

# North Alabama Utility-Scale Solar Environmental Impact Statement

## Fact Sheet

TVA has prepared a draft Environmental Impact Statement (EIS) for the proposed TVA-directed solar facility in Lawrence County, Alabama. The purpose of this EIS is to address the potential environmental effects associated with constructing, operating, maintaining and decommissioning the solar photovoltaic (PV) facility, North Alabama Utility-Scale Solar Project, in Lawrence County, Alabama. The proposed project site would encompass approximately 2,896 acres.

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### SOLAR ARRAY SIMULATION

Photo simulation of the solar array taken from the southeast depicting the line of sight from present-day Norfolk Southern Railroad to the project area located immediately south of, and running parallel to, U.S. Highway 72.



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### What is driving TVA to acquire land for the development of Solar Power?

TVA is building the energy system of the future. As the largest public power provider in America, TVA is on the forefront of moving toward a cleaner, more flexible energy portfolio that makes our region the nation's premier business destination. When businesses relocate here, jobs are created. People can find work – revitalizing both rural and urban communities.

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### What determined where the solar panels would be located on the property?

The solar arrays were arranged to avoid and minimize impacts to environmental and cultural resources to the maximum extent possible and to have the least impact on the existing topography/landscape. The visual impacts associated with the current layout were limited as much as practical while still designing a site with 200MWac generation capacity. Specifically, areas that were avoided included wetlands, wooded areas, and land associated with cultural resources.



**Why is TVA developing farmland when other land in the Tennessee Valley is available?**

TVA conducts studies on the future direction of our generation mix, including extensive site selection process before choosing any site. This process is part of the site selection process. TVA is pursuing other land opportunities for future solar development (some TVA-owned).

**Is TVA considering roof-top solar to meet the recommendations in the 2019 IRP?**

Roof-top solar does not fit the generation output requirements for solar integration into TVA's generation portfolio as specified in the 2019 IRP. Based on the 2019 IRP, TVA plans to increase renewable energy output by adding 5,000-10,000 megawatts of solar by 2030. Utility scale solar is the lowest cost solution and allows TVA to attract jobs and investment into our region.

**Why isn't TVA developing land that TVA already owns?**

Building the cleanest electric grid in the Southeast that operates at 99.999% reliability for the past 20 years takes skill and planning. TVA has had to seek out land that has specific characteristics that would support large scale solar development. Although TVA owns a significant amount of property (293,000 acres associated with current generating assets), much of it would not meet the criteria needed for large scale solar development.

**Why are comments limited to the EIS?**

TVA is fully transparent and comments entered in the EIS become part of the public record. The proposed action as specified in the EIS consists of TVA executing the purchase under the Purchase Option Agreement for the 2,896-acre Project Site and constructing the approximately 200-MW solar facility. The draft EIS analyzes impacts associated with that action. Therefore, comments are restricted to this project and the impacts this land purchase would have.

**After questions are formally submitted to NEPA site, what happens?**

TVA will carefully review all public questions and determine if additional analysis is required to be included in final EIS.

**What organizations performed the environmental and archeological research? Are these companies owned by TVA? How much of their business comes from TVA**

A TVA-approved contractor performed cultural surveys in accordance with Section 106 of the National Historic Preservation Act. Terrestrial Zoology, Botony, Threatened and Endangered Species, and Wetland field surveys were performed by TVA subject matter experts. Stream surveys were conducted by TVA SMEs and a TVA-approved contractor.

**Why are there only two alternatives evaluated in the EIS?**

NEPA requires TVA to analyze reasonable alternatives, which are those that that are technically and economically feasible and meet the proposal's purpose and need. TVA is committed to avoiding, minimizing, and mitigating under the proposed Action Alternative. Section 2.3 in the draft EIS describes the alternatives considered but eliminated from further consideration.



**How is TVA funding this project?**

Funding will be provided through TVA Capital allocations generated by electricity rates throughout the valley. The project would need to be presented and approved by the designated TVA Project Review and Approval Board.

**What company will operate the solar farm?**

The project is in the due diligence phase for purchase of the ~3,000 property. Therefore, construction and operation partnerships have not been established.

**Why is TVA selling the solar field?**

As a federal entity, TVA will not (and cannot) directly take advantage of any tax incentives. That is why TVA partners with developers, investors, and operators so that the Tax Credits that are realized by the project can be passed down to the ratepayers by reducing the overall cost of the project which results in keeping rates as low as feasible. This is similar to the Power Purchase Agreements that TVA has used for previous solar installations. Ultimately it results in a lower LCOE (levelized cost of energy) which directly affects rates to customers.

