ENERGY PASTURES
POWER CENTER

FREQUENTLY ASKED QUESTIONS ON GROUND-MOUNTED

SOLAR PHOTOVOLTAIC SYSTEMS



Ag Land Use

How much farmland is utilized by a solar project?

Only a portion of farmland is suitable for solar energy generation. And, even as installations of utility-scale solar continue to expand, they still do not pose a significant risk to the loss of agricultural land. To generate enough electricity to power the entire country, solar facilities would need to occupy roughly the same area devoted to surface coal mining. In fact, solar projects allow land to recover by letting the soil rest. In the future, when a solar project is decommissioned, farming can once again resume on that land. This starkly contrasts other development, which often leaves land unable to convert back to agricultural use easily.

Solar projects give farmers and landowners an opportunity to utilize their land to harvest another stable cash crop—the sun. Many farmers who host a solar project have not made a choice to give up farming completely, but have taken a small acreage out of agricultural production for renewable energy production. For some landowners, this can be a hedge against shifting commodity prices that can sustain the rest of their agricultural production.[1]

How can solar power facilities enhance rural ecosystems?

There are many important components to preserving and enhancing a healthy environment for farming, and a solar facility may support a rural community over generations through: improved soil health, reduced nutrient runoff, enhanced stormwater management, soil formation and retention, reduced pesticide use; reduced water use, and by preserving future farm opportunities.[2]

Why build solar projects on farmland?

Most farmland is flat, cleared, typically located in proximity to transmission lines and substations, and offers stable, consistent, long-term revenue for landowners willing to lease some or all of their property for solar development. The parcels leased are often parts of farmland that have degraded over time from intensive agricultural practices.

Siting solar on these lands allows soil to “rest” while providing payments to landowners. And, by leasing portions of their land to solar developers, many farmers have the financial stability to continue farming their unleased parcels, and upon project decommission, the land can be returned to its previous use.

Further, with the introduction of agrivoltaics, the co-location of solar PV and agriculture can provide agricultural enterprises with diversified revenue sources and ecological benefits while reducing land use competition and siting restrictions.[3]

Cleaning Protocol

What is the best way to clean solar panel arrays?

Panels are typically only cleaned a few times a year based on soiling levels, though areas that receive regular rainfall can significantly reduce the need for deliberate cleaning of the panels. Should a lack of rain or extreme dust conditions warrant cleaning, a water truck is typically used to wash dirt and natural buildup from the panels. However, in the right situation, an arrangement with a participating landowner may be made to use their water supply.

Cost of Power

Will a solar project in my community lower my utility bills?

A benefit of solar power is that it provides a long-term hedge against increasing prices. Solar power does not consume any fuel and allows utilities to purchase energy at stable long-term rates, which may help reduce future electricity price increases. Customers will save money in the long term, and once built, this solar project will be an important contributor to the county's tax base. This will provide more money for schools and essential government services.

End-of-Life Decommissioning / Recycling

What happens during the decommissioning phase?

Upon completion of the economic life of a project, or potentially permit expiration, if the project owner determines not to apply for a new permit, the decision to decommission the facility can be made. Decommissioning refers to removal of equipment (panels, racking, wires, and inverters and transformers) as well as other operational structures (foundations and fencing) and restoration of the site. Depending on specific project decommission agreements, during this process, the site may be revegetated to help with erosion and dust control, and access roads may be removed. Unlike some other forms of development, a decommissioned solar site can be repurposed for other uses, such as agriculture production.[4]

Efficiency

Where does the power go?

Think of solar energy just like the other crops that are currently harvested in your community, perhaps corn, wheat, or dairy. While some of those resources stay local, many are shipped outside your community but provide valuable income and jobs locally. Solar energy is no different. While it is impossible to know where exactly the electrons flow once they enter the electrical grid, the benefits of producing that energy, such as tax revenues, stay local.

Health / Materials / Water Issues

Can chemicals that might be contained in solar PV threaten public drinking water systems and/or wetland resources?

All solar panels are contained in a solid matrix, are insoluble, and are enclosed. Therefore, releases are not a concern. Rules are in place to ensure that ground-mounted solar arrays are installed in a way that protects public water supplies, wetlands, and other water resource areas.[5]

What is inside a solar panel?

Solar panels consist of glass, aluminum, copper, and semiconductor materials. Solar cells are made of either connected silicon atoms or thin layers of photovoltaic material that have been placed onto glass or metal and are responsible for converting energy from sunlight into electricity. The thin layer of solar cells is sealed on both sides and covered with glass and an aluminum frame. The primary solar cell technologies used are Crystalline silicon (c-Si) and thin film Cadmium telluride (CdTe). While several different solar cell technologies exist, over 90% of the U.S. solar market uses Crystalline silicon (c-Si) cells.[6]

Are the materials inside a solar panel safe?

Yes. Modern commercial solar panels do not contain sufficient hazardous material to pose a danger to the environment and human health. The primary component in crystalline silicon solar cells is silicon, the second-most common element on earth.[6]

Solar Panel Design / Visual Impacts

How high are the panels off the ground? How tall do the panels stand?

Solar panels sit approximately 4’ off the ground, depending on site conditions. Considering a common solar panel size is 36’’ x 66’’, the approximate total height of the panels at the highest point is typically 7-8’ but does not exceed a height of 10’.

Hunting

How will solar arrays impact deer or other hunting?

There is a possibility there will be a temporary impact on the use of areas adjacent to the property during construction. Once operational, there is very little activity at a solar project, and deer and other wildlife quickly return. It’s not a matter of deer staying away—it’s a matter of keeping them out of the solar facility area where they graze on the grasses. Hunting outside the project area is not affected, and the presence of the solar project does not impact the hunting rights of non-participating landowners.

Public Safety

What happens during project construction?

Construction of a solar facility can take up to one year or more in total for large utility-scale projects. The basic types of activities that will take place include site preparation, construction, revegetation, and operations. Once solar projects are built, there is little traffic in and out of the site.[7]

[1] Da1Solar Energy Industries Association, “Solar & Agricultural Land Use,” SEIA.org, July, 2019, https://www.seia.org/research-resources/solar-agricultural-land-use

[2] American Clean Power, “How Solar Power Enhances Rural Ecosystems,” CleanPower.org, February 2023, https://cleanpower.org/wp-content uploadsgateway/2023/03/ACP_Solar_and_Farmland.pdf

[3] American Clean Power, “Solar Energy & Farmland FAQ,” CleanPower.org, February 2024, https://cleanpower.org/resources/solar-energy-farmland-faq/

[4] American Clean Power, “What Happens When a Solar Facility is Decommissioned?,” CleanPower.org, December, 2021, https://cleanpower.org resources/what-happens-when-a-solar-facility-isdecommissioned/

[5] Clean Energy Results Questions & Answers Ground-Mounted Solar Photovoltaic Systems, prepared by Massachusetts Department of Energy Resources, Massachusetts Department of Environmental Protection, and Massachusetts Clean Energy Center (June 2015, page 20).

[6] American Clean Power, “Solar Panels and Your Community,” CleanPower.org, August 30, 2022, https://cleanpower.org/wpcontent/ uploadsgateway/2022/08/ACP_FactSheet_SolarCommunity_220830.pdf

[7] American Clean Power, “Solar as a Neighbor: Living Near a Solar Project,” CleanPower.org, July 2024, https://cleanpower.org/resources/solar-as-a-neighbor-living-near-a-solar-project/