

FLICKERTAIL
SOLAR PROJECT

FREQUENTLY ASKED QUESTIONS ON GROUND-MOUNTED

SOLAR PHOTOVOLTAIC SYSTEMS



End-of-Life Decommissioning

How are solar panels managed when they are no longer in use?

At the end of the project life (~35-40 years), all panels, equipment, and materials will be reused, recycled, or properly disposed. Steel beams and racking components are estimated to have significant resale value.

What happens to the land? Will it be returned to farmland?

The project land will be restored to its original condition at the expense of the project owner. This is a commitment in the contracts with the landowner and is also required by the North Dakota Public Service Commission (PSC), including an obligation to set aside money for decommissioning ahead of time.

Please refer to Chapter 69-09-10 of the North Dakota Administrative Code. This code is specifically called out in our contracts with landowners.

What happens if the project owner goes out of business?

The project is required by the North Dakota PSC to set aside money for decommissioning. In the unlikely scenario that the project owner goes out of business, this money is set aside and overseen by the PSC to ensure that adequate funds are available to remove the facility and return the land to its original condition.

Please refer to Chapter 69-09-10 of the North Dakota Administrative Code. This code is specifically called out in our contracts with landowners.

Health Risks / Materials

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

Solar energy produces no emissions, waste, odor, or byproducts. The extremely low frequency EMF from PV arrays and transmission lines is the same as the EMF people are exposed to from household electrical appliances and wiring in buildings.

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. (MA Department of Energy Resources, et al.) Rules are in place to ensure that ground-mounted solar arrays are installed in a way that protect public water supplies, wetlands, and other water resource areas.

How does the odor of large solar projects impact nearby residential and agricultural property?

Solar projects do not produce any byproduct or odor.

How do the materials associated with large solar projects impact nearby residential and agricultural property?

PV modules are constructed with the solar cells laminated into polymers and the minute amounts of heavy metals used in some panels cannot mix with water or vaporize into the air. (Solar Energy Industries Association (SEIA), 2019)

Ambient Temp (“Heat Island”)

Does the presence of ground-mounted solar arrays cause higher ambient temperatures in the surrounding neighborhood?

All available evidence indicates that there is no solar “heat island” effect caused by the functioning of solar arrays. PV panels are off the ground and surrounded by air, so the heat is dissipated very rapidly. It does not build up and become stored as with rooftops or pavement.

Cleaning Protocol

What is the best way to clean solar panel arrays?

Panels are typically cleaned only with water and no chemicals are used. They are cleaned only a few times a year based on soiling levels. Typically, water is trucked in. However, in the right situation, an arrangement with a participating landowner might be made to use their water supply.

Hunting

How will solar PV arrays impact deer or other hunting?

During construction, it is possible there would be a temporary impact on uses to areas adjacent to the project. Once operational, there is very little activity at a solar project and deer and other wildlife quickly return.

Sound

How does the sound of large solar projects impact nearby residential and agricultural property?

Solar projects are effectively silent, except for the tracking motors and inverters that might produce an ambient hum. This is typically not audible from outside the project enclosure.

Cost of Power

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

An important benefit of solar power to ratepayers is that it provides a long-term hedge against increasing prices because it does not consume any fuel and allows utilities to purchase energy at stable long-term rates. This may help to reduce future increases in electricity prices.

Solar Panel Design / Visual Impacts

How important is reflectivity and potential visual impacts from solar projects?

Solar panels are designed to absorb solar energy and convert it into electricity. They reflect only about 2% of incoming light, so issues with glare from PV panels are rare.

What are the visual impacts of the solar array once constructed?

Large solar projects have similar characteristics to a greenhouse or single-story residence. They are often enclosed by fencing and/or landscaping to minimize visual impacts. The panels themselves will rotate slowly over the course of a day to track the sun, and at their highest point will be less than 15' tall.

How does the traffic associated with large solar projects impact nearby residential and agricultural property?

Solar projects do not attract high volumes of additional traffic after the construction phase is complete.

Do solar farms cause glare?

Solar panels are designed to absorb solar energy and convert it into electricity. Modern panels include an anti-glare coating to minimize this visual effect. They reflect only about 2% of incoming light, so issues with glare from PV panels are very rare.

