale solar project in the Town of Ticonderoga. The project is proposed to be sited on 100 acres of a 255-acre Moderate Intensity Use property that consists of meadowed agricultural and forest lands. The project site is located along Route 9N and Veterans Road, where existing transmission infrastructure is proximate. However, new connection to National Grid's Ticonderoga-Republic #2 115kV line will be needed. The Council recognizes that these types of upgrades are necessary to support renewable energy generation and transmission within and out of the Adirondack region.

According to ELP's application materials to the Agency, "the meadow areas will remain meadow with introduction of solar facility, and portions of the wooded areas will be cleared and converted to meadow. A portion of the agricultural meadow, which was used to produce hay as recently as last year, will also host part of the solar facility." While the Council does not prefer the conversion of farmland or forested land for renewable energy development because it can inhibit natural climate mitigating processes, we do understand

the myriad factors that contribute to preferred site selection. Therefore, we appreciate the applicant's exploration of several other alternative sites in the area that were ultimately deemed unviable "due to topographic features, active farming activities, APA land classification, and Town zoning classification, it was determined that these sites were less optimal than our proposed site."

According to the Council's own renewable energy policy, we support careful, science-based siting and design methods employed to minimize visual and other impacts related to renewable energy projects. It appears the applicant took measures, by working with the Town and the APA, to minimize impacts. In addition, the proposed project aligns with the Council's policy in that the project is located proximate to a community center, it is proximate to existing transmission infrastructure, and provides a decommissioning plan where the applicant is responsible for removing all infrastructure and restoring the site to its original status at its own expense. While we do support maximizing underground energy transmission infrastructure, we ask that the developer work with the Agency to avoid, minimize or mitigate impacts to all wetlands on the property.

Farmland

In the deliberation of previous solar projects, the APA Board has often discussed the need to better understand how utilizing farmland for solar development impacts communities. We echo that need for clarity and take it a step further by asking that the APA ensure developers are working with agricultural stakeholders, like the Essex Farm Institute, to determine what, if any, farmland enhancements are possible for a project, like dual use solar that allows for sheep grazing, apiaries, etc. Attached you will find two resources that review the benefits of dual use solar on agricultural lands: *What is Dual Use Solar* and *Co-Location of Agriculture and Solar – Opportunities to Improve Energy, Food, and Water Resource*.

Cumulative Impacts

The Town of Ticonderoga, as compared to many other Adirondack communities, has seen a heightened level of solar development, including two recently approved 5MW projects, and presents a unique opportunity for the APA to examine the cumulative impacts of solar development in the Park at a digestible scale. The Agency's Application for Solar Generation Facility does not currently assess the cumulative impacts of solar at any scale, and we view this as a flaw in the Agency's review process. As the state strives to meet its climate goals, it is imperative we work proactively to understand the regional ecological impacts solar development has on natural resources and if/how they impact natural climate solutions, wildlife migration, etc. These questions and assessments must be asked now as the proliferation of solar power infrastructure is still in its infancy.

Public Hearing on Solar in the Park

With cumulative impacts and planful siting in mind, the Council asks that the Agency host a general public hearing on solar development to harness the expertise and feedback of stakeholders to understand what solar development in the Adirondack Park should look like. It would be an opportunity to not only hear from in-Park stakeholders but from developers and other state agencies like the NYS Research & Development Authority, Ag & Markets, Department of Environmental Conservation, Office of Renewable Energy Siting.

Climate change no longer allows for drawn out trial and error processes. Rather, it demands thoughtful, intentional and planful action up front to minimize impacts to natural resources that sequester carbon and increase natural resiliency. The Agency cannot do this in a silo. Within its regulatory boundaries and processes, the Agency has the power to set a new standard of collaboration and cooperation at a landscape scale to support the health of our natural and human communities.

With the close of the construction season upon us, we urge the Agency to utilize the upcoming offseason to host a public hearing to solicit feedback on solar development in the Park that looks broadly and beyond the project-by-project scale. We suggest the following questions for consideration:

- What amount of forested land clearing is acceptable?
- What should be considered when farmland is proposed for a solar site? What are the impacts of removing productive farmland from use? Should dual-use solar be considered on farmland?
- What remediation measures should be included in project plans to ensure the land can return to a natural state as quickly as possible?
- What environmental considerations should be included in the Solar Generation Facility Application? Where are the formerly industrial or abandoned sites that are ripe for solar development? Are there ways to incentivize solar development at these sites?
- How can stakeholders and partners support the Agency in this effort?

