

The Solar + Farms Survey

The following survey, administered by the Solar and Storage Industries Institute (SI2), seeks to explore your experience with and attitudes towards solar energy projects sited on farmland. The data collected in this survey will be used to inform the development of tools and resources for farmers, solar developers, and rural electric cooperatives around farmland-sited solar development. The data collected in this survey is for research purposes only and will not be used for marketing or any other purpose. All responses to the survey are anonymous. The survey should take you 20 - 25 minutes to complete.

Upon completion of the survey, you may choose to provide your contact information to be entered into a raffle for one of twenty-five \$100.00 VISA gift cards. All personal information provided for the purpose of entering the raffle will be kept strictly confidential and will not be shared with any third party outside of SI2.

Please contact research@seia.org with any questions you might have on the survey.

SI2 reserves the right to disqualify any automated responses to this survey.

This survey is being administered by the Solar and Storage Industries Institute (SI2). This material is based upon work supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Foundational Agrivoltaic Research for Megawatt Scale Funding Opportunity Announcement (FOA) Number: DE-FOA-0002697.

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* 1. Do you work full or part-time or have a business interest in any of the following occupational fields? Of these occupational fields, please choose the one in which you spend the most time.

- Agriculture (farmer, rancher, etc.)
- Solar industry (project development, EPC/installations, finance, etc.)
- Utility or electric co-op
- None of these

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2. Please choose the option that best describes your role in the farm operation:

- I am the landowner
- I am the owner-operator
- I am the spouse of the owner-operator
- I am the farm-renter (tenant farmer)
- I am the farm manager
- I am an employee
- I am NOT directly engaged in a farm operation
- Other (please describe)

3. Which of the following describes the ownership of the farm (please select all that apply)

- The farm is a minority-owned business (i.e. owners identify with a racial or ethnic minority)
- The farm is a women-owned business
- The farm is a veteran-owned business
- The farm is a family-owned business
- None of the above

4. In what state does your farm operate?

Multiple states (please list below)

5. Which of the following have you grown or raised on your farm in the past 3 years?

- Beef cows
- Milk cows
- Hogs and pigs
- Broilers and other meat-type chickens
- Layer chickens
- Sheep
- Goats
- Horses, ponies, mules, burros and donkeys
- Corn
- Wheat
- Oats
- Barley
- Sorghum
- Soybeans
- Dry edible beans
- Cotton
- Tobacco
- Rice
- Sunflower seed
- Sugarbeets
- Sugarcane
- Peanuts
- Vegetables
- Orchards
- Other (please describe)

6. How many total acres, on average, were a part of the farm operation over the last 3 years?

- 1-9 acres
- 10-49 acres
- 50-179 acres
- 180-499 acres
- 500-999 acres
- 1,000-1,999 acres
- 2,000 acres
- Unsure
- Not applicable

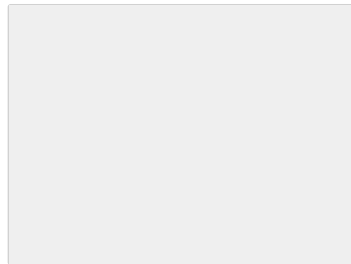
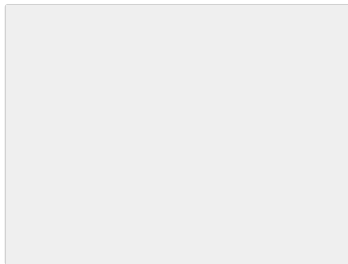
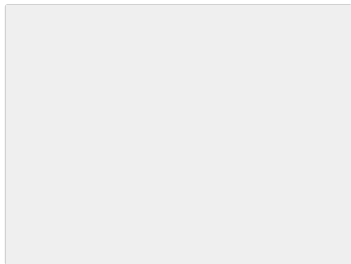
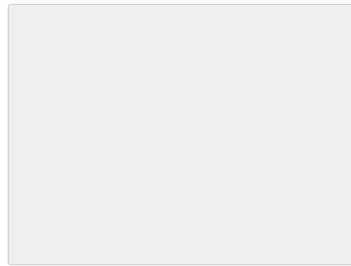
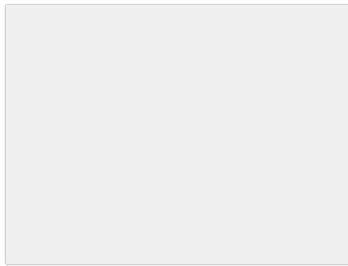
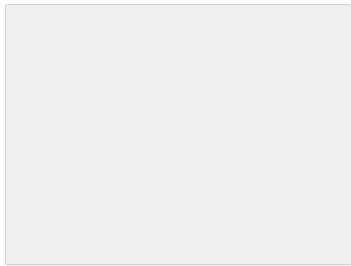
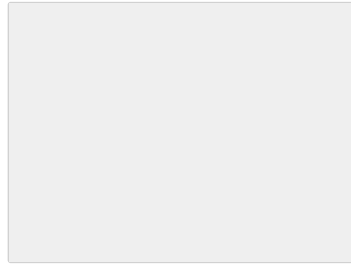
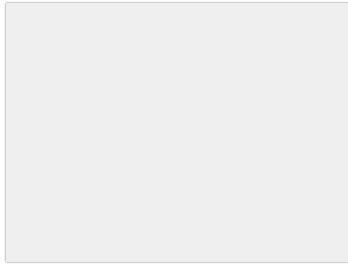
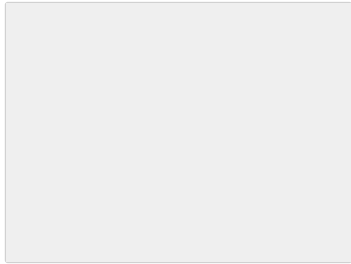
7. How many total livestock has your operation had on hand, on average, over the last 3 years?

