American Farmland Trust

November 28, 2022

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Rural Business-Cooperative Service (RBCS) and the Rural Utilities Service (RUS)
U.S. Department of Agriculture

Re: Docket Number: RBS–22–NONE–0025
Federal Register: Friday, October 28, 2022; Vol. 87, No. 208; Page 65188-65190

Inflation Reduction Act Listening Session

Dear Administrator Berke and Administrator Neal,

Thank you for opening this comment period and offering an opportunity to provide input on USDA Rural Development's implementation of Inflation Reduction Act (IRA) funding. This funding provides an important opportunity to move the U.S. closer to net-zero greenhouse gas (GHG) emissions by decarbonizing the electric sector in rural areas.

Climate change, occurring as a result of human activities, is an existential threat and is already impacting farmers, farm viability, food security, water availability, and more. It is essential to achieve carbon neutrality goals in order to avert the worst consequences of climate change, and doing so will require substantial increases in renewable energy generation. Solar will be a critical part of this effort.

According to the 2020 Department of Energy (DOE) Solar Futures study, solar may increase from 4% of our nation's total energy production today, to 45% by 2050. This could require nearly 7.4 million acres of land to host solar by 2040 and 10.4 million acres by 2050. DOE also projected that approximately 90 percent of this solar development will take place in rural settings.[1]

Further research reveals that the vast majority of solar development will take place on farmland. Modeling done by American Farmland Trust (AFT) through its Farms Under Threat 2040: Choosing an Abundant Future analysis projected that, based on historical patterns and current policies, **83% of new solar built by 2040 could be sited on agricultural lands, with almost half on our most productive land for producing food and other crops.[2]** This is corroborated by a 2021 Cornell University study by Katkar *et al.* which concluded that even when removing high quality farmland from the equation, 82-85% of the land in New York most suitable for solar to meet the state's ambitious climate goals is farmland.[3]

In line with these models, farmland – especially high-quality farmland (e.g., USDA prime farmland, nationally significant farmland[i]) – is proving an attractive first-choice site for solar developers. This is because the characteristics that make land productive for farming – sunny, flat, dry, open, temperate, low wind, and close to existing infrastructure – also make land

[i] For more information on the "nationally significant" designation, see AFT's Farms Under Threat: the State of the States report: https://farmlandinfo.org/publications/farms-under-threat-the-state-of-the-states/.

desirable for solar development. But when we lose farmland to any development, we also lose the food production, economic activity, and ecosystem services those farms provide. Losing high quality farmland in particular can also push farming to more marginal land, which requires greater inputs with higher GHG emissions, such as fertilizer, to achieve comparable production.

Therefore, the growth and expansion of solar development has the potential to convert millions of acres out of farming and food production, rapidly reshaping rural landscapes and farm economies. But it does not have to. We need thriving rural economies, robust food production, *and* reliable, affordable renewable energy. **AFT has been working since 2018 to determine how the U.S. solar buildout can strengthen rural communities and keep land in farming across the country.**

AFT expects solar projects at different scales to have different impacts on farmland, farm viability, soil health, and farmland protection efforts. Small-scale solar (e.g., on-farm use, small-scale community solar), such as that supported by the Rural Energy for America Program (REAP) in IRA Section 22002, can reduce on-farm energy costs. These projects may also provide net-metered energy payments or lease income (in the case of small-scale community solar) to farmers, which support farm viability while providing carbon-free energy to the grid. Conversely, large grid- or utility-scale projects proposed on farmland could convert hundreds or thousands of acres out of farming at once, potentially reducing the viability of the farms and support services that remain. Utility-scale projects supported by USDA Rural Development's Rural Utilities Service (RUS), including through IRA Sections 22001 and 22004, could impact farm viability in rural communities in this way. However, properly designed agrivoltaic arrays, which pair solar energy generation with agricultural production *on the same parcel of land*, may offer a solution by reducing displacement of agriculture from land put into solar.[ii]

