

Northern Bobwhite Solar

Marion County, Kentucky



The Developer



Your local greenfield developer of utility-scale solar projects

306 MW in operation :: 415 MW under construction
5000+ MW under development

- Highly skilled in all aspects of solar development: site evaluation, real estate procurement, environmental analysis and federal, state and local permitting.
- Focused on solar development, local community engagement and education in the Southeastern U.S. since 2012.
- Geenex projects are valued by our development partners for their well-sited locations, their adherence to best-development practices and their standards that meet and usually exceed county and state requirements.
- Geenex Solar is the founder of the non-profit Center for Energy Education based in Halifax County whose programs are currently being introduced in the Kentucky communities in which we are developing.





Center for **Energy Education**

The Center for Energy Education (C4EE) is a 501(c)3 nonprofit corporation and a center for renewable energy research, education, and workforce development for the eastern United States. The C4EE provides a place to raise awareness of renewable energy and its importance locally, regionally, and globally. The C4EE is a hub for the renewable energy industry, a hands-on training ground for solar installations, a destination for students and families to learn about renewable energy resources, and an education and training facility to provide the knowledge and skills needed to pursue a career in the growing renewable energy industry.



Our Numbers Are Growing ...

Summer Camps

762

Students educated

Educator Training

190

Teachers trained

Education Workshops

179

County leaders qualified

Construction & Safety Classes

189

Participants graduated

Utility-Scale Solar



Solar Energy Generation – The Basics



Solar panel

The PV Solar Panels convert sunlight into DC power.



Inverters

The power from the solar panels is sent to an inverter. These inverters convert DC power to AC power.



Transformer and Substation

The electricity is gathered throughout the solar farm in transformers and then into a substation that converts the voltage to meet the higher voltage of the distribution or transmission lines.



