Review and Evaluation of the Pike County Solar, LLC Site Assessment Report

Kentucky Public Service Commission and
Kentucky State Board on Electrical Generation and Transmission Siting

September 10, 2024

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September 10, 2024

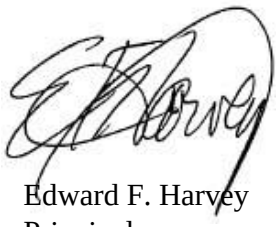
Ms. Nicole Carr
Kentucky Public Service Commission
211 Sower Blvd.
Frankfort, KY 40601

Re: Harvey Economics' Review of Pike County Solar, LLC's Site Assessment Report for Solar Facilities in Pike County, Kentucky

Dear Ms. Carr,

Harvey Economics is pleased to provide you with our final report, *Review and Evaluation of the Pike County Solar, LLC Site Assessment Report.*

Yours truly,



Edward F. Harvey
Principal

Report

September 10, 2024

Review and Evaluation of the Pike County Solar, LLC Site Assessment Report

Prepared for

Kentucky Public Service Commission and
Kentucky State Board on Electrical Generation and Transmission Siting
211 Sower Boulevard
Frankfort, Kentucky 40602

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SECTION 1
Introduction

This document provides a review of the Site Assessment Report (SAR) for the proposed Pike County Solar Project, LLC solar facility (Project or Solar Project) submitted to the Kentucky State Board on Electric Generation and Transmission Siting (Siting Board). Pike County Solar Project, LLC (Pike County Solar or Applicant) submitted the SAR as part of its application for a construction certificate to construct a merchant electric generating facility under KRS 278.706 and 807 KAR 5:110 on May 21, 2024. Siting Board staff retained Harvey Economics (HE) to perform a review of the SAR. Requirements specific to the SAR are defined under KRS 278.708, detailed below.

Statutes Applicable to the SAR Review

KRS 278.706 outlines the requirements for an application to receive a certificate to construct a merchant electric generating facility. Section (2)(l) of that statute requires the Applicant to prepare a SAR, as specified under KRS 278.708. The Pike County Solar SAR is the main focus of HE's review. However, the Siting Board also requested that HE review the economic impact report prepared by the Applicant. The economic impact report is a requirement of the application under KRS 278.706(2)(j), separate from the SAR.

KRS 278.708(3) states that a completed site assessment report shall include:

(a) A description of the proposed facility that shall include a proposed site development plan that describes:

1. Surrounding land uses for residential, commercial, agricultural, and recreational purposes;
2. The legal boundaries of the proposed site;
3. Proposed access control to the site;
4. The location of facility buildings, transmission lines, and other structures;
5. Location and use of access ways, internal roads, and railways;
6. Existing or proposed utilities to service facility;
7. Compliance with applicable setback requirements as provided under KRS 278.704(2), (3), (4), or (5); and
8. Evaluation of the noise levels expected to be produced by the facility.

(b) An evaluation of the compatibility of the facility with scenic surroundings;

(c) The potential changes in property values and land use resulting from the siting, construction, and operation of the proposed facility for property owners adjacent to the facility;

(d) Evaluation of anticipated peak and average noise levels associated with the facility's construction and operation at the property boundary; and

(e) The impact of the facility's operation on road and rail traffic to and within the facility, including anticipated levels of fugitive dust created by the traffic and any anticipated degradation of roads and lands in the vicinity of the facility.

KRS 278.708(4) states that "the site assessment report shall also suggest any mitigating measures to be implemented by the applicant to minimize or avoid adverse effects identified in the site assessment report."

KRS 278.706(2)(j) states that a completed application shall include "an analysis of the proposed facility's economic impact on the affected region and the state."

KRS 278.706(2)(d) addresses specific setback requirements, as related to distances from adjacent property owners of various types (i.e., residential neighborhoods, schools, hospitals, nursing homes).

SAR Review Process and Methodology

HE completed the following tasks as part of the review of the Pike County Solar SAR and certain other components of the Pike County Solar application:

- Review of the contents and information provided in the site assessment report, application and other documents provided by the Applicant;
- Brief review of secondary data sources to obtain background information and geographic setting for the Pike County Solar Project;
- Limited review of relevant evaluation criteria to identify potential issues and assessment approaches to serve as benchmarks for the adequacy review;
- Identification of additional information we deemed useful for a thorough review, and submittal of questions to the Applicant via Kentucky Public Service Commission General Counsel;
- Review of additional information supplied by the Applicant in response to the first set of submitted HE questions, and discussion of responses with the Siting Board staff;
- Completion of interviews and data collection with outside sources as identified in this document;
- Participation in a site visit, including a tour of the Project site with the Applicant and in-person meetings with local officials;

- Review of additional information supplied by the Applicant in response to a second set of questions submitted by HE, and discussion of responses with the Siting Board staff;
- Completion of analyses and evaluation of the impacts upon each of the previous identified resources; and
- Preparation of this report, which provides HE's conclusions as to potential Project impacts and mitigation recommendations.

Components of the Pike County Solar Facility Application

Pike County Solar Project, LLC's application package to the Siting Board (Application) consists of multiple documents, including the SAR and several reports and studies attached as exhibits to the SAR:

- The main Application document provides a summary overview of the Pike County Solar Project and the Applicant's responses to applicable KRS.
- Tabs 1 through 12 include, but are not limited to, the following:
    - Description of the proposed site, including maps of the project area
    - Public notice evidence and report
    - Compliance with local ordinances, regulations and setback requirements
    - Effect on Kentucky electricity transmission system
    - Economic Impact report
    - Site Assessment Report (SAR), including a Property Value Impact Analysis, Acoustic Assessment Report, Traffic Impact Study, Glare Analysis, Visual Simulations, and Decommissioning Plan.
    - Cumulative Environmental Assessment report
- Additionally, the Applicant provided a Motion for Deviation from Setback Requirements.

Additional Information Provided by the Applicant

Once HE reviewed the contents of the Application, including the SAR, HE and the Siting Board staff independently developed an initial list of detailed questions, either requesting additional information or asking for clarification about items in the SAR. The Siting Board staff submitted the first request for information, including questions from HE, on July 9, 2024; Pike County Solar provided written responses on July 22, 2024, supplemented by additional information provided on July 28, 2024.

HE and certain representatives from the Siting Board also met with the Applicant for an in-person meeting on July 30, 2024, to conduct a site visit and discuss remaining issues.

After HE and the Siting Board staff reviewed Pike County Solar's responses to the first request for information and following the site visit, HE and the Siting Board staff independently developed a second list of detailed questions. The Siting Board staff submitted the second request for information, including questions from HE, on August 13, 2024. Pike County Solar provided written responses to the second request for information on August 27, 2024.

Report Format

This report is intended to support the Siting Board in its decision-making process pertaining to a construction certificate for Pike County Solar Project, LLC. The report is structured to respond to the requirements for a SAR as outlined in KRS 278.708, the economic analysis described in KRS 278.706(j) and to our contract:

- This section of the report, Section 1, introduces the purpose and process of the SAR review and HE's work;
- Section 2 offers a summary and conclusions of HE's SAR evaluation;
- Section 3 describes the Pike County Solar Project and proposed site development plan;
- Section 4 provides a brief profile of Pike County's economic and demographic characteristics as context for the Project setting;
- Section 5 offers detailed findings and conclusions for each resource area; and
- Section 6 presents recommendations concerning mitigation measures and future Siting Board actions.

Caveats and Limitations

Review limited to resource areas/issues enumerated in the statutes. HE's evaluation of the Pike County Solar Project is contractually limited to a review of the SAR and associated materials, as well as the economic impact analysis. Statutes dictate the issues to be covered in the SAR; HE focused on those specific topic areas, which are addressed in this report. The Siting Board might have additional interests or concerns related to the construction, sitting, or operation of the Project; those may be addressed in other documents or by other parties.

Level of review detail determined by expert judgement. KRS 278.708 identifies the required components of an SAR; however, the level of scrutiny and detail of the evaluation depends upon expert judgement as to what information is relevant and what level of detail is appropriate. This level of review generally relates to the assessment methodologies, geographic extent of impacts and the degree of detailed information about the Project as requested by the consultant in follow-up inquiries. Given our experience related to project impact assessments and evaluation of impacts on various resource components, HE believes that we have

performed a thorough and comprehensive review of the Pike County Solar SAR, which will meet the needs of the Siting Board.

Assumption of accurate Applicant data. HE reviewed all the data and information provided by the Applicant as part of the SAR and associated documents, including responses to two sets of inquiries. Although we evaluated Applicant data for consistency and clarity as part of our review, we did not perform any type of audit to confirm the accuracy of the provided information. We assume that the Applicant has provided an honest representation of the Project, based on the best data available at the time.

During the site visit, the Applicant indicated that reclamation of the Project site (an inactive mining operation) has yet to be initiated or completed and that completion of reclamation activities may result in changes to the currently proposed locations of certain Project infrastructure. Additionally, in instances where the Applicant was unsure about certain aspects of the Project, such as construction worker traffic volumes, HE assumed a "worst case" for the purposes of the impact analysis. Should the actual Project development deviate in a manner that materially changes the Project magnitude or location of impacts, or affected parties, the Applicant can be required to notify the Siting Board for it to evaluate such a deviation and take appropriate action as deemed necessary. See mitigation recommendations in Section 6.

No evaluation of the proposed transmission line. The Application describes the proposed Project as including a transmission line approximately one mile in length. However, the Applicant has stated that no detailed information regarding the specific transmission line route, structures or construction schedule is available at this time. According to supplemental information provided by the Applicant, they intend "to seek either a Construction Certificate under KRS 278.714 or a Certificate of Public Convenience and Necessity ("CPCN") under KRS 278.020(1)(e), as applicable, depending on the length and capacity of the line). The kilovolt capacity of the transmission line is expected to be 138kV, but the length is subject to further design and access considerations such that it is currently unknown whether the line will be under one mile in length (and therefore non-regulated) or whether it will be more than one mile (and therefore require a CPCN)."[1]

Additionally, the Applicant has stated that after the permits and easements for the proposed transmission line are obtained, they will be transferred to Kentucky Power Company, who will extend a transmission line to the Project site and construct a switching station adjacent to the Project substation.

HE's review of the Pike County Solar Project SAR and associated materials excludes any detailed evaluation of effects related to the proposed transmission line.

Other solar projects / cumulative impacts. HE is unaware of any other solar energy generation facilities currently planned for location partially or fully within Pike County.

[1] Applicant's response to the Siting Board's second data request.

SECTION 2
Summary and Conclusions

On May 21, 2024, Pike County Solar Project, LLC (Pike County Solar or Applicant) applied to the Kentucky State Board on Electric Generation and Transmission Siting (Siting Board) for a construction certificate to construct a merchant electric generation facility and associated nonregulated transmission line. Pike County Solar's application (Application) responded to the statutory requirements set forth by the State of Kentucky in KRS 278.706 and 278.708.

The Siting Board retained Harvey Economics (HE) to review and evaluate the Site Assessment Report (SAR) included in the Application, as well as other supporting information provided by the Applicant. In addition to the topic areas included in the SAR, HE also addressed the Applicant's economic impact analysis and the topic of decommissioning. The results and conclusions from HE's review and evaluation are provided below. Recommended mitigation measures are offered in Section 6 of this report.

Facility Description and Site Development Plan

Pike County Solar proposes to construct an up to 100-megawatt (MW) alternating current photovoltaic electricity generation facility (Project or Solar Project) in western Pike County, KY, northeast of the City of Pikeville. The Project site encompasses a total of about 1,543 acres of reclaimed coal mine land. Solar infrastructure will include approximately 191,436 tracking solar panels, associated ground-mounted racking structures, 25 inverters and an underground electrical collection system. A Project substation will connect the Project to the existing Kentucky Power Company power grid via a constructed nonregulated, 138-kilovolt (kV) transmission line approximately one-mile long, that connects to the Excel to Johns Creek 138 kV transmission line. Four meteorological stations are anticipated across the Project site and an operations and maintenance building, located near the substation, may also be considered.

- ***Surrounding land uses*** – The area around the Project site predominantly consists of forested land, as well as residential properties. Heavy vegetation surrounds the Project site; much of the area is comprised of forested land. The Project site is elevated, with residential properties in the valleys below. An inactive mining operation is located to the south of the Project site and the Pike County Solid Waste facility is located about 0.8 miles to the southwest of the Project site. The unincorporated community of Meta is located immediately south of the Project site.

- ***Proximity to homes and other structures*** – A total of 127 residential structures and one non-residential structure (a cemetery) would be located within 2,000 feet of the Project boundary line. The closest home would be about 1,200 feet from a solar panel and further from any inverter or the Project substation. The residential structures are at elevations below the Project site.

- ***Locations of structures*** – Solar panels, inverters and below ground cabling will be located across the property. The Project substation will be located on the eastern side of the Project site, west of Brushy Road. An operations and maintenance (O&M) building may be located on-site adjacent to the Project substation. Approximately four meteorological stations may also be located on the Project site. A 138 kV transmission line is proposed to connect the Project substation to the existing Excel to Johns Creek 138 kV transmission line owned by the Kentucky Power Company.

- ***Locations of access ways*** – Four separate entrances will allow access to the Project site during construction and operations. Three entrances will be located along the Right Fork of Brushy Road on the west side of the Project site and one entrance will be located along Brushy Road on the east side of the Project site. Approximately 34,282 linear feet of access roads will be constructed across the Project site. The Project will not use railways for any construction or operational activities.

- ***Access control*** – A six-foot chain link fence meeting National Electric Safety Code (NESC) requirements will secure the solar arrays with locked access gates. A six-foot chain link fence with three strand barbed wire angled outward meeting NESC requirements will secure the substation. All gates will be locked outside of normal working hours. Project representatives also plan to engage with local law enforcement and fire services to provide information and to ensure they are familiar with the plan for security and emergency protocols during construction and operations.

- ***Utility service*** – Electric power required during construction and operation of the Project is expected to be provided via distribution line by the local electric utility, Kentucky Power. Water for construction-related dust control and operations will be obtained from several potential sources, including an on- or off-site groundwater well, or trucked from an offsite water purveyor. Portable toilets will be placed on site for construction workers; sewage waste will be disposed of at a permitted location selected by a licensed contractor.

- ***Project life*** – The Applicant anticipates a 35-year Project life for the Pike County Solar facility.

Project construction is expected to occur over a period of up to 18 months. Approximately 240 workers will be on-site throughout the construction period, depending on the types of activities occurring at any particular time. The majority of construction activity is expected to occur concurrently over a period of approximately eight months. The Project construction schedule and description of construction activities are provided in Section 3.

Setback requirements and requested deviation. The Applicant has entered a motion for a deviation from the existing setback requirements. HE reviewed this motion and believes that the Project meets the specific statutes of a setback deviation. The Siting Board must determine if these measures are sufficient.

Conclusions and recommendations. HE believes that the Applicant has generally complied with the legislative requirements for describing the Pike County Solar facility and the site development plan, as required by KRS 278.708.

Project Setting

Pike County had a 2023 population of about 56,000 people. With coal's diminishing role, population levels have been slowly declining over the past 20 years and are projected to continue that decline into the future. The City of Pikeville, southwest of the Project site, has an estimated 7,600 residents. Pikeville is home to multiple large employers, including the Pikeville Medical Center, several institutions of higher education and a large entertainment venue. The area immediately surrounding the Project site can be generally described as rural, including scattered small residential communities, as well as agricultural and mining operations. The County's history is rich in both coal mining and oil and gas production, although coal mining in the region has been on the decline for many years. The County is also home to several State Parks, historical sites and other outdoor recreational amenities. Residents' income levels are low, and they experience higher than average rates of poverty, as compared to other counties in Kentucky or the U.S.

Compatibility with Scenic Surroundings

The Project site is located at a former surface coal mine that is partially reclaimed and includes some forested, undeveloped land adjacent to areas that were disturbed during mining activities. The majority of the panels will be located on these previously cleared and disturbed areas, which occupy hilltops partially flattened during past mining operations. The elevation of the site ranges from approximately 840 feet above mean sea level to 1,600 feet at the highest hilltops.

The Project vicinity also features terrain with hilltops typically 400 to 600 feet higher in elevation than the surrounding valleys of nearby residences, roads, streams and creeks. Residences are located within these valleys along Stanley Fork Road, Brushy Road, Bent Branch Road, and Right Fork of Brushy Road. At higher elevations, the Project vicinity similarly includes both undeveloped, forested areas and other former coal mine sites. The Project site is located to the northeast of the City of Pikeville, the County seat, which offers a mix of commercial activities.

Scenic compatibility focuses largely on Project infrastructure, including solar panels, inverters, Project substation and the overhead transmission line. The shortest distance between a residence and a solar panel is about 1,200 feet; inverters and the Project substation are further from any residence or commercial structure. Given the area's topography and dense natural vegetation, the Project site will not be visible from most viewpoints. The overhead transmission line and support poles may be visible from several local residences.

The use of anti-glare panels will reduce the potential for glare from solar panels for local residents and drivers. However, the Applicant's glare study predicted that glare would occur at several locations surrounding the Project site. At each location, glare could occur for several minutes to several hours each day. Local topography and existing vegetation will likely reduce

glare impacts to local residents and drivers. Specific programming of the panels may also reduce the potential for glare.

The Applicant has not proposed any specific mitigation measures aimed at reducing potential visual impacts of the Project on adjacent residents, businesses, air pilots or local drivers, citing the presence of existing vegetation and the elevation of the Project site relative to the surrounding area. However, the Applicant has stated that additional vegetation may be used along Ford Mountain Road to minimize impacts from glare, if necessary.

Given its rural location, dense existing vegetation and the distances between Project components and nearby residences, HE believes the Pike County Solar facility can be considered compatible with the existing scenic surroundings.

Potential Changes in Property Values and Land Use

The Applicant's consultant, Kirkland Appraisals, LLC, provided an extensive database and analysis of property values, transactions, and estimated impacts of solar facilities in diverse locations, concluding that the Pike County Solar Project would have no effect on residential property values or undeveloped land.

To further assess potential property value impacts, HE: (1) reviewed existing literature related to solar facility impacts; (2) interviewed the Deputy Pike County Property Valuation Administrator; (3) conducted additional evaluation of the data provided by Mr. Kirkland; and (4) examined the potential for impacts to residential and other properties closest to the Project.

Most recent academic and applied research studies indicate little to no impact on property values related to proximity to solar facilities. The Deputy Pike County Property Valuation Administrator does not believe that property values will be affected by the presence of the solar facility. Additionally, HE's evaluation of the data provided by Mr. Kirkland also suggests that property values are unlikely to be affected by solar facilities. In evaluating this particular Project, we find that the visual and noise impact to proximate structures will likely be minimized by the local topography and existing natural vegetation.

Therefore, HE concludes that negative impacts to property values from this Project are unlikely as a general rule. This conclusion is predicated on the assumption that the mitigation strategies discussed in Section 6 are adopted by Pike County Solar and the Siting Board. Mitigation of visual and other effects, with close property owner coordination, can minimize uncertainties related to property values.

Anticipated Peak and Average Noise Levels

Neither the Commonwealth of Kentucky nor Pike County have noise ordinances applicable to this Project. As such, HE adopted the noise recommendations generated by the Environmental Protection Agency and the World Health Organization to gauge acceptable levels of sound.

Construction activities are expected to generate noise emissions greater than 65 decibels (dBA) throughout the 12- to 18-month construction period. This level is above standards for

annoyance, but the noise will be sporadic and decrease with distance from nearby residences. The pile driving process is the loudest part of the construction process. Road construction, substation construction and trenching activities, if used, may also be loud activities. Those activities will only occur in any one location for a short period of time, moving around the Project site until construction is complete. Since these construction activities are not sustained and located further than 1,000 feet from any residence, no hearing loss or long-term annoyance to residents is expected.

Noise from Project components during operations (inverters, transformers) is not anticipated to result in an increase to the local sound environment. Operational components would emit relatively low sounds during daylight hours and little sound at night. For all nearby residences, operational sound levels would be less than the 50.0 dBA noted by the World Health Organization (WHO) as potentially causing moderate annoyance. Noise from the Project's operational components is not likely to be annoying and may not be noticeable.

Thick natural vegetation surrounds most of the Project site; this vegetative buffer will help mitigate noise emissions that may be caused by Project construction and operations for nearby homeowners.

Road and Rail Traffic, Fugitive Dust and Road Degradation

The major road providing access to the Project site is US 119. This highway feeds into local roads that provide access to the Project site from the east and west.

Construction activities will cause noticeable increases in traffic volumes on several local roads, given light existing traffic volumes in the area. Passing may be an issue in some areas. These impacts will be temporary, occurring over the anticipated 18-month construction period, but may be annoying to local residents. Local roads are generally paved, two-lane roads, without shoulders present. The Applicant acknowledges that some safety measures during construction may be necessary for local roadways. Vehicle traffic, including commuting workers and heavy deliveries, may also have the potential to cause road degradation. The Applicant has committed to surveying the conditions of local roads before and after Project construction to assess for and fix damage caused by their vehicles. The Applicant does not anticipate improving public roads or right of ways prior to construction.

Given the few employees and deliveries required for Project operations, traffic impacts during the operational phase will be minimal.

The CSX Transportation (CSX) rail lines are located to the south and west of the Project area, along the far side of KY 194. The Project does not anticipate use of the railway for delivery of Project components. As currently proposed, vehicles will not travel over CSX road crossings to access the site for construction or operation.

Fugitive dust should not be an issue given the vegetative buffer surrounding the Project site and the Applicant's commitment to using best practices during construction and operational activities, including the application of water for dust suppression.

Economic Impact Analysis

Construction and operation of the Pike County Solar facility will provide some limited economic benefits to the region and the Commonwealth. Construction employment and income opportunities will be temporary, but local hires will increase employment and incomes in an area that needs it. The bulk of construction purchases will be made outside of Kentucky, limiting opportunities for local business activity or generation of additional sales tax.

Economic benefits during operations will be confined mostly to property taxes. Annual property tax payments will be made to Pike County taxing authorities, including the Pike County School District; however, those payments will likely amount to a small percentage of total tax revenues. Operational employment will be minimal, and purchases of materials or supplies will be small on an annual basis. The socioeconomic impacts of the Pike County Solar facility represent a positive, albeit small, contribution to the region.

Decommissioning

The Applicant assumes approximately a 35-year useful life for the Pike County Solar facility. The Applicant's Decommissioning Plan includes information about the dismantling and removal of solar facility components, site restoration and decommissioning cost estimates. The Applicant states that they will commit to financial surety in compliance with the specific requirements of Kentucky statutes.

Above- and below-ground Project facilities will be removed from the Project site, including panels, wiring, piles, inverter stations, security fencing, and access roads (unless a landowner requests that internal access roads remain on-site). Underground cabling located three feet or less will be removed and salvaged while cable located greater than three feet in depth may be abandoned in place. The Project substation and transmission line will remain in place unless otherwise requested by the landowner. Site restoration activities include de-compacting subsoils (if required), restoration and revegetation of disturbed land in accordance with the existing requirements for the coal mine reclamation on the site, and removal of temporary erosion control measures.

After site restoration, the land would return to pre-mining property values, thereby eliminating long-term Project-related impacts, compared with simply shuttering the solar facility. This process will also add a modest, temporary positive economic stimulus to the region.

Public Outreach and Communication

The Applicant has engaged in public outreach in Pike County and in the Project area since early 2024, including hosting a public meeting, posting notice in the local newspaper, mailing informational letters to adjacent landowners, meeting with local and County officials, and creating a Project website. However, attendance at the public meeting was somewhat low, and public awareness of the Project may be limited.