Solar deployment across the country is being slowed or halted by communities raising these same questions about the impacts of solar development—especially large, grid-scale solar—on their farmland and farm economy. Many states and localities are even passing moratoria to provide time to study the impacts of this new land use, and to devise and develop policies governing permitting and siting in ways that will strengthen their communities. **The implementation of this historic IRA funding provides USDA with the opportunity to model to developers, utility companies and cooperatives, and local and state governments how to decarbonize the U.S. electric grid in ways that combat climate change and achieve USDA's mission to support a vibrant agricultural and rural economy.** This can demonstrate to communities across the nation how to implement "smart solar" principles that achieve renewable energy goals while also strengthening agriculture, which, in turn, can help smart solar projects get permitted and built more quickly.

Using Smart Solar Principles to Shape USDA Rural Development (RD) IRA Funding Awards to Strengthen Rural Communities

AFT's work on wind and solar energy development is not intended to prevent siting on farmland. Rather, **AFT aims to ensure solar facilities maximize positive benefits to producers and farm communities while minimizing the displacement of farmers from farmland as well as potential negative impacts to farm viability.** AFT calls this work "smart solar" and has developed four principles that developers, governments, and other stakeholders can utilize to avoid, minimize, and mitigate the impacts from solar development on farmland and the farm economy:

[ii] Note: currently, there is limited application of agrivoltaics in large scale solar, with the exception of sheep grazing.

- **Principle 1:** Prioritize solar siting on the built environment, contaminated land, and other land not well-suited for farming. Siting solar on these preferred sites first will help to avoid siting, and relieve development pressure, on land well-suited for farming.
- **Principle 2:** Safeguard the ability for land to be used for agricultural production. If siting on farmland, minimize impacts and protect soil health by following best practices, especially during times of soil disturbance (e.g., construction and decommissioning).
- **Principles 3:** Expand the use of agrivoltaics for agricultural production and solar energy to minimize solar's displacement of farming from farmland.
- **Principle 4:** Promote equity and farm viability in siting and permitting decisions to minimize community impacts and maximize benefits.

In cases where such principles are not followed, AFT recommends that permitting agencies and financial backers find ways to hold developers accountable to addressing, offsetting, or mitigating any negative impacts of solar on farmland and farm viability.

The IRA funding opportunities made available through Rural Development can advance these principles. AFT recommends Rural Development accomplish this by:

1. Requiring that all current and future applicants proposing front-of-the-meter wind and solar projects on farmland follow best available practices for construction, operation, and decommissioning that will maintain or improve soil health. In addition, RD should work with the Natural Resources Conservation Service (NRCS) to develop USDA-approved guidance and standards to be applied to future projects.
2. Requiring utility-scale solar applicants to include data on which soil types (e.g., USDA Soil Survey Geographic Database [SSURGO]) and how many actively farmed acres (e.g., within the last 5-10 years) are included within their proposed project and facility areas, and then publicly reporting this information. This data can also help guide USDA in determining how to apply the Farmland Protection Policy Act to these and other federal renewable funding opportunities.
3. Developing and implementing Smart Solar scoring, ranking criteria, and program incentives (e.g., higher REAP cost share, higher loan forgiveness levels) that will encourage applicants to develop "Smart Solar" projects proposed on farmland.
4. Including underutilized, low-impact applications of solar (e.g., agrivoltaics, solar on the built environment, solar on contaminated land) as eligible within the REAP funding for Underutilized Technology.

