



SHAWN LINEHAN

Solar Energy and Agriculture in Kentucky

EXECUTIVE SUMMARY

How can Kentucky produce more renewable energy while protecting farmland and serving rural communities? To address this question, American Farmland Trust interviewed a dozen stakeholders from across the Commonwealth. In these conversations, stakeholders described various benefits and drawbacks of solar energy deployment. They also shared visions for how the state can achieve a bright, productive, and equitable future.

This Executive Summary identifies the most important issues that stakeholders raised. Alongside AFT’s policy research, these insights can inform Kentucky’s renewable energy strategy.

- Stakeholders represent four different, yet often intersecting, perspectives: Agriculture, Environment and Ecology, Energy, and Community. Pertinent to the topic of solar and agriculture, several stakeholders are also active farmers.
- Most stakeholders represent statewide interests, though some speak for specific regions or counties. Because solar siting impacts rural places most, AFT prioritized input from these communities.

BENEFITS

Stakeholders cited several benefits that solar energy can provide, paying particular attention to advantages for rural communities.

Income for Farmers and Landowners

- When a company leases land for solar arrays, they pay for the use of that land. These payments could help farmers—who often struggle to secure consistent income—and other landowners provide for their families, make annual mortgage payments, and weather turbulent times. **Nearly every stakeholder mentioned the significance of these payments, especially for small and mid-sized farmers.** Lease rates can range between \$400 and \$1,200 an acre. A representative from the Kentucky Center for Agriculture and Rural Development said, “For marginal farmland and farms that are struggling to make the numbers work economically, **I think solar could be a great income-producing asset.**”
- In some cases, solar companies may purchase land rather than lease it. This approach may benefit landowners and communities in certain circumstances, but most stakeholders expressed support for farmers retaining property ownership and leasing land to solar developers.

Cost-Competitive Clean Energy

- Several stakeholders stated that solar energy is now cost-competitive with other forms of energy, such as fossil fuels. In some cases, it may be cheaper than other sources. Representatives from community-focused organizations were especially excited about the prospects of lowered electricity costs for constituents.
- Stakeholders were largely supportive of energy production that lessens harmful environmental impacts. “Our energy portfolio has to be diversified. We need more sustainable ways of doing what we do. Sustainable energy generation has to be part of that puzzle,” said a representative from the UK Agricultural Experiment Station. A professor from Kentucky State University shared similar thoughts. **“If [solar energy] lessens the statewide carbon footprint, then that’s a great benefit.”**

Job Creation and Tax Income

- Stakeholders anticipated new jobs that could accompany solar development. While interest was present across the board, stakeholders from Appalachian Kentucky were particularly excited about job creation. A representative from Appalshop—a community organization based in Letcher County—said, **“We think solar and home weatherization can be a new industry around here, a source of income and jobs and wellbeing.** It can be part of how people find good work.” An energy specialist from Mountain Association shared the same thoughts.
- According to multiple stakeholders, solar development could also bring tax revenue to communities—which would support much-needed services—if solar companies aren’t given large tax breaks by state or local governments.



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DRAWBACKS

Stakeholders noted concerns about expanded solar energy development, too. Some worries stemmed from observing on-the-ground impacts of solar deployment, either in Kentucky or elsewhere.

Loss of Open Space and Farmland

- The greatest and most frequently mentioned concern for stakeholders was the impact of solar installations on farmland and open space. **“My biggest concern is that it’s our prime farmland [developers] are going after.** This is what we cherish . . . It’s what makes Kentucky unique,” said a representative from the Community and Economic Development Initiative of Kentucky, housed at UK. Many other farm-focused advocates echoed these thoughts almost verbatim.
- Non-agricultural stakeholders were concerned about land loss, too. A leader from The Nature Conservancy’s Kentucky chapter said, “Siting is our biggest concern in terms of challenges. We’re a conservation organization first and foremost, and **we don’t want to see large swaths of forested land or farmland converted.**” An ecologist from Eastern Kentucky University agreed.
- Numerous stakeholders also expressed concerns about other drivers of farmland loss, like suburban sprawl and haphazard residential and commercial development. AFT found that between 2001–2016, over 265,000 acres of Kentucky farmland were converted through real estate development.

Two stakeholders felt that fears of land loss may be exaggerated. Citing data from the National Renewable Energy Lab and others, an expert from the Kentucky Office of Energy Policy said that under average scenarios, solar is predicted to impact roughly 1 percent of the state’s 12 million acres of farmland. They acknowledged that if solar development is concentrated in certain areas—say, on farmland with premium siting characteristics close to transmission infrastructure—some counties and regions will see a disproportionate impact.

Decommissioning

- Another major concern revolved around “decommissioning,” or removing solar arrays once their life span has ended. Stakeholders wanted assurance that land under panels can be returned to other uses—like farming, forestry, or wildlife habitat—after an array is deconstructed. They also felt strongly that farmers and other landowners shouldn’t be responsible for removing solar infrastructure once a lease ends. “We’ve been through that with coal mining and phosphate mining, you know,” said a Kentucky Cattlemen’s representative. **“You can’t just let those companies come**

in, make a buck, and then leave.” Companies should bear decommissioning burdens.

Protecting Rural Communities

- Stakeholders were broadly concerned that rural communities would be exploited by solar energy development. **“In rural places everywhere and especially Appalachia, there’s a history of out-of-state companies coming in, extracting wealth, and then not leaving much behind,”** shared a community advocate from Eastern Kentucky. A statewide rural development and farm supporter shared the same message. “You have a long history of the broad form deed and the separation of surface rights and mining rights. **People were exploited. There needs to be respect for that.**”

VISIONS

When asked to share ideas that could guide renewable energy development in Kentucky, stakeholders offered thoughtful visions that amplify solar’s benefits and diminish its potential harms, revealing areas where people and entities with differing perspectives can find common ground.