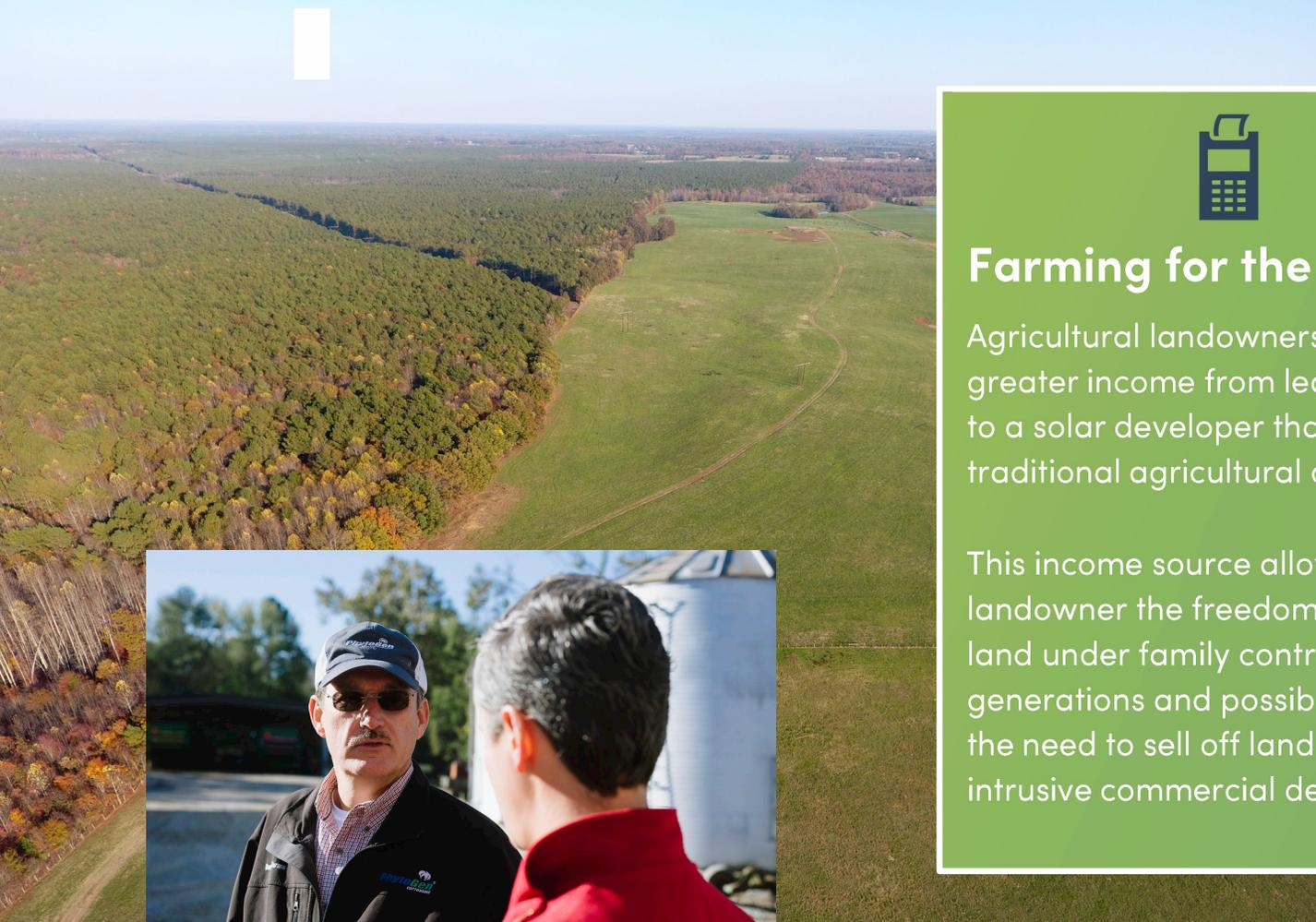
Electricity Grid

The generated electricity is fed into the grid. Some of the solar generated electricity might be consumed close by, some might travel to other cities and even other states.

Why Solar? Why Now? Why Marion County, KY?



- High demand for low-carbon renewable energy by customers, corporations, and institutions.
- Cost of solar continues to decrease making it highly competitive with traditional fossil fuel sources.
- Location, location, location – good solar resource combined with good topography near areas with high energy demands.
- Available land with existing transmission and/or distribution lines with available capacity for more energy.
- Landowners wanting to diversify income and protect their real estate assets.



Farming for the Future

Agricultural landowners earn greater income from leasing land to a solar developer than from traditional agricultural operations.

This income source allows the landowner the freedom to keep the land under family control for future generations and possibly eliminate the need to sell off land for more intrusive commercial development.



Property Impact Analysis

Matched pairs in multiple areas across the southeastern and midwestern U.S. show no impact on adjoining property value.

The criteria for making downward adjustments on property values such as appearance, noise, odor, and traffic all indicate that a solar farm is a compatible use for a rural/residential transition area.

“We have to get our power from somewhere and I would much rather see a solar farm next to my land than a nuclear or coal plant that could be dangerous. Solar farms are safe and make good, clean power. I am pleased to have worked with Geenex Solar on such a project.”

- David Dunlow, Hemlock Solar Landowner in Northampton County, NC



Solar: A Proven & Environmentally Safe Technology

- Solar photovoltaic technology has been in use for more than 50 years.
- No emissions or contamination (air, water or soil)
- No noise outside of fence line.
- Very little reflectivity or glare from panels that are designed to absorb as much sunlight as possible.
- More than 90% of materials can be sold for scrap or recycled at end of project's useful life.
- Land can be returned to its original agricultural use after its life as a solar farm; solar is a place-holder for the future.





Decommissioning Plan

- An integral part of each landowner's agreement is the commitment to decommission the Project.
- This agreement ensures the landowner, the County, and its citizens will not be financially liable for the future return of the proposed site to its pre-existing condition and use.
- Provides that the Project site will be stabilized and restored in such a manner to ensure it is clean, safe and able to return to previous land use.
- Sets guidelines for updating plan to:
 - 1- Address changes in the economics of decommissioning costs; and
 - 2- Ensure the use of best management practices and procedures at time of decommissioning.



