

BANNER PINES
SOLAR PROJECT

FREQUENTLY ASKED QUESTIONS ON GROUND-MOUNTED
SOLAR PHOTOVOLTAIC SYSTEMS



Do solar power facilities in rural areas take farmland out of agricultural commission permanently?

The use of ag land for a solar energy facility is only temporary, and the land can be restored to its original condition after the solar farm is decommissioned. Compared to other forms of development where farmland is paved over (for shopping centers, amusement parks, manufacturing facilities, suburban housing tracts, and highways), solar projects prevent more impactful development from occurring, preserving the land for agricultural use in perpetuity.

The total amount of agricultural land being used for solar energy is minuscule compared to the conversion of agricultural land permanently to residential housing and commercial development.

In arrangements where a landowner has agreed to lease property to a solar project, the ongoing annual lease payments will continue to go to the landowner, who will retain ownership of the land both during and after the lease. At the end of the lease and when the project is responsibly decommissioned, the landowner could resume farming the land. In other development conversions, the farmer sells the land to another party—usually a housing developer or commercial real estate broker.

Solar farms present landowners with an opportunity for a higher value use on their land. This also allows the landowner to diversify their income away from agricultural products alone, better weather economic downturns, and to keep the land in the family.

Farmland has gotten more productive over the years with better farming equipment and techniques, resulting in higher yields on the same amount of land. This is also due to improvements in seed varieties, fertilizers, pesticides, machinery, reduced tillage, irrigation, crop rotations, and pest management systems.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** – a solar facility can passively enhance the soil through the establishment of regionally appropriate perennial vegetation underneath and around the solar panels. **Reduced Nutrient Runoff** – vegetation at solar sites does not typically require routine applications like fertilizer, and perennial grasses further stabilize soil, which decreases runoff by intercepting sediment. **Enhanced Stormwater Management** – once operational, a typical solar project will maintain permanent vegetation on site, and the spacing between the panels and rows enables water to flow underneath and between the panels. **Soil Formation and Retention** – during construction, compaction may occur at select parts of a solar project site. Therefore, developers may aerate or till the soil or plant deep-rooted vegetation to mitigate these impacts—consistent with federal and state construction permits. After construction, tillage of the soil does not occur. **Reduced Pesticide Use** – solar development does not require insecticides and herbicides may only be used during the site preparation but is applied more targeted once the project is operational. **Reduced Water Use** – solar sites typically require little water during construction and operations, and rainfall is generally sufficient to settle dust and clean panels. **Preserving Future Farm Opportunities** – land leases for solar can help families preserve their farm for the next generation through stable income to support farm operations and relieved pressure of selling to permanent land use development like residential or commercial real estate.²

Why build solar projects on farmland?

Most farmland is flat, cleared, is 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

Ambient Temperature

Does the presence of ground-mounted solar arrays cause higher ambient temperatures in the surrounding neighborhood (i.e., the “heat island” effect)?

All available evidence indicates that there is no solar “heat island” effect caused by the functioning of solar arrays. Solar panels absorb photons from direct sunlight and convert it to electricity, minimizing the likelihood of substantially changing temperatures at the site or the surrounding neighborhood. Because solar PV modules are thin and lightweight, they do not store a large amount of heat. This and the fact that panels are shown to cool to ambient air temperature as soon as the sun sets, a study by Sunpower, a private solar manufacturer, concludes that the area surrounding a large-scale solar array is unlikely to experience a net heating change from the panels.⁴

Cleaning Protocol

If it snows, does the snow need to be actively removed from the panels?

Snow can serve as a natural cleaning agent that wipes away any dirt as it melts and slides away. In most cases, snow removal is unnecessary, but operations and maintenance personnel will monitor the solar array and may remove snow if necessary.

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.⁵

Efficiency

Where does the power go?

Bankson Solar Project is a utility-scale solar energy facility that will serve customers within the PJM regional transmission organization. This means that the electricity generated by the solar project will be injected into the high-voltage electric grid and wholesale electricity market at the Argenta-Twin Branch 345 kV substation. From there, the energy will be distributed to every consumer that is connected to that substation and line.