Complaint Resolution

The Applicant has stated that they "will identify a point of contact for any concerns, along with that person's contact information." However, Application materials do not provide any further detail about that plan. HE encourages the development of a detailed complaint resolution plan and formal complaint resolution process, applicable to both the construction and operational periods.

Conclusions and Recommendations

Based on our findings related to the specific siting considerations in the statutes and as addressed in this report, HE recommends that the Siting Board approve Pike County Solar, LLC's application for a certificate to construct a merchant electric generating facility. This finding assumes that the Project is developed as described in the SAR and the supplemental information, and the mitigation measures set forth in Section 6 of this report are adopted.

SECTION 3
Project Overview and Proposed Site Development Plan

Project Overview

The Pike County Solar Project, LLC Application describes the Pike County Solar Project as follows:

The proposed Project includes a solar-powered electric generation facility with an alternating current (AC) generating capacity of up to 100 MW (the Facility), an associated 138 kV, approximately one-mile long, nonregulated transmission line, and a project substation transformer. The Facility will be located on a reclaimed, mountaintop-removal coal mine site in an unincorporated area of Pike County, Kentucky. The area leased for the Facility includes approximately 1,543 acres of reclaimed mine land (the Facility Area). Within this Facility Area, the footprint of the Facility will only be approximately 500 acres based on the area underneath the solar arrays, inverters, substation, and private access roads. Access roads will be gravel-surfaced and approximately 16 feet in finished width, with the exception of the access to the substation being 20 feet in width.

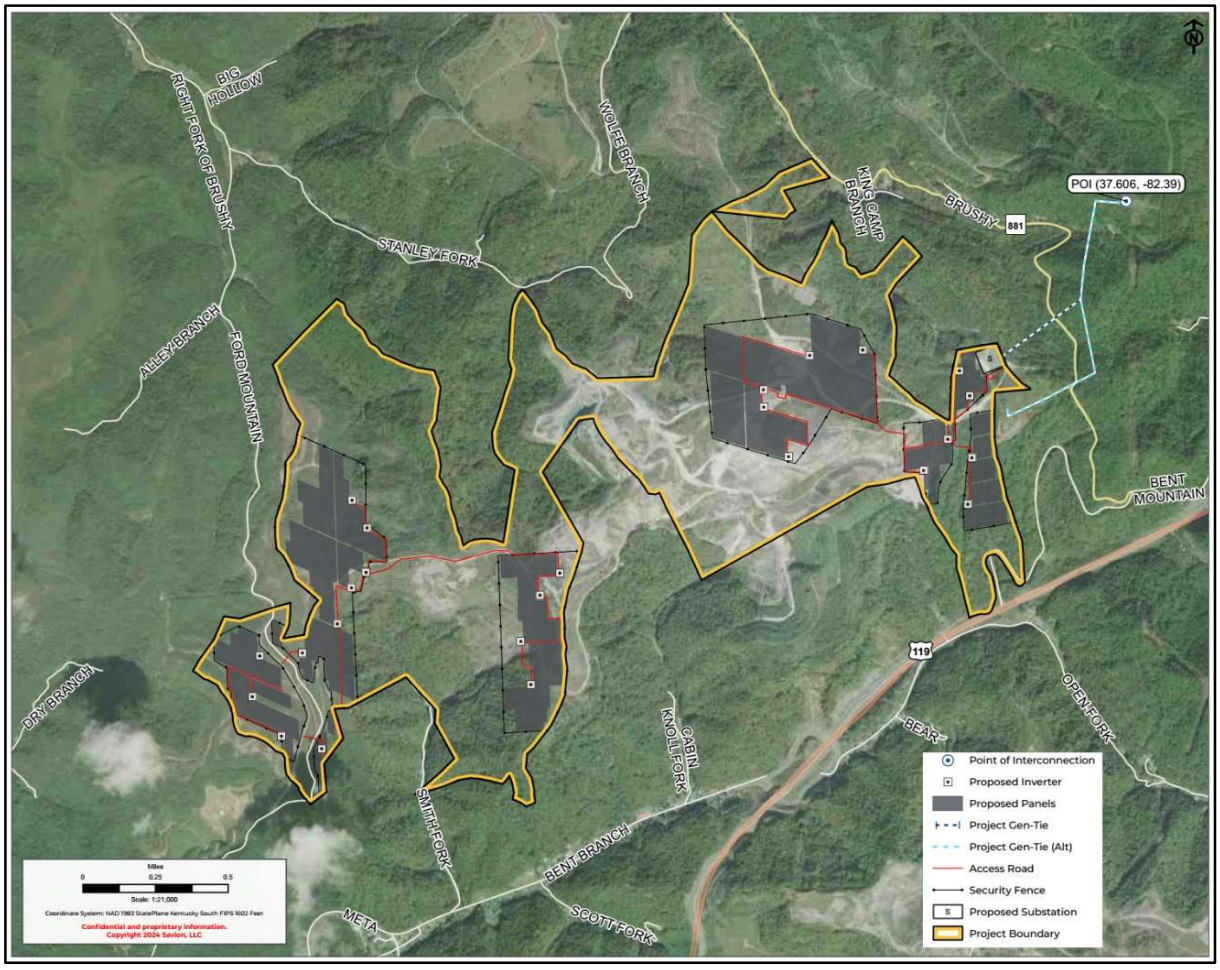
The Facility will use approximately 191,436 ground-mounted photovoltaic (PV) modules, commonly known as solar panels, to provide renewable energy to the Kentucky bulk power transmission system. Solar panels will be affixed to a metal racking system mounted on piles that will be installed into the ground in arrays. Arrays will be grouped into eight separate, contiguous clusters, and all of the array clusters will be within contiguous agricultural-style fences, which will be gated for equipment security and public safety.

The panel arrays will be connected to approximately 25 inverters, which will convert the direct current power generated by the solar panels to alternating current. From the inverters, a series of below-ground collection cables will deliver the electricity to the Facility substation. At the Facility substation, the voltage will be stepped up to allow connection to the regional electrical grid through the Project transmission line. The transmission line will be approximately one mile in length, generally traversing through vacant timberland to the point of interconnection (POI) at the existing Excel to Johns Creek 138 kV transmission line, which is owned by Kentucky Power Company (Kentucky Power), a wholly owned subsidiary of American Electric Power, Inc.

Exhibit 3-1 illustrates the Project boundaries and identifies locations of Project components, as provided by the Applicant in the SAR.[2]

[2] According to the Applicant, the exact route and length of the proposed transmission line is still to be determined.

Exhibit 3-1.
Location, Overview and Project Facilities Map for the Proposed Pike County Solar Project



Source: Pike County Solar, LLC, May 2024.

The Project site is located approximately 150 miles southeast of the City of Lexington and about 35 miles northwest of the border with West Virginia. The Project site is approximately 12 miles northeast of the City of Pikeville.

Construction Activities

Construction of the Pike County Solar facility is expected to occur over a period of about 15 to 18 months, as shown in Exhibit 3-2.[3] Peak construction activity is anticipated to occur over the first eight months of construction, during which time fencing and access road installation, pile installation, racking and module installation, and electrical work would overlap.

[3] An 18-month timeframe allows for potential construction delays due to weather or other factors.

Exhibit 3-2.
Preliminary Construction Schedule for the Proposed Pike County Solar Project

	MONTH														
TASK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Notice to Proceed	X														
Mobilization	X														
Civil Works - Fencing, Access Roads, Erosion Control	X	X	X	X	X	X	X								
Pile Installation		X	X	X	X	X									
Racking and Modules			X	X	X	X	X	X	X	X					
Combiner to Inverter Electrical			X	X	X	X	X	X	X						
Substation (Energize)														X	
Commissioning											X	X			
Mechanical Completion													X		
Substantial Completion														X	
Final Completion															X

Source: Pike County Solar Project, LLC, July 2024.

Construction activities will occur concurrently when and where possible across the Project site. However, the nature of construction is that some activities must occur sequentially.

Approximately 240 workers would be on-site at any particular time, depending on the specific tasks and activities occurring at the time. According to the Applicant, construction workers will arrive at the Project site between the hours of 7:00am and 9:00am and will generally depart between 3:00pm and 6:00pm.[4] Equipment deliveries will occur at various times during the day. Construction activities are anticipated to occur six days per week, excluding Sundays.

Life of the Project

The Pike County Solar facility is anticipated to operate for approximately 35 years. Project decommissioning (the process of closing the facility to retire it from service) is discussed in Section 5 of this report.

Proposed Site Development Plan

The following discussion addresses each of the SAR requirements for a proposed site development plan, as laid out in KRS 278.708(3)(a).

Surrounding land uses. Land surrounding the Project site and transmission line route predominantly consists of forested land, as well as residential properties. As noted, the Project is proposed to be located on land that is currently an inactive coal mine site, elevated above the valley floors surrounding the project.[5] Land uses in the area immediately surrounding the

[4] Per the Acoustic Report (SAR Tab 12, Exhibit D) pile driving may occur as late as 8:00pm.
[5] Reclamation of the Project site has not yet been completed. It is HE's understanding that reclamation will need to be completed prior to the commencement of construction of any solar facility infrastructure.

Project site can be categorized as predominantly agricultural and residential, as shown in Exhibit 3-3.

Exhibit 3-3.
Land Uses of Properties Adjoining the Proposed Pike County Solar Project

Land Use	% Total Adjoining Acres
Agricultural	71.55%
Residential	16.27%
Agriculture / Residential	6.97%
Industrial	4.43%
Utility	0.77%
Total	100.00%

Note: The Industrial land use noted in this Exhibit was identified by the Applicant as the Pike County Solid Waste recycling center.

Source: Pike County Solar, LLC, May 2024.

A portion of the original coal mine operation is located to the south of the Project site; that property is not part of the Pike County Solar Project. Mining at that location is also currently inactive. Section 4 of this report provides a general overview of the County's demographic and economic characteristics.

The Applicant also provided information describing the distances between nearby residential and non-residential structures and the Project boundary, solar panels, inverters and the substation.[6] The area within 2,000 feet of the Project site includes 127 homes and one non-residential structure.[7] Exhibit 3-4 summarizes information about the distances between structures and the Project boundary.

[6] As noted in Section 1 of this report, HE did not evaluate the proposed transmission line as part of this effort.

[7] The non-residential structure within 2,000 feet the Project boundary is a cemetery.

Exhibit 3-4.
Distances between Residential and Non-Residential Structures and the Proposed Pike County Solar Project Boundary

Distance from Project Boundary	Residential Structures	Non-Residential Structures
0 - 300 feet	18	0
301 - 600 feet	5	0
601 - 900 feet	8	0
901 - 1,200 feet	24	0
1,201 - 1,500 feet	39	0
1,501 - 1,800 feet	20	0
1,801 - 2,000 feet	13	1
Total Structures	**127**	**1**

Note: The non-residential structure indicated in the Exhibit above is a cemetery.
Source: Pike County Solar, LLC, August 2024.

The shortest distance between residences and Project generation facilities are as follows:

- Solar panels: 1,199 feet
- Inverter: 1,753 feet
- Project substation: 1,846 feet

Legal boundaries. Legal descriptions of the parcels which will comprise the Project site are provided in Tab 12, Exhibit C of the Application.[8] According to the Applicant, the Project site is comprised of 18 individual parcels owned by a single participating landowner.

During the site visit, the Applicant mentioned that the Project boundary lines surrounding the participating landowner parcels may be revised after additional land surveying has occurred. For example, an adjoining parcel of land in the lower middle portion of the Project site (the "cut-out" section northwest of Cabin Knoll Fork) belongs to a currently non-participating landowner. Depending on the reclamation work performed, land surveys and final grading across the Project site, the Applicant may need to enter into a right-of-way easement with the non-participating landowner to allow deliveries of Project components across that section of the former mine during construction.

Access control. A total of four entrances to the Project site are proposed. Three entrances will be located along the Right Fork of Brushy Road on the west side of the Project site and one entrance will be located along Brushy Road on the east side of the Project site. Those four entrances will be used during construction and operations. Six-foot chain link fences meeting National Electric Safety Code (NESC) requirements will secure each of the eight

[8] That information does not include the proposed transmission line route. The Applicant has indicated that they are currently in negotiations with potential participating landowners regarding the transmission line. The exact route of that line will be determined by landowner interest and willingness to participate.

separate solar array sections with locked access gates. A separate six-foot chain link fence with three strand barbed wire angled outward meeting NESC requirements will secure the substation. All gates will be locked outside of normal working hours.

Pike County Solar representatives also plan to engage with local law enforcement and fire services to provide information and to ensure they are familiar with the plan for security and emergency protocols during construction and operations. These departments include the Pike County Sheriff's Office, Pikeville Police Department, Pike County Office of Emergency Management, Pikeville Fire Department and the Pikeville Medical Center.

Location of buildings, transmission lines and other structures. Approximately 191,436 solar panels, 25 inverters and a Project substation will be located across about 500 acres within the Project site. Below-ground collection cables will be used to deliver electricity to the Project substation, which will be located on the eastern side of the Project site. A proposed transmission line, approximately one mile in length, will connect the Project to the existing Excel to Johns Creek 138 kV transmission line, located to the northeast of the Project site. The transmission line will generally run in a northeasterly direction away from the Project.[9] The preliminary locations of the panels, inverters and substation can be seen in Exhibit 3-1 of this report. As depicted in that Exhibit, the solar panels will be grouped into eight separate sections within the site. If an O&M building is determined to be necessary for the Project, it would likely be approximately 30 feet by 40 feet in size and located near the Project substation. Additionally, approximately four meteorological stations will be installed across the Project site.

A small portion of the Project site will be used as temporary construction mobilization and laydown areas, which will contain the office trailer, worker parking, equipment and material staging or storage, above ground water and fuel tanks, and assembly areas for the duration of construction activities. One central laydown area near the middle of the site is anticipated, with smaller auxiliary laydown areas placed near proposed solar array parcels. Once construction is complete, all temporary office trailers, equipment, unused materials, and any debris will be removed from the Project Site.

Location and use of access ways, internal roads and railways. As noted previously, four separate entrance locations will allow access to different sections of the Project site during construction and operations. Three entrances will be located along the Right Fork of Brushy Road on the west side of the Project site and one entrance will be located along Brushy Road on the east side of the Project site.

Approximately 34,282 feet of access roads are currently proposed to be constructed across the Project site. Access roads will be gravel-surfaced and approximately 16 feet in finished width, with the exception of the access to the substation being 20 feet in width. However, the Applicant has indicated the potential need for additional access road construction within the Project site. For example, the transformer is likely to be delivered to the substation area using

[9] As noted in Section 1 of this report, HE did not evaluate the proposed transmission line as part of this effort.

internal roads within the Project site.[10] All Project deliveries are anticipated to use the northeast entrance off Ford Mountain Road, and the proposed access roads do not connect the site entrances off Ford Mountain Road and Right Fork of Brushy Road to the proposed substation location on the eastern side of the Project site.[11]

A CSX Transportation railway line runs along KY 194, to the south and west of the Project site. The Project will not use railways for any construction or operational activities.

Existing or proposed utilities to service facility. Electric power required during construction and operation of the Project is expected to be provided via distribution line by the local electric utility, Kentucky Power. Water for construction-related dust control and operations will be obtained from several potential sources, including an on- or off-site groundwater well, or trucked from an offsite water purveyor. Designated waste management companies will manage any waste generated on site. Waste produced on site is expected to be minimal and will be mainly related to maintenance or repair of construction equipment. Additionally, portable toilets will be placed on site for construction workers. Licensed contractors will be responsible for pumping sewage from the portable toilets. The sewage waste will be disposed of at a permitted location selected by the toilet contractor.

Compliance with applicable setback requirements. Applicable portions of the setback statute (KRS 278.706(2)(e)) state that "all proposed structures or facilities used for generation of electricity will be 2,000 feet from any residential neighborhood, school, hospital, or nursing home facility."[12] Pike County has no planning and zoning ordinances governing relevant setback requirements; therefore, the Kentucky statutory setback requirements apply to the Pike County Solar facility. Eight areas identified as residential neighborhoods are located within 2,000 feet of the Project site.[13] There are no schools, hospitals or nursing homes within 2,000 feet of the Applicant's proposed location of Project structures or facilities used for generating electricity.

The Applicant has submitted a document titled Motion for Deviation from Setback Requirement (Motion for Deviation). According to the Applicant, the Project cannot be configured to meet the 2,000-foot setback requirements (while maintaining the 100 MW capacity) due to limitations on the buildable area within the Project site and some challenging topography in the area. The Applicant contends that, in this case, "the goals of the statutory setback can be achieved with a lesser setback due to the unique site and applicable topography," suggesting that the elevation change between residences and the Project site will limit potential impacts.

[10] During the site visit, the Applicant became aware that the intended route for transformer delivery would be unlikely due to existing road configuration on the east side of the Project site.
[11] Applicant's response to the Siting Board's second data request.
[12] According to KRS 278.700(6), a residential neighborhood is a populated area of five or more acres containing at last one residential structure per acre.
[13] Because Project infrastructure will only occupy about 500 acres of the 1,543 acre Project site, residences are located relatively far from the proposed locations of Project infrastructure. Only three residences would be located within 2,000 feet of any Project infrastructure used for the generation of electricity.

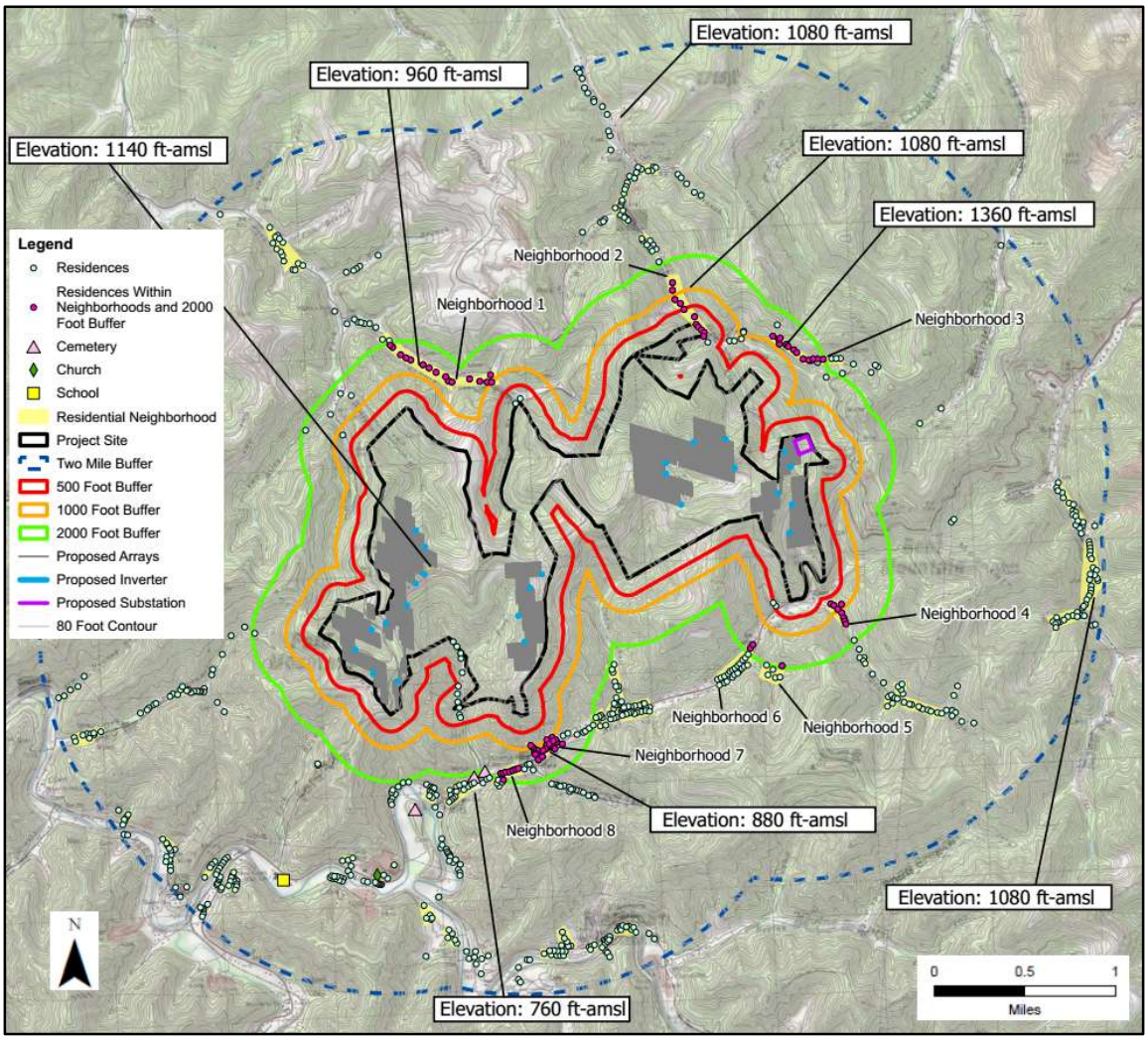
KRS 278.704(4) states that deviations from the setback requirements may be granted "on a finding that the proposed facility is designed to, and as located, would meet the goals of KRS 224.10-280, 278.010, 278.212, 278.214, 278.216, 278,218, and 278.700 to 278.716 at a distance closer than those outlined in the setback statute."

The Motion for Deviation addresses each of the statutes listed above, describing the Applicant's or the Facility's compliance with each. That document also provides descriptions of the eight residential neighborhoods within 2,000 feet of the Project site.

Residential neighborhoods. Exhibit 3-5 illustrates the eight residential neighborhoods identified in the Motion for Deviation as being located within 2,000 feet of the Project boundary. Only three residences (two located in Neighborhood 4 and one located in Neighborhood 3) are located with 2,000 feet of any Project infrastructure used for generating electricity.[14] Photos of select homes in those areas are provided in Appendix B of this report.[15]

[14] Data provided in the Motion for Deviation regarding distances between neighborhood residences and Project infrastructure was updated in response to the Siting Board's first data request. That update included one home in Neighborhood 3 located within 2,000 feet of an inverter.
[15] Photos were taken by HE staff as part of the Project site visit.

Exhibit 3-5.
Pike County Solar Project Boundary, Project Infrastructure and Location of Nearby Residential Neighborhoods



Source: Pike County Solar, LLC, July 2024.

Exhibit 3-6 describes each of the identified residential neighborhoods located within 2,000 feet of the Project boundary.

Exhibit 3-6.
Description of the Residential Neighborhoods within 2,000 feet of the Proposed Pike County Solar Project Boundary

Residential Neighborhood ID	Number of Residences in Neighborhood	Nearest Project Component	Distance to Nearest Project Component
1	16	PV Panel	3,812 feet
2	11	PV Panel	2,452 feet
3 (1)	15	Inverter	1,841 feet
4 (2)	8	PV Panel	1,879 feet
5 (3)	6	PV Panel	3,536 feet
6 (4)	24	PV Panel	3,024 feet
7	26	PV Panel	2,118 feet
8 (5)	12	PV Panel	2,940 feet

Notes: (1) Residential Neighborhood 3 includes one residence located within 2,000 feet of an inverter.
(2) Residential Neighborhood 4 includes two residences located within 2,000 feet of a solar panel.
(3) Only one of the six residences is located within 2,000 feet of the Project boundary.
(4) Only two of the 24 residences are located within 2,000 feet of the Project boundary.
(5) Only eight of the 12 residences are located within 2,000 feet of the Project boundary.

Sources: Pike County Solar, LLC, May 2024; Pike County Solar, LLC, July 2024.