Extensive Permitting Oversight

Federal Agencies

**US Army Corps of Engineers, Federal Aviation Administration,
US Fish and Wildlife Service**

State Regulatory Agencies

KY State Board – Electric Generation & Transmission Siting

In conjunction with KY PSC; includes Environmental Site Assessment with extensive studies on impacts to wildlife, vegetation, water quality, and more as well as a full cultural resource impact analysis overseen by the State Historical Preservation Office

KY Dept. of Transportation

State Driveway Permits

Pre-Construction Permits

Stormwater & Erosion Control

Local Jurisdiction

Local Use Permits and/or Building & Electrical Permits

PJM / Utility

Interconnection studies and agreements including affected system reviews by LGE/KU and TVA

Kentucky State Board Siting Permit

MEMBERSHIP OF THE SITING BOARD

The Siting Board has five (5) permanent *ex officio* members and two *ad hoc* members who are appointed by the Governor to review specific applications. The permanent *ex officio* members are:

- The three (3) members of the Kentucky Public Service Commission. The chairperson of the PSC also chairs the Siting Board.
- The secretary of the Kentucky Environmental and Public Protection Cabinet, or his designee
- The secretary of the Kentucky Cabinet for Economic Development, or his designee

If the facility is located within a single county, the two (2) *ad hoc* members shall be:

- The chair of planning commission with jurisdiction over proposed site. If no planning commission, the Governor may name the county judge/executive.
- A resident of the county in which the facility is proposed to be located.



Kentucky State Board Siting Permit

APPLICATION PROCESS

- **Notice of Intent:** Filed and publicly noticed at least 30 days prior to application submittal
- **Filing of Application:** The application must contain certain information, including:
 - Evidence that public notice of the application has been made and a report on public involvement activities conducted by the applicant.
 - A comprehensive site assessment report containing a detailed description of the project and thorough analysis of the impacts to be considered by the Siting Board (visual impacts, traffic, property values, etc.)
 - A statement of compliance with any local zoning regulations and noise control ordinances
 - An analysis of the effects of the proposed facility on the electric transmission grid
 - An analysis of the economic impacts of the proposed facility

EVIDENTIARY HEARING: The evidentiary hearing, if determined to be required by the PSC, is a formal proceeding with participation limited to the applicants and the parties to the case (intervenors). Testimony is taken under oath. It may be held in the county where the proposed facility would be located or at the PSC's offices.

PUBLIC HEARING & PUBLIC COMMENTS: This is an informal proceeding held to give the general public an opportunity to be heard by the Siting Board. Comments should focus on aspects of the proposed facility, rather than simply general support or opposition.

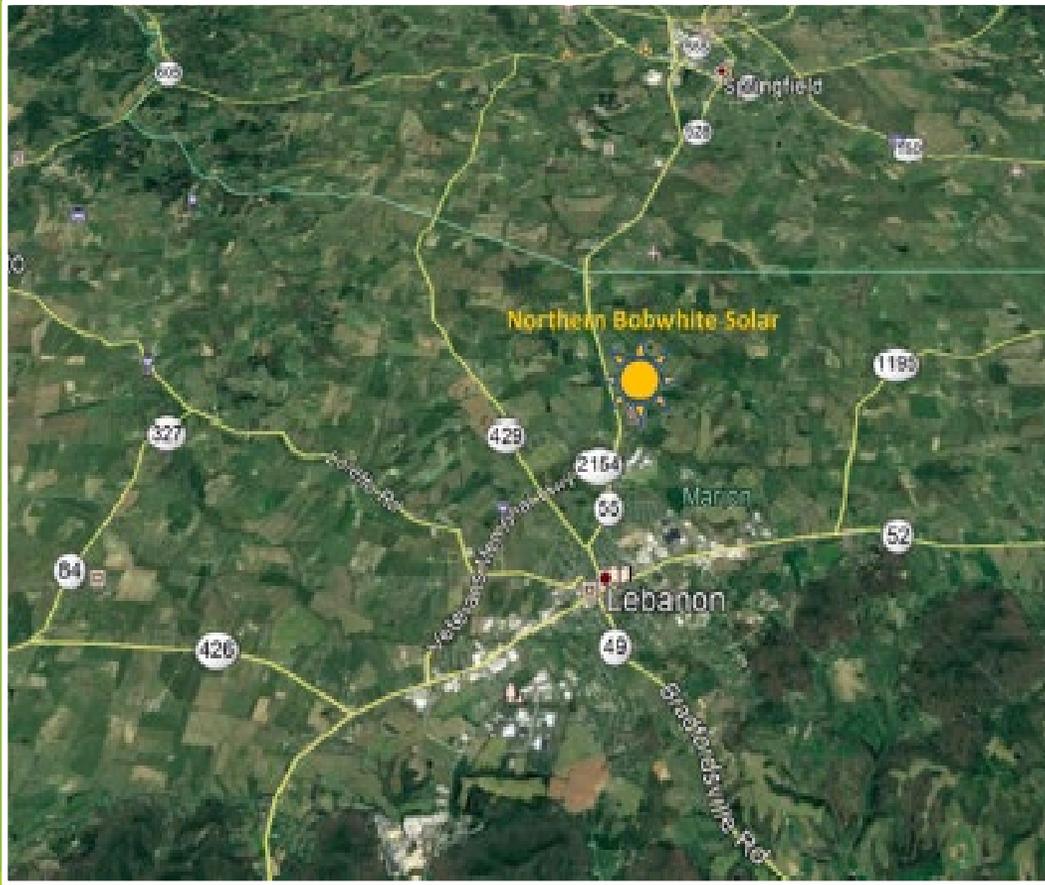
Please visit psc.ky.gov for more information.