Climate change is the defining environmental threat for our generation. It poses real, long-term dangers to the Adirondack Park's natural and human communities and the world, including impacting wilderness, clean water, clean air, wildlife, natural communities, natural processes, people and the economy. As the largest park in the continental U.S., the Adirondacks can be a model for a large public-private conservation landscape combating climate change. The path towards a cleaner future is rooted in natural landscape protection, harnessing natural climate solutions like carbon sequestration, and the propagation of renewable energy resources. Transitioning to a cleaner and fossil free future by harnessing renewable natural resources, like solar power, is an essential piece to protecting the Adirondack Park's natural and human communities.

In closing, the Adirondack Council supports this solar project because it is a well-designed and sited project. However, we ask the Agency to consider the cumulative impacts of this project and others in the Town of Ticonderoga to more deeply understand how these projects impact the natural resources and processes of the Park. In addition, we ask the Agency to host a non-project-specific public hearing to utilize Park and state-wide expertise on solar planning to foster collaboration and a shared understanding of such development in the Park. Thank you for reviewing our comments.

Sincerely,

Jackie Bowen
Associate Conservation Director

American Farmland Trust
SAVING THE LAND THAT SUSTAINS US

What is Dual-Use Solar?

Dual-use solar installation at the University of Massachusetts Amherst

Dual-use solar siting, also known as agrivoltaics, is the practice of installing solar photovoltaic panels on farmland in such a manner that primary agricultural activities (such as animal grazing and crop/vegetable production) are maintained simultaneously on that farmland.

Benefits of siting solar energy as dual-use:

- Supports solar development and renewable energy production goals
- Protects farmland from permanent solar or other development
- Protects farmland access for farmers leasing land as well as for new farmers
- Provides strong incentive for exiting farmers to transition land to another farmer to maintain on-site agricultural activity
- Provides income diversification and improved income stability
- Panels can improve moisture retention in soil and plants in times of high heat and low precipitation,* leading to:
  - Reports of increased yields for some vegetables under dual-use arrays (including potatoes, celery, kale, and others)**
  - Increases in pasture grass biomass under arrays during summer months as compared to areas in full-sun*
- Panels can reduce heat-stress in livestock by providing added shade in summer
- Protects the land's potential for increased carbon sequestration

American Farmland Trust's (AFT) mission is to save the land that sustains us by protecting farmland, promoting sound farming practices, and keeping farmers on the land. AFT supports accelerated solar development and believes that, with proper planning and siting, our agricultural lands can also play a meaningful role in hosting solar energy while maintaining active, productive agriculture. **However, AFT does not support solar siting that converts farmland or displaces agriculture from the landscape.**

* Remarkable agrivoltaic influence on soil moisture, micrometeorology and water-use efficiency. Adeh, Selker, & Higgins. PLOS One https://dx.plos.org/10.1371/journal.pone.0203256
** Agrophotovoltaics: High Harvesting Yield in Hot Summer of 2018. Fraunhofer ISE. https://www.ise.fraunhofer.de/content/dam/ise/en/documents/press-releases/2019/1019_ISE_e_PR_Agrophotovoltaics.pdf

NREL
Transforming ENERGY

Co-Location of Agriculture and Solar:

Opportunities to Improve Energy, Food, and Water Resources

Jordan Macknick
JISEA Annual Meeting
March 14, 2019

InSPIRE Project Overview

Low-impact site preparation

Pollinator and native vegetation solar

Solar-agricultural co-location

Department of Energy Funded (2015-2021)