GENERAL SMART SOLAR RECOMMENDATIONS FOR USDA-RD PROGRAMS

Require Construction, Operation, and Decommissioning Practices that Maintain or Improve Soil Health

Franklin DeLano Roosevelt said, "the nation that destroys its soil destroys itself." Many solar developers propose solar projects on high quality soils (e.g., USDA prime) because this land has characteristics that also make it attractive for solar development. But **wind projects and solar arrays can have tremendous physical impacts on the land, both during the project's lifetime and afterwards (if projects are ever decommissioned)**. Current construction and decommissioning practices for solar arrays and wind projects, which are proposed as "temporary," do not generally consider or protect soil productivity. **Failing to require developers to follow practices that will protect soils for future agricultural production will all but assure that conversion is permanent, and the land will never return to farming.**

Land being put into a solar or wind project will be a major construction site for a period of time. In the case of solar, during the construction phase of a project the site experiences disturbances. Heavy equipment is used to grade access roads, dump trucks bring stone to build laydown yards, flatbed trailers deliver equipment components to construct the arrays, trencher plows lay cable, concrete trucks and cranes set power enclosures, and hydraulic post drivers set racking. Some developers design utility-scale solar photovoltaic (PV) systems with bare ground or gravel underneath panels to reduce operation costs during the project's lifetime, with existing vegetation and even topsoil removed during construction and new vegetation discouraged or actively prevented during operation. **Heavy equipment use, disturbance, and lack of ground cover are likely to cause soil erosion and compaction.** Installation of solar modules and trenches could also disrupt subsurface and surface drainage systems, and subsurface drainage tiles beneath the development site could be inaccessible for future repairs.[4]

Ongoing operations and maintenance activities also occur within solar facility areas, including panel cleaning, maintenance, inspections, and spraying or mowing for vegetation control. **Additionally, since projects have not yet reached the end of their useful life, without longitudinal research we know neither how this will impact long-term soil productivity, nor how–or even *if*—the land can be converted back to farming at the end of a project.** As renewable energy generation demand grows and technology shifts, whether solar and wind projects will ever be decommissioned remains a question. If there is to be any hope of using the land again for farming, how these projects are built, who is responsible for removing infrastructure, how removal will be funded, and how to ensure the land can be used again for farming must be considered up-front. Before public financial support for projects on farmland, especially prime farmland, are issued, plans should be put in place.

AFT recommends that all grants and loans awarded through RUS and REAP for front-of-the-meter solar projects proposed on farmland require applicants to develop 'conservation' plans that follow acceptable, available best practices for construction, operation, and decommissioning to protect soil health.[iii] The goal of this effort should be to protect the ability to farm the land after (and, in the case of agrivoltaics, during) the life of the project. Development and implementation of these plans should be overseen by a qualified third-party professional (e.g., NRCS agent, conservation district employee). **AFT also strongly encourages USDA to consider how to ensure that the burden of infrastructure removal does not fall to the landowner.** One way to do so is to require developers to issue decommissioning bonds to finance removal of infrastructure and to restore the land to a pre-established soil health baseline or better after the life of the project.

Rural Development should also collaborate with NRCS to build on currently available best practices and develop NRCS-approved best practices to be used for solar and wind projects in future that address the following:

- How to ensure topsoil remains in place (or if not, where it should be spread) and how its productivity can be retained, or ideally improved, over time. This should include guidance on when construction activities can and cannot take place and other best practices to reduce soil compaction.

[iii] Available models include New York State's solar and wind guidelines.

- Guidance for testing soil[iv] before any construction commences in order to establish a baseline, as well as determining the ideal frequency for soil testing to measure progress throughout the life of the project.
- Best practices to minimize soil erosion and ensure stormwater drainage during the project's life.[v]
- Suggested placement of access roads, fencing, electric conduits, conductors, overhead collection lines, and other infrastructure to ensure farming can continue outside the facility area (and within the facility area in the case of agrivoltaics) during and after the life of the project.
- How to protect drainage tile from damage during construction and decommissioning.
- Recommendations on how to ensure water rights for farming are retained after decommissioning, where applicable.
- Other considerations that will ensure the ability to farm the land during and after the life of the project, especially for projects proposed on prime soils and actively farmed land.