**Will the construction impact groundwater?**

The project would not install groundwater wells, septic systems or water treatment facilities and would rely instead on connection to a municipal source or delivery by water trucks, as well as use of portable toilets. Project impacts to groundwater are considered in Section 3.4.1 and Section 3.12 of the EIS. The construction activities associated with driving piles for the solar panel racking system supports are not expected to have any impact on ground water.

**Has TVA considered the Economic Development impacts to Decatur and Courtland associated with developing this site for solar for ~20 years against the potential industrial development opportunities that might be available during that same period that would benefit the local economy?**

TVA has an economic development mission. As summarized during the public meeting and detailed in the EIS, this site was evaluated against multiple criteria prior to selection. One area of evaluation was economic development potential. No conflicts are anticipated on this property between the proposed utility-scale solar project and other potential economic development projects currently being pursued.

**Has TVA considered the Heat Island Effect associated with this project and the impacts on the surrounding environment?**

Heat Island Effect essentially changes the micro-climate in this immediate vicinity of the absorber. Please refer to the Regional Climate section of the D-EIS (3.9.2.2.2).

**Will the energy generated from this solar facility all stay in the TN valley or will it be sent elsewhere?**

The energy delivered to the electric grid from this solar facility will be a TVA designated network resource and therefore only serve TVA Native Load (which consists of residential, commercial, and industrial end-users within TVA's 7-State service territory).

**Will TVA set aside sufficient funds to ensure that decommissioning is done in a way that protects the solar farm site as well as landfills?**

As demonstrated with TVA's existing efforts for decommissioning retired generating facilities, at the time of decommissioning, this facility will be treated as any other TVA generating asset that has reached the end of its useful life. Funding will be made available at time of decommissioning. The decommissioning plan (and associated cost estimates) will be developed at such a time as it is decided that the generating facility is no longer operable. The cost of decommissioning cannot be accurately estimated at this time as the panel technology has not been determined (which dictates disposal costs), the recycling methods are constantly evolving and becoming more economical, and the decommissioning efforts are anticipated decades in the future.

**How will battery storage and disposal be handled?**

TVA is investigating emerging technologies such as battery storage options as this technology becomes more affordable and feasible. Although a footprint for a Battery Storage System has been accommodated in the preliminary layout, there is not currently a plan to pair battery storage with solar generation at this site. If Battery Storage is installed, the prevention of leaks would be handled onsite through appropriate containment and spill prevention measures. Offsite disposal and/or recycling would be done in accordance with manufacturer recommendations and appropriate governing regulations for the handling and disposal of the materials contained in the battery technology utilized for the Battery Storage System.

**How will the disposal of the panels be handled and are there any hazardous waste contained in the panels (e.g. cadmium)?**

The glass component (which makes up approximately 80% by weight) of the solar panel is recyclable. The presence of cadmium in the panels is yet to be determined since it is panel technology dependent (i.e. cadmium telluride is present in thin-film panels, but not in mono-and poly-crystalline panels). Disposal will follow applicable regulations and manufacturer's recommendations at time of decommissioning.

**What are the EMF (electromagnetic fields) affects to nearby property?**

According to a study published by NC State University, photovoltaic technologies and solar inverters do not pose significant human health risks. Photovoltaic systems do generate electromagnetic fields (EMF). However, EMF produced by electricity has enough energy to produce heat but not enough to remove electrons from a molecule or damage DNA. Humans are exposed to EMF on an ongoing basis with no impact to human health. Moreover, distance from the EMF source, such as provided by the security fencing proposed to surround separate portions of the Project, renders the exposure to EMF insignificant. Therefore, solar farms do not negatively affect human health.

There is a comprehensive fact sheet published by NIOSH concerning EMF and it is available on the CDC webpage dedicated to EMF awareness.

**Will there be any carbon offset credits generated from this site? Will these be sold to any organization or private company? Is there an agreement with any organization or private company and TVA that these credits will be used to satisfy?**

Currently there is no plan for any renewable energy credits or carbon offsets that would be realized by TVA or sold to any other business in that regard. However, it has been determined that Renewable Energy Credits (RECs) could be sold through the TVA Green Invest program to participating entities. Since 2018, Green Invest has attracted about \$1.4 billion in investment into our region from top-tier companies.