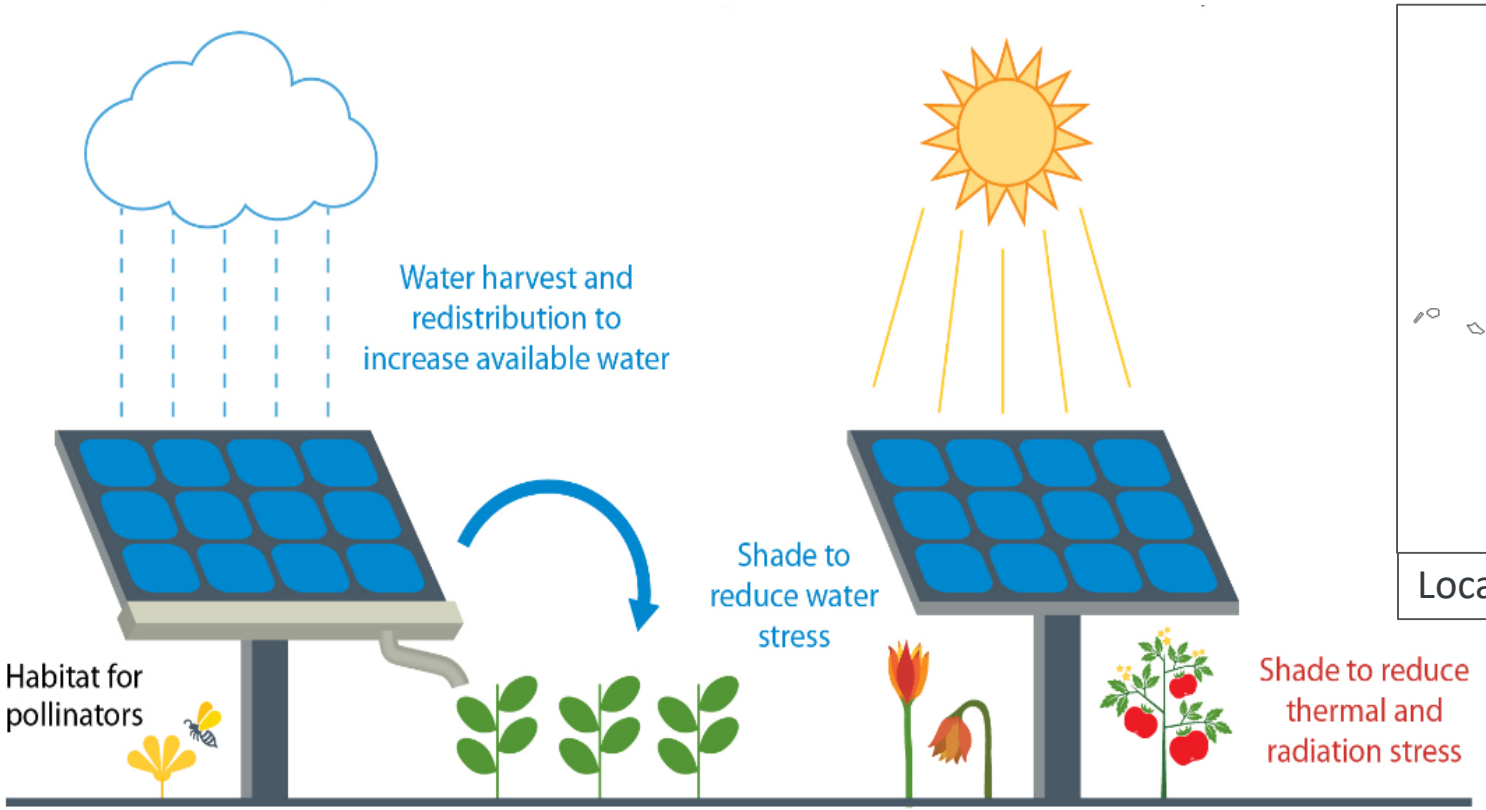
Extensive Industry Partnerships

Field and Analytical Modeling Work

Benefits of Low-Impact Solar Development for Energy, Water, and Agricultural Resources

- Energy
  - Improved solar PV efficiencies due to cooler microclimate underneath panels
  - Reduced O&M costs
  - Reduced construction and acquisition/permitting costs
- Water
  - Reduced evaporation
  - Reduced runoff
  - Improved water use efficiency of crops and pollinator habitat
- Agriculture
  - Compatibility with crop production and livestock
  - Pollinator habitat can improve local agricultural yields
  - Improved soil health

InSPIRE Project Overview



Location of current and under-development research sites

Field-based research across multiple sites is driven by key scientific questions to provide foundational insights that will support economic, environmental, and agricultural evaluations of solar-agriculture co-location. Research topics include:

(1) Economic viability of solar-agriculture co-location configurations. *(University of Massachusetts-Amherst and Minnesota)*

(2) Increasing agricultural yields in arid environments. *(University of Arizona Biosphere 2 and Colorado State University)*

(3) Energy, water, and food security in remote, off-grid areas. *(Puerto Rico and Indonesia)*

(4) Pollinator habitat and ecological services *(Cornell University, Illinois, and Minnesota)*