- 1-24
- 25-99
- 100-299
- 300-999
- 1,000-2,499
- 2,500-4,999
- 5,000 or more
- Unsure
- Not applicable

8. Does your farm have a succession plan?

- Yes
- No
- I don't know
- Other (please describe)

* 9. One last time, to prove you're not a robot, please select the image that contains a pepper.



The next section deals generally with your experience with and attitudes towards solar energy projects sited on farmland.

10. In general, do you support siting either of the following solar project types on farmland in your state?

Yes

No

Maybe

Distributed Generation:

projects in which solar energy is generated on the farm property to power the farm operation

Utility-Scale:

projects in which solar energy is generated on a farm property that was sold or leased to a developer, with the electricity exported to the grid

11. Please describe why you feel the way you do about distributed generation and utility-scale solar projects

12. When it comes to **utility-scale** solar development on farmland in your state, please indicate your level of concern with the following potential impacts. Reminder that utility-scale solar projects are those in which solar energy is generated on property that was sold or leased to a developer, with the electricity exported to the grid.

	Not at all concerned	Somewhat concerned	Very concerned
Impacts on farm renters (tenant farmers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts to local community character	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on local access to resources like water and essential services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact to local viewshed and aesthetics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on land prices and land access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on local agricultural services and supply chains	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on farm productivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on farmland preservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on soil quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please describe)

* 13. Of the options below, please **select the 3** most effective actions a solar developer or landowner could take to address your concerns with **utility-scale** solar sited on farmland.

- Developer permanently protects other farmland in the community
- Developer pays a mitigation fee based on the quality or quantity of the farmland being impacted
- Developer compensates landowners adjacent or nearby project site
- Developer installs vegetation screen or uses other methods to limit visibility of solar project from roadways and adjacent properties
- Developer plants native shrubs, flowers, and grasses to create/enhance pollinator habitats
- Developer utilizes solar grazing for vegetation management (i.e. grazing sheep under and around the panels)
- Developer/EPC designs and installs project to allow for agricultural activities to continue under and around the panels, including crop growth, and farm equipment maneuvering
- Developer contributes property tax revenue or tax agreement
- Developer is liable for returning land back to a farmable state after decommissioning
- Landowner must compensate farm renter for their loss of land access
- Landowner must maintain land access to farm renter for continued production under and around solar panels
- Other (please describe)
- None of the above

14. What impact do you think climate change is likely to have on your farm in the foreseeable future?

- Very negative impact
- Negative impact
- No impact
- Positive impact
- Very positive impact
- I don't know
- Other (please describe)

15. To what extent do you feel that solar sited on farmland helps to address climate change?

- Solar sited on farmland plays a major role in addressing climate change
- Solar sited on farmland plays a minor role in addressing climate change
- Solar sited on farmland has no impact on climate change
- Solar sited on farmland leads to increased climate change
- Other (please describe)

16. Do you generate solar energy on your farm property to power the farm operation?

- No
- I don't know
- Yes (please list the capacity of the solar array in kW):

17. Have you sold or leased, or are you in the process of selling or leasing farmland to a solar developer for the purposes of installing a **utility-scale** solar project, in which the electricity generated from the system will be exported to the electrical grid?

- Yes, for a project currently in operation
- Yes, for a potential project (currently in design, permitting, or construction)
- No, but I'm interested in solar development
- No and I'm not interested

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18. Are you satisfied with the utility-scale solar project?

- Yes
- Somewhat
- No

19. Please explain your answer to the previous question

20. What is the size of the proposed/operational system in megawatts and/or acres? If you are unsure, please skip this question and continue in the survey.