**The Endangered Species Act (ESA) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. Has the TVA done a ESA survey in the projected building area?**

As required by law, TVA has consulted with the U.S. Fish and Wildlife Service concerning development of the solar facility and the associated transmission upgrades and the potential to affect plants and animals listed under the Endangered Species Act. TVA aquatic biologists, botanists, and terrestrial zoologists performed field surveys of the solar site and will perform surveys, as needed, of the transmission line upgrades. The results of these surveys informed our Section 7 Endangered Species Act consultation with the U.S. Fish and Wildlife Service. Since the release of the draft EIS, the U.S. Fish and Wildlife has concurred with the TVA determination that the proposed project is not likely to adversely affect listed species. Please see the EIS sections 3.5.4.1.3.2.1 Terrestrial Animals and 3.5.4.1.3.2.3 Plants for more information on the species present in the action area and how we plan to avoid impacting those plants and animals. The dates of all field surveys are noted in the EIS.

**How will the impact to environmental habitats (specifically streams) be handled?**

Please refer to the EIS for details on how the proposed project would affect the environment generally and streams specifically. TVA has attempted to minimize impacts to wetlands and streams during the preliminary siting of solar arrays and associated infrastructure. Panel layout has been offset from wetlands and streams. Pollinator and fish conservation efforts and plant species protection in TL ROW are all being implemented according to Federal Endangered Species Act.

**Will there be a vegetation buffer between the solar array and the Tuscumbia railroad to create a visual buffer?**

The preliminary design illustrated in Figure 2-2 of the D-EIS incorporates visual buffers in place between the the railroad and the panels on the northern property. The visual buffers consist of portions of the project area that have been removed from development in order to minimize viewshed effects to the railroad. With the current preliminary layout for the solar arrays, the majority of the resource will be obscured by existing tree coverage and topography. Additionally, a pollinator habitat is planned be established between site security fence and Hwy 72.

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**What was included in the cultural survey and why were some areas analyzed and others not?**

TVA conducted a Phase I architectural survey of all structures that were greater than 50 years old within a 0.5 mile radius of the project area and within the visual line of sight to the project area. The architectural survey was conducted in order to fulfill requirements under NEPA and Section 106 of the National Historic Preservation Act (NHPA) and its codified regulations under 36 CFR 800. Section 106 requires federal agencies to consider the effects of projects they carry out, approve, or fund on historic properties. Historic properties have a very specific meaning in the regulations. A historic property must be listed or eligible for listing, in the National Register of Historic Places (NRHP). In order to be listed or eligible for the NRHP the property must be significant and retain integrity. Significance means that the property is associated with events, activities, or developments that were important in the past; the property is associated with the lives of people who were historically important; the property has distinctive architectural history; or the property has the potential to yield important information about our past through archaeological investigation. A particular property may be historically significant but may not retain integrity. Integrity means that the property still looks much the way it did in the past. Agencies make eligibility determinations in consultation with the State Historic Preservation Officer (SHPO) and in the case of properties representing indigenous heritage, federally recognized Indian tribes whose ancestral homelands are within the project area. TVA utilizes the NEPA process to also seek public input to our findings.

As stated in the EIS, the architectural survey identified additional properties as well as the two properties listed on the NRHP (Pond Spring's and Bride's Hill). Of the additional properties two (the American Store and the Tuscumbia, Courtland, and Decatur Railroad) were considered eligible for the National Register. Thus these are the four properties we discussed regarding potential effects of the undertaking in the public meeting. The additional properties, including the Wheeler Grove Baptist Church and the Wheeler School as well as the additional residential properties and other architectural structures greater than 50 years that are located within the viewshed were reviewed for NRHP eligibility as part of the Section 106 process. Both the Wheeler Grove Baptist Church and the Wheeler School have undergone alterations over the decades that have impacted the integrity of the structures. As a result, they are not considered eligible for the NRHP. For the remaining structures over 50 years of age they have either been altered or do not rise to the level of significance as outlined by the NRHP criteria. Some of these structures may have been evaluated by viewshed impacts in the overall viewshed analysis as part of the NEPA process within the EIS, but as they are not considered historic properties they were not evaluated under Section 106 for effects of the project to historic properties. TVA did consult with the Alabama SHPO regarding TVA's NRHP eligibility determinations for all the architectural structures greater than 50 years and they agreed with TVA's determination. The AL SHPO did ask for more information regarding the larger landscape impacts to Bride's Hill and Wheeler Plantation and TVA is currently working on this documentation.