Specific research activities for field studies

Study Design

Crop Planting

Harvesting

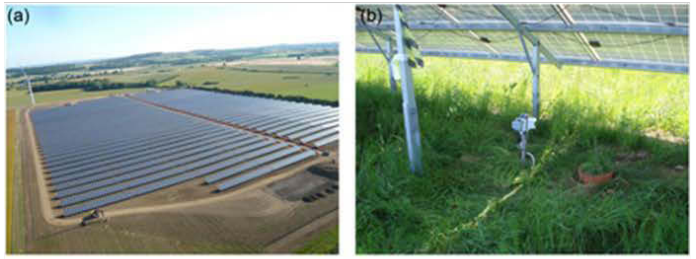
Data Collection and Analysis

Soil Carbon

Temperature Probe

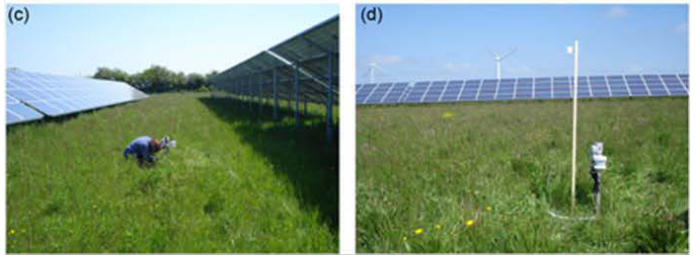
Relative Humidity Probe

Rain Gauge



Datalogger

Soil Heat Flux Plate



Wind Anemometer

Soil Thermocouple

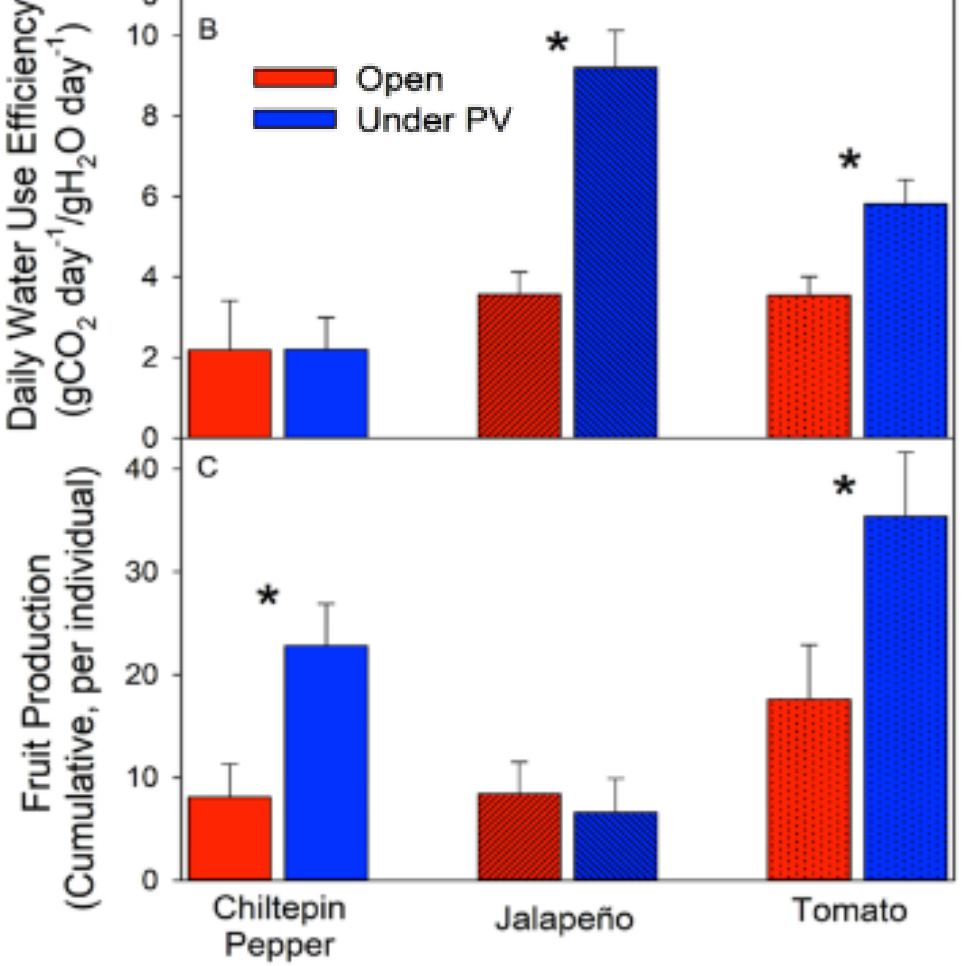
Pyranometer

Armstrong et al., 2016