NORTHERN BOBWHITE SOLAR

96 MW AC Solar Photovoltaic Facility

Northern Bobwhite Project Review

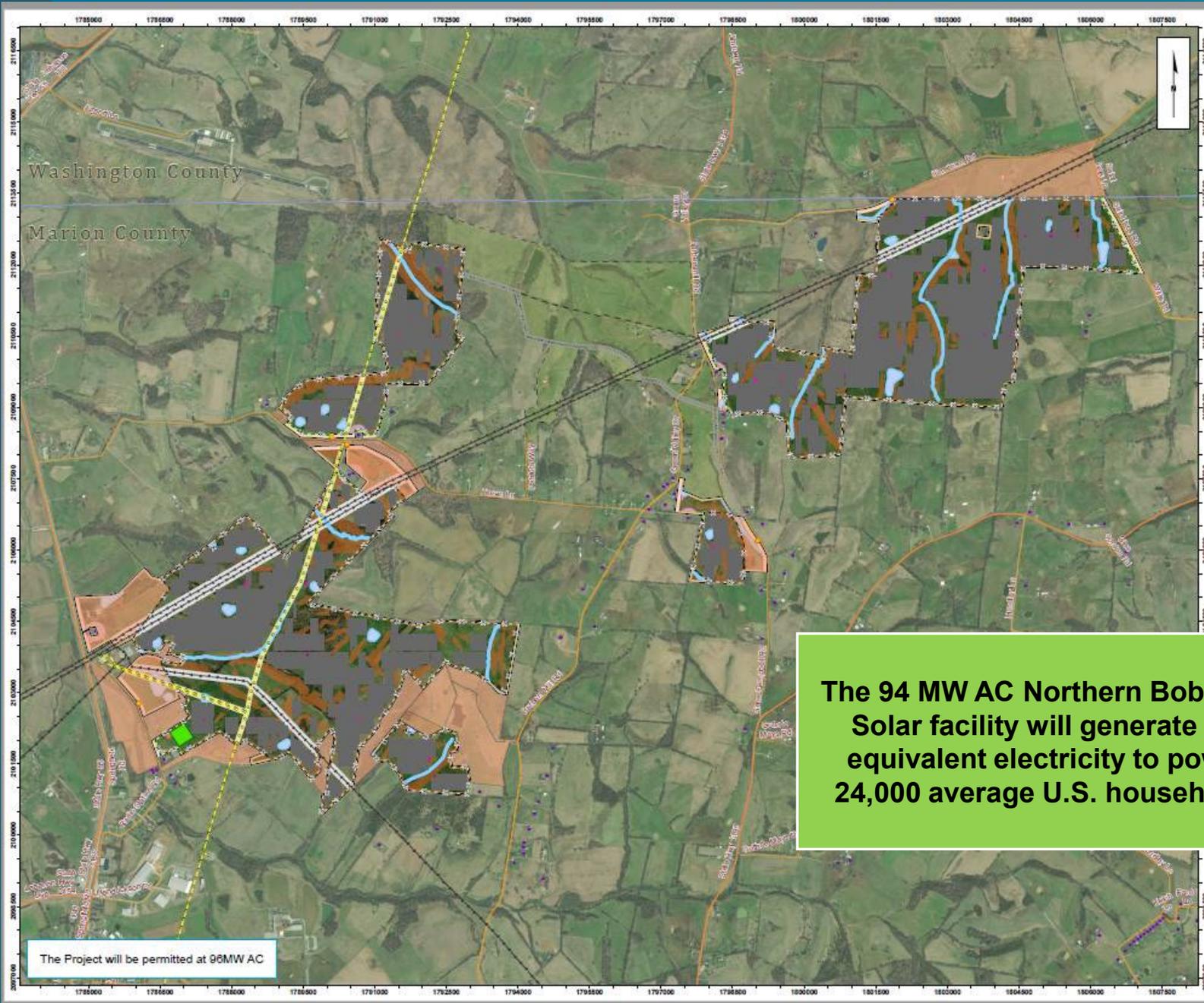


Northern Bobwhite Solar is ground-mount utility-scale solar project for up to 96 MW in generation that is currently under development in Marion County, KY just north of the town of Lebanon.

The project will consist of approximately 1,500 – 1,900 acres secured via land lease agreements with final fenced-in acreage yet to be determined. Only 30% of the site will be “under glass” with virtually no impermeable surface or permanent land use impacts.

Northern Bobwhite will pursue the issuance of an Industrial Revenue Bond with Marion County consistent with state regulations to incentivize solar energy and promote economic development.

Once operational, the 96 MW project would generate enough electricity each year to offset the consumption of approximately 24,000 average U.S households.



The 94 MW AC Northern Bobwhite Solar facility will generate the equivalent electricity to power 24,000 average U.S. households

The Project will be permitted at 96MW AC

Legend

Project Components

- Project Area
- Solar Module
- 3.27MW Inverter
- Fenceline
- Access Point
- Vegetative Buffers
- Easement Property
- Proposed Parking Lot
- Proposed Laydown Area

Other Components

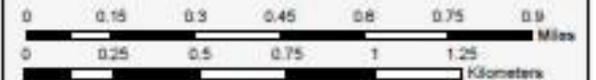
- Residence / Unidentified Structure
- Electrical Line (69 kV)
- Transmission Line (> 69 kV)
- State Road
- Public Road
- NWI Wetland
- FEMA Flood Zone