Compliance with statutory requirements. The Motion for Deviation described the Applicant's or facility's compliance with applicable requirements as follows:

- ***KRS 224.10-280: Cumulative Environmental Assessment (CEA):*** The Applicant has provided a CEA that addresses air pollutants, water pollutants, waste, and water withdrawal. That report (included in Tab 5 of the SAR) provides a detailed discussion of each topic area and concludes the following:

    - ***Air pollutants*** – Increases in air pollutant emissions would occur during development and construction of the facility, resulting from operation and staging of supplies and construction equipment, worker personnel vehicles, and equipment and supply deliveries. To reduce impacts to air quality, the Project will require contractors to implement best management practices (BMPs), which may include activities such as wetting areas to reduce dust and covering loads to minimize dust emissions. Overall, impacts on air quality will be minor due to being localized and temporary in nature.

      During operation, the only anticipated emissions associated with the facility are those from maintenance vehicles, such as trucks used by technicians and equipment used during mowing and other vegetation control.

    - ***Water quality*** – Construction activities may increase erosion and sedimentation. To minimize impacts, the Project will utilize the existing landscape where possible to eliminate grading. Where grading is unavoidable,

the process will be completed by making efforts to match existing slopes. Pike County Solar expects the Project to have storm water discharge during construction and intends to comply with the Kentucky Division of Water (KDOW) Construction Storm Water Discharge General Permit (Permit Number KYR10). Pike County Solar or its contractor will prepare and implement a stormwater pollution prevention plan (SWPPP) to comply with KDOW requirements and will implement BMPs.

Development of the Project is not anticipated to have any negative impacts to groundwater. Rainwater would run off the panels and either be absorbed into the ground and enter the aquifer or be collected by nearby surface water features. Contractors will utilize BMPs to minimize the risk of leaks and spills and implement plans and procedures to immediately address spills and leaks that may occur.

- ***Wastes*** **–** All waste generated during the construction and operation of the Project will be disposed of following all local, state and federal regulations. Waste generated during construction activities will include wooden crates, pallets, cardboard boxes and other packaging material. Additionally, excess wiring and other random debris could be intermittently produced. Primary construction materials stored on site will be liquids such as used oil, diesel fuel, gasoline, hydraulic fluid, and other lubricants. Proper disposal containers, obtained by a waste disposal contractor, will be located at on-site staging areas. Significant environmental impacts caused by a potential spill are not anticipated due to the small quantity of materials and the implementation of proper clean up procedures.

  Designated waste management companies will manage any waste generated on-site. Waste produced on-site is expected to be minimal and will be mainly related to maintenance or repair of construction equipment. Portable toilets will be placed on-site for construction workers. Licensed contractors will be responsible for pumping sewage from the portable toilets. The sewage waste will be disposed of at a permitted location selected by the toilet contractor.

- ***Water withdrawal*** **–** Water for construction-related dust control and operations will be obtained from several potential sources, including an on- or off-site groundwater well, or trucked from an off-site water purveyor.

  Water use related to construction activities will include site preparation such as dust control and grading activities. The primary use of water would be for the grading of access roads, foundations, and equipment pads. Proper BMPs outlined in the SWPPP will be followed during equipment washing and potential dust control discharges. Groundwater resources are not anticipated to be adversely affected by the volume of water required during the construction process.

Solar electricity operation is not a water-intensive process. Manual washing of solar panels is not anticipated. Rainfall in the region will suffice to remove dust and other debris from the PV panels. However, water will be used for vegetation management needs, including any screening vegetation installation and during prolonged periods of drought.

- ***KRS 278.010: Definitions applicable to associated statutes:*** The Motion for Deviation states that to the extent relevant, the Applicant has satisfied any goals of KRS 278.010 by preparing and presenting its Project proposal and Application in terms consistent with the statutory definitions.

- ***KRS 278.212: Filing of plans for electrical interconnection with merchant electric generation facility; costs of upgrading existing grid:*** The Motion for Deviation states that the Applicant anticipates having an executed interconnect agreement with Kentucky Power, a wholly owned subsidiary of American Electric Power, Inc., to connect to the existing transmission grid via the point of interconnection at the Excel to Johns Creek 138 kV transmission line.

- ***KRS 278.214: Curtailment of service or generation and transmission cooperative:*** The Motion for Deviation states that, to the extent this section applies to the operation of the Applicant's proposed generation or the Project, the Applicant commits to following all appropriate and legally binding operating procedures.

- ***KRS 278.216: Site compatibility certificate; site assessment report; commission action on application:*** This statute is not specifically addressed in the Motion for Deviation; however, Pike County Solar's filing of a site assessment report as part of its Application in the present proceeding satisfies the goals of KRS 278.216.

- ***KRS 278.218: Approval of commission for change in ownership or control of assets owned by utility:*** The Applicant is not a utility as defined by the applicable statute; therefore, the Motion for Deviation states that this statute does not apply to the Applicant. However, the Motion for Deviation also states that "to the extent Board approval may at some time be required for change of ownership or control of assets owned by Applicant or its parent company, Applicant will comply with the applicable rules and regulations which govern its operation."

- ***KRS 278.700 – 278.716: Electric Generation and Transmission Siting:*** The Motion for Deviation states that the Applicant's application and timely participation in the present proceeding demonstrates that the Project is designed to, and as located, would meet the goals of KRS 278.700 *et seq.*, including the allowance for deviation from setback requirements in KRS 278.704(4).

Evaluation of noise levels produced by facility. Noise levels related to facility construction and operations are discussed in detail in Section 5 of this report.

Results of SAR Review – Proposed Site Development Plan

Conclusions. Based on HE's review of the Pike County Solar SAR, the subsequent information provided by the Applicant in response to two rounds of inquiries, direct discussions with the Applicant, and other secondary area research, HE offers the following conclusions regarding the proposed site development plan:

- We believe that the Applicant has generally complied with the legislative requirements for describing the facility and a site development plan, as required by KRS 278.708.

- Security and access control measures appear to be adequate, given the type of facility and its location in a rural area.

- The Pike County Solar Project does not meet the existing setback requirements, so the Applicant has submitted a motion for a deviation from those requirements. HE believes that the Project, as proposed, does meet the specific statutes noted for consideration in a setback deviation, assuming the mitigation HE proposes is adopted. The Siting Board will need to judge the quality of the Applicant responses in the setback deviation request.

Need for mitigation. Mitigation measures described in the SAR, or recommended by HE, which are related to the description of the facility and the proposed site development plan include:

1. A final site layout plan should be submitted to the Siting Board upon completion of the final site design. Deviations from the preliminary site layout plan, which formed the basis for HE's review, should be clearly indicated on the revised graphic. Those changes could include, but are not limited to, the location of solar panels, inverters, transformers, substation, O&M building or other Project facilities or infrastructure, including internal access roads. Given that mine reclamation is underway and will influence the site plan, deviations from the preliminary plan can be expected.

2. Any change in Project boundaries, including easements, from the information which formed this evaluation should be submitted to the Siting Board for review.

3. The Siting Board will determine if any deviation in the site boundaries or site layout plan are likely to create a materially different pattern or magnitude of impacts. If not, no further action is required, but if yes, the Applicant will support the Siting Board's effort to revise its assessment of impact and mitigation requirements.

4. No details of the final Project transmission line route, including final locations of transmission line structures and distances from nearby residences have been submitted thus far. The Applicant commits to bringing a detailed review of the potential effects associated with the construction and maintenance of the transmission line to the Siting Board as part of a separate permitting effort.

5. A final, Project-specific construction schedule, including revised estimates of on-site workers and commuter vehicle traffic, should be submitted to the Siting Board. Deviations from the preliminary construction schedule should be clearly indicated.

6. The Siting Board will determine whether any deviation to the construction schedule or workforce estimates is likely to create a materially different pattern or magnitude of impacts. If not, no further action is required. If so, the Applicant will support the Siting Board's effort to revise its assessment of impacts and mitigation requirements.

7. The Applicant or its contractor will control access to the site during construction and operation. Site entrances will be gated and locked when not in use.

8. The Applicant's access control strategy will include appropriate signage to warn potential trespassers. The Applicant will ensure that the site entrance and boundaries have adequate signage, particularly in locations visible to the public, local residents and business owners.

9. According to National Electrical Safety Code regulations, the security fence must be installed prior to any electrical installation work. The substation will have its own separate security fence and locked access installed.

10. The Applicant will meet with local law enforcement agencies and fire services to provide information and ensure they are familiar with the plan for security and emergency protocols during construction and operations.

11. Prior to construction, the Applicant will provide a finalized Emergency Response Plan to the local fire district, first responders, and any County Emergency Management Agency. The Applicant will provide site-specific training for local emergency responders at their request. Access for fire and emergency units shall be set up after consultation with local authorities.

SECTION 4
Project Setting

Description of the Area

This section provides a description of the area surrounding the proposed Project site. The Project site is located in Pike County, northeast of the city of Pikeville, which is the Pike County seat, and near the unincorporated communities of Meta and Sidney. Pike County is the easternmost county in Kentucky. The area's topography varies, evenly dispersed with mountain ridges and valleys throughout the County. Featured along the County's southern border is Pine Mountain, a straight spine-like ridge extending more than 100 miles. Elevations in the area reach more than 3,000 feet in some locations. The eastern boundary of the County is defined by the Tug Fork of Big Sandy River.[16] The area's history is comprised of both the coal and steel industries, in addition to being the home of the infamous Hatfield and McCoy dispute, where many historical sites can be found.[17,18] Fishtrap Lake State Park, a camping and recreational park along a meandering lake is located in the County with some of Kentucky's best fishing.[19]

Population and housing density. As of mid-2023, approximately 56,000 people resided in Pike County.[20] The County's population has declined over the past 20 years as people have moved closer to the larger cities in Kentucky to the west; in 2000 the population was 68,700 and in 2010 the population was 65,000.[21,22] The population has been in a steady decline as the coal industry has been nearly shut down in the region.[23] Much of the current mining work is done using automation. Over 95 percent of the population is white and the median age of residents is 42.5.[24] Pike County is predicted to continue its population decline; the Kentucky State Data Center estimates 35,100 people will reside in the County in 2050, which is more than a 37 percent

[16] Kentucky Geological Survey. Groundwater Resources of Pike County, Kentucky.
https://www.uky.edu/KGS/water/library/gwatlas/Pike/Topography.htm
[17] Pike County Historical Society. Natural Resources.
https://pikecountykyhistoricalsociety.com/natural-resources-development/
[18] Big Sandy Heritage Center Museum.
https://bigsandyheritage.com/
[19] State Parks. Fishtrap Lake in Kentucky.
https://www.stateparks.com/fishtrap_lake_state_park_in_kentucky.html
[20] U.S. Census Bureau. Pike County QuickFacts.
https://www.census.gov/quickfacts/pikecountykentucky
[21] U.S. Census Bureau. Pike County, Kentucky, Profile of General Demographic Characteristics.
https://data.census.gov/cedsci/table?q=pike%20county%20kentucky&y=2000&tid=DECENNIALDPSF42000.DP1&hidePreview=true
[22] U.S. Census Bureau. Pike County, Kentucky, Annual Estimates of the Resident Population: April 2010 – July 1, 2019.
https://data.census.gov/cedsci/table?q=pike%20county%20kentucky&tid=PEPPOP2019.PEPANNRES&hidePreview=true
[23] Lexington Herald Leader. Local County News. Rural Counties Losing People While Urban Areas Grow.
https://www.kentucky.com/news/local/counties/fayette-county/article253466344.html
[24] U.S. Census Bureau. Pike County, Kentucky, Age and Sex.
https://data.census.gov/table/ACSST5Y2022.S0101?q=pike%20county%20kentucky&hidePreview=false

decrease from 2023.[25] Currently, there are about 24,000 households in Pike County, with an average of 2.4 persons per household.[26] With a density of about 80 people per square mile, Pike County is more sparsely populated than most other counties in Kentucky.[27]

Pikeville is the largest city in Pike County, with a population of about 7,600 people, and is located approximately 12 miles southwest of the Project site. The remainder of the County is made up of residential communities with fewer than 1,000 people in each.[28] Located about 140 miles to the northwest of the Project site is Lexington-Fayette, Kentucky with a population of 320,200 in 2023.[29]

Income. In 2023, the per capita personal income in Pike County was $25,153. This was 25 percent less than the average per capita personal income in the Commonwealth of Kentucky, and 39 percent less than the average in the United States. As of mid-2023, about 25 percent of the Pike County population lived in poverty.[30]

Business and industry. In 2022, there were about 25,900 jobs in Pike County, with 82 percent classified as wage and salary jobs and 18 percent being proprietors' employment.[31]

- Health care is the largest employment sector in Pike County, with 5,296 jobs.[32] The area is home to a large medical facility, Pikeville Medical Center, which employs over 3,100 people.[33]

- The University of Pikeville, with a student body of over 2,500, and a campus location of the Big Sandy Community and Technical College, with nearly 800 enrolled, are also located in Pikeville.[34,35] UPIKE has many undergraduate and graduate offerings, and it has a nationally ranked college of Optometry.

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[25] Kentucky State Data Center, Projections of Population and Households, State of Kentucky, Kentucky Counties, and Area Development Districts 2020 – 2050.
https://louisville.app.box.com/s/rh39adf5ou0cd0aduxe5dnodanj3ftf0/file/993066674933
[26] U.S. Census Bureau. Pike County QuickFacts.
https://www.census.gov/quickfacts/pikecountykentucky
[27] Statistical Atlas. Pike County, Kentucky.
https://statisticalatlas.com/county/Kentucky/Pike-County/Population
[28] Kentucky Gazetteer. Home Town Locator. Pike County KY.
https://kentucky.hometownlocator.com/counties/cities,cfips,195,c,pike.cfm
[29] U.S. Census Bureau. Lexington-Fayette QuickFacts.
https://www.census.gov/quickfacts/fact/table/lexingtonfayetteurbancountykentucky
[30] U.S. Census Bureau. Pike County, State of Kentucky, and US QuickFacts.
https://www.census.gov/quickfacts/fact/table/pikecountykentucky,KY,US/
[31] Bureau of Economic Analysis. Pike County, Regional Data, GDP and Personal Income.
https://apps.bea.gov/iTable/
[32] Bureau of Economic Analysis. Pike County, Industry by Occupation.
https://apps.bea.gov/itable/
[33] Pikeville Medical Center. Centers of Medical Excellence.
https://www.pikevillehospital.org/
[34] University of Pikeville. Campus News. UPIKE Celebrates Record Enrollment and Retention.
https://www.upike.edu/upike-celebrates-record-enrollment-and-retention/
[35] Big Sandy Community and Technical College. About.
https://bigsandy.kctcs.edu/about/college-at-a-glance/index.aspx

- The retail trade sector generates over 4,171 jobs.[36] Appalachian Wireless Arena is a 7,000-seat capacity venue in the City of Pikeville that holds many nationally touring concerts and events for residents of eastern Kentucky as well as neighboring states.[37] Many restaurants and hotels are nearby to support the crowds. Most retail jobs are located in the City of Pikeville in support of the large facilities described above.

- Government is the next largest employment sector, with 3,152 jobs in 2022. About 72 percent of those jobs are in local government positions.

- The mining, quarrying, and oil and gas extraction employment sector has 1,831 jobs.[38] Although the coal industry has declined in Pike County, the area remains one of the nation's leading coal producers. It is also a leader in natural gas production. In December 2022, Pike County was the most productive gas producing county in Kentucky, accounting for 22 percent of the state's gas production.[39]

Major and minor roads and railways. The Project site is bounded on the south by US 119, KY 1426 and KY 194, on the west by Ford Mountain Road and Right Fork of Brushy Road, with a portion of the site crossing Right Fork of Brushy Road, on the north by Stanley Fork and Wolf Branch roads, and the east by Brushy Road, also known as KY 881. The two nearest U.S. Highways are US 119 to the south and east of the Project site and US 23 to the west. Interstate 64 is about 80 miles to the north in West Virginia and is the nearest interstate. A CSX Transportation railway route has an endpoint in Pikeville. Numerous Norfolk Southern rail routes run along the Kentucky/West Virginia border, further east of the Project site.

Overall area description. The area around the Project site can be generally described as rural with a few residential communities nearby and within close proximity to the City of Pikeville. Pike County was historically a prominent coal mining county and remains at the top of the state's coal production. The area has a picturesque landscape with access to state parks, Breaks Interstate Park (shared with Virginia), which is referred to as the Grand Canyon of the South, as well as the Daniel Boone National Forest.[40,41] Pike County's population is expected to decrease over the next 30 years. Residents' income levels are low, and they currently experience a slightly higher rate of poverty than the entire Commonwealth of Kentucky, which is higher than the average poverty level in the U.S.[42]

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[36] Bureau of Economic Analysis. Pike County, Industry by Occupation.
https://apps.bea.gov/itable/
[37] Appalachian Wireless Arena. Highlights.
https://www.appalachianwirelessarena.com/highlights
[38] Bureau of Economic Analysis. Pike County, Industry by Occupation.
https://apps.bea.gov/itable/
[39] ShaleXP. Oil and Gas Data Visualization and Research. Pike County Kentucky.
https://www.shalexp.com/kentucky/pike-county
[40] Breaks Interstate Park.
https://www.breakspark.com//
[41] US Forest Service, Daniel Boone National Forest.
https://www.fs.usda.gov/dbnf//
[42] U.S. Census Bureau. Kentucky QuickFacts.
https://www.census.gov/quickfacts/fact/table/KY/POP060210

SECTION 5
Description of Impacts

This section of the report addresses impacts to the following resource topics, as enumerated in KRS 278.708 and KRS 278.706(j):

- Compatibility of the facility with scenic surroundings;
- Potential changes in property values and land use for adjacent property owners;
- Anticipated peak and average noise levels;
- Road and rail traffic, fugitive dust and anticipated degradation of roads and lands; and
- Economic impacts on the region and the state.

The statutes require that the SAR provides information about impacts to the above resources resulting from short-term construction activities and longer-term operational activities. The Siting Board also directed HE to address the potential effects of decommissioning activities, and that discussion is included in this section.

For each resource topic, HE describes generally accepted assessment criteria or methodology necessary to evaluate impacts of a project of this nature. We then summarize the relevant information included in the SAR, as well as supplemental information about the Pike County Solar Project provided by the Applicant in response to data inquiries. HE also provides additional information gathered about the Project and its potential impacts on the region through secondary source research, including interviews. Finally, HE draws conclusions about Project impacts as well as recommended mitigation measures.

Facility Compatibility with Scenic Surroundings

This component of the statute relates to how well the proposed facility will "blend-in" or is compatible with its physical surroundings and associated land uses. For example, certain industrial facilities can be unsightly, visually unappealing, and generally incongruous with the surrounding area. Coal-fired electric generating plants often have large smokestacks that can be seen from far away. Wind turbines are tall, and their blades can be seen spinning from miles away, etc. Generally, solar farms are considered to be less visually intrusive, as they are relatively short in stature, and can be effectively visually blocked naturally with topographic variation or intervening vegetation, or through strategic means utilized by an applicant.

General methods of assessment. Visual impacts of solar facilities are highly dependent on the characteristics of the surrounding area, i.e., industrial, suburban residential, rural/agricultural. As a result, different methods may be used to assess the visual impacts of solar facilities, depending on location. The Argonne National Laboratory's Environmental Science Division and the National Park Service jointly developed the *Guide to Evaluating Visual Impact Assessments for Renewable Energy Projects*; that document is a guide designed to help planners

evaluate the quality and completeness of visual impact assessments for solar and wind facilities.[43] Additional reports have been published from public agencies and private firms on visual impact assessments for solar facilities.

Most visual impact assessments focus on visualization of the appearance of the project from key observation points (KOPs). Since it is impossible to visualize proposed projects from every observation point, it is common for planners to utilize a "worst-case" potential visual impact, i.e., locations where perceived change may be greatest. The overarching goal of visual impact assessments is to determine potential visual impacts that may result from construction, operations, and decommissioning of a project, in a manner that is logical, repeatable, and defensible.[44]

A standard visual analysis generally proceeds in this sequence:[45]

- Description of the project's visual setting;
- Identification of KOPs. KOPs are locations near the project site where there is potential for solar facility components to be seen from ground-level vantage points, i.e., a nearby residence or a passing vehicle;
- Analysis of the visual characteristics of the project, i.e., height of solar panels, descriptions of other facility components; and
- Evaluation of impacts from KOPs.

Glare from sun shining off of solar panels can also be a potential issue in certain locations (i.e., along roadways, near airports, or close to residential properties) or at specific times of the day (generally in the early morning or later in the afternoon as the panels rotate to capture the light). Glare analyses evaluate the potential for different types of glare (red, which is the most severe; yellow, which is less severe; and green, which has the lowest severity rating) at different locations around a project site and the duration of potential glare, if applicable, at different times of the day. Measures can be implemented to reduce the potential for glare impacts, including the use of anti-glare panels, appropriate panel location and growth of vegetative buffers.

Project components with potential for visual impacts. Once constructed, the following Project components may result in visual impacts to local residents and drivers:

- ***Solar panels:*** The Project will include approximately 191,436 solar panels. With the tracking arrays, the height of the panels will vary as the structures tilt to follow the sun throughout the day. The average height of the center of the panels will be approximately five feet above ground.

[43] National Park Service, U.S. Department of the Interior. *Guide to Evaluating Visual Impact Assessments for Renewable Energy Projects*. August 2014. http://visualimpact.anl.gov/npsguidance/.
[44] Dean Apostol, James Palmer, Martin Pasqualetti, Richard Smardon, Robert Sullivan. (2016). *The Renewable Energy Landscape: Preserving Scenic Values in our Sustainable Future*. September 2016.
[45] Environmental Design & Research. *Visual Impact Analysis*. May 2019.

- ***Inverters and transformers:*** 25 inverters will connect to the panel arrays, converting the direct current power generated by the solar panels to alternating current power from the inverters.

- ***Project Substation:*** This area would be located in the eastern portion of the Project site west of Brushy Road (KY 881).

- ***O&M building:*** If an O&M building is determined to be necessary for Project operations, it would likely be located near the Project substation.

- ***Meteorological stations:*** Approximately four weather stations will be located across the Project site.

- ***Fencing:*** Six-foot chain link fence will surround each of the eight separate solar array sections. A separate six-foot chain link fence with three strand barbed wire angled outward will surround the substation.

- ***Transmission line:*** The proposed transmission line will be approximately one mile long and will generally run in an easterly direction away from the Project site.[46]

Summary of information provided by the Applicant. A Glare Analysis Study, prepared by the firm Environmental Resources Management, Inc. (ERM) is provided in Exhibit G of the SAR. In addition to the glare analysis, that document also provides a general description of the scenic setting of the area. Exhibit H of the SAR (Visual Simulations) provides photos of existing conditions and simulations of views of the Project from four different locations around the Project site.

Scenic surroundings. According to the Glare Analysis, the Project site is located at an inactive surface coal mine that is partially reclaimed and includes some forested, undeveloped land adjacent to areas that were disturbed during mining activities. The majority of the panels will be located on these previously cleared and disturbed areas, which occupy hilltops partially flattened during past mining operations. The elevation of the site ranges from approximately 840 feet above mean sea level to 1,600 feet at the highest hilltops.

The Project vicinity also features terrain with hilltops typically 400 to 600 feet higher in elevation than the surrounding valleys of nearby streams and creeks. Multiple residences are located within these valleys along Stanley Fork, Brushy Road, Bent Branch Road, and Right Fork of Brushy Road. At higher elevations, the Project vicinity similarly includes both undeveloped, forested areas and other former coal mine sites. An existing electric transmission line is located approximately 0.3 miles east of the Project site.

Potential visual impacts from Project construction. The SAR does not address the potential for visual impacts to adjacent landowners or local drivers during the construction phase.

[46] As noted in Section 1 of this report, HE did not conduct a comprehensive evaluation of the proposed transmission line as part of this effort. However, its existence is relevant to the discussion of scenic compatibility and therefore, the transmission line is addressed generally in this section.