Soil Moisture Reflectometer

PV Panel Thermocouple

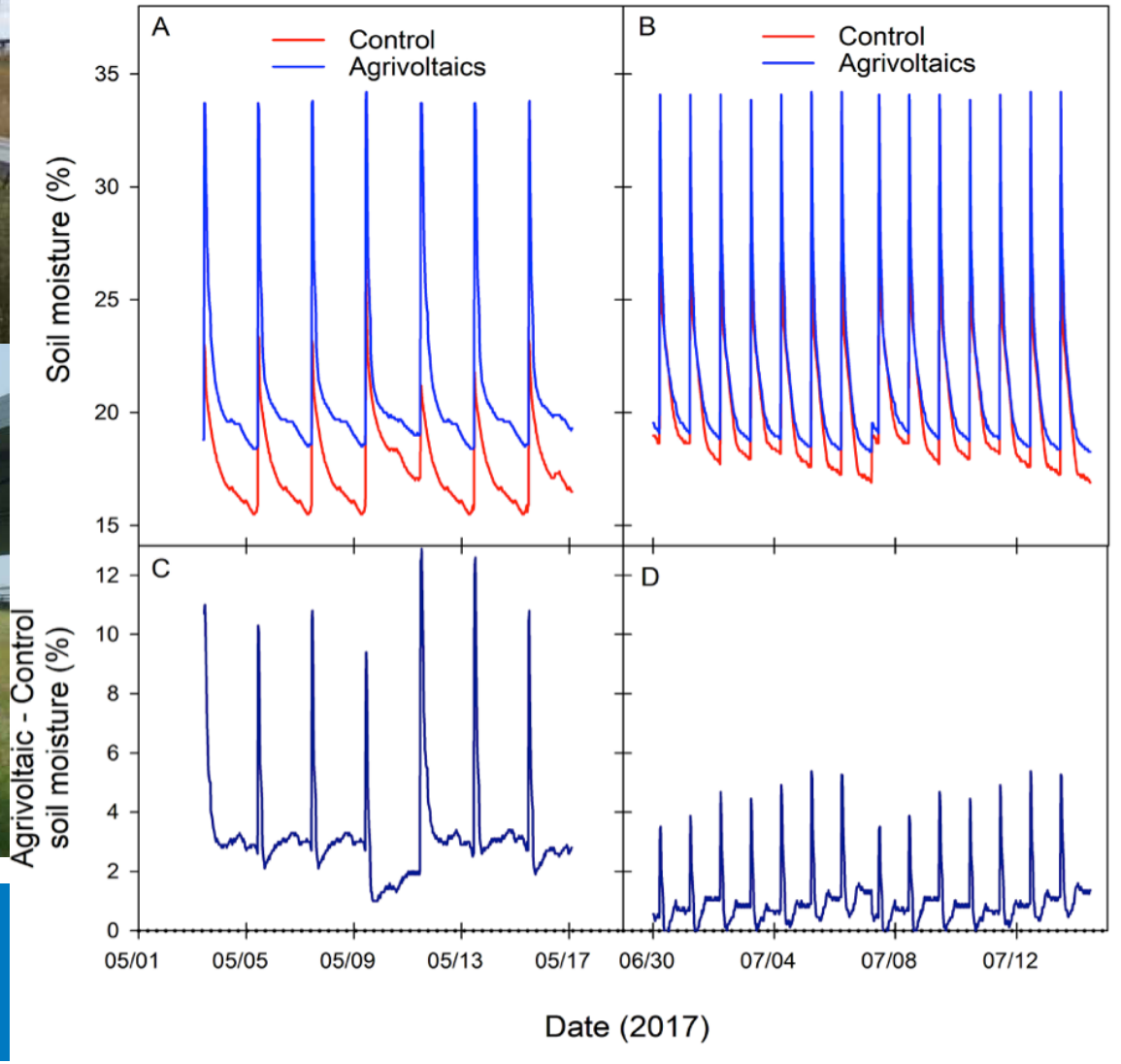
Key Highlight: Co-Location can lead to Higher Crop Yields with Less Water



Arizona co-location facility: higher yields, less water, longer growing season

Massachusetts co-location facility: higher yields in hot, dry years

New sites planted or under development in Colorado, Oregon, Puerto Rico, United Arab Emirates, and Indonesia