Require Applicants to Provide Data on Soil Type and Agricultural Land Use

The land that is used to raise crops and livestock varies greatly across the nation, and even within a given locality due to differences in soil type and terrain. Some land is very well-suited to farming, and can be managed for great agricultural productivity with efficient use of external inputs and less impact on the environment. On the other hand, some land is considered marginal, or less well-suited to farming. This land often has lower productivity, while simultaneously requiring more costly external inputs that place pressure on a farm's viability and produce a greater negative impact on the environment.

Conversely, soil productivity has little bearing on the land's ability to produce solar energy; the sun shines equally as bright on marginal land and land well-suited to agriculture. While having land that is already cleared and flat, and soil that is devoid of rocks, may marginally reduce solar project costs, **avoiding siting solar on land well-suited for agricultural production based on its high quality or unique soil characteristics will keep this finite and precious resource available for feeding a rapidly growing population and supporting rural vitality.**

There is well-demonstrated overlap between land that is suitable for farming and land that is desirable to developers for solar, even though "least-conflict" processes (e.g., San Joaquin Valley) have found enough marginal land to host solar. And yet, it is difficult for federal, state, and local governments to get a clear picture of the impact a project might have on farmland resources, or community farm viability, without more information. **AFT recommends that USDA require applicants to provide data (e.g., number or percent of acres, or maps from which that data can be gleaned) on soil type (e.g., USDA SSURGO, highly erodible land) within their proposed project area, and how many acres of the proposed project area had been actively farmed at some point within the last 5-10 years.**

[iv] Tests could include pH, percent soil organic matter, cation exchange capacity, compaction, carbon, nitrogen, phosphorous/phosphate, potassium/potash.

[v] Resource available here: https://betterenergy.org/blog/stormwater-management-in-solar-projects-barriers-and-best-practices/.

USDA's request for this information would not pose a unique burden for applicants as entities across the country are already requesting this information as part of their solar permitting processes. Yet having this information carries many benefits, including providing 1) information on potential project impacts to guide awards and ranking, 2) assistance in determining when and how the Farmland Protection Policy Act might apply, and 3) data to inform the structure and scoring of future RFPs to ensure that they advance smart solar. **AFT also asks that USDA publicly report this data by project or in aggregate on at least an annual basis.**

RESPONSES TO SPECIFIC QUESTIONS

Question 5: Section 22001 of the IRA authorizes a new financing mechanism for the RUS Electric Program by providing partial loan forgiveness. The maximum amount allowed to be forgiven is 50 percent. Under the statute, the Secretary may authorize forgiveness above 50 percent. Should loan forgiveness be a standard amount for all applicants or tiered based on certain criteria? What circumstances should justify the Secretary exceeding the 50% limitation under Sec. 22001?

Use the Scoring Process and Discretionary Authority to Incentivize Smart Solar Projects

Farms are often described as "anchor businesses" within rural communities because of the network of other businesses and services they support. But farming is a tough business, with many risks and narrow margins. Because of this, many farmers and ranchers struggle to maintain viable operations. Every farm that goes out of business is not only a target for sprawling real estate development, but puts other farms, farmland, and businesses in the community at greater risk. Beyond their critical role in climate action, **one of the reasons AFT supports wind and solar projects is for the lease income they can provide to support farms and ranches. However, solar projects can also pose challenges to community farm viability, particularly if the solar project is very large, and to farmer-renters who may be displaced by solar leases signed by the landowner.**

According to research AFT conducted in 2021, solar developers are often willing to pay over 10 times what landowners can make renting the land to a farmer, while offering the security of long-term leases lasting on average 35 years or more.[5] This is an attractive financial prospect for landowners that can, and already has, resulted in farmer-renter displacement and increased farmland prices. Nearly 40% of farmland across the country is rented, and in some counties the number can be as high as 80%.[6] What's more, many farmers of color as well as women, lower resourced, and young and beginning farmers begin their careers by renting land. **Minimizing the impact of solar development on farmland prices and rental rates is critical to keeping farm businesses strong and supporting a more diverse generation of producers.** This is particularly important given the strong focus on equity within the IRA.