Many airports are working to install solar panels, as the impact to planes is extremely low. The project will consult with the FAA to ensure the same is true of Flickertail Solar Project.

Public Safety

Are there any public safety issues that arise 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. Warning signs and sometimes alarm systems are installed to deter unauthorized individuals from entering the solar array area.

Offtake

Who is buying the power?

Flickertail does not yet have a contract in place to sell the power. Typically, these contracts are not set up until after projects are permitted. Flickertail has engaged with multiple customers and will continue to do so until the project is sold.

Where does the power go?

Think of solar energy just like the other crops, like corn, wheat, and dairy that are currently harvested in your community. While some of those resources stay local, many are shipped outside your community but provide valuable income and jobs locally.

What is Minnkota Power Company's Involvement?

Minnkota Power Company is the local grid operator and transmission owner. MPC owns the transmission line that our project will connect to. Flickertail is actively working with MPC on the interconnection process. However, the project is able to sell power to other companies and utilities, even with the interconnection to MPC's system.

Taxes

How are the tax revenues allocated?

Solar tax revenue would be allocated the same way that property taxes are allocated today. The exact levies and millage amounts are dependent on the location of the land. A portion goes to the school district, some to the County, some to the Township, Fire District, ect.

A portion of all taxes collected by a school district are contributed to North Dakota's state aid formula, the purpose of which is to ensure every student in North Dakota has the same amount of funding. The local contribution payment equals 60 mills (approximately 55%) of ad valorem property taxes levied by Richland School District and 75% of all payments in lieu of property taxes received by Richland School District. For purposes of the chart to the right, local contribution payments to the state aid funding formula are reflected in the "State of North Dakota" category.

IMPORTANT to note: this money is provided each year of solar operations - regardless of if the school is in a deficit, etc.

What is the difference between zoning and property taxes?

Abercrombie Township's Zoning Ordinance provides for the entire Township (east and west) to be zoned A-1 Agricultural District. The current zoning ordinance does not provide for other zoning categories, such as residential, commercial, or industrial, within the Township. This underlying zoning provides the lot area and width minimums, yard setback minimums, and height, sign, and parking requirements for all development within the Township. These requirements may be applied to uses that are listed as permitted uses or uses by right or they are apply conditionally to more unique uses that are considered Conditionally Permitted Uses. The Zoning Ordinance considers uses such as manufacturing, feedlots, veterinary clinics, transmission lines and accessory structures and utilities to now include solar energy generating systems and battery energy storage systems as conditionally permitted uses. The process for a conditionally permitted use is outlined in the zoning ordinance and allows for each of these uses to be reviewed and considered on an individual basis at their proposed locations. This zoning classification does not, however impact the tax rate of the approved use.

An example would be a manufacturing plant, a commercial operation, a farm, or a home currently existing and operating in the township are all sitting on land that is zoned A-1 Agricultural District per the Township's Zoning Ordinance, but that does not mean that they are all taxed as agricultural property. They would be taxed based on the use of the property, not the zoning of the property. The zoning is to help guide new construction or new uses on the land. It helps to determine how far it should be setback from property lines on all sides, how tall it is allowed to be constructed, and how far back from a road right-of-way line it should be. For more information on how a solar project would be taxed, please see above.

Property Values

Are there any impact to property values?

There have been and are many studies conducted on this concern. The American Society of Farm Managers & Rural Appraisers posted a blog on February 16, 2021 that summarized the findings of several studies on solar impact on rural property values. In addition, it featured the conclusions of four land appraisal experts on the same topic. The studies and experts reported no known consistent negative impacts on rural area property values due to solar. Especially when developers work with landowners and residents to properly sit and conceal solar farms from view. (<https://www.asfmra.org/blogs/asfmra-press/2021/02/16/solars-impact-on-land-values>).

Many studies show that in rural areas, solar does not deter sales of agricultural land or residential land, often, there is no measurable impact on values of adjacent properties.

Local Roads

How will the project impact local roads?