Vegetation removal. The Applicant estimates that approximately 385 acres of vegetation will be cleared during construction. That acreage is largely located on the western side of the Project site in an area that has already undergone reclamation. During the site visit, the Applicant stated that clearing will be largely focused on removal of August Olive plants – an invasive woody shrub that has taken over large portions of the site. Additional clearing may include other shrubby trees and grasses.

Visual simulations. Exhibit H of the SAR provides photos of existing conditions and simulations of the view of the Project (imposed on the existing conditions photos) from the following locations:[47]

1. *Key Observation Point (KOP) 1 – Right Fork of Brushy Road:* KOP 1 is located on the western side of the Project site, within the Project boundary, at a distance of 120 feet from Project facilities (panels). The photo of existing conditions faces north. In the visual simulation, panels can be seen on the western side of the road.

2. *Key Observation Point (KOP) 2 – Right Fork of Brushy Road:* KOP 2 is also located on the western side of the Project site, within the Project boundary, at a distance of 121 feet from Project facilities (panels). Two sets of photos and visual simulations are provided at this location. The set facing east (KOP 2-1) shows panels on the south side of the road. The set facing south (KOP 2-2) shows panels on the east side of the road.

3. *Key Observation Point (KOP) 3 – Stanley Fork:* KOP 3 is located on the northern side of the Project site, at a distance of 0.6 miles from Project facilities (panels). The photo of existing conditions faces south. No Project facilities can be seen in the visual simulation at this location.

4. *Key Observation Point (KOP) 4 – Brushy Road:* KOP 4 is located on the northeastern side of the Project site, at a distance of 0.5 miles from Project facilities (panels). The photo of existing conditions faces south. No Project facilities can be seen in the visual simulation at this location.

Photos of existing conditions were taken in mid-March (2024) and deciduous trees are still bare in the photos.

Potential visual impacts from Project components (operational phase). ERM's Glare Analysis focuses on the four KOPs described above, as well as a segment of Ford Mountain Road within and near the Project boundary.[48] That report provides the following observations regarding visibility of the Project:

- Due to the proximity of proposed panel arrays to KOP 1, KOP 2, and Ford Mountain Road, the panels in this area (western side of the Project site) would be highly visible to observers traveling along Ford Mountain Road and Right Fork of Brushy Road.

[47] Maps indicating the locations of the KOPs are included in the Glare Analysis (Figure 1 and Figure 2).
[48] The segment of road referred to as Ford Mountain Road in the Glare Analysis is actually the Right Fork of Brushy Road.

- KOP 3 and KOP 4 are located at the base of narrow valleys along creeks and are approximately 100 to 500 feet lower in elevation than the nearest panel arrays. Due to this topographic setting, existing forest vegetation, and distances between these viewpoints and the proposed panel arrays, the panels would not be visible at KOP 3 and KOP 4.

- Because other residences in the Project vicinity have similar topographic and vegetation settings to KOP 3 and KOP 4, views of panel arrays from these residences are unlikely.[49]

Additional information provided by the Applicant states that 14 homes will have a view of some portion of the Project.[50] Based on the viewshed analysis, eight residences will potentially have a view of solar panels, and six residences will potentially have a view of security fencing.

Potential for glare from Project panels. ERM used the ForgeSolar software to evaluate potential glare from the four KOPs and a segment of Ford Mountain Road. The Glare Analysis notes that PV panels are designed to absorb rather than reflect sunlight to maximize energy capture; additionally, the Project's solar panels will include anti-reflective coatings. The report provides the following results regarding glare from project panels:

- The Project will generate yellow glare along Ford Mountain Road (more than 21,427 minutes per year) and at KOP 1 (more than 4,345 minutes per year).[51] Green glare is predicted along Ford Mountain Road (18,324 minutes per year) and at both stationary viewpoints, KOP 1 (more than 5,686 minutes per year) and KOP 2 (more than 573 minutes per year). ERM describes the level of glare at these locations as potentially significant.[52]

- Although green glare is also predicted at KOP 3 (residence on Stanley Fork Road) and KOP 4 (residence on Brushy Road), the panel arrays would not be visible at either location due to topography and existing vegetation. This discrepancy is due to the fact that the ForgeSolar tool does not consider the screening effects of topography or vegetation.

- The glare analysis predicts green glare along FP 2 (flight approach path to Runway 09 at the Pike County Airport) (more than 955 minutes per year). Panels would generate a maximum of 6 to 17 minutes of green glare per day in the morning during spring and summer months. In addition, pilots on final approach would likely experience only a few moments of glare before the aircraft moves into a position from which glare is no longer

[49] HE assumes that "similar topographic and vegetative settings" indicates that other residences are also located at lower elevations than Project infrastructure.
[50] This information was provided in response to the Siting Board's two data requests.
[51] The segment of road referred to as Ford Mountain Road in the Glare Analysis is actually the Right Fork of Brushy Road.
[52] The report notes that the ForgeSolar tool does not consider the screening effects of topography or vegetation, or consider potential cloud cover (assuming clear, sunny skies every day of the year); those factors could reduce the actual amount of glare experienced at any location.

visible.[53] No yellow glare is predicted along FP 2, and no green or yellow glare is predicted along FP 1. ERM concludes that glare impacts on pilots caused by the Project are expected to be minimal.

The Glare Analysis states that programming the PV modules to backtrack to the shallowest possible angle of east/west rotation of 5 degrees or greater may reduce glare potentially observed along Ford Mountain Road (Right Fork of Brushy Road) and at KOP 1 and KOP 2. The report also generally notes that vegetative screening could be used to reduce glare in certain locations.

Applicant's approach to Project screening. Application documents do not include any mitigation measures aimed at reducing potential visual impacts of the Project on adjacent residents, businesses or local drivers, citing the presence of existing vegetation and the elevation of the Project site relative to the surrounding area. However, supplemental information provided by the Applicant states that "existing vegetation will be used as screening to the extent possible. Additional vegetation will be used if, necessary, along Ford Mountain Road to minimize impacts from glare if existing grade and vegetation are not adequate."

HE's evaluation of impacts. HE reviewed maps and Google Earth satellite imagery of the site and used Google Maps to "drive" around the area to assess viewpoints of the Project from a vehicle commuter's point of view. In addition, HE staff made a visit to the Project site on July 30, 2024. During this site visit, we drove around the Project property to gain line-of-sight to various viewpoints and compiled a photo log of the different areas. The photo log index map and site photos can be found in Appendices A and B of this report, respectively.

Visual setting. HE's site visit confirmed information provided by the Applicant and gathered as part of the Project evaluation, with regards to the rural nature and "look" of the area. The area surrounding the Project is largely forested, but there are several homes in relatively close proximity to the Project boundary, including the areas identified as residential neighborhoods.[54] Traffic in the Project area is generally light, especially on smaller, local roads; US 119, KY 194 and Bent Branch Road are more heavily traveled.

Most local roads surrounding the Project site are paved, two-lane roads without existing shoulders. Several local roads are relatively narrow. Existing vegetation includes trees, bushes and grasses, and vegetation is relatively dense in most areas surrounding the Project site.

The Applicant provided information about the distances between nearby residential and non-residential structures and the Project boundary, solar panels, inverters and the substation.[55] Exhibit 3-4 of this report described proximity of residential and non-residential structures to the Project boundary. A total of 127 residential structures are located within 2,000 feet of the Project

[53] The report notes that in 2021, the FAA issued an updated policy regarding reviews of solar projects on federally obligated airport property in which the FAA concluded that in most cases "glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass facade buildings, parking lots, and similar features."
[54] Section 3 of this report described the residential neighborhoods.
[55] The Applicant provided data for structures within 2,000 feet of the Project boundary.

boundary. Exhibit 5-1, below, presents data on the distances between residences and the Project's solar panels, inverters and substation.[56]

Exhibit 5-1.
Distances between Nearby Residential Structures and the Proposed Pike County Solar Project Solar Panels, Inverters and Substation

Distance from Residence (ft)	Inverter	Solar Panel	Substation
0 - 300 feet	0	0	0
301 - 600 feet	0	0	0
601 - 900 feet	0	0	0
901 - 1,200 feet	0	1	0
1,201 - 1,500 feet	0	4	0
1,501 - 1,800 feet	1	5	0
1,801 - 2,000 feet	7	5	1
Total Homes:	**8**	**15**	**1**

Note: Structures include those within 2,000 feet of the Project boundary line.
Source: Pike County Solar, LLC, August 2024.

As noted in Section 3 of this report, the shortest distance between residences and generation infrastructure within the Project site are as follows:

- Solar panels: 1,199 feet
- Inverter: 1,753 feet
- Project substation: 1,846 feet

Review of on-line maps indicate that several homes are located along the proposed and alternate transmission line routes.

Construction activities. Adjacent landowners and commuters driving along surrounding local roads may be able to see construction equipment and activity as it occurs.

- There are relatively few homes immediately surrounding the Project site, but some local residents may be able to see trucks and other equipment during construction. These include homes along the Right Fork of Brushy Road, Open Fork, and Brushy Road.

- Drivers on surrounding roadways, including local roads near the Project site, may be able to see construction activities occurring on the Project site from certain locations.

- The Project's relatively remote location, steep topography and existing vegetation in much of the area will substantially reduce visibility of Project construction activities.

[56] One non-residential structure (a cemetery) is located within 2,000 feet of the Project boundary and more than 3,000 feet from a solar panel or other Project components.

- According to the construction schedule provided by the Applicant, the majority of construction activity would occur over approximately eight months (see Exhibit 3-2 of this report). Construction activity would be limited in duration.

Because of the rural nature of the area, the small number of homes in close proximity to the Project site and the fact that construction will be temporary, occurring over about a 12- to 18-month period, HE expects the visual impacts from construction activities to be minimal.

Project facilities. HE's focus of the scenic compatibility evaluation is upon the above-ground Project components, including the solar panels, inverters, Project substation and other structures as those components may be visible from local residences and roads.

- The Project site has been largely cleared during its former use as a mine but is surrounded by dense natural vegetation. The Project site will not be visible from most viewpoints due to its isolated location at the top of a high ridge, even without the development of additional visual barriers.

- The smallest distance between a residence and a Project solar panel is about 1,200 feet; other components are located at further distances. Given the area's topography and natural vegetation, few homes or commercial buildings would likely have a view of Project facilities.

- The overhead transmission line and support poles may be visible from nearby homes; however, existing vegetation may block some of that view. Detailed descriptions of the transmission line route and structures were not available from the Applicant and were not included in this evaluation.

Due to the dense existing vegetation and steep topography in much of this area, HE would expect the visual impacts associated with the presence of Project facilities to be minimal.

Interviews with Pike County representatives suggest a general lack of familiarity with the Pike County Solar Project within the surrounding community and skepticism from those that are aware of it that the Project will actually be completed.[57] None of those officials have heard much opposition to the Project, or heard any specific concerns raised by local residents, including any issues surrounding scenic impacts or compatibility. However, those interviews also suggested that many local residents may not be aware of the Project.

Conclusions and recommendations. Based on our review of the SAR, supplemental information provided by the Applicant, and additional research conducted by HE, we offer the following conclusions and recommendations regarding scenic compatibility:

- Construction vehicles and activity may be visible from local roadways and at different vantage points around the Project site, but these effects will be temporary and limited

[57] An interview with Mr. William Spears, Deputy Pike County Judge/Executive; Ms. Jeanne Robinson, Executive Assistant to the Pike County Judge/Executive; Ms. Melissa Potter, Deputy Pike County Property Valuation Administrator; and Mr. Bobby Brown, Pike County Human Resources administrator was conducted during the site visit trip on July 30, 2024.

due to the remote location of the Project site. Existing vegetation along the Project boundary line is dense and will reduce visibility of construction activities occurring on-site in most areas. The area is relatively remote, with few residents or drivers along local roads, reducing the extent of visual impacts.

- Operational infrastructure, including the solar panels and inverters, will be largely invisible to drivers along local roads, including KY 194 on the southwest side of the Project site, Brushy Road, Bent Branch Road, and Stanley Fork, as well as to local residents surrounding the Project site. The existence of relatively few homes in close proximity to Project infrastructure will reduce the extent of visual effects.

- The Project substation and O&M building (if necessary) will be located in the eastern portion of the Project site, west of Brushy Road. That area is generally remote, and the substation will be located more than about 1,850 feet from any residence. The visibility of those components will be quite low.

- HE believes that existing vegetation and elevated terrain would largely shield Project components from the view of local residents.

- Homes within close proximity to the Project site were also present in the area when the Project site was an operating surface mine. During that time, local residents likely experienced views of mining activity to the extent that existing vegetation did not obstruct those views. Therefore, nearby homeowners may be used to having partial views of commercial or industrial structures and may not see the proposed solar facility as having an adverse effect on the viewshed.

- The use of anti-glare panels will reduce the potential for glare from solar panels for local residents and drivers. A glare study was performed by the Applicant's consultants; glare is predicted to occur at several locations surrounding the Project site, and at some locations, glare could occur over long portions of the day. However, topography and vegetation will likely reduce glare impacts to local residents and drivers. Specific programming of the panels may also reduce the potential for glare. Additionally, the Applicant has stated that additional vegetation can be used to minimize glare along Ford Mountain Road/Right Fork of Brushy Road.

- The Applicant has stated that they will "identify a point of contact for any concerns, along with that person's contact information." However, no specific details have been provided regarding the resolution of potential complaints related to scenic impacts during construction or operations.

- Based on our understanding of the Project area in Pike County, HE believes that the Pike County Solar facility would not be incompatible with the existing scenic conditions.

Need for mitigation. The visual impacts are likely to be such that the Applicant should consider certain mitigation:

1. Existing vegetation between the solar arrays and nearby roadways and homes shall be left in place, to the extent feasible, to help minimize visual impacts and screen the Project from nearby homeowners and travelers.

2. The Applicant will not remove any existing vegetation except to the extent it must remove such vegetation for the construction and operation of Project components.

3. Any changes to the site infrastructure layout (i.e., panels, inverters, etc.) included in the Application materials will be submitted to the Siting Board for review. If the Siting Board deems those changes to be significant, the Siting Board may require the Applicant to develop a vegetative screening plan.

4. The Applicant will use anti-glare panels and operate the panels in such a way that glare from the panels is minimized or eliminated. The Applicant will immediately adjust solar panel operations upon any complaint about glare from those living, working, flying or traveling in proximity to the Project.

5. Given the lack of Applicant-proposed screening and acknowledged concern for glare, the Applicant will work with homeowners, business owners or the Pike County Airport operator to screen those impacted to the extent possible if safety is an issue.

6. If any components of the Facility are visible to neighboring homes after construction, the Applicant shall assess the feasibility of a screening plan, including consulting with neighbors to determine whether there are adverse impacts to their viewshed. If a screening plan is considered, regardless of whether it is ultimately implemented, notice of such consideration shall be filed with the Siting Board

7. To the extent that an affected adjacent property owner indicates that a visual buffer is not necessary, the Applicant will obtain that property owner's written consent and submit such consent in writing to the Siting Board.

Potential Changes in Property Values and Land Use

The construction and operation of industrial facilities has the potential to negatively affect property values and/or land uses of those properties adjacent to, or even in the general vicinity of, the facility in question. The magnitude, timing, and duration of increased traffic volume, noise, odor, visual impairments, or other emissions associated with the facility can influence the marketability and value of nearby properties. Each of those factors are addressed in this report and are considered here in examining property value impacts.

General methods of assessment. The value of a residential property is based on many factors, including characteristics of the home and the land on which it is situated, the uses and values of the surrounding property, among other attributes. The value of a residential property will take into account things such as lot size, age of home, size of home, number of bedrooms and bathrooms, etc. A residential property located near public lands or open spaces may be more highly valued, whereas the same property located near a heavy industry facility might have a

lower value. Residential property values may vary differently than agricultural or industrial properties.

Several methods are available to assess the impacts of a new development on nearby property values. A technique known as hedonic pricing analysis can be used to determine the impacts of a specific characteristic on the price or value of a property. However, this method of valuation requires large amounts of data, statistical experience, and careful evaluation. Formal appraisal is a technique which uses the concept of specific property characteristics in comparing different properties. Matched pair analysis is another technique. A matched pair analysis makes a comparison between similarly situated properties that sold before and after a new industrial facility is constructed. This approach is described in more detail below.

Summary of information provided by the Applicant. The Property Value Impact Study (provided as Exhibit B of the SAR) was completed by the Applicant's consultant, Richard Kirkland of Kirkland Appraisals, LLC. Referred to here as the Kirkland report, that document, along with additional follow-up information from Mr. Kirkland provides the following relevant information:

- ***Land uses of adjacent properties*** – Mr. Kirkland describes adjoining land as primarily a mix of residential and agricultural uses. About 72 percent of the acreage adjacent to the facility is agricultural; an additional 16 percent is agricultural and about seven percent is identified as mixed agricultural /residential. A small amount of acreage adjacent to the Project site is identified as for industrial or utility purposes (about five percent).

- ***Distances between solar panels and homes on adjacent properties*** – The Kirkland report indicated that the closest adjoining home will be 1,395 feet away from the closest solar panel.[58] In response to HE's inquiries, the Applicant provided additional information about the distance between various structures and the potential Project footprint. Altogether a total of 127 homes, and one cemetery are located within 2,000 feet of the Project boundary.

- ***Academic research studies, appraisal market studies, other publications and broker comments*** **–** The Kirkland report provides summaries of several research papers and articles addressing property value impacts of solar or wind facilities. Based on his understanding of each study, Mr. Kirkland concludes that proximity to a solar facility has no impact (positive or negative) on property values. Mr. Kirkland also provides the results of several appraisal market studies focused on the presence of solar facilities, which all conclude finding no impacts on property values due to proximity to solar facilities. Comments from real estate brokers during the course of Mr. Kirkland's work also indicate that solar farms have had no impact on the marketing, timing, or sales price for the adjoining homes.

- ***Assessor surveys*** **–** The Kirkland report describes the findings from a survey of assessors in Kentucky counties with existing or proposed solar projects and assessor surveys in

[58] Subsequent data provided by the Applicant indicates that the smallest distance between a home and a solar panel is 1,200 feet.

other states conducted by Mr. Kirkland. In Kentucky, Mr. Kirkland contacted 10 county Property Value Administrators (PVAs) regarding impacts to property value near a solar facility; of the six PVAs that responded, all stated that there was no impact to property values from the facility. Surveys completed in other states reflected similar results.

- ***Discussion of a "matched pair" analysis*** – The Kirkland report employs an analytical approach described as a matched pair analysis, which aims to determine the impact of a specific feature or attribute on property value. This form of "matched pair" analysis compares differences between the sales prices of properties adjacent to a solar facilities and sales prices of properties located further from that same facility.[59] Mr. Kirkland identifies and compares the sales prices of properties sold using data from solar farms across multiple states, including Kentucky. In general, the solar farms included in the analyses are relatively similar in terms of rural, less densely populated locations. Nearby land uses are typically residential and agriculture in nature.

- ***Effects of landscaping buffers on property values*** – The Kirkland report also provides an analysis of home price differentials based on Project size in combination with the amount of vegetative buffer (light, medium or heavy) from existing landscaping and Project planting and the distance between the home and solar panels. Mr. Kirkland concludes that once Project facilities have been substantially screened with a light buffer (such that no price differential exists), additional buffering has no further beneficial effect on property values, regardless of Project size.

- ***Narrative discussion of specific factors related to impacts on property values*** – Mr. Kirkland briefly addresses the topics of hazardous materials, odor, noise, traffic, stigma, and appearance as related to solar facilities in general and concludes that the "proposed solar farm [Pike County Solar] will not negatively impact adjoining property values." He does state that "the only category of impact of note is appearance, which is addressed through setbacks and landscaping buffers."

- ***Construction related impacts to property values*** – Mr. Kirkland states that no impacts to property values are anticipated due to construction activity on the Project site. The report notes that "construction will be temporary and consistent with other development uses of the land and in fact dust from the construction will likely be less than most other construction projects given the minimal grading."

Kirkland's conclusions. The Kirkland report presents three sets of analysis: (1) property price differentials for 13 solar facilities (37 matched pairs) located in Kentucky and adjoining states; (2) property price differentials for 24 solar facilities (59 matched pairs) located in the Southeastern U.S.; and (3) property price differentials for 39 solar facilities (89 matched pairs)

[59] Mr. Kirkland adjusts for such factors as date of sale, age of home, square footage, number of bedrooms and bathrooms and garage spaces prior to comparing sales prices.

located across the entire U.S.[60] Those analyses note the degree of vegetative buffer (light to heavy) between the adjacent property and the solar facility for each matched pair set.

Kentucky and adjoining states solar facility data. Based on analysis of the 37 residential dwelling matched pairs associated with the 13 solar facilities located in Kentucky and adjoining states, Kirkland concludes that evaluation of the matched pairs:

> "show a pattern of results from -7% to +7% with a median of 0% and an average of +1%"

Kirkland notes that most of the data point fall between -5% and +5% and concludes that "these results strongly support an indication of no impact on property value due to the adjacent solar farm."

Southeastern U.S. solar facility data. Based on analysis of the 59 residential dwelling matched pairs associated with the 24 solar facilities located in the Southeastern part of the U.S., Kirkland concludes that:

> "The range of differences (in sales prices) is from -10% to +10% with an average of +1% and median of +1%."

Kirkland acknowledges that the range is "seemingly wide" but notes that the "vast majority of the data falls between -5% and +5% and most of those are in the 0 to +5% range." He concludes that "these matched pairs support a finding of no impact on value at the subject property for the proposed project."[61]

National solar facility data. Mr. Kirkland's analysis of the 89 matched pair sets associated with solar facilities across the U.S. found the following:

> "The matched pairs show no negative impact at distances as close as 105 feet between a solar panel and the nearest point on a home. The range of impacts is -10% to +10% with an average and median of +1%."

Mr. Kirkland notes that the range is "broad," but that only three data points out of the 89 matched pairs show a negative impact. Nine sets indicate a positive impact, and the remaining sets show no impact. Mr. Kirkland states that he considers this data "to strongly support a finding of no impact on value as most of the findings are within typical market variation and even within that, most are mildly positive findings."

HE's evaluation of impacts. To assess the topic of impacts to property values, HE: (1) reviewed relevant existing literature related to solar facility impacts; (2) conducted an interview with the Deputy Pike County Property Valuation Administrator and other Pike County officials;

[60] The size of the solar facilities evaluated ranges from 2.7 MW up to 617 MW and from an overall property size of 34 acres (2.7 MW facility) up to 3,500 acres (617 MW facility). The majority of those facilities are 80 MW or less.

[61] The Kirkland report states that the Project will include a landscaped buffer to screen adjoining residential properties. That assumption is not correct for this Project. However, the area does include substantial existing vegetation in many areas surrounding the Project site.

(3) conducted additional evaluation of the data provided in the Kirland report; and (4) examined the potential for impacts to residential and other properties closest to the Project.

Literature review. HE reviewed the existing literature related to the relationship between property values and utility – scale solar facilities. Recent studies that address the issue of changes in property values specifically related to solar facilities include the following:[62]

- A 2022 study examining the impact of large-scale photovoltaic projects on residential home prices in six U.S. states found that homes within 0.5 mi of the solar facility experienced an average home price reduction of 1.5%, as compared to homes 2 to 4 miles away.[63] Measurable effects were seen for facilities constructed on agricultural land, for larger solar facilities and for rural homes. However, adverse effects on property values were only seen in three of the six states analyzed.[64]

- A 2022 study using property value models found that utility-scale solar facilities do not have direct positive or negative spillover effects on nearby agricultural land values.[65] However, the authors did "find evidence that suggests construction of a solar farm may create a positive option-value for landowners that is capitalized into land prices." Specifically, after construction of a nearby solar farm, study findings indicated that agricultural land that is also located near transmission infrastructure could increase in value.

