



Solar Energy

Solar Land Lease Agreements for Landowners Frequently Asked Questions

Have you received a visit, phone call or mailing from a person or company expressing an interest in leasing your land for commercial, utility-scale solar development?

Pennsylvania's Alternative Energy Portfolio Standards (AEPS) requires Pennsylvania's largest electricity providers to obtain a certain amount of their electricity from renewable energy sources, such as solar. Companies that develop and sell solar electricity are looking for suitable acreage to develop "commercial, utility-scale solar farms" in a variety of sizes. Commercial, utility-scale solar development is typically done on a scale greater than 10 megawatts (MW), possibly even up to and greater than 100 MW of electrical generating capacity. Solar development at this scale is a wholesale power function, connecting to transmission facilities at voltages greater than 100,000 volts. That means that these large solar farms and the power they produce are not regulated by the Public Utility Commission (PUC). Instead, these utility-scale solar farms are interconnected under the control of the regional transmission organization called PJM. PJM controls the flow of electricity through 13 states, including all of the Mid-Atlantic, with regulatory oversight coming from the Federal Energy Regulatory Commission or FERC.

To better understand how this might affect landowners and to better educate landowners about various considerations, the PUC has compiled the following questions and answers.

What is a solar land lease?

A solar land lease is a contractual agreement between you and a solar energy development company (solar developer) in which the solar developer leases your land for the purpose of installing a commercial, utility-scale photovoltaic (PV) solar farm to generate electricity. You receive no benefits from the generated electricity, instead you benefit from the land lease payments you receive from the solar developer for the use of your land. Solar land leases may begin with a primary phase consisting of a "lease option" that pays you a nominal price per acre on a yearly basis to hold the land so only that solar developer has the right to develop a solar farm on this specific parcel of land. If the company exercises the option to proceed with development of the solar farm, the lease enters into the secondary phase under which the solar developer will pay a substantially larger amount per acre for a longer period of time, such as 20 or 30 years. You should pay attention to how these phases are defined in the land lease agreement and what must happen to move from the development to the construction phase.

If I sign a solar land lease, does it mean a solar farm will definitely be built on my property?

Signing a solar land lease does not necessarily mean a commercial, utility-scale solar farm will be built on your property. More likely, it means that the solar developer believes your property has significant potential for electric generation from solar power due to several variables, such as favorable terrain, proximity to electric grid infrastructure, potential for unobstructed access to sunlight, and favorable soil characteristics, and they wish to secure the right to possibly develop a solar farm while the technical and economic considerations are being evaluated.

Where can I find a list of solar energy development companies?

At this time, the PUC cannot provide a directory of Pennsylvania's solar developers; however, you can find a list and detailed company information, published by Enverus, identifying the [2021 Top 10 U.S. Solar Developers](#).

Should I do a background check before entering into a land lease agreement?

Yes, you should investigate/research the company presenting you with the solar land lease agreement. Make sure the solar developer is bonded. You can check with the [Pennsylvania Department of State](#) to determine if the company is licensed to do business. You can also check with the [Better Business Bureau](#), request the company's financial statements and utilize other sources of relevant information on the solar developer. This ensures the company can deliver on financial terms promised in the solar land lease agreement. Also, ask the solar developer for references and contact them.

Should I consult with an attorney before signing a solar land lease agreement?

Yes, it is important that you consult with a private attorney and a tax advisor, who can review your situation, make recommendations, reduce risks and potential liabilities, and ensure you benefit from the land lease agreement. If you cannot find a solar energy attorney, you should look for an attorney that has real estate experience.

How much land will I be asked to lease to a solar developer?

This varies from site-to-site and among the various solar developers. For reference, one MW of electric generating capacity from a solar PV system typically requires between 6 to 8 acres of land, including considerations for setback requirements and ancillary equipment. In Pennsylvania, most solar developers are looking to develop commercial, utility-scale solar farms ranging between 20 to 80 MW, but some are smaller, and a few may be larger. Also, there will be some extra space required for additional equipment, access roads, and buffer surrounding the actual solar farm.

How will I be paid if I lease my property to a solar developer?

The most common format of lease payment is a set dollar amount per leased acre to be paid on an annual basis. Some solar developers pay once per year and some break it up into semi-annual payments. Some land leases provide that payments will begin as soon as construction of the solar farm has started and some state that payments will begin when the solar farm becomes operational. The manner and timeframe in which lease payments increase over the life of the solar farm differ from contract to contract as well. Some solar developers provide for a lease increase in as little as five years and others can be as long as ten years from the first lease payment. The lease increase will likely be a flat dollar amount per acre or a percentage over the initial lease payment amount. It is important to note that the sale of electricity is competitive, which means there are limits to the lease payment per acre that a solar developer can afford to pay you. However, as in any business agreement, there may be opportunity for you to negotiate the best lease payment prior to the land lease being executed.

Who will be responsible for obtaining the required permits and licenses?

Solar developers obtain all governmental permits, licenses, certificates, approvals, variances and other entitlements for use, including the utility interconnection agreements, necessary or beneficial for the installation and operation of the solar farm.

Who will pay the real estate taxes and other expenses?

The solar land lease agreement should clearly identify whether you or the solar developer pays such items as real estate taxes, insurance premiums and other expenses associated with the land. Some issues to consider with respect to real estate taxes are 1) whether the land is one or more separate tax parcels or a part of a larger tax parcel, and 2) whether the solar farm will alter the tax status of the land because of the change in its usage.

Will a solar land lease conflict with other agreements, easements, or leases that may exist for my property?