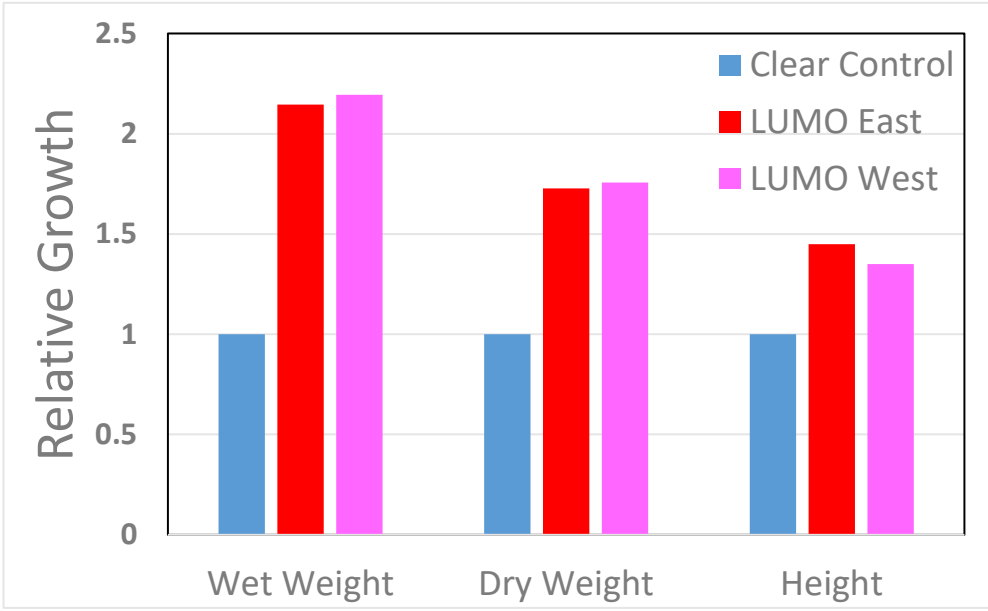
Key Highlight: Vegetation under PV can Improve Soil Moisture Retention

Higher soil moisture in solar array area than in non-shaded (non-solar) control area

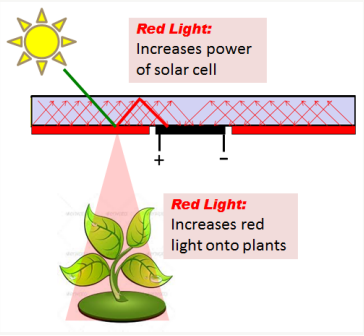
Significant variation in soil moisture levels depending location within array (directly underneath panels, in between rows, etc.)

Improved soil moisture retention for vegetated groundcover PV than for non-vegetated groundcover PV

Key Highlight: Solar-Integrated Greenhouses can Improve Yields



SOLICULTURE

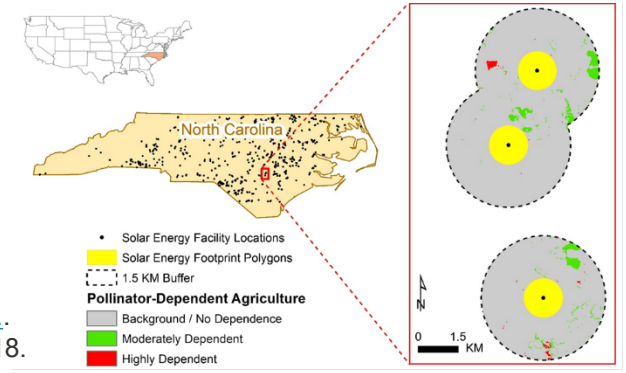


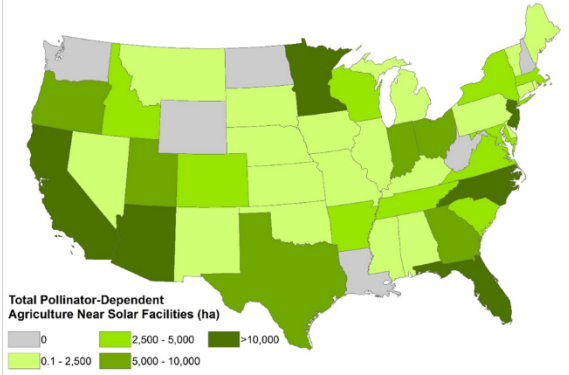
Chervil: *annual herb related to parsley with a delicate anise-like flavor*

Plants that received the altered light spectrum of LUMO in the late afternoon performed significantly better than chervil grown under a greenhouse with clear covering.

Key Highlight: Pollinator-Friendly Solar

Over 860,000 acres of agricultural land would benefit if existing solar facilities had pollinator-friendly vegetation





Examining the Potential for Agricultural Benefits from Pollinator Habitat at Solar Facilities in the United States.. Leroy J. Walston, Shruti K. Mishra, Heidi M. Hartmann, Ihor Hlohowskyj, James McCall, Jordan Macknick 2018. Environmental Science & Technology Vol. 52 (13) 3 July 2018 pp. 7566-7576.