The kind of large-scale solar projects that can be supported through RD's loan guarantees and loan forgiveness provisions could have lasting impacts on local economies that are dependent on agricultural production. These projects achieve economies of scale and can power many homes with renewable energy, but they do so by converting hundreds or thousands of acres, often away from farming or forest, into solar. AFT's *Farms Under Threat 2040* modelling revealed that, while projects will be widely distributed across the country, certain regions and communities could witness much greater concentrations of utility scale projects due to favorable siting characteristics, grid access, and transmission capacity.[7] **This type of concentration within local farm communities can strain the viability of the farms that remain by**

increasing land prices, decreasing land availability, and reducing the viability of farm support services (e.g., feed and seed dealers, veterinarians, processors), threatening the vitality of rural communities in the process. According to AFT's research in New York, there is evidence of this already occurring as a result of large-scale solar.[8]

Given these concerns, AFT recommends that USDA-RD develop a scoring and award system that incentivizes utility-scale solar applicants to develop smart solar projects when applying for loan guarantees and loan forgiveness. These projects should 1) avoid displacing farming, especially from land well-suited for agricultural production and actively farmed land; 2) strengthen both individual and community farm viability; and 3) incorporate agrivoltaics, as defined below. AFT encourages the Secretary to exercise his discretion to prioritize awards and increase loan forgiveness percentages for high-scoring applicants that meet important smart solar criteria.[vi]

Both of these actions can incentivize the development of smart solar projects. This scoring system will also provide USDA with valuable insight into the potential impacts of projects in current and future funding rounds. Developing this scoring system would also provide a value-add both for communities and developers, by giving developers certainty about USDA priorities, and asking them to think through community impacts before these questions have the chance to slow or halt project permitting. **AFT would welcome the opportunity to assist USDA in implementing this recommendation in conjunction with other stakeholders and experts.**

USDA could consult and adapt New York's smart solar scorecard, which used a scoring and ranking system as a part of the state's 2022 large-scale renewable solicitation.[vii] AFT engaged in the creation of this scorecard, and recommends that USDA build on this model by:

- Considering which actions should be required (e.g., following best practices to protect soil health, posting decommissioning bonds, providing information on soil types included within the proposed project area) as opposed to incentivized with extra points and increased funding (e.g., agrivoltaics)
- Designing a point system with the goal of minimizing proposed solar project displacement of farming activities from farmland, especially prime farmland and land that was actively farmed
- Carefully considering the value of "points" and assigning the most points to criteria most important to USDA in achieving a smart solar buildout
- Using the point system to maximize project applicants' proactive consultation with both the landowner and any existing farmer-renters on how the solar project can be integrated with and support their farm operation(s)
- Differentiating between agrivoltaic projects that support a viable farm operation and those that employ simple colocation (e.g., pollinators, sheep for periodic vegetative

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[vi] Care should be taken in determining an effective funding incentive amount that will offset potential increased project costs. For example, NREL estimates a cost premium of \$0.07/Wdc to \$0.80/Wdc for different dual-use applications compared to conventional ground mounted solar sited over bare ground.
[vii] AFT was involved in the development of this scorecard but does not endorse all of its details, as this was a compromise process involving multiple stakeholders and considerations. See AFT's NY smart solar report pp.24-28 for more information on how AFT ranks different pathways to smart solar.

management) by providing higher points and/or financial incentives for more costly, underutilized, and innovative agrivoltaic applications

Question 7: Section 22002 provides additional funding for REAP. A key difference under IRA is the ability for the Agency to provide up to 50 percent of the cost of an activity carried out using grant funds. How should the Agency determine the level of grant for individual applications? Should there be a standard grant amount or a tiered approach? What criteria should drive a tiered approach?

Most solar projects are designed in ways that eliminate the land's potential for agricultural production during the 35+ year life of the project, thus trading one form of solar energy (that produced through photosynthesis) for another (that produced through solar panels). One possible way to reduce this trade-off is through agrivoltaic solar installations, which integrate modified solar arrays with active farming operations on the same piece of land.