How will the project produce energy throughout the winter or on cloudy days?

The project will be able to produce energy throughout the entire year, even in the winter or on cloudy days. While the output will be maximized on clear days, solar radiation will still hit the solar panels as sunshine beams through the clouds.

Modern panels also feature technology that uses bifacial modules on the front and rear sides of the panels so they can absorb radiation to generate electricity. The modules' rear side absorbs sunshine radiation reflected from the ground. When there is snow on the ground, the additional sunshine reflecting off the snow amplifies the sunshine radiation absorbed from the ground.

How do solar panels perform in extremely high heat?

Solar panels are designed to perform in extreme heat or cold. There are many reputable solar panel manufacturers, but all produce panels with similar operational requirements. For bifacial solar panels, -40 degrees to 185 degrees Fahrenheit module temperature is acceptable.

Are there health risks from the electric and magnetic fields (EMF) from solar panels?

Solar energy produces no emissions, waste, odor, or byproducts. Silicon solar cells were produced commercially in the 1950s, and the first solar power plant was built over 35 years ago in southern California. PV arrays generate EMF in the same extremely low frequency (ELF) range as electrical appliances and wiring found in most homes and buildings.

The extremely low-frequency EMF from PV arrays is the same as the EMF people are exposed to from household electrical appliances, wiring in buildings, and power transmission lines (all at the power frequency of 60 hertz). In comparison, EMF produced by cell phones, radios, and microwaves is at much higher frequencies (30,000 hertz and above).⁴ above).

A person outside of the fenced perimeter of a solar facility is not exposed to significant EMF from the solar facility. Therefore, there is no negative health impact from the EMF produced by a solar installation. In 2005, a task group of scientific experts convened by the World Health Organization (WHO) concluded that there were no substantive health issues related to electric fields at levels generally encountered by members of the public.⁶

Can solar panels be damaged by hail and strong winds?

Solar panels are designed to withstand extreme weather, including hail and thunderstorms. However, just like your car windshield can get damaged, the same can happen to solar panels (though rare). If a solar panel were to become damaged from severe weather or any other reason, it would likely be the glass that has become damaged, and there would be no risk of exposure to the contents. The Savion team has plenty of experience developing solar projects in high-wind zones. Our projects have shown to be virtually undamaged by direct hits from CAT 3 storms in the past. But, even if something were to hit the area and damage the solar panels, the solar project would be well-insured, with plans to make repairs.

Will a solar farm create stormwater runoff and water drainage issues?

In many situations, during the development phase of a solar project, drainage studies and calculations may be conducted by third-party experts. It is typical to find that a solar project area's post-construction condition will create less stormwater runoff than the current pre-construction condition of cultivated land.

Ecological benefits are expected to accrue over time from the temporary but long-term conversion of agricultural land to native plant communities. Native plant species tend to have deeper and more complex root systems, which allow for improved water absorption and retention than in soil on agricultural land. As a result, erosion and stormwater runoff will be reduced.

Do solar panel components threaten public drinking water systems and/or wetland resources?

Solar PV panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials. To provide decades of corrosion-free operation, PV cells are encapsulated between two layers of plastic. Each plastic layer is protected with tempered glass on top and polymer on bottom—the same materials make up the tempered glass of car windshields and hurricane windows. Just like a cracked car windshield stays intact, so does a broken PV panel.⁶

The silicon-based PV panels used by Savion are classified as non-hazardous waste and can be deposited in landfills because they pass the EPA's Toxicity Characteristic Leaching Procedure (TCLP) test. Silicon-based PV panels account for over 90% of the solar PV panels installed today.

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'.

How important are reflectivity and potential visual impacts from solar projects, especially near airports?