- A 2020 study completed by economists at the University of Rhode Island found that in areas of high population density, houses within a one-mile radius depreciate by about 1.7 percent following construction of a solar array. The study found "substantially larger negative effects for properties within 0.1 miles and properties surrounding solar sites built on farm and forest lands in non-rural areas." However, additional analysis focused on impacts in more rural areas found that the "effect in rural areas is effectively zero (a statistically insignificant 0.1%) and that the negative externalities of solar arrays are only occurring in non-rural areas." The researchers note that this may be due to solar facilities being less visible in rural areas (due to land abundance for vegetative buffers).[66]

- A 2020 study focusing on the property value effects of wind turbines and solar facilities in the Netherlands states evidence suggesting that the negative effects of solar facilities (including noise (buzzing sounds), glare and visibility) results in decreased residential housing prices (2-3%). They found these effects to be localized

[62] Several of these studies are also addressed in the Kirklan report and considered in that evaluation and conclusions.
[63] Elmallah, S. et al. *Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states*, Energy Policy, Vol. 175, April 2023.
[64] A webinar presented by the study authors indicated that the results should not be applied to larger projects (i.e., those above 18 MWs) and that the study did not consider site design, setbacks or landscaping features.
[65] Abashidze, N. and Taylor, R. *Utility-Scale Solar Farms and Agricultural Land Values*, Land Economics, Vol. 99, Issue 4, November 2023. https://le.uwpress.org/content/early/2022/12/20/le.99.3.102920-0165R
[66] Gaur, V., and C. Lang. *Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island*. University of Rhode Island, Department of Environmental and Natural Resource Economics, September 2020. https://web.uri.edu/coopext/files/PropertyValueImpactsOfSolar.pdf

(within 1km of the facility, or a little more than half a mile). However, the researchers also note that the relatively small number of solar facilities in the Netherlands makes the results less precise (as compared to the wind farm analysis).[67]

- A 2019 article produced by the American Planning Association (APA) indicates that the "impact of utility-scale solar facilities is typically negligible on neighboring property values." The issue of property value impacts "can be a significant concern of adjacent residents, but negative impacts to property values are rarely demonstrated." [68]

- A 2018 University of Texas study included a geospatial analysis and a survey of residential property assessors to determine the potential for property value impacts. The results show "that while a majority of survey respondents estimated a value impact of zero, some estimated a negative impact associated with close distance between the home and the facility, and large facility size. Regardless of these perceptions, geospatial analysis shows that relatively few homes would be impacted."[69]

- Independent appraisers are often hired to conduct analyses related to property value impacts for solar companies. Those analyses focus on property value trends of lands adjacent to existing solar farms across the country, using a paired sales or matching pair approach. HE reviewed several appraisal reports; those appraisals indicate differences in property values ranging from about -3.2% to as much as +27%, although generally in cases with positive impacts, property values increased by about 5% or less. Overall, the conclusions were that solar facilities do not negatively impact property values.[70]

It is interesting to note that although the existing studies related to this issue generally indicate no impacts to property values, local residents often bring up concerns about property values during public hearings or open houses related to specific solar facilities. In many cases, as evidenced by newspaper articles or other media, residents believe that property values will be

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[67] Koster, H. and M. Droes. *Wind turbines and solar farms drive down house prices.* VoxEU, September 2020. https://voxeu.org/article/wind-turbines-and-solar-farms-drive-down-house-prices. Mr. Koster is Professor of Urban Economics and Real Estate at Vrije University in Amsterdam; Mr. Droes is Assistant Professor of real Estate Finance at the University of Amsterdam.

[68] Coffey, Darren. *Planning for Utility-Scale Soar Energy Facilities.* American Planning Association, PAS Memo, September – October 2019. https://www.planning.org/pas/memo/2019/sep/.

[69] Al-Hamoodah, Leila, et al. *An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations.* Policy Research Project, LBJ School of Public Affairs, The University of Texas at Austin, May 2018. https://emp.lbl.gov/sites/default/files/property-value_impacts_near_utility-scale_solar_installations.pdf.

[70] McGarr, P. and A. Lines, CohnReznick, Property Value Impact Study, Proposed Soar Farm, McLean County, IL, 2018; McGarr, P. and A. Lines, CohnReznick, Property Value Impact Study, Proposed Soar Farm, Kane County, IL, 2018; McGarr, P., CohnReznick, Property Value Impact Study, Adjacent Property Values Solar Impact Study: A Study of Nine Existing Solar Farms Located in Champaign, LaSalle, and Winnebago Counties, Illinois; and Lake, Porter, Madison, Marion, And Elkhart Counties, Indiana, 2018; McGarr, P., CohnReznick, Property Value Impact Study, Adjacent Property Values Solar Impact Study: A Study of Eight Existing Solar Farms Located in Lapeer County, Michigan; Chisago County, Minnesota; Marion County, Indiana; LaSalle County, Illinois; Bladen, Cumberland, Rutherford and Wilson Counties, North Carolina; and Isle of Wight County, Virginia, 2020.

reduced by nearby solar farms. So, there may at least be a perception of negative effects on property values that permeates communities.

Interview with Pike County officials. HE spoke with the Deputy Pike County Property Value Administrator (PVA), Ms. Melissa Potter, on July 30, 2024, as part of the on-site visit.[71] Ms. Potter does not expect the Pike County Solar facility to have much, if any, impact on local property values. Overall, none of the County representatives interviewed has heard much discussion at all about the Project from local residents or other community members, positive or negative. However, from the little they have heard, there appears to be a general feeling of skepticism that the Project will actually be developed.

Review of Kirkland data and conclusions. Although Mr. Kirkland concludes that there would be no impacts on property values from the Pike County Solar facility, the matched pair analyses do indicate the potential for a range of positive or negative effects. Therefore, HE examined more closely the data provided in the matched pair sets for facilities in Kentucky and adjoining states to determine the likelihood of a positive impact, negative impact, or no impact.

Exhibit 5-2 presents a detailed picture of the distribution of price differences for matched pair sets associated with solar facilities in Kentucky and adjoining states. About 87 percent of matched pair comparisons reflected a sales price differential of between negative five percent and positive five percent, with about 14 percent of comparisons showing no price differential at all. About 46 percent of all comparisons showed a negative impact on home prices, as compared with about 41 percent of comparisons indicating a positive effect. Overall, these data appear to support Mr. Kirkland's conclusion of no property value impacts due to proximity to solar facilities.

Exhibit 5-2.
Distribution of Sales Price Differences for Matched Pair Sets, Kentucky and Adjoining States

	Kentucky / Adjoining States Solar Facility Analysis	
# Facilities Included	13	
# Matched Pair Sets	37	
Range of Price Impact	**Number of Sets**	**% of Sets**
-6% to -10%	1	3%
-1% to -5%	16	43%
0%	5	14%
1% to +5%	11	30%
+6% to +10%	4	11%
Total	37 Pairs	100%

Source: Kirkland report data set, 2024.

[71] That conversation also included Mr. William Spears, Deputy Pike County Judge/Executive; Ms. Jeanne Robinson, Executive Assistant to the Pike County Judge/Executive; and Mr. Bobby Brown, Pike County Human Resources administrator on July 30, 2024.

Residential properties in close proximity to the Project site. Information obtained in HE's literature search indicates that impacts to the values of adjacent or surrounding properties may be related to the ability to see or hear the Project and that vegetation or other visual barriers may reduce the potential for adverse impacts to property values. Therefore, HE more closely examined the locations and situations of nearby residential properties in terms of distance to the Project and potential viewshed impacts when considering potential impacts to property values.

- Homes surrounding the Project site are located relatively far from any Project facilities. The nearest home would be located about 1,200 feet from a solar panel and a total of 15 homes would be located between 1,200 and 2,000 feet from a panel (Exhibit 5-1). The closest home to an inverter would be 1,753 feet and the closest home to the Project substation would be 1,846 feet.

- The Applicant for the Pike County Solar Project is not proposing any vegetative buffers around Project facilities or the property boundary. However, in this particular location, the steep topography and the presence of existing trees, shrubs and other vegetation will limit the view of the Project from nearby residences.

- As described in the next section of this report (noise evaluation), operational noise levels are expected to be low, and Project generated noise levels may not be noticeable to nearby residents.

- As noted previously under the scenic compatibility section, homes in proximity to the Project site were also present in the area when the Project site was an operating surface mine. Mining activity continues to occur in other locations in the area. Current property values reflect that location, even as mining activity in the region declines. HE believes that traffic volume, noise and views of solar facility structures during operation will be less than what occurred during mining operations, and therefore, we do not believe that the Pike County Solar Project would adversely affect property values in the area.

Conclusions and recommendations. Based upon review of the Kirkland report and our additional research efforts and interviews, HE offers the following conclusions related to potential impacts to property values or land uses for adjacent property owners:

- Construction activities will be temporary, occurring over a period of up to 18 months. Those activities will result in increased traffic and noise in the vicinity of the Project; however, homebuyers and those interested in buying other types of properties often have a longer-term mindset when considering a purchase price.

- Certain literature suggests that concerns surrounding impacts to property values from solar facilities stem from visibility of panels and other infrastructure. If that is the case, the existing dense vegetation and topography in the Project area should go a long way to mitigating any potential reductions in property values.

- The Applicant is not proposing any vegetative buffers around Project facilities or the property boundary. HE believes that a complaint resolution plan should be implemented

in a manner that fully resolves landowner concerns related to property values and viewshed impacts.

- Current research suggests that the existence of solar facilities does not, in general, measurably result in negative influences on property values for adjacent landowners in rural areas. HE's data analyses also generally point to a conclusion of no discernible impacts to property values, although there is a small risk of negative impacts.

- Additionally, this area of Pike County has experienced extensive coal mining activity, historically, and is currently home to limited continued mining activity. The traffic, noise and other effects of that type of activity likely play a larger role in property values than the proposed solar facility.

- Operational noise levels are estimated to be below the World Health Organization's estimates of moderate or annoying noise levels for all nearby residences.

- The Pike County Property Valuation Administrator believes that property values will be unaffected by the presence of the solar facility.

- HE concludes that property values in the Project area and in Pike County are unlikely to be affected by the siting of the Pike County Solar facility. This conclusion assumes that the mitigation strategies discussed in Section 6 are adopted by Pike County Solar.

Need for mitigation. No unique mitigation measures are recommended related to potential impacts to property values or adjacent land uses because other mitigation already recommended can accomplish this. However, close coordination by the Applicant with impacted and concerned homeowners regarding potential visual impacts and impacts from noise, traffic or other Project activities should be initiated.

Anticipated Peak and Average Noise Levels

Noise issues stem from construction activities and operational components of the solar facility. During construction, noise sources will include dozers, pile drivers, cranes, cement mixers, dump trucks, loaders, and other equipment. During operations, noise will be emitted from inverters, auxiliary transformers, and the main step-up substation transformer. Distance from noise emitters to noise receptors is important since noise levels decrease the further a noise receptor is from a noise emitter. Pike County does not have a noise ordinance.

General methods of assessment. Sound levels are measured in decibel units (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity. Sound levels are typically described as dBA, which is the measure of the overall noise level of sound across the audible spectrum to compensate for the varying sensitivity of the human ear to sound at different frequencies. The impacts of noise are not strictly related to loudness – the time of day when noise occurs, the duration of the noise, and baseline or background noise levels are also important factors in determining the "loudness" of a noise.

Generally speaking, an increase in 10 dBA is perceived as a doubling of loudness, which is to say, 70 dBA is perceived as twice as loud as a level of 60 dBA is.[72] A change of three decibels is barely noticeable, but a change of five decibels is typically noticeable. Once sounds reach 90 dBA humans can experience pain from the noise and sounds above 150 dBA can cause permanent hearing damage.[73] For additional context, 30 dBA is the sound emitted by a whisper, 55 dBA are emitted from a percolating coffeemaker, and 90 dBA would be the sound emitted by an individual's yell.

A standard noise impact assessment focuses on several key factors:[74]

- Measurement of existing ambient noise levels;
- Identification of noise-sensitive receptor sites;
- Calculation of distances between noise sources and sensitive receptors;
- Estimation of project-related (construction or operational) noise production and exposure, including cumulative noise effects.

Summary of information provided by the Applicant. An Acoustic Assessment Report (Tab 12, Exhibit D of the SAR) was prepared by Environmental Resources Management, Inc. (ERM), focusing on noise emissions during construction and the operational phases of the Project, with additional data on baseline ambient conditions in the area. Additional data on expected noise conditions during construction was provided in response to the two Siting Board data requests.

Baseline (ambient) noise levels. Existing land uses in the Project area are mainly rural residential; significant undeveloped forest land is also present in the area. The Applicant indicated that baseline noise levels for a "very quiet, sparse suburban or rural area," similar to the area surrounding the Project, would result in daytime sound levels of approximately 40 dBA.[75] The area surrounding the Project site includes a highway, secondary roads, and residential structures. The CSX rail line is generally located to the south and west of the Project site and may contribute to the existing ambient noise profile of the area.

Noise sensitive receptors. Noise sensitive receptors are generally defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, sound sensitive locations include residences, places of worship, hotels, auditoriums, athletic fields, day care centers, hospitals, offices, schools, parks and recreational areas. Noise is generally described as unwanted sound, which can be based either on objective effects (hearing loss, damage to structures, etc.) or subjective judgments (such as community

[72] RECON Environmental, Inc. *Noise Analysis for the Drew Solar Project, Imperial County, California*. July 24, 2018. http://www.icpds.com/CMS/Media/Drew-Solar---Appendix-G.pdf
[73] Alpine Hearing Protection website, https://www.alpinehearingprotection.co.uk/5-sound-levels-in-decibels/#:~:text=0%20decibel%20is%20the%20so,permanent%20damage%20to%20your%20hearing.
[74] Department of Energy. Noise and Vibration Impact Assessment Methodology. https://www.energy.gov/sites/prod/files/edg/media/EIS0250F-S2_0369_Volume_V_Part_3.pdf;
[75] American National Standards Institute (ANSI) standard 12.9-2013/Part 3, ANSI, 2013.

annoyance). Local conditions such as traffic, topography, and wind characteristics of the region can alter background sound conditions.

Construction noise emitters. During the construction phase, a variety of heavy equipment will be utilized. The Applicant's consultant, ERM, utilized the Federal Highway Administration's Roadway Construction Noise Model User's Guide (2006) to develop maximum estimated sound pressure levels for equipment anticipated to be used during Project construction. Peak construction noise will be created by pile driving at 101 dBA from a distance of 50 feet, with dozers, graders, and cranes emitting sound levels greater than 80 dBA at a distance of 50 feet.[76] The Applicant identified exhaust noise from diesel engines that power construction equipment as a "predominant source" of noise generation during construction and will require functional mufflers be maintained on all equipment.

Exhibit 5-3, below, provides the range for general construction equipment sound levels and the maximum expected pile driving noise at each of the 21 noise sensitive area (NSA) receptors provided in the Applicant's acoustic assessment report. NSAs within 1,500 feet of where pile driving will occur will be notified prior to the Applicant commencing construction.[77]

[76] SAR Tab 12, Exhibit D - Acoustic Assessment Report, Table 7.
[77] SAR Tab 12, Exhibit D - Acoustic Assessment Report.

Exhibit 5-3.
Construction Equipment Sound Pressure Levels at NSA Receptors

Noise Sensitive Receiver	Distance to Closest Panel (Feet)	General Contruction Equipment Noise (dBA)	Maximum Pile Driving Noise (dBA)
NSA 1	1954	0 - 24	40
NSA 2	3983	0 - 17	33
NSA 3	2888	0 - 19	35
NSA 4	2282	0 - 22	38
NSA 5	2225	0 - 22	38
NSA 6	2688	1 - 31	47
NSA 7	1780	0 - 25	41
NSA 8	1861	10 - 40	56
NSA 9	3751	0 - 17	33
NSA 10	4414	0 - 15	31
NSA 11	4209	0 - 16	32
NSA 12	3051	0 - 24	40
NSA 13	2818	0 - 29	45
NSA 14	2600	0 - 25	41
NSA 15	2486	4 - 34	50
NSA 16	3470	0 - 17	33
NSA 17	4335	0 - 18	34
NSA 18	4012	0 - 16	32
NSA 19	4012	0 - 25	41
NSA 20	2259	0 - 23	39
NSA 21	1094	4 - 34	50

Note: (1) General Construction Equipment Noise reflects range of noise levels generated by the operation of one piece of construction equipment, other than a pile driver, from the nearest panel to a noise sensitive area receptor.

(2) Noise modeling does not include cumulative sound pressure levels from existing ambient daytime noise of 40 dBA.

Source: Pike County Solar, LLC, April 2024.

There are 109 residences located within 1,500 feet of the Project boundary. Of these residences, 12 are expected to experience cumulative sound levels between 50 dBA and 59 dBA during pile driving.[78] Five residences along Smith Fork Road are also within 1,500 feet from any solar panel, which is the location of pile driving during construction.

The Applicant stated that a specific technique for pile driving will likely be used for this Project, due to the rocky conditions and rough aggregate present on the former mine site. This technique

[78] Applicant's response to the Siting Board's second data request, Exhibit F – Pike County Solar Project Cumulative Pile Driving Noise. The locations of these residences were not provided.

involves pre-drilling holes, installing piles, then backfilling.[79] Pile installation activities are expected to occur over a period of about five months; however, this activity will move across the Project area such that noise impacts to individual residences will occur for much shorter periods.

As the distance from the source of noise increases, the sound level attenuates, or decreases. A doubling of distance results in a decreased noise level of approximately six dBA.[80] Therefore, residences more than 3,000 feet from the panels would experience lower levels of noise from the construction of the panels. The thick natural vegetation and steep topography of the area surrounding the Project site will likely contribute to further reduction of sound pressure levels for residences.

The Project transmission line route is projected to travel through predominantly wooded areas and several private parcels with residences to the north and east of the Facility to connect with the Excel to Johns Creek 138 kV transmission line. Construction of the transmission line will produce noise outside of the Facility area.[81] These construction activities generally include clearing trees and existing vegetation along the approximately one-mile long route for the overhead line, creation of access roads, and installation of large support poles along the route.

Operational noise emitters. According to the ERM report, during the Project's operational phase, the primary sources for noise will be (1) the main step-up substation transformer; (2) twenty-five inverters, which will be distributed throughout the Project; and (3) twenty-five auxiliary transformers co-located with the inverters.

Most of the operational noise will occur during daylight hours, as Project inverters are not in operation at night. No NSA receptor will be closer than 2,500 feet to the substation; the nearest NSA receptor is located about 2,534 feet from the substation location. The closest residence is located 1,846 feet from the substation, with the next closest residences being further than 2,200 feet from the substation.[82]

ERM modeled operational noise levels using CadnaA modeling software, developed by DataKustik GmBH. Using the EPA recommended protective guideline for environmental day/night sound levels (L_{dn}) of 55 dBA, ERM determined an equivalent continuous sound level of 46.8 dBA for comparison against modeled Project-generated operational noise levels and existing ambient conditions at 21 NSA receptors and the Project boundary.

Modeling results are illustrated in Exhibit 5-4, which shows the locations for each NSA receptor and noise-generating Project infrastructure, as well as the modeled operational daytime sound

[79] This procedure was discussed during the site visit and detailed in the Applicant's response to the second data request.
[80] http://hyperphysics.phy-astr.gsu.edu/hbase/Acoustic/isprob2.html#c1
[81] As noted in Section 1 of this report, HE did not conduct a comprehensive evaluation of the proposed transmission line as part of this effort. However, its existence is relevant to the discussion of anticipated construction noise emitters and therefore, the transmission line is addressed generally in this section.
[82] Applicant's response to the second data request, Exhibit D – Pike County Neighborhood Figure Calculations.

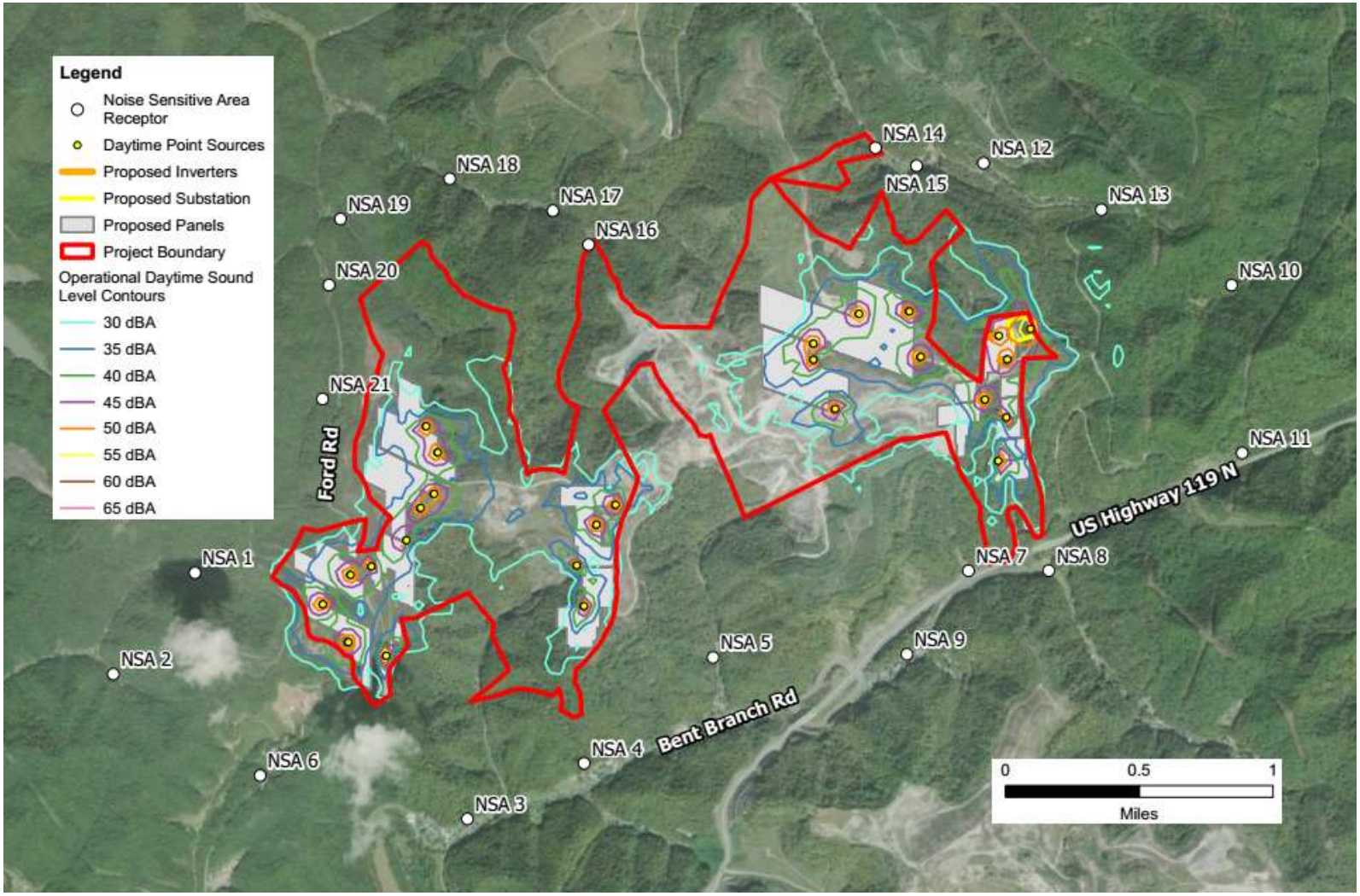
level contours. The contours depict sound levels between 55 dBA (yellow contour lines) and 30 dBA (light blue contour lines) in 5 dBA increments during daytime operations.[83]

Focusing on daytime operations and noise levels, Exhibit 5-4 shows that all NSA receptors are outside of the 30 dBA sound contour. The highest predicted sound level during operations is 20 dBA at NSA 15.

