Swiftwater Solar

FREQUENTLY ASKED QUESTIONS

PROJECT DETAILS

Where is Swiftwater Solar located?

The project is in northwestern Pocono Township, on two parcels of privately owned land with Monroe County Parcel IDs 12/111903 and 12/16/1/1.

What is the timeline for Swiftwater Solar's development?

The planned schedule for Swiftwater Solar is as follows:

Milestone Description	Date
Pocono Township Land Development Plan Anticipated Approval	Q3-21
Monroe County Conservation District NPDES Permit Anticipated Approval	Q3-21
PJM Interconnection Agreements Anticipated Execution	Q3-21
Balance of System Contract Anticipated Execution	Q2-21
Notice to Proceed (NTP)	Q3-21
Commercial Operational Delivery (COD)	Q4-22

What will Swiftwater Solar look like?

Swiftwater Solar plans to use bifacial photovoltaics on single-axis trackers. These panels will be gathered in clusters on private, voluntarily leased land in Monroe County. The panels and racking are typically raised no taller than 16 feet at a maximum tilt of 60 degrees, and the inverters will also stand approximately 8 feet tall. The entire project will be surrounded by a fence, as required by the Federal Energy Regulation Commission (FERC). To mitigate the potential for visibility from Pocono Manor and the residences to the northern side of the project, a viewshed and buffer area containing approximately 45 acres and spanning from the western boundary to the eastern boundary of the leased area, have been set aside. No facilities will be constructed in the viewshed and buffer area, and the existing vegetation will remain. To mitigate the potential for visibility from residences to the southern side of the project, Swiftwater Solar is proposing a 100-foot setback from adjoining properties and public roads, whereby 50 feet of existing vegetation will remain in place, except where site access roads may be constructed to connect to the adjoining public roads. Because the existing vegetation is mainly deciduous species, Swiftwater Solar proposes to plant supplemental vegetation in select locations where the project may be visible from neighboring residences. With the existing terrain and vegetation, as well as the supplemental vegetation in select areas, Swiftwater Solar will be well hidden from the surrounding area.

What is the footprint of the project?

The project is located on land owned by Pocono Manor Investors LP (PMI), which totals approximately 1,248 acres, according to the Monroe County tax cards. Swiftwater Solar has entered into a long-term lease agreement with PMI for a portion of this property, totaling approximately 635 acres, for solar energy development. We expect approximately 475 acres (only 38% of available PMI land) to be located inside of the project's perimeter fence.

How much power will the project generate?

Swiftwater Solar will have the capacity to produce approximately 80 MW of clean renewable electricity. That means Swiftwater solar will produce about 175,000 MWh of energy per year, which is enough to power over 16,500 average U.S. homes.

Will the perimeter be fenced? If so, with what type of barrier?

Yes. We plan to use chain-link galvanized steel wire that is six feet high, with an additional foot of security wire. The security wire specifications can vary between a flat overhang, barbed, or razor.

What is the zoning in Pocono Township for this land use?

The project is located on land that is zoned Recreation District (RD). Development projects that meet the zoning requirements for RD include nightclubs, taverns, and water parks. In addition, the Pocono Township Code of Ordinances § 470-19(B)(1)(d) lists "Essential Services" as a permitted use by right in the RD. Accordingly, the Pocono Township zoning officer reviewed the Township's zoning ordinance regarding the proper zoning use designation for the Swiftwater Solar project in Pocono Township and determined that the use is to be classified as "Major Essential Services."

The project will soon undergo exhaustive review by the Planning Commission and Board of Commissioners to ensure that the project is compliant with the Subdivision and Land Development Ordinance. Once our civil plan set is approved by the Township Engineer, Apex Clean Energy will submit a Land Development Plan to the Township for approval, in conformance with the Subdivision and Land Development Ordinance, including existing and proposed conditions, as well as required studies, including a wetlands study and a stormwater management report.

Will the project require approval from Pocono Township?

Yes. The Pocono Township Planning Commission and Board of Commissioners must approve Swiftwater's Land Development Plan before the project will be allowed to start construction. The Land Development Plan will include the proposed locations of all facilities as well as an assessment of community and financial impacts. Additional required permitting includes state and federal permits, including stormwater management.