Constraints

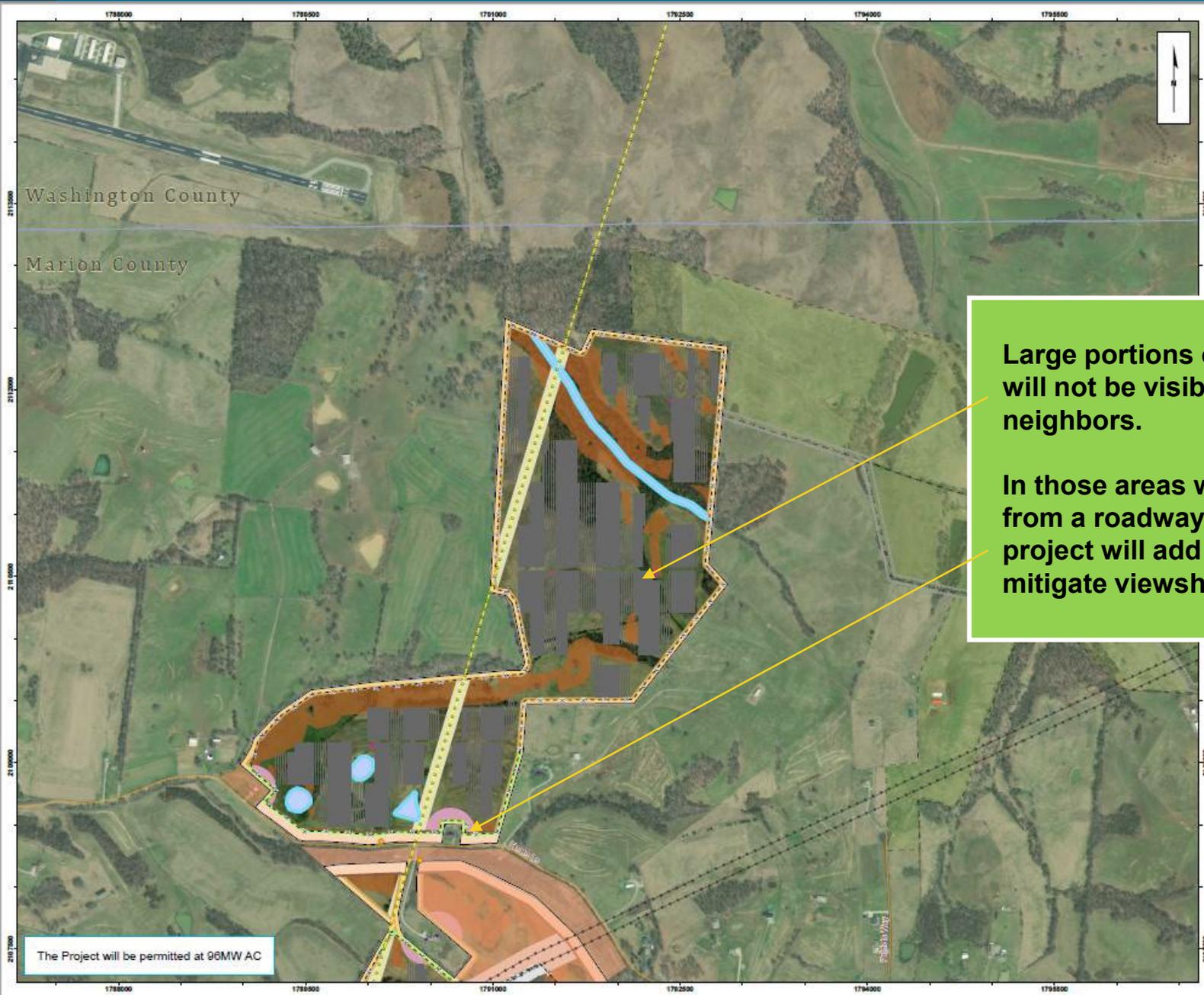
- No Development Area
- Residence / Unidentified Structure (200 ft)
- NWI Wetland / FEMA Flood Zone (25 ft)
- Electrical Line (69 kV) ROW, Pipeline (50 ft)
- Transmission Line (> 69 kV) ROW (75 ft)
- Non Participating Property (30 ft to Fenceline)
- Non Participating Property (50 ft to Solar Installations)
- Road Right of Way (80 ft to Fenceline)
- Road Right of Way (100 ft to Solar Installations)
- Slope > 15%

Notes:

- (1) PRELIMINARY LAYOUT: Not for Construction
- (2) Based on a high-level constraints review
- (3) Transformer and metering facilities are not shown



SITE DETAIL 1



Large portions of the site are in areas that will not be visible from any roadways or neighbors.