Please enter the size of the system in MW

Please enter the size of the system in acres

21. Does/will the solar project include any of the following dual-use features? (Please select all that apply)

- Native shrubs, flowers, and grasses are planted around the panels to create or enhance pollinator habitat
- Sheep and/or other livestock will be grazed under and around the panels
- Crops can be grown under and around the panels
- I'm not sure
- None of the above

22. How might the solar project impact the viability of your farm over time? (Please select all that apply)

- No impact
- Will enable the farm to continue operating
- Will reduce the farm's agricultural output
- The farm will stop producing agricultural products altogether
- I'm not sure
- Other (please describe)

* 23. What are your primary motivations for leasing/selling land to a solar developer (Please **select your top 3**)

- To provide supplementary income
- To support my ability to continue the farm operation
- To maximize the land by continuing to farm under and around solar panels
- To leverage the solar infrastructure as shelter for livestock or shade for crops
- To enhance our public image
- To bring economic development opportunity to my community
- To pass the farm to the next generation
- To utilize the land another way if a successor isn't identified to continue the farming operation
- Other (please describe)

- None of the above

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24. What is the size of the proposed/operational system in megawatts and/or acres?

Please enter the size
of the system in MW

Please enter the size
of the system in acres

25. Does/will the solar project include any of the following dual-use features? (Please select all that apply)

- Native shrubs, flowers, and grasses are planted around the panels to create or enhance pollinator habitat
- Sheep and/or other livestock will be grazed under and around the panels
- Crops can be grown under and around the panels
- I'm not sure
- None of the above

26. How might the solar project impact the viability of your farm over time? (Please select all that apply)

- No impact
- Will enable the farm to continue operating
- Will reduce the farm's agricultural output
- The farm will stop producing agricultural products altogether
- I'm not sure
- Other (please describe)

* 27. What are your primary motivations for leasing/selling land to a solar developer (Please **select your top 3**)

- To provide supplementary income
- To support my ability to continue the farm operation
- To maximize the land by continuing to farm under and around solar panels
- To leverage the solar infrastructure as shelter for livestock or shade for crops
- To enhance our public image
- To bring economic development opportunity to my community
- To pass the farm to the next generation
- To utilize the land another way if a successor isn't identified to continue the farming operation
- Other (please describe)

- None of the above

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28. Under what conditions would you be willing to sell or lease farmland to a solar developer for the purposes of installing a **utility-scale** solar project in which electricity from the project is exported to the grid? (Please select all that apply)

- If the project provides me supplementary income
- If the project supports my ability to continue operating
- If I can continue farming under and around the solar panels
- If the solar infrastructure can be leveraged as shelter for livestock or shade for crops
- If the project helps me pass the farm to the next generation
- If the project brings economic development to my community
- If I can have direct influence on the design and planning process
- I am not interested in leasing or selling land for solar development under any condition
- Other (please describe)

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29. Where do you or would you go for information related to solar on farmland? (Please select all that apply)

- Family member(s)
- Fellow farmers
- Solar Developer
- Town/local government officials
- State Agricultural Agency
- State Energy Agency
- Research Centers/Universities
- Extension Services
- Farm Associations and Assistance Programs
- Farmland organizations
- US Department of Agriculture
- Land Trusts
- Attorney
- News and Social Media
- No one/I do my own research
- Other (please describe)

The next section will deal specifically with agricultural dual-use solar, or "agrivoltaics", in which the solar project serves a dual purpose by incorporating food crops or forage for livestock under and around the solar panels.

30. Prior to taking this survey, how familiar were you with the term "agrivoltaics"?

- I have never heard the term
- I have heard the term used but was not confident in its definition
- I am very familiar with the term

31. If you were to consider hosting a solar project on your farmland in the future, how might each of the following factors influence that decision?

	Much more likely to host solar	Somewhat more likely to host solar	No impact	Somewhat less likely to host solar	Much less likely to host solar
Native shrubs, flowers and grasses are planted around the panels to create or enhance pollinator habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sheep and smaller grazers are utilized to graze the site for vegetation control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger animals (i.e. cattle) are permitted to graze the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food and forage crops are grown on the site, between, under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tractors and other farm equipment can be easily moved under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

32. In considering agricultural dual use or agrivoltaic approaches to siting solar on your farmland, please indicate your level of concern with each of the following factors:

	Very concerned	Somewhat concerned	Not at all concerned	Not relevant to my farm operation
Less beneficial lease terms due to higher construction costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on crop irrigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts from water runoff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shading impacts to crops growing under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety for livestock grazing under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liability risk or insurance costs related to the dual-use system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts of project construction on current farming operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of developer experience in installing agrivoltaic systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear or restrictive local, state or federal regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Certification and/or marketing impacts on crops/livestock grown/raised under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fire or injury hazards related to the system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impacts on accessibility for farm equipment under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please describe)

* 33. Of the options below, please select the top 3 most impactful things that could be done to alleviate your concerns with agricultural dual-use or agrivoltaic development on your farmland.

- Government incentives for agrivoltaic systems leading to more beneficial lease terms
- Peer-reviewed research on impacts of agrivoltaics on water, soil quality
- Peer-reviewed research on best practices in growing crops or grazing livestock under or around solar panels
- Legal guidance on lease agreements and liability concerns
- Site visits to operating agrivoltaic installations
- Free technical assistance from extension agent, farm bureau or government agency
- Standardized insurance agreements for agrivoltaic projects
- Standardized lease contract templates for agrivoltaic projects
- Special credentialing of crops/livestock grown/raised in agrivoltaic settings
- Documented solar developer experience in installing agrivoltaic projects
- Licensing/credentialing of solar developers in agrivoltaic development
- Detailed information on project's impact on crop yield and farm economics
- Other (please describe)
- None of the above

34. What do you wish solar developers, utilities, or policy makers knew about the factors influencing your decision making on agricultural dual-use solar projects, or agrivoltaics?