How will Swiftwater Solar impact the local economy?

Swiftwater Solar plans to invest approximately $110 million in this project. Twenty percent (20%) of these expenditures (about $22 million) are expected to directly benefit Monroe County, in the form of jobs and local spending. The Swiftwater Solar project plans to create 254 full-time-equivalent jobs during construction and provide annual property tax payments of $150,000 to $200,000 per year for 40 years, with about 70% to 80% of the property tax payments going directly to the Pocono Mountain School District (Steven N. Zaricki, "Economic Impact Analysis of the Swiftwater Solar Project," Northeastern Pennsylvania Alliance, December 2019).

In addition to these direct contributions, the project will also generate indirect economic benefits as workers and landowners spend these dollars at local businesses and on securing local services as the region's economy recovers from the pandemic.

How long will the site be operational?

Swiftwater Solar is expected to operate for more than 40 years; thus, this is a long-term investment into Pocono Township and Monroe County.

What is the amount of impervious surface being proposed (solar field, access roads, building)?

Solar panels are considered pervious when spaced per industry standards and follow all Pennsylvania Department of Environmental Protection (DEP) and Monroe County Conservation District (MCCD) pervious panel recommendations. Panel rows are spaced to accommodate future maintenance, promote sheet flow of runoff from the panels, and allow natural infiltration of runoff into the ground beneath the panels.

Surfaces being calculated as impervious are limited to the substation, foundation pilings, inverter pads, gravel, and/or roadway surfaces; total impervious area on average commercial solar sites is less than 2-3% of the developed area. At this time, we are calculating that Swiftwater Solar will have 1.67% impervious surfaces within the fenced area.

What environmental studies have been completed and are planned for Swiftwater Solar?

Extensive environmental and cultural studies have been conducted to ensure that the project will not have an impact on sensitive resources:

- Swiftwater Solar consulted with the U.S. Fish and Wildlife Service (USFWS), utilizing the Pennsylvania Natural Diversity Inventory (PNDI) process. Associated surveys were completed in accordance with USFWS and Pennsylvania Game Commission (PGC) protocols and study plans were approved by both agencies prior to surveys. The results of the studies showed no impact and were shared with both the USFWS and PGC and concurrence was received from both agencies. The PGC also indicated that no further consultation was necessary for the project through the PNDI process.

- As required by the Bald and Golden Eagle Protection Act, raptor nest surveys were completed, and no raptor nests were found in the project area or within a 660-foot buffer around the project area.

- Swiftwater Solar consulted with the Pennsylvania Department of Conservation and Natural Resources (DCNR) concerning the project's potential interaction with the flypoison borer moth; the PNDI process indicated no impact to this species from project development. Environmental reviews with the Pennsylvania Fish and Boat Commission and DCNR were also completed through the PNDI process, and no further review was required from either agency.

- A wetland delineation survey was completed to determine the location and extent of any wetlands within the project area. In Pennsylvania, a State Programmatic General Permit (PASPGP-5) has been issued by the U.S. Army Corp of Engineers for activities that would cause no more than minimal adverse environmental effects.

- Swiftwater Solar initiated consultation with the Pennsylvania Historical and Museum Commission (PHMC). A Phase 1 archeological study was completed by Pan Cultural Associates after the study plan was approved by PHMC. Thousands of shovel tests were completed in areas of high and moderate likelihood to hold any cultural or historical artifacts at the project site. No cultural or historic artifacts were located during the survey and therefore no archeological impacts are expected from the project. The report detailing the archeological study was submitted to the PHMC and has been approved. The PHMC indicated that further architectural/historic surveys were not recommended for the project because

the project will not impact any architectural/historic resources.

- A Phase 1 Environmental Site Assessment (ESA) for the U.S. Environmental Protection Agency (EPA) was completed in April 2020. No known, suspect, historical environmental conditions, or de minimis conditions were found. The Phase 1 ESA will be updated prior to construction.

What types of vegetation are planned for the site?

After construction is complete, native pasture/meadow mix recommended by the Monroe County Conservation District and supplied by local vendors will be planted. These grasses are expected to be cut at least twice a year at a height above four inches with 90% coverage and without use of chemical treatment (per Pennsylvania DEP pervious panel recommendations).