Solar Power World

TOP SOLAR CONTRACTORS | SOLAR ARTICLES | PRODUCTS | LEADERSHIP | SUBSCRIBE

Pine Gate Renewables, Old Sol Apiaries create largest solar farm apiary in America

By Kelsey Misbrener | June 15, 2018

Utility-scale solar developer Pine Gate Renewables, headquartered in Charlotte, North Carolina, is pleased to announce that honey bees are now living on Eagle Point solar farm in Jackson County, Oregon, thanks to the company's SolarCulture initiative. SolarCulture is a Pine Gate environmental stewardship initiative that promotes sustainable agriculture and collaborations with the community to support research for smarter solar development.

Key Highlight: Solar-Powered Honey Production

Hives can be located in or outside of project fence

Innovative branding and marketing opportunities

Ongoing work evaluating honeybee and native bee preferences

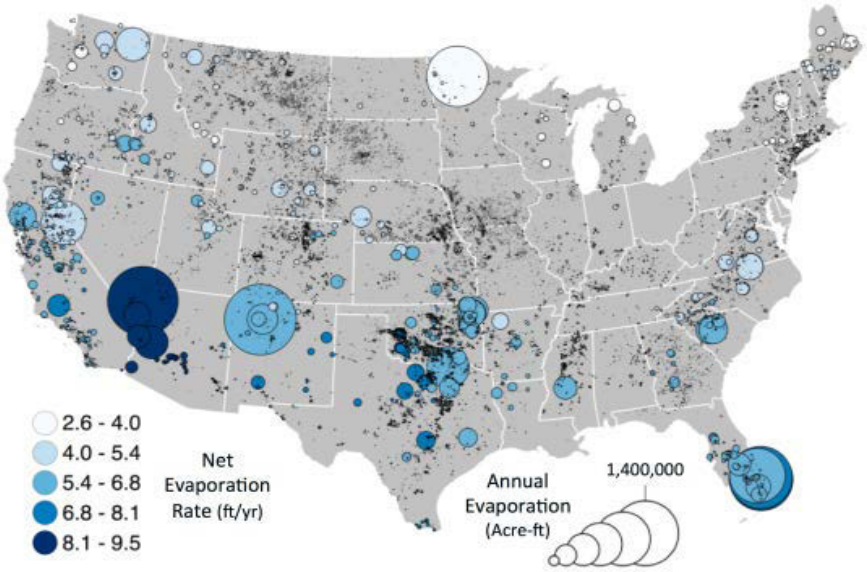
Key Highlight: Solar-Integrated Grazing

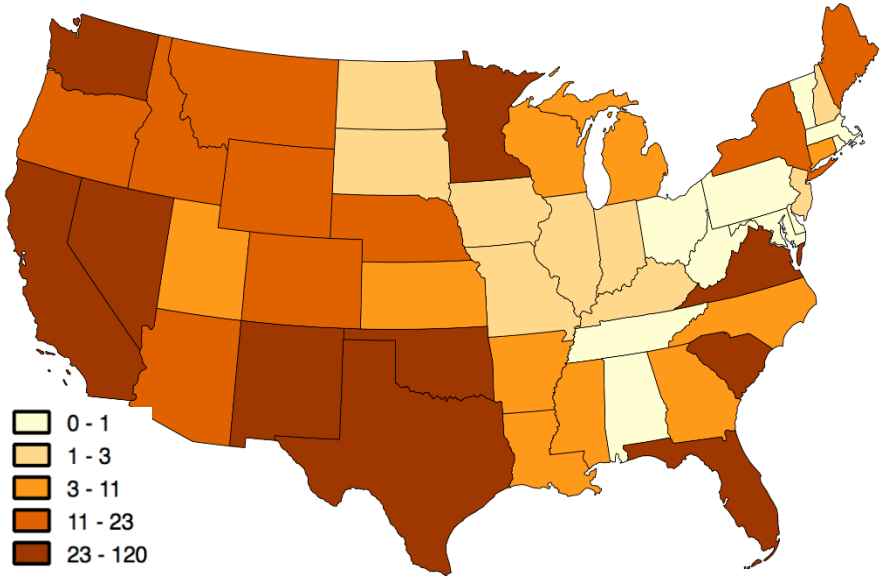
Sustainable grazing practices can improve soils

Cost reductions from standard mowing practices

Ongoing work evaluating pastureland performance

Key Highlight: Floating Solar on Agricultural Reservoirs





Generation Potential (TWh/year)