Many properties in Pennsylvania suitable for commercial, utility-scale solar farms may have existing leases in place for oil and gas or other mineral extraction. Some may even be enrolled in conservation easement programs or preferential tax programs, such as Clean and Green. Before signing a solar land lease, you and the solar developer should identify and thoroughly understand any other agreements, easements, or leases associated with the property and ensure that the solar land lease agreement addresses potential conflicts.

Who will be responsible for insuring the solar farm, its repairs and maintenance?

The solar land lease agreement should clearly identify that the solar development company is responsible for the solar farm, its repairs and maintenance. Many agreements state that the solar developer will “own and operate” the equipment, but in some cases, you may be responsible for maintaining the areas around the solar farm. Any such responsibilities should be clearly outlined in the solar land lease agreement. You may also want to include in the land lease agreement how often the solar developer will conduct maintenance on the solar farm, what access is expected to be provided and if, or how, you will receive advance notice of the need to access your property for work, maintenance or any other reason. Another essential detail of the land lease agreement is a guarantee that the solar developer provides sufficient insurance coverage at all times during the term of the agreement.

How long will the solar farm be installed on my property?

Solar land leases are a long-term commitment and can last 20 to 30 years. It is important that you carefully evaluate the solar land lease agreement and understand the details to ensure you receive adequate compensation and your property rights are protected.

Who will be responsible for the solar farm removal at the end of the land lease?

It is crucial that the solar land lease agreement includes a plan for removal and site restoration after the term of the lease or life of the solar farm. This is especially important because the solar developer with whom you initially signed the land lease agreement may not be the same solar developer who is overseeing the removal of the solar farm in 20 or 30 years when the solar land lease is ending. Ensuring a plan is in place can help to alleviate problems down the road. The land lease agreement should ensure that your property is restored to its original condition or appropriately modified condition, so you can resume normal operations without limitation and with no significant expense to you.

Can my land be converted back to its prior state or use after the life of the solar farm?

Yes, land can be converted back to its prior use at the end of the operational life of a solar farm. The life of a solar farm can be 20 to 30 years and can provide a recovery period for previously farmed soils, increasing the value of that land for agriculture in the future.

What if the solar developer cannot finish the solar farm?

This is a very rare occurrence, but if the solar developer cannot complete the solar farm, a bond posted by the solar developer and backed by a major financial institution will cover the expense of restoring your land to its original condition. Make sure the solar land lease agreement contains terms outlining what happens if the solar farm is not completed.

What is a decommissioning bond and why is it essential?

A decommissioning bond or other form of financial security is a way to secure payment for dismantling and removing a commercial, utility-scale solar farm at the end of its useful life or at the time of abandonment. Make sure the solar developer provides a bond sufficient to guarantee removal of the solar farm and land restoration to its original condition.

How are decommissioning costs estimated?

Decommissioning costs can vary based on the size of the solar farm. For example, a decommissioning cost estimate for an 80 MW solar farm in Virginia was calculated at \$2 million, while a much smaller 50 MW solar farm came in 50% higher-over \$3 million. For commercial, utility-scale solar farms in Arizona, California, Colorado, Nevada, New Mexico and Utah, the U.S. Department of Interior's Bureau of Land Management established a standard bond in the amount of \$10,000 per acre, with a 10-year inflation index adjustment. The New York State Energy Research and Development Authority (NYSERDA) provides a guide to [Decommissioning Large-Scale Solar Panel Systems](#). The estimated decommissioning cost for a ground-mounted 2 MW solar farm in New York was calculated at a current cost of \$60,200; however, after 20 years, reflecting a 2.5% inflation rate, the total estimated amount increased to \$98,900. A great deal of variability can come into play when decommissioning costs are calculated. These variances are created because of the methodology used, the requirements imposed by states, counties and municipalities, and the lack of calculation standards. The Commonwealth of Pennsylvania has no current regulations concerning the decommissioning of solar farms.

What if the solar developer defaults on the land lease agreement?

The solar land lease agreement should include particulars outlining what will transpire if the solar developer fails to perform its responsibilities. For example, failure to pay the agreed upon land lease amount or being a party to a bankruptcy, reorganization or dissolution would allow you to terminate the land lease agreement early.

Can I or the solar developer modify the terms of the land lease agreement at any time?

Possibly, as long as the solar land lease agreement provides details affirming each party has the right to waive, defer or reduce the requirements agreed upon in the agreement, provided such action is in writing and signed by both parties.

Can domestic animals like sheep or cattle graze at ground-mounted solar farms?

Sheep are commonly used for vegetation control at commercial, utility-scale solar farms in the United States and Europe as sheep do not climb on or harm the PV modules. Raising the PV modules in height is not necessary to accommodate grazing as vegetation is accessible beneath the modules at standard heights. Cattle grazing is generally not compatible with PV solar farms due to the risk of damage to the modules. Sheep grazing to control vegetation growth can benefit local shepherds, solar operators, and the land due to the reduction in mowing, herbicide, and other vegetation management needs.

Can I grow native vegetation or pollinator habitat underneath solar modules?

Yes, commercial, utility-scale solar farms can support native vegetation and pollinator habitat species. Low-height plants can thrive underneath solar panels, avoiding the need for mowing and keeping the panels unshaded. Two states (MN and MD) have developed pollinator-friendly solar certifications to promote planting of pollinator habitat underneath utility-scale solar farms. Pollinator habitat benefits local farms, orchards, the surrounding ecosystem and can also host beekeeping operations.

For more information on Solar Energy, go to the PUC's Renewable Energy website at www.puc.pa.gov/electricity/renewable-energy or contact the PUC's Bureau of Technical Utility Services at (717) 425-7584 or via email at RA-AEPS@pa.gov.

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