Will the solar panels be made in America?

At this time, the Swiftwater Solar project will utilize either crystalline silicon solar modules or thin-film photovoltaic modules. Unfortunately, there are few American manufacturers of these solar panels today, so there are no guarantees that American-made panels will be available or cost-effective for use at Swiftwater Solar.

Has a buyer been identified for Swiftwater's electricity?

Apex Clean Energy and the project's sponsor, Vitol Solar, are working together to identify a buyer for the electricity and secure a power purchase agreement (PPA) or other offtake arrangement. The Project has been shortlisted for PPAs with two different organizations. On similar projects, we have sold electricity to large companies, such as Facebook and Walmart, as well as public utilities and governmental entities, including the U.S. Army.

Will Swiftwater Solar include any batteries or energy storage?

No battery storage is planned for Swiftwater Solar at this time; however, the project's lease provides for the right to develop, construct, and operate a utility-scale energy storage facility at the project site. The solar industry is working to create efficient energy storage so that energy created during the day can be used after the sun goes down. Accordingly, storage costs, much like the cost of solar energy in general, are dropping rapidly, so battery storage may be considered at a future date at this location. If added battery storage will still have to be fully permitted.

What is the operations and maintenance plan for Swiftwater Solar?

Swiftwater Solar will be monitored remotely with modern SCADA technology and operated by Vitol Solar. The facility is not expected to have full-time staff on-site during operations. Instead, local, and regional contractors will visit Swiftwater periodically to perform maintenance and repairs and to mow the grass under and around the solar panels.

I've never heard of Apex Clean Energy or Vitol. Tell me about them.

Apex Clean Energy is a privately owned American company that was founded in 2009 with the sole purpose of developing and operating renewable energy projects. To date, Apex has completed more than 15 wind and solar projects (totaling 3,600 MW) that are now in operation, with 1.3 million acres of land under lease around the country and 20+ GW of projects currently under development.

Apex's mission is to accelerate the shift to clean energy, and one way we do that is by providing high-quality renewable energy facilities to customers that are looking for a way to participate in this growing market. Our customers include utilities, corporations, banks, and others who share our commitment to quality, safety, and performance and who are excited to enter the renewable energy

space. A full list of the partners Apex has worked with to date can be found at http://www.apexcleanenergy.com/our-story, among them well-known names like IKEA, Facebook, Google, Starbucks, Wal-Mart, Apple, McDonald's, eBay, and several other Fortune 500 customers.

Vitol, which acquired Swiftwater Solar LLC, is the current project owner. Vitol is a renewable energy developer and indirect, wholly owned subsidiary of Vitol Holding B.V. ("Vitol Holding"); Vitol Holding's primary business is the trading and distribution of energy products globally. Founded in Rotterdam in 1966, today Vitol Holding serves clients from over 40 offices worldwide. Vitol Holding is invested in energy assets globally including circa 6,500 service stations across Africa, Australia, Brazil, Eurasia and in Northwest Europe. Our customers include national energy companies, multinationals, leading industrial and chemical companies, and the world's largest airlines. Vitol also has a significant presence and expertise in North American power markets, CARB operated markets, including LCFS credits and CCAs, carbon trading, and REC trading. Vitol affiliates are also involved in renewable green gas transactions. Lastly, Vitol is currently making investments in renewable energy assets including solar, wind, and storage. Vitol has approximately 500MWs of solar projects, from Maine to California, in their portfolio.

What solar sites has Apex Clean Energy developed that are in operation?

Apex Clean Energy has thousands of megawatts of solar projects in various phases of development, including nine other solar projects similar to Swiftwater throughout Pennsylvania. Swiftwater Solar will be Apex's first operational solar plant in Pennsylvania, but Apex has a portfolio of operating solar sites across the country from Colorado to Texas to Virginia.

SWIFTWATER SOLAR CONCERNS ADDRESSED

Will Swiftwater Solar impact runoff, erosion, or flood plains?