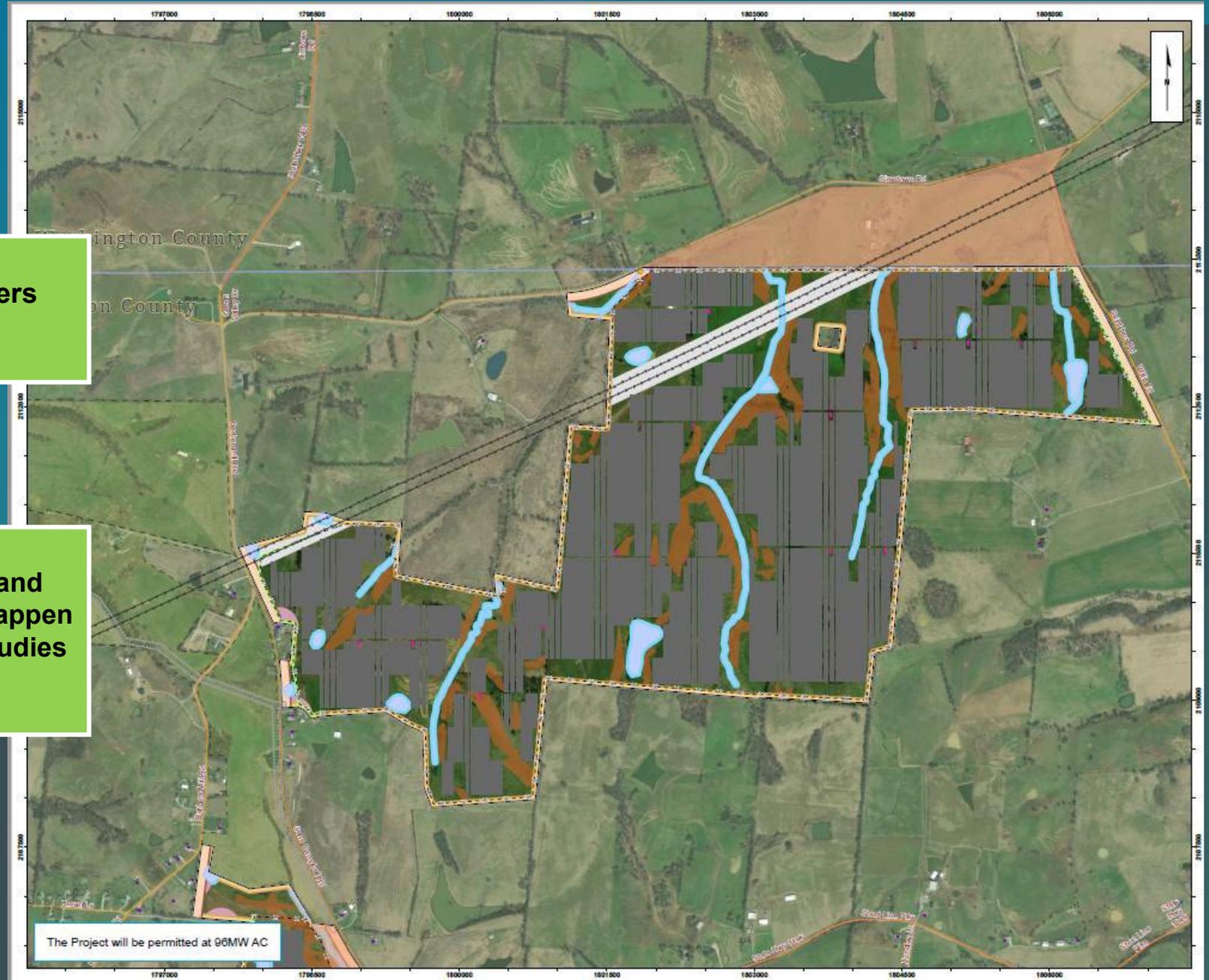
In those areas where project could be visible from a roadway or neighboring residence, the project will add vegetative screening to mitigate viewshed impacts.

The Project will be permitted at 96MW AC

SITE DETAIL 2

There are 12 Marion County landowners whose land comprises the project.