In addition to the noise generated by the Project inverters and transformers, routine maintenance and repair activities will occur during operations but will not materially impact noise levels in the area.

[83] Noise modeling does not include cumulative sound pressure levels from existing ambient noise. Daytime ambient sound pressure levels for the area, estimated to be 40 dBA, are higher than the modeled operational sound levels for all 21 NSA receptors.

Exhibit 5-4.
Predicted Sound Contours of the Pike County Solar Facility during Daytime Operation, dBA



Source: Pike County Solar, LLC, April 2024.

HE's evaluation of impacts. Neither the Commonwealth of Kentucky nor Pike County have a noise ordinance that is applicable to the Project. As such, HE utilized the noise limit recommendations generated by the Environmental Protection Agency (EPA) and the World Health Organization (WHO) to gauge acceptable levels of sound.

- The EPA determined that a constant sound of 70 dBA over a 24-hour period is enough to start causing permanent hearing loss for individuals, and a sound of 55 dBA outdoors is enough to cause activity interference and annoyance.[84]

- The WHO determined that daytime noise emissions greater than 55 dBA over a 16-hour period can cause serious annoyance, and noise emissions greater than 50 dBA over a 16-hour period can cause moderate annoyance. The WHO recommends limits of 45 dBA over an 8-hour period during the night.[85]

Construction noise. Construction activities will produce sporadic noise that will exceed 55 dBA during daytime hours. A small number of residential noise sensitive receptors less than 2,000 feet from pile driving locations will experience estimated sound levels of greater than 55 dBA during pile driving. Access road construction and other construction activities will also generate noise. However, the nature of the Project, which requires that construction activities move around the site as each task is completed, will reduce the timeframe for the annoyance created by loud, though sporadic, noise. The topography and thick vegetation surrounding the Project area will likely diminish the noise impacts as well.

The Project construction has the potential for a number of loud activities to occur simultaneously, but the timing of activities is such that it is not realistic to predict which sources of noise will contribute to these periods of cumulative sounds. The anticipated construction timeframe provided by the Applicant indicates an 8-month period during which two or more construction activities will overlap. The Applicant provided data on noise levels generated by different construction equipment utilized for those activities; however, cumulative noise levels from operating multiple pieces of equipment simultaneously are unknown and it is unlikely that construction noise would be limited to that shown in Exhibit 5-3. Therefore, HE examined methods for calculating cumulative sound levels.

As a reference, one decibel is the "just noticeable difference" in sound intensity for the human ear.[86] However, the frequencies of different sounds will affect the perceived loudness of cumulative noise. "Compared with dB, A-weighted measurements underestimate the perceived loudness, annoyance factor, and stress-inducing capability of noises with low frequency components, especially at moderate and high volumes of noise."[87] This means that very different types of noises could have a greater cumulative impact than expected. Cumulative

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[84] United States Environmental Protection Agency. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March 1974. https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF

[85] World Health Organization. *Guidelines for Community Noise*. April 1999. https://www.who.int/docstore/peh/noise/Comnoise-1.pdf

[86] http://hyperphysics.phy-astr.gsu.edu/hbase/Sound/db.html#c3

[87] https://www.softdb.com/difference-between-db-dba/

impacts from two noise sources can be calculated based on the difference in the sound levels as shown in Exhibit 5-5.

Exhibit 5-5.
Calculation of Additional Sound Power, in Decibels

Signal Level Difference between Two Sources (dB)	Decibels to Add to the Highest Signal Level (dB)
0	3
1	2.5
2	2
3	2
4	1.5
5	1
6	1
7	1
8	0.5
9	0.5
10	0.5
>10	0

Source: https://www.engineeringtoolbox.com/adding-decibel-d_63.html.

This suggests that even multiple sources of loud noise will produce only modest increases to overall sound levels, providing the sources of noise are not of very different frequencies.

Although some residences within 2,000 feet of the Project site will likely experience noise at levels expected to cause annoyance (55 dBA or greater) during construction, the sporadic nature of the noise will not be sufficient to cause damage to residents' hearing.

Operational noise. The nature of solar projects dictates that noise from operations will occur mainly during daylight hours. The closest NSA receptor to a solar panel (NSA 21) will experience predicted noise levels of about 8 dBA during daytime operations. NSA 15 is predicted to experience the greatest sound levels during daytime operations, at 20 dBA. These levels are below the 40 dBA estimated daytime ambient conditions and within the WHO's recommended maximum noise level of 50 dBA. HE concludes that, overall, noise impacts from Project operations will be minimal.

Conclusions and recommendations. Based on our review of the SAR, supplemental information provided by the Applicant, and additional research conducted by HE, we offer the following conclusions and recommendations regarding noise emissions:

- Construction phase noise may be annoying for residents surrounding the Project area for short periods of time. The intermittent nature of the noise might ameliorate the impacts, but residents close to the Project site might find construction noise to be troublesome even if it does not present actual damage to hearing.

- Pike County Solar has stated that during the construction phase, noise-producing work will occur during daytime hours and between the hours of 8:00am to 8:00pm; however, it is likely that some noise, for example from deliveries or worker vehicles, would occur outside those hours. Noise occurring in the early hours of the morning and later hours of the evening should be minimized.

- The current trend of employees working from home could make daytime noise more of an issue than it would have been previously.

- Noise from Project components during operations (inverters, transformers) is anticipated to result in small, if any, increases to the local sound environment, depending on location. In most locations, those increases would be unnoticeable to residents or drivers in the area.

- The topography and heavy existing vegetation might help mitigate noise emissions that may be caused by construction or operational components of the Project.

Need for mitigation. Mitigation measures described in the SAR, or recommended by HE, which are related to the reductions of noise impacts include:

1. The Applicant shall notify all residents and businesses within 2,000 feet of the Project boundary about the construction plan, noise potential, complaint resolution process, and mitigation plan at least one month prior to the start of construction.

2. The Applicant shall respond to any complaints related to noise levels or noise causing activities occurring during construction or operations via a timely, formal and clearly developed complaint resolution program.

3. If pile driving activity occurs within 1,500 feet of a noise sensitive receptor, the Applicant shall implement a construction method that will suppress the noise generated during the pile driving process (i.e., semi-tractor and canvas method; sound blankets on fencing surrounding the Project site; or any other comparably effective method).

4. The Applicant should limit the construction activity, process and deliveries to the hours of 8:00 am to 6:00 pm, Monday through Saturday. No construction work should be conducted on Sundays.

5. The Applicant shall maintain functional mufflers on all diesel-powered equipment.

6. The Applicant should coordinate with the Meta Baptist Church to limit heavy or oversize deliveries passing near the Church during their weekday services.

7. The Applicant shall place panels, inverters and substation equipment consistent with the distances to noise receptors indicated in the Applicant's acoustic assessment and with the Applicant's proposed setbacks. Nevertheless, the Applicant shall not place solar panels or string inverters, if used, closer than 150 feet from a residence, church or school, 25 feet from non-participating adjoining parcels, and 50 feet from adjacent

roadways. The Applicant shall not place a central inverter, and, if used, energy storage systems closer than 450 feet from a residence, church, or school. These setbacks shall not be required for residences owned by landowners involved in the Project that explicitly agree to lesser setbacks and have done so in writing. All agreements by participating landowners to lesser setbacks must be filed with the Siting Board prior to commencement of construction of the Project.

Road and Rail Traffic, Fugitive Dust and Road Degradation

Traffic concerns related to the development of the Pike County Solar facility during the construction or operational phases are addressed in this section. The 12- to 18-month long construction phase would include commuting construction workers, vehicles, and equipment on-site, plus the delivery of heavy loads of solar components, infrastructure, and other equipment. Traffic during operations will occur as employees travel to and from the property to monitor and maintain the site.

General methods of assessment. A typical evaluation of traffic-related impacts includes:

- Establishing existing traffic conditions in the area;
- Identifying primary access points that will be used by the project;
- Estimating changes in traffic due to construction and operations; and
- Assessing the impacts of project-related traffic on local areas. This includes determining whether additional traffic will lead to congestion, changes in service levels of existing road networks and identifying any potential degradation to existing bridges and roadways.

Summary of information provided by the Applicant. Tab 12, Exhibit E of the SAR is a Traffic Impact Study (Traffic Study) prepared by Palmer Engineering on behalf of ERM. The study provides a narrative on existing road and traffic conditions; average daily traffic statistics for select roads; estimates of the Project's construction and operational traffic; and an opinion on potential impacts to road infrastructure. More detailed and updated information was provided during the in-person site visit and in the Applicant's responses to the Siting Board's data requests. HE assumes that responses to the second data request are the best available information; that information was used if it conflicted with previous information.

Site access, vehicle parking and internal roadways. Vehicles traveling to the Project site will use US 119 to reach local roads accessing the site. Local roads used to reach the four access points proposed for the Project include Bent Branch Road (KY 1426), Brushy Road (KY 881), Ford Mountain Road, and Right Fork of Brushy Road. Right Fork of Brushy Road and Brushy Road intersect with existing internal access roads leading directly to the site along the western and eastern sides of the Project, respectively. The local roads to the south of the

Project site will be traveled by worker vehicles and delivery trucks, including delivery of the substation transformer.[88]

The Applicant expects all heavy and oversized loads to be delivered via direct site access to US 119.[89] In previously supplied information, there is no indicated, direct access from US 119 to the Project site. The Application materials and supplemental responses to data requests do not include plans for developing such a route, but HE will rely on the response to the second data request to assume that direct access from the Project site to US 119 will be developed.

One central laydown yard is anticipated to be developed within the Project area with smaller staging areas across the site near individual panel areas. The location of the central laydown area has not been finalized but is anticipated to be located near panel parcel 5.[90]

Approximately 34,282 feet of graveled roadways will be constructed across the Project site. Internal roads will be 16 feet wide, with a 20 foot wide section to access the Project substation. Access road construction will take place during the approximately seven-month period at the start of the project (Exhibit 3-2).

Baseline traffic volumes and road conditions. The Applicant provided traffic data and other descriptors for major and local roads used to access the Project during construction. Annual average daily traffic and other road descriptors are provided in Exhibit 5-6.

Exhibit 5-6.
Baseline Traffic Data for Roads in the Project Area

Roadway	Surface	Lane Width	Speed Limit	Shoulder	Annual Average Daily Traffic
US 119	Asphalt	12 feet	55 mph	Yes	6,580
KY 881 / Brushy Rd	Asphalt	11 feet	55 mph	No	432
KY 1426 / Bent Branch Rd	Asphalt	11 feet	45 mph	No	1,691
Ford Mountain Rd	Asphalt/Aggregate	N/A	N/A	No	N/A
Right Fork of Brushy Rd	Asphalt/Aggregate	N/A	N/A	No	N/A

Notes: (1) Average Annual Daily Traffic count for US 119 is from 2024, all others are from 2022.
(2) N/A indicates data not available.

Source: Pike County Solar, LLC, April 2024 & August 2024; Kentucky Transportation Cabinet, 2024; Harvey Economics, 2024.

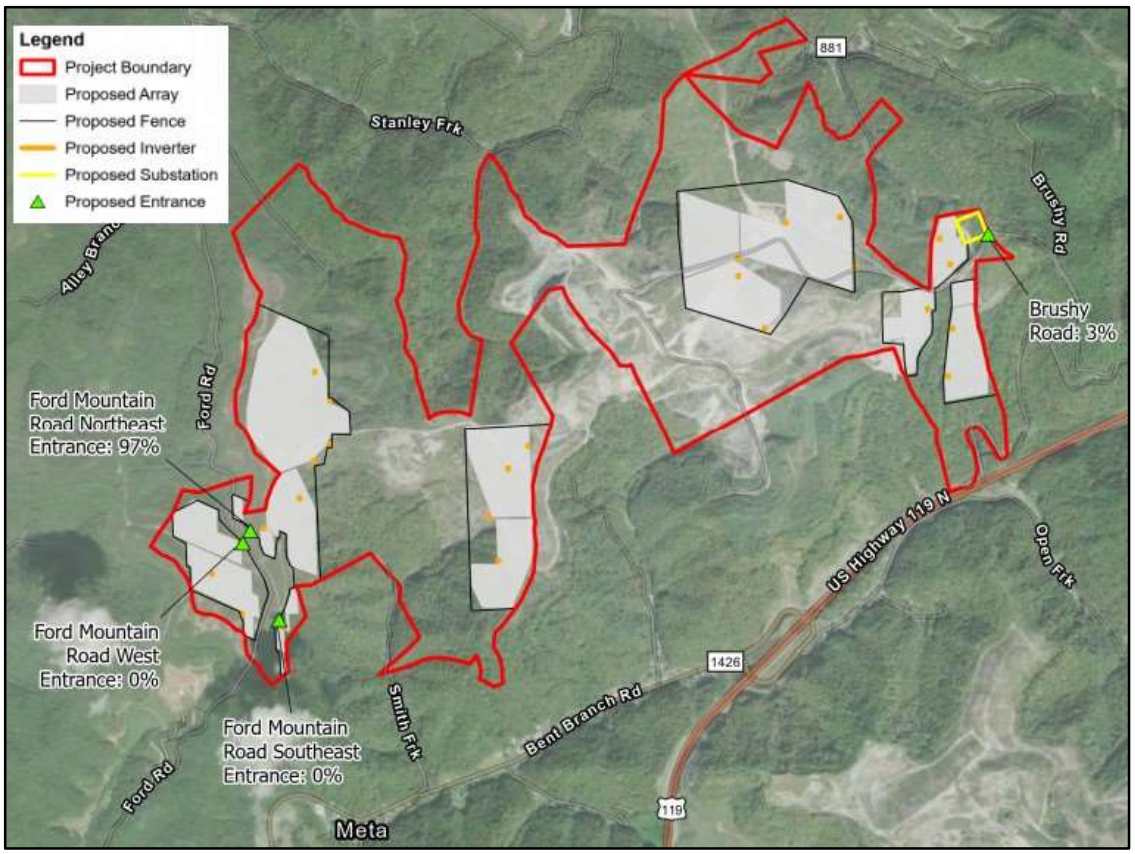
Construction related traffic volumes and routes utilized. Construction-related traffic for the Project site is anticipated to include (1) passenger vehicles and trucks; (2) heavy-duty trucks; (3) water trucks; and (4) cement trucks:

[88] Final designation of roadways to be used for constructing the transmission line are unknown, as the transmission line plans were not included in this application.
[89] Applicant's response to the Siting Board's second data request.
[90] As identified in Applicant's response to the second data request, Exhibit C – Panel Grouping Map.

- An average of 100 worker vehicles traveling to and from the Project site are predicted on any individual day. Workers are anticipated to drive personal vehicles, cars and pickup trucks, with two to three workers per vehicle.
- The average number of delivery trucks per day is anticipated to be 10, with the potential for 20-30 trucks or more during peak periods.
- Delivery trucks will include cement trucks at up to 30,000 pounds gross vehicle weight with 60,000 – 70,000 pounds max load weight and trucks delivering the PV modules in containers with a load weight of 42,000 pounds. Trucks delivering gravel for access road construction are anticipated; these load weights have not been specified.
- The main power transformer will be the heaviest delivery, with an approximate load weight of 237,000 pounds.
- Water truck trips are also expected. These vehicles have load weights of approximately 13,000 - 21,000 pounds.
- 100 percent of Project construction delivery traffic and 97 percent of construction worker vehicle traffic will access the site via the northeast Ford Mountain Road entrance; three percent of construction worker vehicle traffic will utilize the site entrance on Brushy Road.[91] Exhibit 5-7, below, depicts Project worker traffic by site entrance.

[91] The entrances identified on Ford Mountain Road in the Applicant's response to the second data request are located on Right Fork of Brushy Road.

Exhibit 5-7.
Worker Vehicle Traffic during Construction by Project Entrance



Note: The entrances labeled as Ford Mountain Road are located on Right Fork of Brushy Road.

Source: Pike County Solar, LLC, August 2024;

The Applicant has stated that large deliveries will occur via US 119; however, travel on local roads will also be necessary for direct site access and for constructing the transmission line. Pike County Solar will obtain all necessary permits for oversized or overweight deliveries. The Applicant will perform a haul route study before finalizing access routes.[92]

During the site visit, HE staff observed portions of local roads used to access the Project site in poor condition or damaged, including buckling and sinking of the asphalt in some areas, and local roads are narrow at points.[93] Improvements to local roads and internal access roads may be necessary prior to construction to allow for large and/or overweight deliveries. Such improvements may include road widening or surface repairs and will be determined by the contractor. Pike County Solar indicated that they would coordinate with the Pike County Road Department about traffic plans and mitigation measures.

[92] Applicant's response to the second data request, August 2024.
[93] https://maps.kytc.ky.gov/pavementconditions/

Pike County Solar has not yet determined the route for construction of the Project transmission line.[94] Construction details, including the specific roads used to access the transmission line route, have not been finalized. As such, the Applicant was unable to provide information regarding traffic volumes, or number and types of vehicle trips on local roadways for this phase of construction.

Construction traffic management. The Applicant addressed traffic management during construction as follows:

- Appropriate signage and traffic guidance will be used during construction, in accordance with the Manual on Uniform Traffic Control Devices and Kentucky Transportation Cabinet.
- Pike County Solar will coordinate with State road officials to identify the necessary transportation requirements for heavy trucks during construction on KY 1426.
- Pike County Solar will coordinate with the Pike County Road Department to identify the necessary transportation requirements for heavy trucks during construction on Ford Mountain Road.
- Temporary road closures may be used for the safety of the traveling public and construction workers; these closures may include the use of flaggers.
- A Traffic Management Plan will be developed by the contractor prior to construction.

The Traffic Study encouraged implementing traffic mitigation measures to minimize potential for delays during morning and evening peak hours including ridesharing for construction workers, using appropriate traffic controls, and allowing flexible working hours. Additionally, the Traffic Study recommended that heavy deliveries be scheduled during off-peak hours to minimize traffic impacts.

During the site visit, the Applicant discussed implementing additional safety measures specifically for deliveries to the site entrances off Ford Mountain Road/ Right Fork of Brushy Road, including pilot vehicles and traffic flaggers.

Operations related traffic volumes. The Traffic Study indicated that traffic in the operational phase will be negligible and limited to one vehicle traveling to the site each day. The study concluded that traffic volume and function would not be significantly impacted.

Road degradation. Pike County Solar does not anticipate any damage to existing roadway infrastructure. These roads were used by heavy trucks when the site was an operating coal mine.

Railways. There is one railway line in the Project area, the CSX Transportation Railroad (CSX). Pike County Solar has indicated that they will not use this method of transportation for

[94] As noted in Section 1 of this report, HE did not conduct a comprehensive evaluation of the proposed transmission line as part of this effort. However, its existence is relevant to the discussion of anticipated traffic and therefore, the transmission line is addressed generally in this section.

Project deliveries, and they have not had any discussions with CSX. Construction vehicles will not need to cross the railroad along the proposed route for delivery.

Fugitive dust. The Applicant expects some dust generation from Project construction and has indicated that best management practices (BMPs) will be employed. These BMPs include covering loads and applying water to suppress dust. Compacted gravel access roads may also contribute to airborne dust particles and water will be applied as needed.

HE's evaluation of impacts. HE conducted additional research and analyses related to traffic, road degradation and fugitive dust, as described below.

Local road conditions. KY 881 (Brushy Rd), Ford Mountain Road and Right Fork of Brushy Road will be the primary local roadways traveled by workers and delivery vehicles connecting to site entrances. To assess road capabilities, gross vehicle weight (gvw) is used as the total weight of the vehicle, including passengers and cargo. According to information provided by the Applicant and obtained from the KYTC Highway Information View and Extract Interface, Brushy Road and Ford Mountain Road/Right Fork of Brushy Road are both rated for 44,000 pounds (22-tons) gvw.[95] HE identified KY 1426 (Bent Branch Rd) as the likely truck route connecting US 119 with Right Fork of Brushy Road for Project deliveries to travel. The KYTC Highway Information View and Extract Interface rates this road for 80,000 pounds (40-tons) gvw.[96]

HE made the following observations about local roads during the Project site visit:

- *Bent Branch Road/KY 1426* – two-lane, striped, blacktop road; sections have no shoulder.
- *Brushy Road/KY 881* – narrow, striped, two-lane, aggregate road with no shoulder; sections are in poor condition, with buckling and cracking present.
- *Ford Mountain Road* – narrow, unlined, two-lane, aggregate road; no shoulder present and difficult for two vehicles going in opposite directions to pass.
- *Right Fork of Brushy Road* – narrow, unlined, two-lane, aggregate road; no shoulder present for sections and difficult for two cars going in opposite directions to pass.

During the site visit (a weekday), there was little traffic on local roads surrounding the Project site. Appendix B provides photos from the site visit, including several of local road conditions.

Baseline traffic volumes. The Applicant provided traffic counts for roads in the Project area, as shown previously in Exhibit 5-6. HE confirmed that no additional data for other roads is available, which is likely due to the low volumes of traffic expected on those roads.

Construction related traffic impacts. Pike County Solar provided estimates of the number of construction vehicles accessing the Project site on an average day, provided in Exhibit 5-8. Peak day construction traffic estimates were provided by the Applicant in subsequent data

[95] https://datamart.kytc.ky.gov/EDSB_SOLUTIONS/HISEXTRACTS/
[96] https://datamart.kytc.ky.gov/EDSB_SOLUTIONS/HISEXTRACTS/

requests and are predicted to be highest while multiple construction activities overlap. The peak construction period is expected to occur over a period of about eight months.

Exhibit 5-8.
Estimated Daily Vehicle Trips to the Pike County Solar Project Site

	Vehicle Trips	
	Average Day	Peak Day
Worker Vehicles	200	300
Delivery Trucks	20	60
Total	**220**	**360**

Notes: (1) Vehicle trips account for trips going to the Project site and trips going away from the Project site each day.
(2) Each worker vehicle is predicted to transport two to three workers.
(3) Water Truck and Cement Truck trips were not provided.
(4) Peak Day numbers are "worst case" scenario.
(5) This Exhibit excludes vehicle trips for construction of the Project transmission line.

Sources: Pike County Solar, LLC, August 2024; Harvey Economics, 2024.

Vehicle and traffic data for construction of the Project transmission line was not available. The Applicant stated that the final route, structure placement, and roadways to be used for the transmission line are subject to easement agreements and further design.

The estimated traffic increases may create noticeable, but acceptable, increases on US 119. However, it is difficult to determine the effects on local roads in the Project area. Those roads are lightly to moderately traveled, so increases in traffic volume are likely to be noticeable. Although the magnitude of change to any single road cannot be determined, HE offers the following observations:

- Average day traffic will create noticeable changes in traffic volumes on local roads in the Project area.
- On peak construction days, the increased traffic on local roads could be substantial. Since the impact will likely be on local residents, this change may create negative attitudes about the Project.
- The narrow roads and lack of shoulders on several local roads in the Project area will require drivers to pull over to pass and will increase the inconvenience to local residents during the construction period.
- Large trucks and a lack of shoulders may create situations where there is nowhere for either the truck or oncoming vehicles to pull over.
- This area has experienced traffic similar to this during the coal production era on the property.

This information suggests that carpooling will be important for minimizing traffic impacts to local residents during the construction period. This also suggests that additional traffic

management strategies and planning around peak travel times should be implemented for Project deliveries.

Operations related traffic impacts. With limited staff members working regular business hours and the occasional off-hours maintenance and repair, traffic impacts during operations should be minimal. HE does not expect significant traffic effects related to the operation of the facility.