No. To minimize the amount of earth that must be disturbed and graded, Swiftwater Solar has been designed to be built on the flattest portions of the project site. In addition, the land beneath and around the solar panels will be planted with native grasses, which will help stabilize the soil and prevent runoff.

The project is required by law to receive state approval of a stormwater management plan that ensures no excess sediment or water volume can flow into nearby waterways or neighboring properties. In addition, Swiftwater Solar will comply with all federal, state, and local laws, including those related to stormwater and runoff management.

Before the project begins construction, it will be required to receive a Stormwater Permit from the Monroe County Soil Conservation District and the Pennsylvania DEP. The application for the permit is being prepared by a licensed, third-party civil engineer. The application will include a full analysis of the project's anticipated impacts to water flow, considering the hydrology and topography of the project site and the specifics of the project's design, and it will propose a set of best practice management techniques to ensure runoff from the project does not impact neighbors, existing infrastructure, or waterways. Construction of the project will not begin until both the Monroe County Conservation District and Pennsylvania DEP have approved the Stormwater Permit Application.

Are solar panels toxic?

No. Swiftwater Solar will utilize either crystalline silicon solar modules or thin-film photovoltaic modules—both of which are nontoxic. Crystalline panels use a crystal lattice of silicon atoms to convert sunlight into electricity. Silicon is the second-most-abundant material on Earth (after oxygen), the most common semiconductor used in computer chips, and is nontoxic. Learn more at https://www.energy.gov/eere/solar/solar-photovoltaic-cell-basics.

Some communities have raised concern about thin-film photovoltaics, which can contain a compound called cadmium telluride (CdTe). However, these concerns have been shown to be unfounded. Cadmium telluride (CdTe) is a stable compound, and according to a 2019 study from Virginia Tech, CdTe photovoltaic installations pose little to no environmental health or safety risks (http://www.firstsolar.com/-/media/First-Solar/Sustainability-Documents/Sustainability-Peer-Reviews/Virgina-Tech-Peer-Review.ashx).

Should I be concerned about impacts to wildlife?

No. Studies show that in addition to helping displace emissions produced by fossil fuel generation, solar energy facilities can improve biodiversity and benefit wildlife by improving habitat in their immediate vicinity (https://pubs.acs.org/doi/full/10.1021/acs.est.8b00020).

Although solar panels may modify wildlife habitat in the project's immediate footprint, evidence suggests that these changes are balanced by other habitat-based benefits, and there is currently no evidence to support a conclusion that solar farms have an adverse impact on wildlife's use of the land surrounding the project. As a part of the permitting process, Swiftwater Solar is consulting with state and federal wildlife agencies, including the Pennsylvania Game Commission (PGC) and the U.S. Fish and Wildlife Service to ensure that wildlife is adequately protected.

Is dust going to be mitigated during construction?

Yes. Depending on the time of year that construction of Swiftwater Solar takes place, unpaved roads used to access the project site might be quite dry. Swiftwater will minimize the production of dust from construction traffic using common methods that may include watering roads or applying dust control treatments, as required by sediment and erosion control regulations.

How will taxpayers be protected from decommissioning costs?

Swiftwater's lease agreement requires that the lessee decommission the project at the end of its operational life and restore the land to its pre-facility state at the project's expense and at no cost to local landowners or taxpayers. The lease further requires that the project post financial security on or before the project's twelfth year of operation to ensure funds are in place for decommissioning and restoration.

How will the solar panels affect property values?

Many studies have concluded that there is no impact on sale price for residential, agricultural, or vacant residential land that adjoins existing or proposed solar farms. Matched pair studies, which compare similar parcels of land that do and do not border solar farms, find that properties retain competitive value after the installation of solar panels. Further, as solar panels remain compatible with other land uses, land use can be maximized to bolster value.

How do I know that this project will stand by its commitments if ownership of the project changes?

No matter who owns the project during its lifetime, that entity will be legally bound to honor all the legally binding commitments the project has made over time. Ownership of Swiftwater Solar, LLC, has been transferred to Vitol, who contracted with Apex Clean Energy to continue development until commencement of construction. All lease contracts, county and township agreements, and representations made in project applications will remain fully in effect through this transfer and any future transfers to new ownership.

Will Swiftwater be able to withstand a severe wind event?