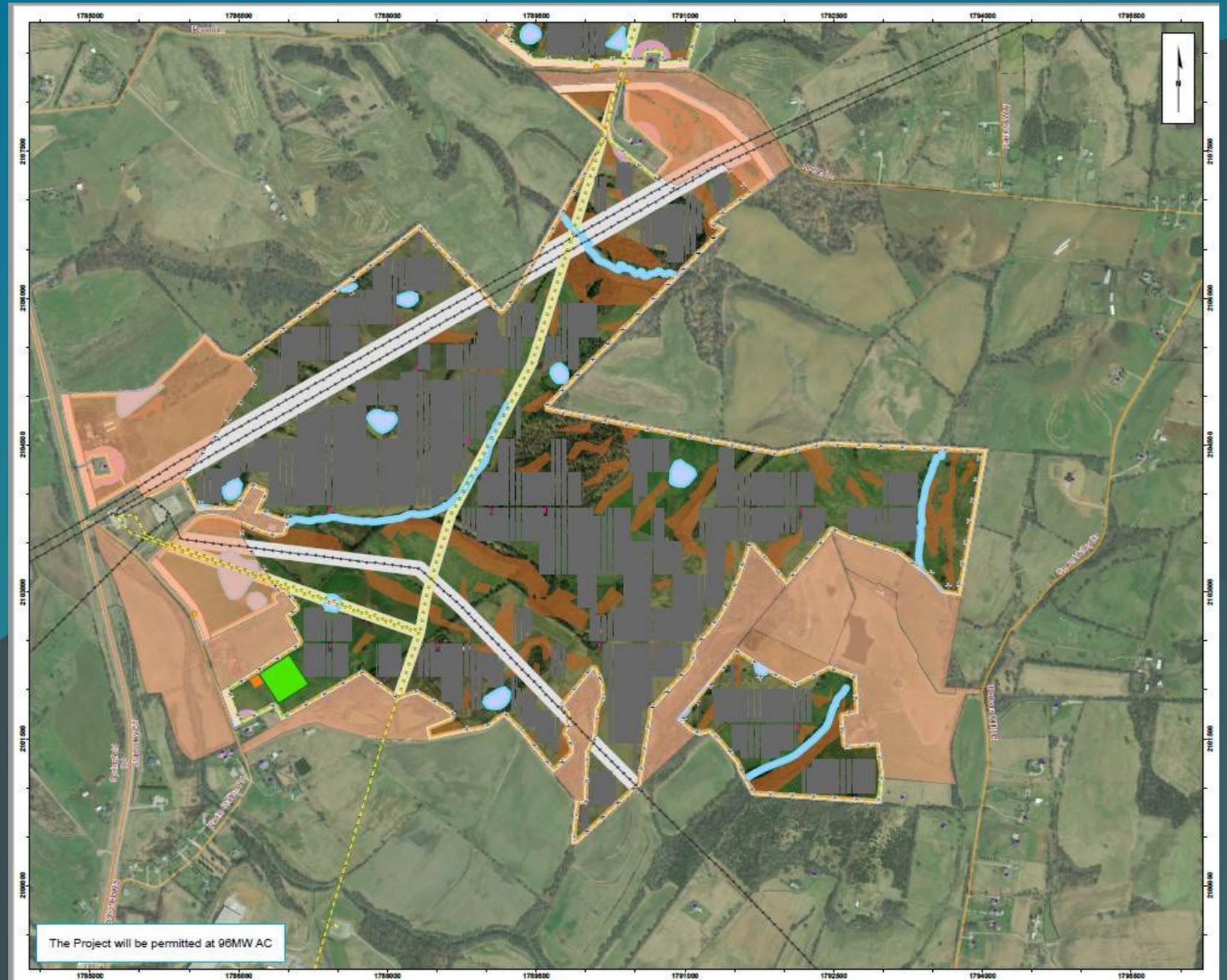
Current panel placement is preliminary and minor shifts within the fence line may happen after final wetland and environmental studies are complete.



SITE DETAIL 3

Minimum setbacks from roadways are 100 feet from solar equipment. The setback from non-participating property owner to solar equipment is a minimum of 50 feet.

Any adjoining residences are at a minimum 200 feet from any solar equipment with the average being more than 1,000 feet away. Again, screening will be utilized to buffer the project from the view of neighboring homeowners.



SITE DETAIL 4



The design of the site allows for different fenced areas for the panels. This in turn allows wildlife to continue to traverse the area with only minor shifts to their patterns of behavior.

In addition the site is primarily open land requiring only minimal tree removal for construction which further protects wildlife and wetlands.



View of fenceline 100 feet from roadway with added vegetative screening at 75 feet from roadway.

Northern Bobwhite Solar Project
Vegetative Buffer Rendering
Marion County, Kentucky



Community Benefits



WORKFORCE DEVELOPMENT

- ❑ Solar construction companies actively seek local hires for installation and additional support positions. Construction activities for a project of this size may last 12 -16 months with an estimate of 100-150 local hires.
- ❑ Local contractors may be utilized for equipment rental, fencing, site work and more.
- ❑ Permanent positions supported during facility's operation
 - Landscaping and grounds-keeping
 - Site operations and maintenance
- ❑ Local workforce development programs through the Center for Energy Education's engagement with local community colleges and other area workforce organizations.



ECONOMIC & EDUCATIONAL

- ❑ Increased business for local restaurants, supply stores, gas stations, accommodations. and others during construction.
- ❑ Solar facilities can enhance a county's reputation as an attractive and friendly environment for advanced manufacturing, technology and other related jobs.
- ❑ The issuance of Industrial Revenue Bonds to finance the costs of solar facilities promotes the growth of renewable energy and provides incentives for the project while promoting economic development opportunities for the County. IRBs may include beneficial payments in lieu of taxes (PILOT) to the local school district.
- ❑ Geenex Solar facilities are also a resource for educational opportunities for local students and teachers. The Center for Energy Education has and is continuing to include area teachers and students in summer camps and educational training programs.





Questions?