35. If you have any further thoughts on agrivoltaic development, please provide them here:

36. Please choose the option that best describes your company's business activities:

- Project Developer
- EPC
- Construction (list category)
- O&M
- Financier
- Distributor
- Manufacturer
- We provide non-construction services to project developers and EPCs (describe)
- Consultant (describe)
- Other (please describe)

37. Please choose the option that best describes your role in the company

- Owner/CEO
- Senior Executive
- Business Development
- Engineering/Design
- Procurement
- Project Management
- Finance
- Operations
- Policy
- Electrician
- Installer
- Other (please describe)

38. Please provide your job title

39. In which U.S. RTO/ISO regions does your company do business (please select all that apply)?

- ISO-NE (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont)
- NYISO (New York)
- PJM (Delaware, District of Columbia, New Jersey, Pennsylvania, Maryland, Ohio, Virginia, West Virginia; parts of Illinois, Indiana, Kentucky, Michigan, North Carolina)
- Southeast (Alabama, Florida, Georgia, South Carolina, Tennessee; parts of Kentucky, Mississippi, Missouri, North Carolina)
- MISO (Minnesota, Wisconsin; parts of Arkansas, Illinois, Indiana, Iowa, Kentucky, Louisiana, Mississippi, Missouri, Montana, North Dakota, South Dakota, Texas)
- SPP (Kansas, Nebraska, Oklahoma; parts of Arkansas, Iowa, Louisiana, Missouri, Montana, New Mexico, North Dakota, South Dakota, Texas, Wyoming)
- ERCOT (parts of Texas)
- Southwest (Arizona, Utah; parts of Colorado, New Mexico, Nevada, Texas)
- Northwest (Idaho, Oregon, Washington; parts of California, Colorado, Montana, Nevada, Wyoming)
- CAISO (parts of California, Nevada)
- Alaska and Hawaii

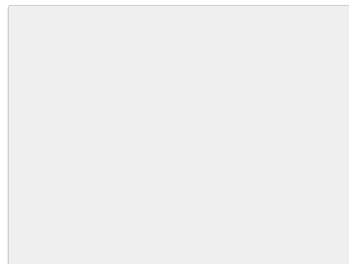
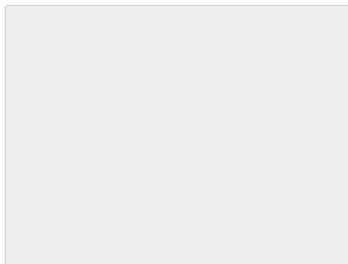
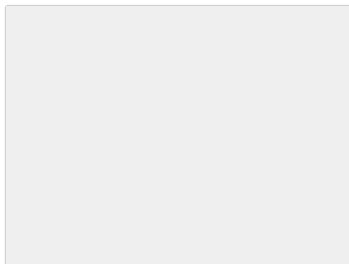
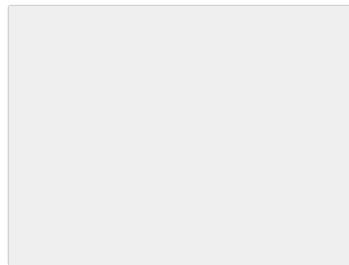
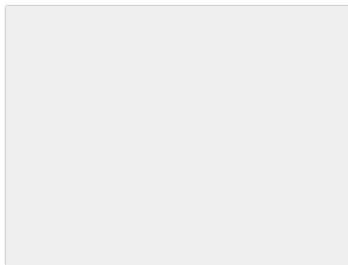
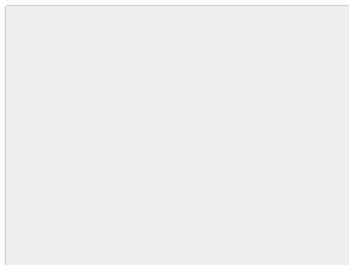
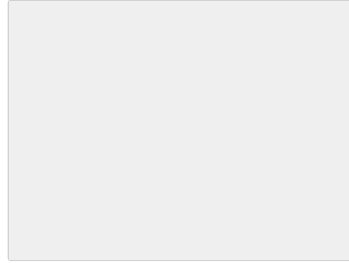
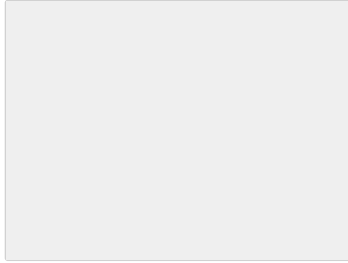
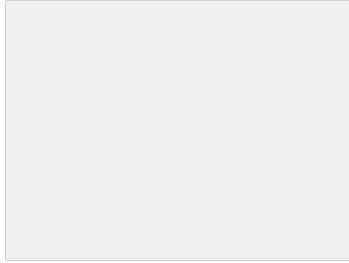
40. In which segments of the solar market does your company operate? (Please select all that apply)