Solar panels are designed to withstand inclement weather events, including wind, rain, hail, and long-term exposure to the sun. Each project is engineered specifically for its site by professional engineers who provide stamped drawings for the system racking installation, including pier embedment depths, dampener locations, and module attachment requirements.

Registered professional engineers are responsible for confirming that the project is designed to comply with the National Building Code. This code sets the design wind speed (specifically for hurricane zones) and sets the minimum wind speed for which the racking system and panel connection must be designed. The engineer also confirms that the project meets electric codes and standards UL 3703, UL 2703, and IEC 62817.

In addition, the engineers' evaluation incorporates consideration of numerous site-specific factors, including both local expected wind speeds and potential extreme wind speeds. Once the project is built, weather stations at multiple locations across the project site will signal the tracking system to move to certain "stow positions" if the wind speeds increase to the higher limits of the design. These systems are designed to protect themselves in high-wind conditions.

Civil and geotechnical engineers also evaluate site-specific soil conditions to determine the proper sizing of the support piers—for example, whether pier coatings are needed for alkaline soils and how deep support piers must be driven. The physical investigation techniques used to assess geotechnical conditions include soil borings and push-pull tests to determine soil friction.

These evaluations ensure that projects are designed and built to be safe on their specific sites. If an unanticipated extreme weather event does take place and the solar system is damaged, or if system components cause damage to someone else's property, the project or its insurance policy would cover the cost of repairs and/or removal of damaged equipment.

Do solar facilities cause wildfires?

No. Renewable resources, including solar PV, can lessen the effects of wildfire season. Studies show that helping displace emissions produced by fossil fuel generation will help slow the effects of climate change, which is known to make forests hotter and drier and, in turn, increase the chances of wildfire. In addition, solar energy facilities can improve biodiversity and benefit wildlife by improving habitat in their immediate vicinity.

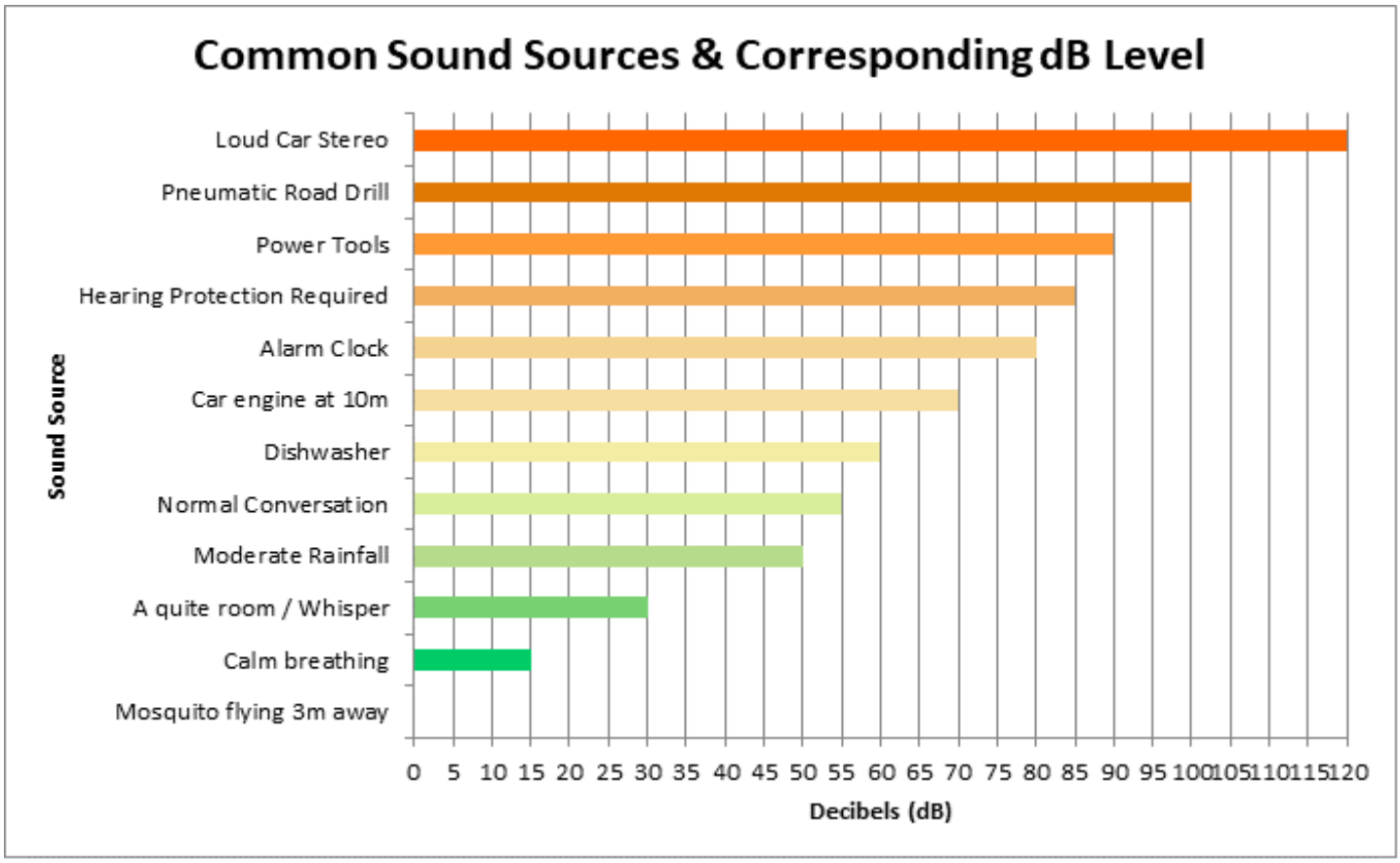
What happens if a solar panel is damaged?