Impacts to railways. As proposed, the Project will not impact the local CSX railway. The Applicant should communicate with CSX to determine if railway crossings by Project delivery trucks will be an issue once construction details have been finalized.

Road degradation. Potential for degradation due to construction traffic on local roads including Brushy Road, which has existing areas of damage, should be assessed during the pre- and post- construction road surveys. The Applicant's lack of information about gross weights of delivery vehicles and loads, types of existing traffic and baseline traffic levels on some roads make it difficult to predict if road degradation will occur. Despite this, the existing condition and nature of the local roads to be used to access the Project suggests that either preventative work will need to be done in advance of Project onset or that degradation will occur, and Pike County Solar will need to work with Pike County road authorities to correct the damage.

The KYTC's Pavement Conditions interactive map provides data regarding road conditions for individual segments of state and county roads; pavement condition data are not available for local or city roads.[97] Pavement conditions are rated on a scale of green/good, yellow/fair and red/poor. The portion of US 119 near the Project site is color coded red, and treatments were recommended to occur in 2021. The portion of KY 1426 between Ford Mountain Road and Smith Fork Road is color coded red, and treatments were recommended to occur in 2022. The section of KY 1426 between Smith Fork Road and US 119 is color coded green, with treatments recommended in 2033. Pavement conditions data are unavailable for other local roads.

Given the estimates of Project-generated traffic during construction and the available information about road conditions, the Applicant should be prepared to repair any damage due to commuting workers or heavy trucks traveling on the local roadways.

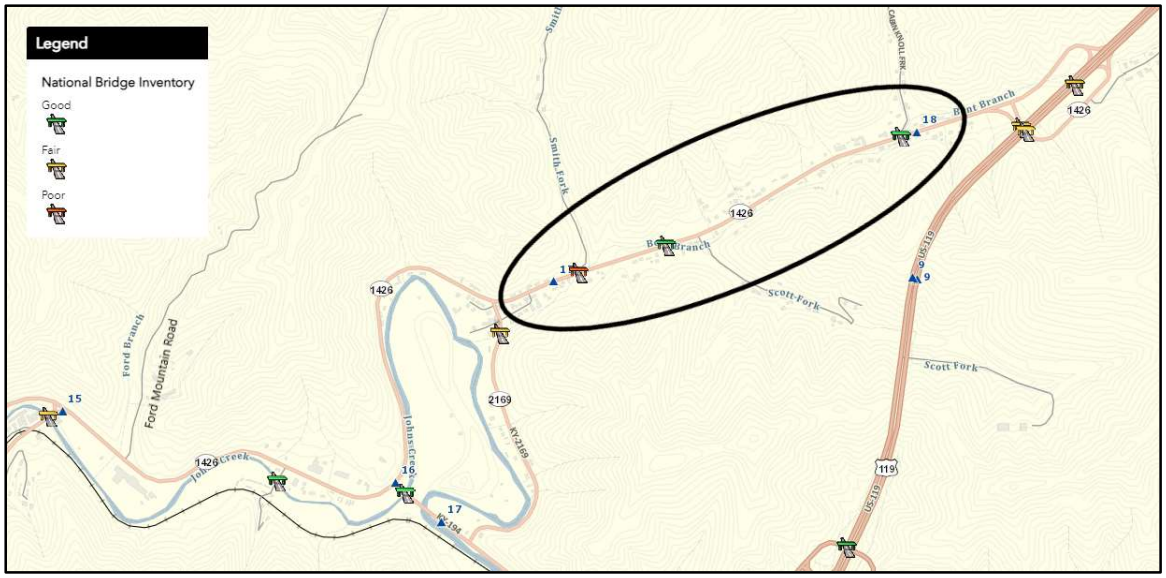
Bridges The Applicant reported there are no bridges on internal roads within the Project site, and this was verified by HE staff during the site visit. Three bridges were identified on local roads connecting US 119 with the four proposed Project entrances, all located on KY 1426, to the south of the Project area. HE consulted the KYTC's bridge weight limit map to identify restrictions for bridges along the Project delivery route.[98]

Of the bridges along KY 1426, two are shown as black, which indicates "no restrictions". One bridge along Bent Branch Road at the intersection of Smith Fork Road is blue, indicating a "gross posted" restriction, with a limit of 10 tons. This bridge was observed to be in poor

[97] https://maps.kytc.ky.gov/pavementconditions/
[98] https://maps.kytc.ky.gov/bridgeweightlimits/

condition during the site visit, and confirmed by KYTC's Bridge Data Miner, as shown in Exhibit 5-9.[99] The bridge at Smith Fork Road should be evaluated due to its condition prior to use for Project deliveries and the weight restriction should be taken into account when developing routes for semi-trailers and any heavy vehicles.[100]

Exhibit 5-9.
Bridge Conditions along the Pike County Solar Project Delivery Route



Notes: (1) The three bridges along KY 1426 are indicated by the black oval.
(2) No bridges were present along KY 881.

Sources: KYTC Bridge Data Miner, August 2024; Harvey Economics, 2024.

Fugitive dust. Fugitive dust should not be an issue given the Applicant's proposed efforts to reduce dust with the use of best practices, including the application of water, and the forested boundary surrounding the Project site.

Conclusions and recommendations. Based on our review of the SAR and subsequent information provided by the Applicant, as well as other secondary research conducted regarding roads and dust, HE offers the following conclusions regarding traffic, fugitive dust, and road degradation:

1. The lack of information about gross weights of Project delivery vehicles traveling on local roads near the Project site and transmission line route is a concern. Special care should be taken in developing a plan to consider road conditions, bridges and culverts, the presence or lack of road shoulders, and vehicle weights.

2. Access to the Project site from US 119 will require cars and semi-trucks to travel on local roads. The site entrances planned for the Project site will consolidate construction vehicle traffic primarily to two routes, potentially minimizing the distribution of traffic

[99] https://maps.kytc.ky.gov/bridgedataminer/
[100] Pictures of this bridge are included in Appendix B, Site Visit Photos.

impacts, or might result in a feeling of overwhelming traffic on those routes for local residents.

3. Construction traffic will likely be noticeable on local roads surrounding the Project site, including Brushy Road, Bent Branch Road and those that connect with Bent Branch Road to reach US 119. This includes Meta Highway, Smith Fork Road, Scott Fork, Cabin Knoll Road and others, as several neighborhoods are located in these areas and those residents travel Bent Branch Road or Brushy Road to reach US 119. An elementary school is located at the intersection of Meta Highway and Ford Mountain Road, where the majority of construction traffic will be routed. Construction traffic could be irritating to these local residents.

4. The nature of the local roads will require that drivers pull over for large vehicles. While residents may be accustomed to this, it might be a point of frustration. Additionally, some local roads may not be wide enough to allow for safe passage of multiple vehicles, in their current condition.

5. Road degradation may be an issue in some areas on local roads, depending on the amount of traffic using certain smaller or less maintained roads. Some local roads or bridges may need improvements prior to the start of Project construction.

6. Pike County Solar should consider incentives or other means of encouraging carpooling to reduce the number of worker vehicles and to minimize traffic-related effects, including the potential for congestion, accidents, noise or dust issues.

7. While US 119 is rated to support the weight of most of the Project deliveries, the substation transformer delivery will far exceed the weight limit for this highway.

8. The substation transformer delivery and other loaded delivery vehicles will exceed the gross vehicle weight limits on local roads traveled to reach site entrances and for the bridge along Bent Branch Road at Scott Fork Road.

9. Given the small number of employees on-site during operations, HE does not anticipate any noticeable traffic impacts during the operational period.

10. Fugitive dust should not be an issue given the Applicant's proposed efforts to reduce dust with the application of water and other best management practices.

Need for mitigation. The Applicant should consider certain mitigation to reduce impacts associated with traffic and dust:

1. The Applicant shall comply with all laws, permits and regulations regarding the use of roadways and bridges.

2. The Applicant shall consult with the Kentucky Transportation Cabinet (KYTC) regarding truck and other construction traffic and obtain necessary permits from the KYTC.

3. The Applicant shall coordinate with the Pike County Road Department (PCRD) regarding truck and other construction traffic and obtain necessary permits from the PCRD.

4. The Applicant shall develop a transportation plan for the heavy truck delivery route(s) within Kentucky, taking into consideration any weight restricted bridges.

5. The Applicant shall work with the Commonwealth road authorities and the PCRD to perform road surveys, before and after construction activities, on all roads in the Project area to be used by construction vehicles.

6. The Applicant shall comply with any road use agreement executed with the County or PCRD. Such an agreement might include special considerations for overweight loads, routes utilized by heavy trucks, road weight limits and bridge weight limits.

7. The Applicant shall fix or pay for damage resulting from any commuting or heavy vehicle transport to the Project site during construction.

8. The Applicant shall implement a ridesharing plan for construction workers if feasible and if needed, use appropriate traffic controls or allow flexible working hours outside of peak hours to minimize any potential delays during AM and PM peak hours.

9. The Applicant shall develop and implement a traffic management plan for the Project to minimize the impacts on traffic flow and keep traffic and people safe.

10. The Applicant shall coordinate with the local school district or principal regarding the traffic management plan, such as the scheduling any necessary road closures or traffic stoppages near Johns Creek Elementary School outside of student drop-off and pickup times.

11. The Applicant shall consult with CSX and the KYTC to evaluate potential impacts or specific mitigation measures related to Project traffic over railroad crossings from, as necessary.

12. The Applicant shall properly maintain construction equipment and follow best practices related to fugitive dust throughout the construction process.

Economic Impacts

Evaluation of the potential economic effects of the Pike County Solar Project is based on knowledge of the Project's construction timeline and activities and the solar facility's long-term operational activities. Project employment needs, local expenditures (labor, materials/supplies, equipment) and payment of applicable taxes and other fees are considered over the short- and long-term and placed within the context of existing demographic and economic conditions.

General methods of assessment. Both the construction and operational phases should be evaluated to include:

- Detailed understanding of the project: Specific activities to occur, the timeline of those activities, geographic extent of project effects;

- Quantification of direct effects: Number and domicile of employees, range of wage levels, materials purchases, supplies and equipment and associated sales tax payments, other tax payments including property taxes. Determining the portion of purchases to occur in the local area or within the Commonwealth is key;

- Estimation of total effects: Use of region and industry specific multipliers to estimate indirect and induced effects to calculate total effects such as employment, income and overall economic activity;

- Other social or economic benefits, including potential non-monetary benefits, to the local community or surrounding area; and

- Potential curtailments or impacts to other industries.

Summary of information provided by the Applicant. The Pike County Solar Application included an Economic Impact Report (Tab 10) prepared by consulting economist Dr. Paul Coomes. That report includes a discussion and explanation of the Project's economic benefits, including estimates of employment, labor income and total economic output generated by Project construction and operations within Pike County and for the Commonwealth of Kentucky. According to the Report, the employment and economic impacts of the facility were assessed using a series of IMPLAN models.

Excerpts from the Applicant's Socioeconomic Report are presented below:

Capital investment: Total capital investment for the Pike County Solar Project will include materials, labor and other construction-related expenses. The majority of Project expenditures are expected to be spent outside of Pike County or Kentucky, including items such as solar panels, trackers and other major equipment. Because those components are typically manufactured outside of Kentucky, spending on those items is not expected to directly affect the economies of Pike County or Kentucky. The Applicant has stated that the specific sourcing locations for materials and labor are unknown at this time, but that the Project will work with Pike County and Kentucky vendors to source as much labor and materials as feasible from the County and Commonwealth.

Supplemental information from the Applicant states that an estimated $6.7 million of equipment would be procured in from within Pike County, an additional $5.7 million of equipment would be procured from other areas within Kentucky.[101]

Construction employment and earnings: An Engineering, Procurement, and Construction contractor has not yet been engaged for this Project; therefore, the exact number of construction workers or amount of worker compensation was not available to Dr. Coomes for this

[101] An estimated $103.9 million of equipment would be procured from outside Kentucky.

evaluation. He estimated the construction workforce and compensation for the Project based on the details of other, existing solar facilities.

Construction of the facility is estimated to generate approximately 240 full-time equivalent (FTE) jobs over the approximately 12-to-18-month construction period.[102] Those jobs will include construction managers, heavy equipment operators, installers, electricians, fencers and other skilled labor positions. The portion of the construction workforce that might be made up by Pike County residents is unknown.[103] Assuming average annual earnings per construction worker of about $60,700 (including benefits), Dr. Coomes estimated direct construction labor compensation to be $14.6M. The circulation of construction-related monies throughout the local area (induced and indirect effects) would also generate additional new jobs, or FTEs, and income in other economic sectors.[104] As with the construction workforce, the indirect and induced employment generated by the Project would be temporary; however, these jobs may be more likely to be filled by local residents of Pike County or surrounding counties as the result of local construction related spending. Exhibit 5-10 presents the estimated employment and labor income generated by Project construction.

Exhibit 5-10.
Estimated Economic Benefits of the Proposed Pike County Solar Project, Construction Phase

	Jobs (FTEs)	Earnings
Direct	240	$14.6 M
Indirect / Induced	88	$3.2 M
Total	328	$17.8 M

Notes: (1) Jobs are measured as Full-Time Equivalents (FTEs); the number of individual workers may be greater than the number of FTEs.
(2) The portion of jobs that may be filled by Pike County residents is unknown.

Source: Pike County Solar, LLC, May 2024.

Operational employment and earnings: Approximately three FTEs would be required to perform the Project's regular operations activities. Salaries for operational employees are estimated to be approximately $102,000 per FTE per year.[105] The circulation of operations-related monies throughout the local area (induced and indirect effects) would also generate additional new jobs, or FTEs, and income in other economic sectors. Jobs generated by Project

[102] 1 job = 1 FTE = 2,080 hours worked in one year. A part-time or temporary position would constitute a fraction of one job or FTE. Therefore, the number of individual people hired for construction will likely be greater than the estimated number of FTEs.
[103] The Applicant has indicated that they will hire as many local workers for the construction and operation phases as feasible.
[104] Indirect impacts stem from expenditures made in industry sectors that support firms directly engaged in construction activities. Induced impacts are associated with increased household spending from income generated by construction activities.
[105] Salary estimates are based upon industry standards and are not only from within Pike County or Kentucky.

operations are more likely to be filled by residents of Pike County or surrounding counties. Exhibit 5-11 presents the employment and income generated by Project operations.

Exhibit 5-11.
Estimated Economic Benefits of the Proposed Pike County Solar Project, Operations Phase

	Jobs (FTEs)	Earnings
Direct	3.2	$326,400
Indirect / Induced	6.4	$286,600
Total	9.6	$613,000

Note: Jobs are measured as Full-Time Equivalents (FTEs); the number of individual workers may be greater than the number of FTEs.

Source: Pike County Solar, LLC, May 2024.

Tax revenues: HE requested estimates of property tax and other tax payments anticipated to be paid to Pike County, other taxing entities within the County and the Commonwealth. The Applicant provided the following information describing total tax payments to various entities over the life of the facility:

- Commonwealth: $4,907,605 (Property Tax)
- Commonwealth: $7,089,041 (Franchise)
- Commonwealth: $3,785,161 (Manufacturing Machinery Tax)
- Pike County: $3,630,018
- Pike County School District: $7,360,397

As noted in the Economic Impact Report, Pike County levies a county-wide occupational tax of one percent on wages, salaries and other compensation. If construction worker compensation is fully captured by the tax, the County would receive a one-time estimated increase of $178,000 in occupational tax revenues. If the compensation in the operations phase is fully captured, the county would receive an estimated additional $6,000 annually.

HE's evaluation of impacts. An economic impact analysis can be an opportunity to identify the monetary and other benefits provided by Project construction and operational activities. A meaningful discussion of the monetary and other benefits must provide some quantification of said benefits, along with additional context to determine the magnitude of those benefits:

- For most solar facilities, the purchase of materials, supplies and equipment makes up a large portion of total project construction costs. The majority of those capital expenditures are likely to occur out-of-state, limiting the economic benefits to Pike County or the Commonwealth. Therefore, the economic benefits of construction will come mainly from labor activities.

- It is also important to note that direct construction jobs, as well as indirect and induced, will be temporary, resulting from the approximately 12 to 18-month construction period. Additionally, the portion of construction period jobs realized for Pike County residents will depend on the number of available and qualified workers in the area.

- Annual operations and maintenance expenditures for the Project would be small. The majority of economic benefits generated during operations would result from employee earnings and various tax payments.

- We assume that property tax payments will be distributed to local entities within Pike County, including the Pike County School District. Those payments will provide additional revenue to those entities; however, the additional revenue will generally amount to a small percentage of total tax revenues for any individual entity.

- Because of the Project's location on a reclaimed mountaintop-removal coal mine site, no active agricultural or commercial production activities will be curtailed.

Conclusions and recommendations. Construction and operation of the Pike County Solar facility will provide some limited economic benefits to the region and to the Commonwealth. Overall, the Project will result in measurable, but temporary, positive economic effects to the region during the construction phase. Construction activity will generate regional employment and income opportunities; those effects will be temporary, but local hires will increase employment and incomes to an area that needs it. Most construction purchases will be made outside of Kentucky.

Operational economic benefits will be confined mostly to tax revenues, although these are assumed to be relatively minor in terms of total County tax revenues. Those payments will generally amount to a small percentage of total tax revenues for any individual public entity. Operational employment will be minimal, but will generate local income, and local purchases of materials or supplies will generate additional economic activity.

Need for mitigation. Socioeconomic impacts of the Pike County Solar facility represent a positive, albeit small, contribution to the region. The following mitigation measures could be implemented to increase economic benefits within Pike County and provide more detailed information about the Project's local economic benefits:

1. The Applicant should attempt to hire local workers and contractors to the extent they are qualified to perform the construction and operations work.

2. The Applicant should consider opportunities to optimize local benefits; for example, by purchasing materials, if possible, in the local area during construction and operation.

Decommissioning Activities

Decommissioning is the process of safely closing the solar facility to retire it from service and subsequently returning the land to its original condition.[106] This might include removal of solar panels and all associated facilities, and restoration of the property to pre-Project conditions. Although not specifically addressed in the statutes, the Siting Board requested that HE discuss the potential impacts associated with decommissioning activities.

General methods of assessment. The types of impacts likely to result from decommissioning might be similar in nature to those experienced during construction. For example, workers would need to commute to the site daily, trucks would be required to haul equipment away using local roads and noise may be generated by all of the activity. Therefore, the methods of assessing decommissioning impacts would be similar to those employed to evaluate the construction phase effects. Removal and disposal of the project components should also be addressed in this assessment.

Summary of information provided by the Applicant. Exhibit F of the SAR provides the Applicant's Decommissioning Plan, which includes an overview of the primary decommissioning activities, including the dismantling and removal of facilities and restoration of land, as well as a summary of projected costs and salvage values associated with decommissioning the Project. This plan was prepared for the Applicant by the firm ERM in April 2024. According to the Applicant, the Pike County solar facility would have an expected useful life of approximately 35 years.

Decommissioning plan and activities. According to the Decommissioning Plan, the following general decommissioning activities are anticipated:

- De-energize solar arrays.
- Install temporary erosion perimeter controls and best management practices (BMPs) to protect sensitive resources.
- Reinforce access roads, if needed, and prepare the Site for component removal.
- Dismantle panels and above ground wiring.
- Remove trackers and piles.
- Remove inverter stations with associated foundation components,
- Remove above and below-ground electrical cables and conduits to a depth of 36 inches or as otherwise agreed with the landowner.
- Remove perimeter fencing.

[106] Project decommissioning may be triggered by events such as the end of a power purchase agreement or when the Project reaches the end of its operational life. (KRS) 278.706(2)(m) requires that decommissioning activities be completed within 18 months of the Project ceasing to produce electricity for sale unless the deadline has been extended by the Secretary of the Kentucky Energy and Environment Cabinet ("EEC"). Monitoring and site restoration may extend beyond this period to ensure successful revegetation and rehabilitation.

- Remove access and internal roads not required by the landowner and grade site to restore original contours, as necessary.
- Remove Project substation and above ground transmission line if decommissioned per request by landowner; otherwise leave in place for future use in accordance with KRS 278.706(2).
- De-compact subsoils (if required), restore and revegetate disturbed land to a similar state as before Project construction, and remove temporary erosion control measures.

Some components may be left in place under certain circumstances, as noted in the Decommissioning Plan. For example, underground cabling that is located three feet or less will be removed and salvaged in compliance with (KRS) 278.706(2)(m), while cable located greater than three feet in depth may be abandoned in place. The Project substation and transmission line are considered "interconnection and other facilities" as described in (KRS) 278.706(2)(m) and will remain in place unless otherwise requested by the landowner. Access roads may be left in place if requested and/or agreed to by the landowner.

Anticipated decommissioning costs. Decommissioning costs include costs associated with disposal of components not sold for salvage, including materials which will be disposed of at a licensed facility, as required. Decommissioning costs also include backfilling, grading, and restoration of the proposed Project site. Total estimated decommissioning costs are $9,753,900, including costs associated with substation and transmission line removal.[107] After returns for salvaged materials, the net decommissioning costs are projected to be $7,496,400.

Financial assurance. The Applicant will be responsible for providing a bond or similar security to ensure financial performance of decommissioning in accordance with the Decommissioning Plan. The bond or similar security will comply with the specific requirements of (KRS) 278.706(2)(m)(5).

Landowner coordination. The Project's lease agreements shall abide by all relevant Kentucky Revised Statutes. Additionally, the Applicant will communicate with each affected landowner at the end of the electric generating facility's useful life so that any requests of the landowner for the decommissioning phase that are in addition to lease requirements and the requirements of the Decommissioning Plan may, in the sole discretion of the Applicant or its successor or assign, be accommodated.

HE's evaluation of impacts. The impacts of decommissioning activities are likely to be somewhat smaller than those of construction. Fewer workers may be able to complete facility removal activities in a shorter time period, as compared to construction activities. Additionally, decommissioning work may not require the same level of experience or skill sets as project construction, resulting in the employment of more general laborers at lower wages. Therefore, the benefits to local employment and income during decommissioning would be somewhat less than those described for the construction phase.

[107] Although the Project substation and transmission tie-in line may be retained at the end of the Project life, estimated decommissioning costs have been included for those items in the Decommissioning Plan.

Conclusions and recommendations. HE believes that decommissioning the facility and returning the site to its original condition can be accomplished once all the components have been removed. Completion of reclamation activities would eliminate long term Project-related negative impacts, as compared with simply shutting the solar facility. The reclamation plan will need to address the coal mining reclamation which was previously initiated. This process will also have a modest and temporary positive economic stimulus to the region.

The Applicant has suggested that economic incentives exist for decommissioning, but HE believes that is highly uncertain due to variable costs for decommissioning and metal prices 40 years in the future.

Need for mitigation. The Applicant's approach to decommissioning and restoration includes removal of applicable above ground and underground structures associated with the Project, as well as site restoration activities. To ensure that all decommissioning commitments are met, we recommend the following:

1. The Applicant shall file a final decommissioning plan with the Siting Board, or its successors, as well as Pike County, which complies with Kentucky Revised Statutes (KRS) 278.706(2)(m). The plan shall commit the Applicant to the removal of all applicable Project components and required restoration activities. The final decommissioning plan shall be completed at least one month prior to construction of the Project.

2. The decommissioning shall incorporate the required coal mine reclamation on the site as approved by the Commonwealth of Kentucky.

3. The Applicant, its successors, or assigns shall notify Pike County officials of upcoming decommissioning activities at least 30 days prior to the commencement of decommissioning.

4. As applicable to individual lease and easement agreements, the Applicant, its successors, or assigns will abide by the specific land restoration commitments agreed to by individual property owners, as described in each executed lease and easement agreement.

5. The Applicant shall provide a bond or similar security to ensure financial performance of decommissioning in accordance with the requirements of (KRS) 278.706(2)(m)(5).