At their best, agrivoltaic solar projects are intended to fully integrate solar and farming to minimize solar's displacement of agricultural production from farmland in a way that optimizes overall benefits for both. While proof of concept is needed for various production systems in different climates, early research indicates that pairing shade tolerant crops with solar panels may reduce water demand and heat stress and improve panel function, especially in arid climates. More studies are needed to determine which agrivoltaic applications will benefit both developers and farmers and at which scales, however, **interest in agrivoltaics as a way to minimize land use conflict between solar and farming is growing, especially in small-scale solar.**

But agrivoltaic projects can be more costly to develop[viii], especially if they incorporate design changes like increasing panel height or spacing in order to accommodate crops or farm machinery. Therefore, they may require further financial incentives – like increased cost share or loan forgiveness and other adders – to build. **AFT recommends that the Secretary consider providing additional points and a higher cost share or loan forgiveness percentage to agrivoltaic operations that meet the standards below within both the REAP and the loan guarantee program, so long as USDA has the authority and/or ability through these programs to ensure these standards are met.**[ix]

AFT suggests that agrivoltaic developers adhere to standards that will ensure the agrivoltaic project supports a viable farm operation, and that farming activities continue throughout the entire life of the solar project. **AFT recommends that the following non-exhaustive list of criteria be met in order to qualify for any increased financial support for agrivoltaics through this or any public funding opportunity:**

1) Developers should demonstrate that they are engaging with a farmer, who should have a viable farm business plan that considers market access for the farm product that will be produced, from the outset
2) Developers should incorporate changes into array design requested by the farmer that will ensure the viability of their farm operation for the full operating life of the project

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[viii] For more information on cost differentials for different types of agrivoltaic and colocation projects, please refer to this NREL report: Capital Costs for Dual-Use Photovoltaic Installations: 2020 Benchmark for Ground-Mounted PV Systems with Pollinator-Friendly Vegetation, Grazing, and Crops.

[ix] In recognition that this is a new technology, AFT's support for agrivoltaics is conditional until more of these projects are evaluated and developed.

(e.g., water wells for grazing, panel height and spacing changes to allow sunlight for crops and/or farm machinery to pass through)

3) Government agencies and/or permitting authorities must be able to ensure that farming activities continue throughout the life of the project with periodic verification. If farming activities are discontinued, there should be a penalty or mechanism in place to remove the received financial benefit

Question 8: Section 22002 provides additional funding for underutilized technology projects and technical assistance for the purposes of applying to the program. What strategies should RD use to engage and encourage applications under this section?

It is not the fact that it is solar, or the size or the scale that makes a technology underutilized, but the application. Although 69% of REAP funding in 2022 was awarded to solar, there are still low-impact solar applications[x] that are highly beneficial, and yet underutilized, that AFT recommends incentivizing by including them as eligible for Underutilized Technology funding. These low-impact applications of solar can provide numerous co-benefits to communities, including repurposing contaminated land and reducing development pressure on farmland, but are underutilized because they cost more or present more bureaucratic or administrative barriers. **The inclusion of low-impact solar in the Underutilized Technology funding could reduce displacement of farming activities from farmland put into solar by helping to reduce some of the financial and transaction costs for low-impact solar.** This could even increase the viability of these applications in the future by lowering barriers and costs for developing these sites, even in the absence of public investment.

Include Solar on the Built Environment and Contaminated Lands as an Underutilized Technology

Agricultural land possesses many desirable qualities for solar development, and land-use competition and community conflict are growing over greenfield (e.g., farmland, forestland, wetlands) development. As a result, many communities are calling for solar developers to prioritize siting on underutilized and contaminated land as well as the built environment (e.g., rooftops, irrigation ditches, parking lots, carports) *before* seeking to develop greenfields that support rural vitality, carbon sequestration, food production, biodiversity, and wildlife habitat.