If a solar panel is damaged at any time during construction or operations, the panel will be replaced, and the damaged panel will be removed from the site for disposal or recycling.

What type of sound do solar facilities produce, and how much?

While the solar trackers do produce a small amount of sound, the main source of sound in a solar facility are the inverters. These devices convert DC power to AC power and are best described as making a humming-type sound. We expect the sound pressure of our inverters to be 55dB at 50 meters. (In other words, at the fence line, sound from this project should be well below background sound.)

As you can see from the graph below, the project's sound level equates to that of normal conversation. Since our inverters are all interior to the project, we expect little to no sound to travel beyond the project area.



Do solar facilities produce infrasound?

No. Solar projects have not been shown to be significant sources of low frequency sound (20 hertz to 200 Hz) or infrasound (less than 20 Hz). The available one-third octave band sound data for solar panel inverters have shown low levels at the frequencies of concern. In fact, New York State recently revised its renewable energy permitting rules, and solar projects are no longer required to demonstrate that there are no adverse effects of low frequency (LFN) or infrasound (IF) in project communities.

Will there be glint or glare from the solar panel clusters?

Swiftwater Solar will use solar panels that are designed to maximize absorption and minimize reflection to increase electricity production efficiency. Panels are designed with at least one antireflective layer that produces smaller amounts of glare and reflectance than normal glass. The light that is still reflected from solar panels will be at a reflection point higher than motor vehicles, pedestrians, and similar vantage points. The intensity of any glare will be a great deal less than the glare from direct sunlight, and no hazard to air navigation has been found.

What kind of traffic is construction going to generate?

Construction is expected to take about 8 to 10 months, with a variety of activities taking place over that time, some requiring more activity and some requiring less. On average, construction will require about 10 to 20 truck trips per day, but during the 9-month period when racking systems and modules are being delivered to the project site, traffic to and from the project site could increase to 50 to 75 truck trips per week. Most delivery vehicles will be standard tractor trailers and dump trucks. Once the project is operational, traffic will be insignificant, limited primarily to pickup trucks and other small vehicles.

Will I still be able to hunt on the property?

Although solar panels are tough, they aren't bulletproof. Because of this, no hunting will be allowed within the project boundary. Fortunately, the Pocono Mountain region has thousands of acres of public land where hunting is allowed, so you won't have to travel far to find prime hunting ground.

POCONO MANOR INVESTORS, LP

SWIFTWATER SOLAR

jeff.hammond@apexcleanenergy.com | apexcleanenergy.com

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