

LYNN BARK
ENERGY CENTER

FREQUENTLY ASKED QUESTIONS ON GROUND-MOUNTED

SOLAR PHOTOVOLTAIC SYSTEMS



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. PV panels are elevated off the ground and surrounded by air, so the heat is dissipated rapidly. It does not build up and become stored as it does with rooftops or pavement.

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.

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 panel. 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

How are solar panels managed after they are no longer in use? Can they be recycled, and do hazardous waste disposal requirements apply?

The average life of solar PV panels can be 20-30 years or longer after initial installation. At the time of decommissioning, panels may be reused, recycled, or disposed of. There are a few different types of solar panels used in ground-mounted PV systems. Solar module manufacturers typically provide a list of materials used in their product, which may be used to determine the proper disposal requirements at the time of decommissioning.¹

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.

Do solar panels still work on a cloudy day?

Before constructing any solar project, we evaluate historical meteorological data to determine the facility's expected output. Photovoltaic panels can use direct or indirect sunlight to generate power, though they are most effective in direct sunlight.

Solar panels will still work even when the light is reflected or partially blocked by clouds.²

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.

Will my neighbors and I be eligible for service from this solar project?

The electricity generated by a utility-scale solar project will be injected into the high-voltage electric grid and wholesale electric market at the local substation. From there, it will follow the grid to areas of demand. It will not be available for direct purchase by retail electricity customers.

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.

Public Safety

Can electrical and other solar-related equipment cause fires?

Only a small portion of the materials in the panels are flammable, and those components cannot self-support a significant fire. The flammable components of PV panels include the thin layers of polymer encapsulates surrounding the PV cells, polymer back sheets (framed solar panels), plastic junction boxes, and insulation on wiring. The rest of the panel is composed of non-flammable components, including layers of protective glass that make up three-quarters of the panel's weight.³

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.¹

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). 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 10). A person outside of the fenced perimeter of a solar facility is not exposed to significant EMF from the solar facility. 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.³

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 it is 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 will 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.

Solar Panel Design / Visual Impacts

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.

Hunting

How will solar arrays impact deer or other hunting?

There is a possibility there will be a temporary impact on uses to 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.

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 Massachusetts Department of Energy Resources; Massachusetts Department of Environmental Protection; Massachusetts Clean Energy Center June 2015

² Solar Energy Industries Association, "What happens to solar panels when it's cloudy or raining?," SEIA.org, 2023, <https://www.seia.org/initiatives/what-happens-solar-panels-when-its-cloudy-or-raining>

³ NC State University. *Health and Safety Impacts of Solar Photovoltaics*. NC Clean Energy Technology Center, May 2017, page 12.