Flickertail plans to enter into a Road Use Agreement (RUA) with Abercrombie Township and/or Richland County. The RUA will define a construction traffic haul route and stipulate that Flickertail shall make any necessary road improvements to access the project site. During construction, the project will work with the Township/County to properly maintain any roads damaged by our construction traffic. After construction, the project will ensure that all local roads are in the same or better condition as pre-construction conditions. Once the project is constructed, local road use will be minimal.

The Project will also construct new gravel roads within the Project boundary, in order to access Project equipment. These will be private roads that are behind the fence of the facility and not available for public use. The panels will be placed in rows that are approximately 20 feet apart, so that O&M staff can drive between rows to conduct vegetation maintenance and weed control.

One of the many positives regarding the location of this project is its proximity to Interstate/Highway 29/81.

Local Concerns & Commitments

Potential concerns from Galchutt residents?

The project will be at least 1 mile from the Village of Glachutt, described as 1 mile from the northern boundary of the SW ¼ of Section 26-13N-49W.

What type of fencing will be used?

Permanent security fencing will be installed along the perimeter of the solar arrays, the BESS, and collector substation. The fencing along the perimeter of the solar arrays will be an approximately seven (7) foot tall agricultural-style fence (non-chain link, without barbed wire). The fencing around the BESS and collector substation will be seven (7) feet above grade and may include one (1) foot or more of three (3) or more strands of barbed-wire at the top to comply with the National Electric Code. This fencing will be designed to prevent the public from gaining access to electrical equipment. All access points will have gates.

First responders, resources, trainings?

No fire hydrants exist and none will be proposed. The limited amount of water used for the project will come from on-site water sources or a water truck. We will have no permanent hazardous substances stored onsite. Access roads will meet county road commission requirements for construction and emergency vehicle access and will be reviewed by all required authorities prior to construction. The BESS will be designed to use an approved type of combustible/hazardous gas detectors to detect the presence of a fire and the system has the option to install a water supply to a dry pipe water deluge system to suppress fire or a similar approved system once final technology has been chosen.

We have verbally and will formally commit in our application to providing training for all emergency personal and departments. We would provide an emergency response plan that would be reviewed and approved by the fire department. That plan would also outline how the site would provide access to the facility at all gates to allow emergency response. We also agree to provide at our cost any training necessary to ensure the fire department and emergency response teams are fully trained to respond to any foreseeable fire emergency as agreed upon by the fire Chief.

Vegetation management / weed control practices / pollinator perimeter ?

Though it is standard industry practice to have a vegetation management plan in place to facilitate operation and maintenance of the project over the long-term it is also required by the Public Service Commission of North Dakota and requires local buy-in and approval. The project has worked with the township board to help determine who the contact is at the local level. Savion has already spoken with the local Natural Resources Conservation Service (NRCS) USDA office and the Richland Soil Conservation District (SCD) and are committing to a pollinator perimeter within the project fence. The NRCS and the SCD will be involved with selecting and creating seed mixes appropriate for the site and reviewing and approving the proposed vegetation management plan for the project.

Livestock concerns?

Many PV solar projects have utilized livestock to help in the vegetation management of the sites by grazing sheep or even cattle on some large ranches. Livestock being in the vicinity of a solar project does not have any documented affect on them as the panels are non- hazardous. Much research is currently being done to better combine agricultural practices and solar through the use of agrivoltaics.

Local Concerns & Commitments

Is there any contamination/leakage from the solar modules that affects the soil, or ground water/water table?

Savion and Flickertail will only utilize tier 1 module manufacturers that have undergone and passed the EPA's Toxicity Characteristic Leachate Procedure (TCLP) test. This EPA test is required prior to delivery of the panels, and Flickertail is committing to providing the township the results of those tests prior to delivery. The test shows that there are no hazardous materials within or on the panels, so there is no concern of leakage from the panels into the soil or the ground water.

What are the setbacks from residences?

In North Dakota projects over 100 MW are regulated by the Public Service Commission of North Dakota and require a 500' setback from occupied structures, which is more than double the standard setback required in other townships, county, or states with regulation. Savion and the project will work with individuals within, or near the project boundary and discuss the opportunity to work together through a good neighbor agreement that may provide one of the followings i) financial compensation, ii) targeted vegetation, iii) residential solar (rooftop, or ground mounted).