Solar panels are designed to absorb and convert solar energy into electricity. They reflect only about 2 percent of incoming light, so issues with glare from PV panels are rare. Solar module glass has less reflectivity than water or window glass and reflected light from solar panels will have a significantly lower intensity than the glare from direct sunlight. Many projects throughout the U.S. and the world have been installed near airports with no impact on flight operations. There have been no U.S. aircraft accident cases in which glare caused by a solar energy facility was cited as a factor. Proper siting procedures can ensure panels are placed to minimize any potential glare to surrounding areas.⁴

Why was this area selected for a solar project?

The project area is suitable for utility-scale solar facility development due to its proximity to available transmission capacity and significant energy demand within the electrical grid. The project also provides significant local economic benefits and is a form of development that will maintain the rural character of the area.

How are solar panels designed to adapt in extreme weather?

Solar panels are highly capable of withstanding extreme weather conditions due to their solid state and limited number of moving parts. The best practices, codes, and standards to which utility-scale photovoltaic ground-mounted systems are built include a site-specific assessment of the seismic, wind, and flooding risk that drives decisions on the materials, components, and engineering details of the facility. Solar panels that include tracker systems that allow for changing the positioning of the panels to be more resilient to extreme weather by positioning in such a way that may limit or minimize damage from things such as hail or wind. For example, panels can be angled to reduce exposure to hail and facilitate the removal of snow or the accumulation of ice. Following extreme weather, a solar facility is inspected to assess energy production and identify any instances of broken glass, detached modules or frames, warped modules, or detached electrical cabling. If any damage is detected, the affected modules are disconnected, and corrective repairs are made. Modern commercial solar panels do not contain hazardous materials that pose a danger to the environment and human health.⁷

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.

Property Values

How do ground-mounted solar PV arrays adjacent to residential neighborhoods influence the property values in those neighborhoods?

In examining property values in states across the U.S., recent studies show that living near a solar project does not deter the sales of agricultural or residential land sales. According to the Solar Energy Industries Association (SEIA), large-scale solar arrays often have no measurable impact on the value of adjacent properties. This is likely due to the fact that solar farms are quiet, odorless, and do not add traffic or burden local infrastructure, unlike more intensive types of development.⁸

Public Safety

What action is taken to protect the public from areas where solar arrays are installed?

Large-scale ground-mounted arrays are enclosed by fencing. This prevents children and the general public from coming into contact with the installations, thus preventing unsafe conditions. The National Electric Code requires that conductors, a part of solar PV arrays, are installed so they are not readily accessible. In addition, warning signs and occasional alarm systems are installed to deter unauthorized individuals from entering the solar array area.⁴

Sound

Is there sound associated with the solar project?

Solar projects have little to no sound audible outside of the fence line of the project. Inverters and transformers make a humming sound during the day when the facility is generating electricity. Any sound will be inaudible at the fence line. Sound impacts can be mitigated through the use of proper siting procedures. Transportation and maintenance equipment, like cars, trucks, lawnmowers, and string trimmers, are common sources of sound on solar projects that most people are accustomed to hearing elsewhere. Construction of a solar project is typically between 10-12 months.

- ¹ David G. Loomis, Ph.D. Economic Impact and Land Use Analysis of Mark Center Solar. Bloomington, IL: Strategic Economic Research, December 2020, page 22.
- ² American Clean Power, "How Solar Power Enhances Rural Ecosystems," CleanPower.org, February 2023, https://cleanpower.org/wp-content/uploads/gateway/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 Massachusetts Department of Energy Resources. Clean Energy Results Questions & Answers Ground-Mounted Solar Photovoltaic Systems Massachusetts Department of Environmental Protection. Massachusetts Clean Energy Center, June 2015, page 9.
- ⁵ 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/>
- ⁶ NC State University. Health and Safety Impacts of Solar Photovoltaics. NC Clean Energy Technology Center, March 2026, pages 8, 9, 27, 29.
- ⁷ American Clean Power, "Designing and Adapting for Extreme Weather," CleanPower.org, August 2024, https://cleanpower.org/wp-content/uploads/gateway/2024/08/ExtremeWeather_FactSheet_240909.pdf
- ⁸ Solar Energy Industries Association, "Solar and Property Value," SEIA.org, July 2019, <https://www.seia.org/research-resources/solar-property-value>