- Residential
- Small commercial (<1 MW)
- Large commercial (>1 MW)
- Community Solar
- Utility-Scale

41. Which of the following describes the ownership of the business (please select all that apply)?

- The company is a minority-owned business (i.e. owners identify with a racial or ethnic minority)
- The company is a women-owned business
- The company is a veteran-owned business
- The company is a publicly-owned business
- None of the above

* 42. One last time, to prove you're not a robot, please select the image that contains an onion.



The next section deals generally with your experience with and attitudes towards solar energy projects sited on farmland.

43. Has your company developed, installed, or provided goods or services to solar projects sited on farmland (please select all that apply)?

- Yes, we have developed, installed, or provided goods and services to at least 1 farmland-sited project in operation
- We are in the process of developing, installing, or providing goods and services to at least 1 farmland-sited solar project
- We have sited other energy projects on farmland (i.e. wind, storage)
- We have not done any business involving energy projects sited on farmland
- Unsure

44. Please describe the nature of the operational or proposed solar projects sited on farmland (please select all that apply)

- Behind-the-meter (i.e. for on-site use)
- Community solar or front-of-the-meter (i.e. for grid use)
- Off-grid/Microgrid
- Unsure

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45. Approximately, how much solar capacity have you developed/installed or are in the process of developing/installing on farmland? Please skip this question if you're unsure or if the question is not applicable.

Currently operating
farmland-sited
capacity (MWdc)

Currently under
development farmland-
sited capacity (MWdc)

46. Approximately, how many solar projects have you developed/installed or are in the process of developing/installing on farmland? Please skip this question if you're unsure or if the question is not applicable.

Currently operating
farmland-sited
projects (count of
projects)

Currently under
development farmland-
sited projects (count of
projects)

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47. Considering only community solar and front-of-the-meter solar projects (i.e. in which electricity from the project is sold to a utility or other large off-taker for grid use), how much easier or harder are the following processes for farmland-sited solar projects as opposed to projects sited elsewhere?

	Significantly easier for farmland projects	Somewhat easier for farmland projects	No difference	Somewhat harder for farmland projects	Significantly harder for farmland projects	I don't know/not applicable
Customer/site acquisition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permitting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lease negotiation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procurement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interconnection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operations and maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decommissioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

48. In your experience, what specific factors make developing or installing solar projects on farmland unique from developing or installing on other sites?

49. Has your company tried or would it consider trying any of the following strategies in seeking to develop community solar or front-of-the-meter projects on farmland?

	Has tried, would try again	Has tried, would not try again	Would consider trying	Would not try	Not applicable
Developer agrees to permanently protect other farmland in the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer pays a mitigation fee based on the quality or quantity of the farmland being impacted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer compensates landowners adjacent or nearby project site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer/EPC installs vegetation screen or uses other methods to limit visibility of solar project from roadways and adjacent properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer/EPC plants native shrubs, flowers, and grasses to create/enhance pollinator habitats	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer/EPC/O&M utilizes solar grazing for vegetation management (i.e. grazing sheep under and around the panels)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer/EPC designs and installs project to allow for agricultural activities to continue under and around the panels, including crop growth and farm equipment maneuvering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer contributes property tax revenue or tax agreement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developer is liable for returning land back to farmable state after decommissioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please describe)

50. Will your company continue to pursue or begin pursuing opportunities to develop/install/do business with solar projects sited on farmland in the future?

- Yes, it will make up more than 50% of our future business opportunities
- Yes, it will make up 25-50% of our future business opportunities
- Yes, it will make up less than 25% of our future business opportunities
- No
- I'm not sure

51. Why or why not?

The next section will deal specifically with agricultural dual-use solar, or "agrivoltaics", in which the solar project serves a dual purpose by incorporating food crops or forage for livestock under and around the solar panels.

52. Prior to taking this survey, how familiar were you with the term, "agrivoltaics"?

- I had never heard the term
- I had heard the term used but was not confident in its definition
- I am very familiar with the term

53. In your experience, how difficult would it be to implement any of the following agricultural dual-use or agrivoltaic strategies into your system design?

	Can implement easily	Somewhat easy to implement	Neutral	Somewhat difficult to implement	Extremely difficult to implement
Native shrubs, flowers and grasses are planted around the panels to create or enhance pollinator habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sheep and smaller grazers are utilized to graze the solar project site for vegetation control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger animals (i.e. cattle) are permitted to graze the solar project site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food and forage crops are grown on the project site, between, under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tractors and other farm equipment can be easily moved under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

54. In considering incorporating agricultural dual-use, or agrivoltaic, components into your system design, specifically including grazing, crop production, and farm vehicle access under and around solar panels, how concerned are you about the following factors?