Siting solar arrays on the built environment and contaminated areas (e.g., brownfields, landfills, abandoned mines) revitalizes underused public and private land and offers co-benefits to the community, such as providing shading to reduce car overheating or water evaporation from irrigation canals on hot sunny days. And there is great opportunity: DOE's Solar Futures Study found that disturbed lands could support 10 million acres of solar.[9] The EPA has prescreened more than 80,000 brownfields through Re-Powering America's Land Initiative and the National Renewable Energy Laboratory (NREL) estimates that landfills and other contaminated sites cover 15 million acres.[10] Another recent study found that landfills could host 60 GW of solar capacity across the country if all were developed for solar. [11]

But these solar applications can carry increased costs, including design modifications, red tape, liability, and extra reinforcement that make these sites more costly to develop when compared

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[x] More information on low-impact solar can be found here, through the NREL Inspire project: https://openei.org/wiki/InSPIRE/Primer.

with greenfields. But because of their community co-benefits and their ability to reduce greenfield conversion pressure, **AFT recommends that solar projects on the built environment and contaminated land be included as eligible for Underutilized Technology funding**. Part of the goal can be to create designs that can be replicated, and to lower costs for developers to increase the use of this technology application in other rural areas across the U.S.

Include Agrivoltaics as an Underutilized Technology

According to NREL, the agrivoltaic solar industry is still nascent when compared with conventional solar. More testing and research is needed to determine which agricultural production systems and in what climates pair best with solar arrays, but with proof of concept these kinds of systems carry the unique promise of minimizing land use conflict between farming and solar.

Globally, there are approximately 2.8GW of agrivoltaic projects pairing crop production with solar generation, with most of that capacity currently located in China, Japan, and South Korea. Many of these existing projects are smaller in size than conventional solar, with a 4.4MW system in Japan being the largest as of 2019. These system designs and applications are not standardized, and a variety of approaches are being explored, though there are currently only a few projects in the U.S. Many of these exist in Massachusetts, where a financial adder is supporting agrivoltaic growth and innovation. Conversely, sheep grazing is more compatible with conventional array design and provides developers with the added benefit of vegetative management. Currently, NREL estimates that agrivoltaic projects that pair grazing with solar are being practiced on over 100MW worth of sites in the U.S., with only one operation in Massachusetts exploring pairing solar and cattle.[xi] [12]

At this stage, financial incentives are important in growing agrivoltaic projects in the U.S., as they carry extra costs to develop.[xii] For example, the National Renewable Energy Laboratory found an installed cost premium of 5% to 50% depending on the type of agrivoltaic PV system, compared with a conventional ground-mounted PV system.[13] Important work is being done to advance research and proof of concept, including through DOE's recent Foundational Agrivoltaic Research for Megawatt Scale funding opportunity, but more information is needed to determine where, whether, and how agrivoltaics will realize its promise.

Due to the small-scale and farmer-led nature of REAP, AFT believes it is the ideal program through which to support greater farmer-led innovation in agrivoltaics. **Therefore, AFT recommends that agrivoltaic applications be eligible for Underutilized Technology funding, and further rewarded and incentivized by USDA-RD as described above.**

CONCLUSION

Thank you for your consideration of these recommendations, and for your ongoing work to support rural vitality and climate action. AFT appreciates the opportunity to comment on the implementation of this funding, and we hope RD will incorporate the recommendations above to

[xi] Solar plus cattle requires elevated and sometimes reinforced structures

[xii] Though pollinator solar can provides agricultural and environmental co-benefits, AFT does not recommend considering this "agrivoltaic" and therefore worthy of a financial incentive, as it is more common, and adds little extra cost to the developer

advance smart solar projects and reduce conflict from solar on farmland. Developing RD supported projects in this way will provide national leadership on how to alleviate community concerns and meet USDA mission goals, while modeling how to achieve responsible, smart solar development. AFT staff are available to offer further advice or answer any questions on the recommendations above.

Respectfully submitted,
American Farmland Trust

CITATIONS

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