Prioritize Solar Siting on Rooftops, Brownfields, and Marginal Lands Instead of Prime Farmland

- Most stakeholders felt that locations other than productive farmland—such as rooftops, former industrial and mining sites, and marginal lands—should be prioritized for solar siting. “Rooftop solar is the low-hanging fruit,” said a leader from the Community Farms Alliance of Kentucky. “Because we already have so many rooftops out there, it would be much better to put arrays on top of those.” A community representative agreed. Arguing that dispersed rooftop solar should be the priority for solar installations, he said, “I have concerns about large, utility scale solar farms. I’d be happy if we didn’t add any more of those.” Another agricultural advocate explained, **“I’d like to see marginal land become the focus of solar projects so that our most productive farmland can stay productive.”** Placing panels in these places could be less economically feasible for solar companies than siting on open, flat, well-drained farmland, so multiple stakeholders suggested enacting policies that guide development to other locations.

Advance Agrivoltaics

- When solar is sited on farmland, stakeholders widely supported “agrivoltaics.” In these systems, panels are raised higher off the ground and spaced wider apart to allow continued production, either through certain crops or, more often, grazing. With this approach, farmers keep farming while receiving payments. **Agrivoltaics can provide**



consistent income for farmers, maintain agricultural production, and conserve farmland. “We’ve got to be open-minded enough to investigate opportunities like agrivoltaics,” said a Kentucky Cattlemen’s representative. “It could be pretty cool to have a monthly payment coming from solar panels and still own the land and have cattle.” Because these systems are expensive to install, stakeholders said incentives could be offered to developers to advance agrivoltaics.

Be Mindful of Size and Scale

- Most stakeholders were insistent: size and scale matter in solar development. They generally thought that grassroots opposition to solar is mostly focused on massive arrays that cover hundreds or thousands of acres. Several stakeholders believed that encouraging smaller, more numerous, dispersed systems—5-, 10-, and 20- acre arrays, for example—might help mitigate community concerns.
- “It’s a big difference if you have a 100-acre farm, and you decide to do solar on 20 acres of it,” said one farmer. “If you could set that aside and get a check for it every month or every year, that would be different than if you did solar on the whole farm.” A Kentucky State professor explained that “economically, it makes more sense [for developers] to go with larger arrays. Yet I wouldn’t want to marginalize smaller landowners or have that as a barrier for them. . . . The only way to address that is to **be intentional about creating reasonable pathways for smaller landowners to participate.**”

Require Best Practices for Construction and Decommissioning

- The construction and removal of solar arrays should minimize environmental and agricultural harms. Stakeholders shared several ideas for achieving this goal. Concrete could be curtailed or eliminated when installing and anchoring panels. Spreading gravel under panels could be avoided whenever possible. Taking these actions and others will help maintain soil health and productive capacity. **“The installation of these arrays needs to be respectful of the soil,”** an expert argued.
- Requiring that solar companies be responsible for decommissioning arrays was a universal preference. Stakeholders wanted to ensure that—even if the ownership of an array changed hands multiple times during an installation’s lifetime—landowners and farmers would not be forced to bear the costs of removing arrays.

Embrace an Equitable, Ethical, and Inclusive Process for Solar Development

- Across the board, stakeholders said that communities where arrays are sited must have input in the development process.

“There has to be an inclusive process for establishing rules,” one person said. It’s best, another stakeholder continued, when the process is proactive rather than reactive. “Zoning and planning are a good start” in counties with these governing bodies.



landowners and a focus on serving marginalized communities. This focus should be present in both the siting phase—to seek diversity among array hosts and owners, for example—as well as later stages. Multiple people said ensuring that diverse communities can compete for contracts to service and maintain arrays is important. Training programs for solar-focused job development should be offered to these communities, too.

- Several stakeholders emphasized that diverse communities should benefit from expanded solar infrastructure. This includes siting considerations for small farmers and

AFT’s Policy Research—Solar Energy Infrastructure and Farmland Protection

American Farmland Trust investigated the treatment of solar infrastructure in the context of Kentucky’s farmland protection policies: the Purchase of Agricultural Conservation Easement (PACE) Program, the agricultural use valuation program, the Agricultural Districts Program and the Right to Farm Law.

AFT found that:

- The development of ground-mounted solar installations on farmland is an emerging issue and most programs have not yet developed guidance to address it.
- In the context of agricultural use valuation, the state Department of Revenue advises treating land under commercial-scale solar arrays as commercial but has not issued guidance for small-scale arrays.
- Program administrators for PACE and agricultural districts have not made determinations or developed policies for solar and are waiting for formal requests from landowners. The Right to Farm law is applied on a case-by-case basis through the court system.

- The farmland protection programs aim, in part, to support farm viability. Allowing the opportunity for some solar development could advance this purpose.
- The absence of state-level guidance for solar arrays of different sizes and types could result in inconsistent treatment among communities for the programs implemented in part by local entities, like the agricultural districts and agricultural use valuation assessment programs.
- Agrivoltaics, or farming and producing solar energy on the same land area, is complex for land use taxation because most designations only consider one form of land use for a given parcel.
- These programs use shared definitions and/or are linked through eligibility and ranking criteria. Treating solar installations consistently across the suite of programs will reinforce coordination.

State policy makers could provide additional clarity. For more information, see the brief, “Kentucky Farmland Protection and Solar Siting Policy.”



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