	Very concerned	Somewhat concerned	Not at all concerned	I don't know
Increased construction costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Longer construction timelines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher financing costs/greater difficulty in obtaining financing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liability concerns/difficulty in obtaining appropriate insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procurement of specialized or custom materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inexperience with agricultural dual-use system design and installation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unrealistic customer expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of information around agricultural dual-use design standards and best practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elevated O&M costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear or restrictive local, state or federal regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear or restrictive utility regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community opposition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of interested farmer/landowner partners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please describe)

* 55. Of the options below, please **select the top 5** most impactful things that could be done to alleviate your concerns around agrivoltaics development?

- Government incentives for agrivoltaic systems
- Peer-reviewed research on best practices in agrivoltaic system design
- Peer-reviewed research on agrivoltaic system performance
- Increased availability of mounting/tracking equipment and other structural BOS equipment, specialized for agrivoltaic installations
- Peer-reviewed research on impacts of agrivoltaics on water, soil quality
- Peer-reviewed research on best practices in growing crops or grazing livestock under or around solar panels
- Legal guidance on lease agreements and liability concerns
- Site visits to operating agrivoltaic installations
- Forums, seminars, courses on agrivoltaic system design and best practices
- Platforms designed to connect farmers with solar developers
- Free technical assistance from industry association, extension agent, farm bureau or government agency
- Standardized insurance agreements for agrivoltaic projects
- Standardized lease contract templates for agrivoltaic projects
- Special credentialing of crops/livestock grown/raised in agrivoltaic settings
- Licensing/credentialing of solar developers in agrivoltaic development
- Other (please describe)
- None of the above

* 56. From your company's perspective, why would you consider developing an agricultural dual use solar project or agrivoltaic project, as opposed to a farmland solar project that doesn't include agricultural dual use? (Please **select your top 3** motivating factors)

- Reduces challenges in land acquisition/negotiation
- Seen as a value add by electricity offtaker
- Reduces permitting challenges
- Enhances reputation within the community
- Generates additional business opportunities
- Preserves farmland
- Allows for more beneficial lease terms
- Other (please describe)
- None of the above

57. Considering the challenges and benefits in agrivoltaic development, do you have interest in specifically pursuing projects that incorporate agrivoltaic elements into the system design, specifically including under-panel crop production, livestock grazing, and/or farm vehicle accessibility?

- Yes, we already develop/build agrivoltaic projects and expect to continue
- Yes, we don't currently develop/build agrivoltaic projects but will in the future
- It sounds interesting, but I'll need to learn more about agrivoltaic project development and construction
- I have no interest in developing/building agrivoltaic projects

58. What do you wish farmers, utilities, or policy makers knew about the factors influencing your ability to develop, construct, or support agricultural dual-use solar projects, or agrivoltaics?

59. If you have any further thoughts on agrivoltaic development, please provide them here.

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60. Which best describes the utility you work for?

- Rural electric cooperative
- Investor-owned utility
- Municipal utility
- Other (please describe)

61. Please choose the option that best describes your role in the company

- Owner/CEO
- Senior Executive
- Business Development
- Engineering/Design
- Procurement
- Project Management
- Finance
- Operations
- Policy
- Electrician
- Other (please describe)

62. Please provide your job title

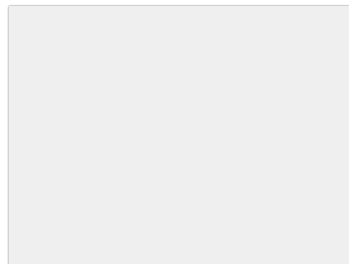
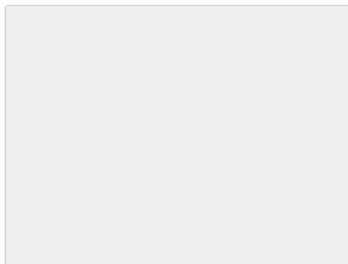
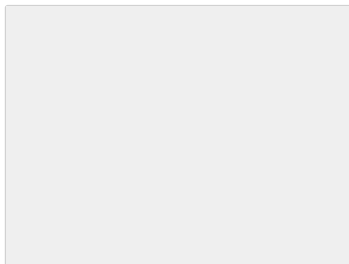
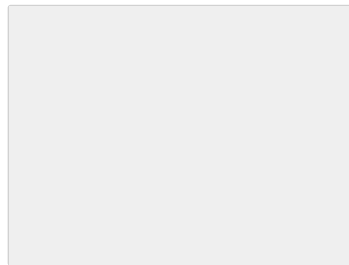
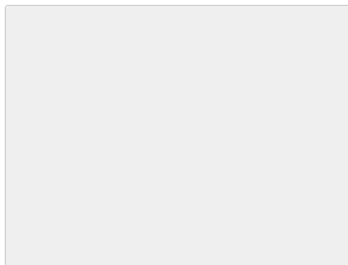
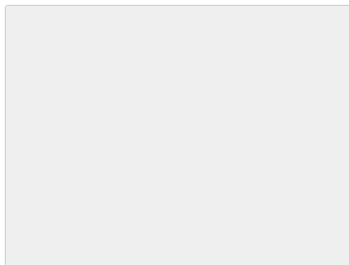
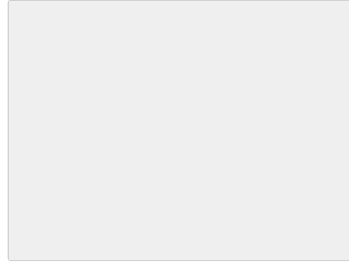
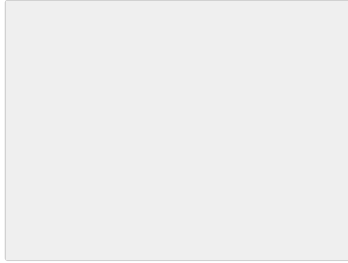
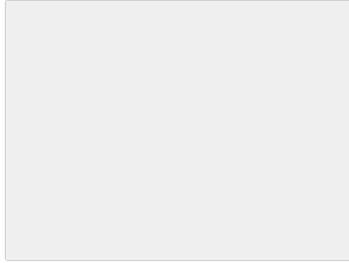
63. Please provide the zip code in which your company is headquartered