Siting on reservoirs can reduce evaporation and algae growth

Avoid conflicts with land used for agriculture

Recent NREL study identified over 25,000 man-made reservoirs that could supply 10% of U.S. power

Floating Photovoltaic Systems: Assessing the Technical Potential of Photovoltaic Systems on Man-Made Water Bodies in the Continental United States. Robert S. Spencer, Jordan Macknick, Alexandra Aznar, Adam Warren, and Matthew O. Reese. Environ. Sci. Technol., 2019, 53 (3), pp 1680–1689

Atwater-as planted

Total research area: 3.2 acres

1. Core vegetation test plots (8 seed mixes, randomly assigned in triplicate)—0.26 acres x2 sites = 0.53 acres (Seed Mixes: Z, Y, X, W, V, U, T, S)
2. Wetlands mixes (3 different mixes)—0.27 acres (Seed Mixes: Z, X, V)
3. Cover crop variations (top=no cover crop; bottom=yes cover crop)—0.09 acres (Seed Mixes: Z)
4. Mycorrhizal inoculation variations (top=no inoculation; bottom=yes inoculation)—0.09 acres (Seed Mixes: Z)
5. Stratification/planting variations (top=no stratification, fall planting; middle=no stratification, spring planting; bottom= stratification, spring planting)—0.09 acres (Seed Mixes: Z)
6. Mowing variations (top=no mowing; bottom=yes mowing)—0.09 acres (Seed Mixes: Z)
7. Spot spray variations (top=no spot spraying; bottom=yes spot spraying)—0.09 acres (Seed Mixes: Z)
8. Native pollinator plot—0.18 acres (Seed Mixes: Y, W, U)
9. Hydromulch control—1.4 acres
10. No shade control plots for 8 core seed mixes)—0.12 acres (Seed Mixes: Z, Y, X, W, V, U, T, S)
11. Non-planted test plot—0.09 acres

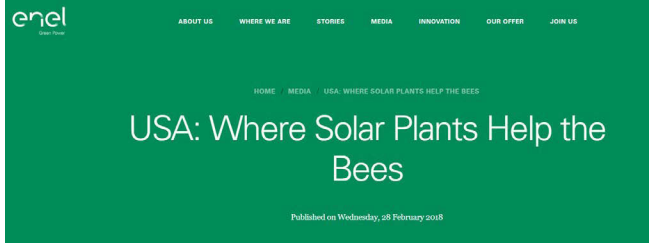
N

Key Highlight: Education through field research

Educational benefits through internships, field trips, work experience, tours

Elementary school through PhD students

State agency, academic, and professional training



Enel, NREL partner on three-year solar vegetation study

PRESS RELEASE: ILLINOIS POLLINATOR-FRIENDLY SOLAR ENERGY BILL PASSES, ADDS MOMENTUM TO SOLAR ENERGY DEVELOPMENT

BRIEF

In bid to help bees, Xcel to require vegetation disclosure in solar RFPs

Organic Valley Announces Next Phase of Community Solar Partnership To Become 100 percent Renewably Powered in 2019

New York Pollinator-Friendly Solar Bill Unanimously Passes Assembly and Senate

06.11.18 // Shachar Sharon

New York League of Conservation Voters
(212) 361-6350

For Immediate Release: June 11, 2018
Contact: Shachar Sharon

New York Pollinator-Friendly Solar Bill Unanimously Passes Assembly and Senate, Healthy Pollinators from Solar Sites to Benefit Crops

Low-growing and flowering meadows of deep-rooted native plants to benefit honey bees, native pollinators, birds, and enrich agricultural soils

High-resolution photo courtesy Prairie Restorations, Inc. Caption: Pollinator-friendly solar arrays provide urgently needed habitat for honey bees and native pollinators.

DOER
Massachusetts Department of Energy Resources

Solar Massachusetts Renewable Target (SMART) Program

Key Highlight: Broad Stakeholder Impacts

Pollinator-Friendly solar standards and scorecards

State Agency partnerships and technical assistance

Direct partnerships with solar and agricultural industry

University initiatives

Closing Thoughts

- There are many opportunities for synergies between agriculture and solar energy development
- Solar projects can be designed and constructed in ways that improve energy, water, and agricultural resources
- Low-impact designs can lead to reductions in some upfront and O&M costs for solar developers, while also increasing solar energy output
- There are many innovative configurations that can be employed and that still have not been tested

Thank you

Jordan.Macknick@nrel.gov

https://openei.org/wiki/InSPIRE

NREL/PR-6A50-73696

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JISEA Joint Institute for Strategic Energy Analysis

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