64. Approximately how many customers does your company serve across the following categories? Please skip this question if you are unsure.

Residential

Commercial/Industrial

* 65. One last time, to prove you're not a robot, please select the image that contains a flower.



66. Does your company (or any part of your company) develop, own, or operate any currently operational generation assets, either fully or partially?

- Develop, own and operate
- Own and operate only
- None of the above
- Unsure

67. Does your company (or any part of your company) develop, own, or operate any currently operational **solar** generation assets, either fully or partially?

- Develop, own and operate
- Own and operate only
- None of the above
- Unsure

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68. What is the approximate size (in MWac) of the currently operational solar portfolio owned (either fully or partially) by your company? Please skip this question if unsure.

69. Not including any assets your company owns, does your company procure solar energy from front-of-the-meter sources?

- Yes
- No
- Unsure

70. For the most recently completed 12-month period in which you have data, how much electricity (in MWh) from solar projects did your company procure?

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71. How much solar energy capacity currently exists on your system?

Behind-the-meter solar
(MWac)

Front-of-the-meter
solar (MWac)

The next section deals generally with your experience with and attitudes towards solar energy projects sited on farmland.

72. Excluding behind-the-meter projects, does your company own (either fully or partially) any solar energy projects sited on farmland or procure solar energy from projects sited on farmland? (Please select all that apply)

- We own 1 or more operating solar energy projects sited on farmland
- We procure solar energy from 1 or more operational projects sited on farmland
- We are in the process of developing 1 or more solar energy projects sited on farmland that we will own
- We are in the process of procuring solar energy from 1 or more projects sited on farmland (i.e. solar project is under development)
- I don't know if the solar energy projects we procure electricity from are sited on farmland
- None of the above

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73. Of the operational solar portfolio that you currently own, approximately how much of the total portfolio capacity is sited on farmland?

- We don't own any solar projects
- I don't know
- Please enter % of solar portfolio on farmland

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74. As you think about your company's future procurement needs, what is the likelihood that some of the solar will be sited on farmland in your service territory?

- Extremely Unlikely
- Unlikely
- Neutral
- Likely
- Extremely Likely
- I don't know

75. In your service territory, do you think a proposed front-of-the-meter solar project sited on farmland would be more or less likely to succeed (i.e. obtain necessary permits and become operational), relative to an identical solar project sited elsewhere?

- The farmland-sited project would be more likely to succeed
- The farmland-sited project would be less likely to succeed
- The location of the project would not be a critical factor in the project's success or failure
- I don't know

76. Why do you think the farmland sited solar project would be more or less successful than an identical project sited elsewhere?

77. For solar projects sited on farmland that your company has been involved with, have any of the following project development methods been employed? (Please select all that apply)

- Developer permanently protects other farmland in the community
- Developer pays a mitigation fee based on the quality or quantity of the farmland being impacted
- Developer compensates landowners adjacent to or nearby project site
- Developer/EPC installs vegetation screen or uses other methods to limit visibility of solar project from roadways and adjacent properties
- Developer/EPC plants native shrubs, flowers and grasses to create/enhance pollinator habitats
- Developer/EPC/O&M utilizes solar grazing for vegetation management (i.e. grazing sheep under and around the panels)
- Developer/EPC designs project to allow for farming activities to continue under and around the panels, including crop growth, livestock foraging and farm equipment maneuvering
- Developer contributes property tax revenue or tax agreement
- Developer is liable for returning land back to a farmable state after decommissioning
- Landowner has to compensate farm renter for their loss of land access
- Landowner has to maintain land access to farm renter for continued production under and around solar panels
- We haven't been involved with any solar projects sited on farmland
- I don't know
- Other (please describe)

- None of the above

The next section will deal specifically with agricultural dual-use solar, or "agrivoltaics", in which the solar project serves a dual purpose by incorporating food crops or forage for livestock under and around the solar panels.

78. Prior to taking this survey, how familiar were you with the term "agrivoltaics"?

- I had never heard the term
- I had heard the term used but was not confident in its definition
- I am very familiar with the term

79. How do you think any of the following agricultural dual-use or agrivoltaic strategies would impact the ability of developers to successfully permit and construct community solar or front-of-the-meter solar projects on farmland in your service territory, as opposed to a farmland-sited solar project that didn't use these strategies?

	Much More Likely to Succeed	Somewhat More Likely to Succeed	Neutral	Somewhat Less Likely to Succeed	Much More Likely to Succeed
Native shrubs, flowers and grasses are planted around the panels to create or enhance pollinator habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sheep and smaller grazers are utilized to graze the solar project site for vegetation control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger animals (i.e. cattle) are permitted to graze the solar project site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food and forage crops are grown on the project site, between, under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tractors and other farm equipment can be easily moved under and around the panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

80. In considering incorporating agricultural dual-use, or agrivoltaic, components into solar projects installed on farmland in your service territory, specifically including grazing, crop production and farm vehicle access under and around solar panels, how concerned are you about each of the following factors?

	Very concerned	Somewhat concerned	Not at all concerned	I don't know
Increased construction costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Longer construction timelines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher financing costs/greater difficulty in obtaining financing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liability concerns/difficulty in all parties obtaining appropriate insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procurement of specialized or custom materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of information around agricultural dual-use design standards and best practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elevated O&M costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear or restrictive local, state or federal regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community opposition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of interested farmer/landowner partners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of developer/EPC partners with experience in agricultural dual-use solar system design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please describe)

* 81. Of the options below, please **select the top 5** most impactful things that could be done to alleviate your concerns around agrivoltaics development?

- Government incentives for agrivoltaic systems
- Peer-reviewed research on best practices in agrivoltaic system design
- Peer-reviewed research on agrivoltaic system performance
- Increased availability of mounting/tracking equipment and other structural BOS equipment, specialized for agrivoltaic installations
- Peer-reviewed research on impacts of agrivoltaics on water, soil quality
- Peer-reviewed research on best practices in growing crops or grazing livestock under or around solar panels
- Legal guidance on lease agreements and liability concerns
- Site visits to operating agrivoltaic installations
- Forums, seminars, courses on agrivoltaic system design and best practices
- Platforms designed to connect farmers with solar developers and utilities
- Free technical assistance from industry association, extension agent, farm bureau or government agency
- Standardized insurance agreements for agrivoltaic projects
- Standardized lease contract templates for agrivoltaic projects
- Special credentialing of crops/livestock grown/raised in agrivoltaic settings
- Licensing/credentialing of solar developers in agrivoltaic development
- I don't know
- Other (please describe)
- None of the above

* 82. From your company's perspective, why would you consider developing or procuring from an agricultural dual use solar projects or agrivoltaic project in your service territory, as opposed to a farmland solar project that doesn't include agricultural dual use? (Please **select the three** most important factors)

- Reduces challenges in land acquisition/negotiation
- Reduces permitting challenges
- Enhances reputation within the community
- Preserves farmland
- Allows for more beneficial lease terms
- I see no benefits to agrivoltaic development
- I don't know
- Other (please describe)
- None of the above

83. Considering the challenges and benefits in agrivoltaic development, do you have interest in pursuing solar projects in your service territory that incorporate agrivoltaic elements into the system design, specifically including under-panel crop production, livestock grazing, and/or farm vehicle accessibility?

- Yes, we already have agrivoltaic projects in our service territory and would add more
- Yes, we don't currently have agrivoltaic projects in our service territory but will in the future
- It sounds interesting, but I'll need to learn more about agrivoltaic project development
- I don't know

84. What do you wish farmers, solar developers, or policy makers knew about the factors influencing your ability to develop or procure from agricultural dual-use solar projects in your service territory?

85. If you have any further thoughts on agrivoltaic development, please provide them here:

The Solar + Farms Survey

Please note that there is no requirement to answer the questions on this page regarding demographic and contact information. If you would like to forgo providing this information, please scroll to the bottom of the page and click "Done".

86. Which of the following best describes your gender identity?

- Male
- Female
- Non-binary
- Prefer not to answer
- Other (please specify)

87. What is your age?

- Under 25
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 years or over
- Prefer not to answer

88. Do you identify as Hispanic or Latino

- Yes
- No
- Prefer not to answer

89. Which of the following best describes your race? (select all that apply)

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White
- Prefer not to answer
- Other (please specify)

90. If you are willing to engage in follow-up conversations and/or case studies around your experience in agrivoltaic development, please provide your name and email below

First Name	<input type="text"/>
Last Name	<input type="text"/>
Company	<input type="text"/>
Email	<input type="text"/>