6. The bond amount should be reviewed and updated every five years at the expense of the Applicant to determine and update the cost of facility removal. This review shall be conducted by an individual or firm with experience or expertise in the costs of removal or decommissioning of electric generating facilities. Certification of this review shall be provided to the Siting Board or its successors and the Pike County Fiscal Court. Such certification shall be by letter and shall include the current amount of the anticipated bond and any change in the costs of removal or decommissioning.

7. If the Applicant proposes to retrofit the current proposed facility, it shall demonstrate to the Siting Board that the retrofit facility will not result in a material change in the pattern or magnitude of impacts compared to the original project. Otherwise, a new Site Assessment Report will be submitted for Siting Board review. The term retrofit is defined as the facility being re-designed such that the facility has a different type of operations or function, i.e., no longer operates as a solar electric generation facility.

8. The Applicant shall also prepare a new Site Assessment Report for Siting Board review if the Applicant intends to retire the currently proposed facility and employ a different technology.

9. The Applicant, its successors, or assigns must provide notice to the Siting Board if during any two-year period it replaces more than twenty percent of its facilities. The Applicant shall commit to removing the debris and replaced facility components from the Project site and Pike County upon replacement. If the replaced facility components are properly disposed of at a permitted facility, they do not have to be physically removed from Pike County. However, if the replaced facility components remain in Pike County, the Applicant must inform the Siting Board of where the replaced facility components are being disposed of.

10. Any disposal or recycling of Project equipment, during operations or decommissioning of the Project, shall be done in accordance with applicable laws and requirements.

Public Outreach and Communication

The Application details the public involvement activities undertaken by Pike County Solar, LLC staff in Tabs 3 and 6 of the Application. Those activities included the following events and actions taken to notify and inform Pike County officials and residents about the Project:

- Public meetings and events:
    - The initial public information meeting was held on January 10, 2024, at John's Creek Elementary School. The meeting was described as an "open-house" format, with Project representatives available to answer questions. On December 21, 2023, a letter of notice was sent to the landowner whose land is leased for the Facility Area and all landowners whose property is within a quarter mile of the Facility Area informing them of the meeting. Notice of the meeting was also published in the Appalachian News-Express on January 5, 2024.
    - According to Application materials, the public information meeting was attended by about 30 people, including local landowners, and the Pike County Judge Executive, Ray Jones II.
- Outreach to surrounding landowners and others:
    - A meeting was held on February 22, 2024, at which a presentation of Project details and timeline was presented to Ms. Jeanne Robinson, Executive

Secretary to Pike County Judge/Executive Ray Jones II, and Mr. William Spears, Deputy Judge/Executive of Pike County.

- On April 26, 2024, an informational letter was sent to the landowner whose land is leased for the Facility Area and all landowners whose property is within a quarter mile of the Facility Area, informing them of the Applicant's intent to file an Application with the Siting Board.

- Public notice of the intent to file an Application was published in the Appalachian News-Express on April 30, 2024.

- A Project website was established in January 2024 to provide the public with details on how to attend the public information meeting, a map showing the Project Area, a general summary of the Project, and a contact form to submit questions and comments regarding the Project. The official Project website is: pikecountysolarproject.com.

As part of HE's site visit to the Project area, HE met with local officials, including Ms. Melissa Potter, the Deputy Property Value Administrator; Mr. William Spears, Deputy Pike County Judge/Executive; Ms. Jeanne Robinson, Executive Secretary to the Pike County Judge/Executive; and Mr. Bobby Brown, Pike County Human Resources administrator. Overall, none of the group has heard much discussion at all about the Project from local residents or other community members, positive or negative. However, from the little they have heard, there appears to be a general feeling of skepticism that the Project will actually come to fruition. Project officials have been in contact with the Judge/Executive and there is some optimism that construction jobs will result in additional tax revenue to Pike County.

Need for mitigation. The Applicant should pursue additional public outreach and engagement activities within Pike County because of the limited attendance at the local public meeting and the likelihood that County residents may be unaware of the Project.

Complaint Resolution

Pike County Solar has stated that "the Project will identify a point of contact for any concerns, along with that person's contact information." The Applicant plans to include a sign on Project entrances and will provide pre-construction notices to local landowners that includes information on how to reach the identified point of contact. However, Application materials do not provide any further detail about that plan or approach to complaint resolution.

Need for mitigation. The Applicant's described approach to resolving complaints is vague and generally undefined. A formal process for addressing complaints should be developed and followed during the construction and operational periods to address any issues associated with visual, noise or other Project-related impacts. The following measures should be undertaken to implement a complaint resolution process:

1. The Applicant should develop and implement a complaint resolution plan that describes the process for filing complaints during construction and during operations, and this plan should be provided to Pike County and the Siting Board. The complaint

resolution plan should explain how to register the complaint; how it will be addressed; the timeframe in which a complainant can expect a response; and an explanation of how resolution will be determined if the complainant is not satisfied with the response from the Applicant.

2. The Applicant should submit to the Siting Board, annually, a status report associated with the complaint resolution plan, recounting the individual complaints, how the Applicant addressed those complaints and the ultimate resolution of those complaints.

3. The Applicant shall provide the Pike County Fiscal Court with contact information for individuals within the company that can be contacted with concerns. This shall include contact information for the general public to reach individuals that can address their concerns. The Applicant shall update this contact information yearly, or within 30 days of any change in contact information.

SECTION 6
Recommended Mitigation

This section identifies actions the Applicant can take to mitigate potential negative impacts on certain regional resources. Other regulatory processes will determine the need for particular actions on other resource topics. These are only noted here, and HE makes no recommendation as to their merit. Beyond those actions, HE recommends a list of mitigation actions for Siting Board and Applicant consideration.

Regulatory Actions and Mitigation Outside Siting Board Jurisdiction

The Siting Board should be aware of the following permitting and regulatory actions that will require Applicant compliance and possible mitigation efforts (in addition to this effort to obtain a Certificate of Construction from the Siting Board).[108] No action on these actions is required by the Siting Board since these are outside the Siting Board's jurisdiction. The Applicant states that Pike County Solar intends to comply with all applicable permitting requirements and provided a list of permits that may be required prior to either construction or operation of the facility. Exhibit 6-1 provides that list.

[108] Information provided in response to the Siting Board's First Data Request.

Exhibit 6-1.
Permits or Consultations Potentially Required for Construction or Operation of the Pike County Solar Facility

Permit/ Activity/ Consultation	Permitting Agency
Federal	
Clean Water Act Section 404 Permit and Jurisdictional Determination	United States Army Corps of Engineers (USACE), Huntington District
Endangered Species Act (ESA), Section 10 Consultation (Incidental Take Permit)	US Fish and Wildlife Service
Migratory Bird Treaty Act (MBTA) Compliance	US Fish and Wildlife Service
Bald and Golden Eagle Protection Act (BGEPA) Compliance	US Fish and Wildlife Service
National Historic Preservation Act (NHPA) Section 106	Kentucky Heritage Council (State Historic Preservation Office (SHPO)
Phase I Cultural Resources and Archeological Survey (PHI CRAS) for compliance with Section 106 of the National Historic Preservation Act (35 C.F.R. Part 800)	Kentucky Heritage Council (KHC/SHPO)
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (ASTM Phase I Environmental Site Assessment) (ESA)	Environmental Protection Agency (EPA) / ASTM International (ASTM)
Federal Aviation Administration (FAA) Obstruction Evaluation / Airport Airspace Analysis (OE/AAA)	FAA, Air Traffic Office of Obstruction Evaluation Services
Form FAA 7460-1 Notice of Proposed Construction	Federal Aviation Administration (FAA)
Spill Prevention, Control and Countermeasure (SPCC) Plan 40 C.F.R. Part 112	U.S. Environmental Protection Agency (EPA), Region 4
Commonwealth of Kentucky	
Clean Water Act Section 401 Water Quality Certification	KY Division of Water
Encroachment Permit	Kentucky Transportation Commission
Stormwater General Permit KYR 10 - KPDES	KY Division of Water

Note: Some permits may not be required once evaluation of survey data has been completed.

Source: Pike County Solar, LLC, August 2024.

In addition to the above, the Applicant has prepared and submitted a Cumulative Environmental Assessment (CEA), as required by Section 224.10-280 of the KRS.

Mitigation for Siting Board and Applicant Consideration

The following mitigation measures are based upon: (1) Applicant commitments set forth in the SAR; (2) measures discussed with the Applicant in subsequent information exchanges or discussions; and (3) additional mitigation steps HE believes will reduce or eliminate negative Project impacts and are reasonable for the Applicant to undertake.

In performing this comprehensive review of the Pike County Solar Application and supplemental materials, HE has gained an understanding of the Project, the location, the construction and operational activities, the Applicant's intentions, and the Project's impacts. Our recommended mitigation actions are intended to reduce or eliminate potential adverse impacts.

A. Site development plan:

1. A final site layout plan should be submitted to the Siting Board upon completion of the final site design. Deviations from the preliminary site layout plan, which formed the basis for HE's review, should be clearly indicated on the revised graphic. Those changes could include, but are not limited to, the location of solar panels, inverters, transformers, substation, O&M building or other Project facilities or infrastructure, including internal access roads. Given that mine reclamation is underway and will influence the site plan, deviations from the preliminary plan can be expected.

2. Any change in Project boundaries, including easements, from the information which formed this evaluation should be submitted to the Siting Board for review.

3. The Siting Board will determine if any deviation in the site boundaries or site layout plan are likely to create a materially different pattern or magnitude of impacts. If not, no further action is required, but if yes, the Applicant will support the Siting Board's effort to revise its assessment of impact and mitigation requirements.

4. No details of the final Project transmission line route, including final locations of transmission line structures and distances from nearby residences have been submitted thus far. The Applicant commits to bringing a detailed review of the potential effects associated with the construction and maintenance of the transmission line to the Siting Board as part of a separate permitting effort.

5. A final, Project-specific construction schedule, including revised estimates of on-site workers and commuter vehicle traffic, should be submitted to the Siting Board. Deviations from the preliminary construction schedule should be clearly indicated.

6. The Siting Board will determine whether any deviation to the construction schedule or workforce estimates is likely to create a materially different pattern or magnitude of impacts. If not, no further action is required. If so, the Applicant will support the Siting Board's effort to revise its assessment of impacts and mitigation requirements.

7. The Applicant or its contractor will control access to the site during construction and operation. Site entrances will be gated and locked when not in use.

8. The Applicant's access control strategy will include appropriate signage to warn potential trespassers. The Applicant will ensure that the site entrance and boundaries have adequate signage, particularly in locations visible to the public, local residents and business owners.

9. According to National Electrical Safety Code regulations, the security fence must be installed prior to any electrical installation work. The substation will have its own separate security fence and locked access installed.

10. The Applicant will meet with local law enforcement agencies and fire services to provide information and ensure they are familiar with the plan for security and emergency protocols during construction and operations.

11. Prior to construction, the Applicant will provide a finalized Emergency Response Plan to the local fire district, first responders, and any County Emergency Management Agency. The Applicant will provide site-specific training for local emergency responders at their request. Access for fire and emergency units shall be set up after consultation with local authorities.

B. Compatibility with scenic surroundings:

1. Existing vegetation between the solar arrays and nearby roadways and homes shall be left in place, to the extent feasible, to help minimize visual impacts and screen the Project from nearby homeowners and travelers.

2. The Applicant will not remove any existing vegetation except to the extent it must remove such vegetation for the construction and operation of Project components.

3. Any changes to the site infrastructure layout (i.e., panels, inverters, etc.) included in the Application materials will be submitted to the Siting Board for review. If the Siting Board deems those changes to be significant, the Siting Board may require the Applicant to develop a vegetative screening plan.

4. The Applicant will use anti-glare panels and operate the panels in such a way that glare from the panels is minimized or eliminated. The Applicant will immediately adjust solar panel operations upon any complaint about glare from those living, working, flying or traveling in proximity to the Project.

5. Given the lack of Applicant-proposed screening and acknowledged concern for glare, the Applicant will work with homeowners, business owners or the Pike County Airport operator to screen those impacted to the extent possible if safety is an issue.

6. If any components of the Facility are visible to neighboring homes after construction, the Applicant shall assess the feasibility of a screening plan, including consulting with

neighbors to determine whether there are adverse impacts to their viewshed. If a screening plan is considered, regardless of whether it is ultimately implemented, notice of such consideration shall be filed with the Siting Board

7. To the extent that an affected adjacent property owner indicates that a visual buffer is not necessary, the Applicant will obtain that property owner's written consent and submit such consent in writing to the Siting Board.

C. Potential changes in property values and land use:

1. No unique mitigation measures are recommended related to potential impacts to property values or adjacent land uses because other mitigation already recommended can accomplish this. However, close coordination by the Applicant with impacted and concerned homeowners regarding potential visual impacts and impacts from noise, traffic or other Project activities should be initiated.

D. Anticipated peak and average noise levels:

1. The Applicant shall notify all residents and businesses within 2,000 feet of the Project boundary about the construction plan, noise potential, complaint resolution process, and mitigation plan at least one month prior to the start of construction.

2. The Applicant shall respond to any complaints related to noise levels or noise causing activities occurring during construction or operations via a timely, formal and clearly developed complaint resolution program.

3. If pile driving activity occurs within 1,500 feet of a noise sensitive receptor, the Applicant shall implement a construction method that will suppress the noise generated during the pile driving process (i.e., semi-tractor and canvas method; sound blankets on fencing surrounding the Project site; or any other comparably effective method).

4. The Applicant should limit the construction activity, process and deliveries to the hours of 8:00 am to 6:00 pm, Monday through Saturday. No construction work should be conducted on Sundays.

5. The Applicant shall maintain functional mufflers on all diesel-powered equipment.

6. The Applicant should coordinate with the Meta Baptist Church to limit heavy or oversize deliveries passing near the Church during their weekday services.

7. The Applicant shall place panels, inverters and substation equipment consistent with the distances to noise receptors indicated in the Applicant's acoustic assessment and with the Applicant's proposed setbacks. Nevertheless, the Applicant shall not place solar panels or string inverters, if used, closer than 150 feet from a residence, church or school, 25 feet from non-participating adjoining parcels, and 50 feet from adjacent roadways. The Applicant shall not place a central inverter, and, if used, energy storage systems closer than 450 feet from a residence, church, or school. These setbacks shall

not be required for residences owned by landowners involved in the Project that explicitly agree to lesser setbacks and have done so in writing. All agreements by participating landowners to lesser setbacks must be filed with the Siting Board prior to commencement of construction of the Project.

E. Road and rail traffic, fugitive dust, and road degradation:

1. The Applicant shall comply with all laws, permits and regulations regarding the use of roadways and bridges.

2. The Applicant shall consult with the Kentucky Transportation Cabinet (KYTC) regarding truck and other construction traffic and obtain necessary permits from the KYTC.

3. The Applicant shall coordinate with the Pike County Road Department (PCRD) regarding truck and other construction traffic and obtain necessary permits from the PCRD.

4. The Applicant shall develop a transportation plan for the heavy truck delivery route(s) within Kentucky, taking into consideration any weight restricted bridges.

5. The Applicant shall work with the Commonwealth road authorities and the PCRD to perform road surveys, before and after construction activities, on all roads in the Project area to be used by construction vehicles.

6. The Applicant shall comply with any road use agreement executed with the County or PCRD. Such an agreement might include special considerations for overweight loads, routes utilized by heavy trucks, road weight limits and bridge weight limits.

7. The Applicant shall fix or pay for damage resulting from any commuting or heavy vehicle transport to the Project site during construction.

8. The Applicant shall implement a ridesharing plan for construction workers if feasible and if needed, use appropriate traffic controls or allow flexible working hours outside of peak hours to minimize any potential delays during AM and PM peak hours.

9. The Applicant shall develop and implement a traffic management plan for the Project to minimize the impacts on traffic flow and keep traffic and people safe.

10. The Applicant shall coordinate with the local school district or principal regarding the traffic management plan, such as the scheduling any necessary road closures or traffic stoppages near Johns Creek Elementary School outside of student drop-off and pickup times.

11. The Applicant shall consult with CSX and the KYTC to evaluate potential impacts or specific mitigation measures related to Project traffic over railroad crossings from, as necessary.

12. The Applicant shall properly maintain construction equipment and follow best practices related to fugitive dust throughout the construction process.

F. Economic impacts:

1. The Applicant should attempt to hire local workers and contractors to the extent they are qualified to perform the construction and operations work.

2. The Applicant should consider opportunities to optimize local benefits; for example, by purchasing materials, if possible, in the local area during construction and operation.

G. Decommissioning:

1. The Applicant shall file a final decommissioning plan with the Siting Board, or its successors, as well as Pike County, which complies with Kentucky Revised Statutes (KRS) 278.706(2)(m). The plan shall commit the Applicant to the removal of all applicable Project components and required restoration activities. The final decommissioning plan shall be completed at least one month prior to construction of the Project.

2. The decommissioning shall incorporate the required coal mine reclamation on the site as approved by the Commonwealth of Kentucky.

3. The Applicant, its successors, or assigns shall notify Pike County officials of upcoming decommissioning activities at least 30 days prior to the commencement of decommissioning.

4. As applicable to individual lease and easement agreements, the Applicant, its successors, or assigns will abide by the specific land restoration commitments agreed to by individual property owners, as described in each executed lease and easement agreement.

5. The Applicant shall provide a bond or similar security to ensure financial performance of decommissioning in accordance with the requirements of (KRS) 278.706(2)(m)(5).

6. The bond amount should be reviewed and updated every five years at the expense of the Applicant to determine and update the cost of facility removal. This review shall be conducted by an individual or firm with experience or expertise in the costs of removal or decommissioning of electric generating facilities. Certification of this review shall be provided to the Siting Board or its successors and the Pike County Fiscal Court. Such certification shall be by letter and shall include the current amount of the anticipated bond and any change in the costs of removal or decommissioning.

7. If the Applicant proposes to retrofit the current proposed facility, it shall demonstrate to the Siting Board that the retrofit facility will not result in a material change in the pattern or magnitude of impacts compared to the original project. Otherwise, a new Site Assessment Report will be submitted for Siting Board review. The term retrofit is defined as the facility being re-designed such that the facility has a different type of operations or function, i.e., no longer operates as a solar electric generation facility.

8. The Applicant shall also prepare a new Site Assessment Report for Siting Board review if the Applicant intends to retire the currently proposed facility and employ a different technology.

9. The Applicant, its successors, or assigns must provide notice to the Siting Board if during any two-year period it replaces more than twenty percent of its facilities. The Applicant shall commit to removing the debris and replaced facility components from the Project site and Pike County upon replacement. If the replaced facility components are properly disposed of at a permitted facility, they do not have to be physically removed from Pike County. However, if the replaced facility components remain in Pike County, the Applicant must inform the Siting Board of where the replaced facility components are being disposed of.

10. Any disposal or recycling of Project equipment, during operations or decommissioning of the Project, shall be done in accordance with applicable laws and requirements.

H. Public outreach and communication:

1. The Applicant should pursue additional public outreach and engagement activities within Pike County because of the limited attendance at the local public meeting and the likelihood that County residents may be unaware of the Project.

I. Complaint resolution program:

1. The Applicant should develop and implement a complaint resolution plan that describes the process for filing complaints during construction and during operations, and this plan should be provided to Pike County and the Siting Board. The complaint resolution plan should explain how to register the complaint; how it will be addressed; the timeframe in which a complainant can expect a response; and an explanation of how resolution will be determined if the complainant is not satisfied with the response from the Applicant.

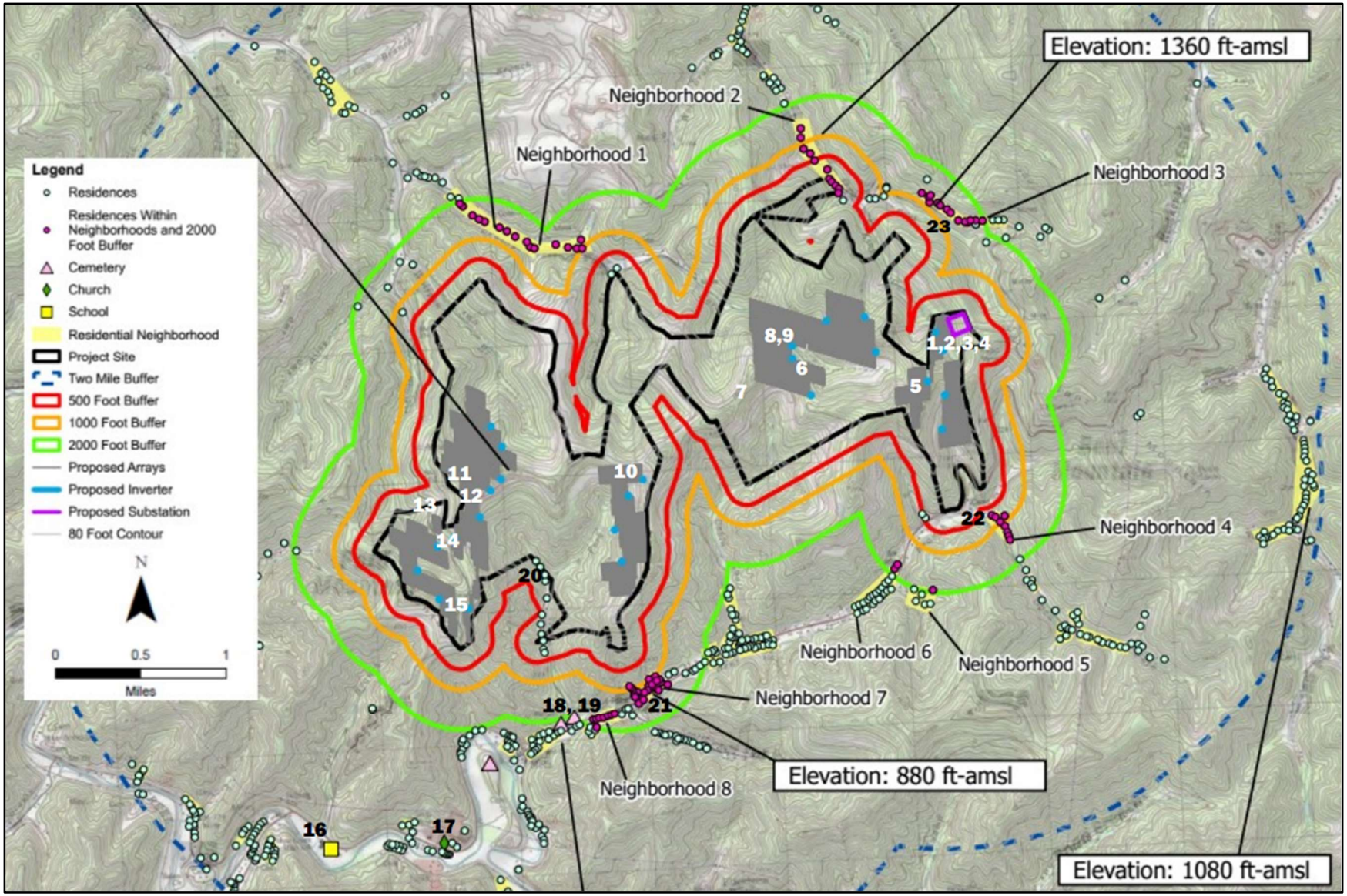
2. The Applicant should submit to the Siting Board, annually, a status report associated with the complaint resolution plan, recounting the individual complaints, how the Applicant addressed those complaints and the ultimate resolution of those complaints.

3. The Applicant shall provide the Pike County Fiscal Court with contact information for individuals within the company that can be contacted with concerns. This shall include contact information for the general public to reach individuals that can address their concerns. The Applicant shall update this contact information yearly, or within 30 days of any change in contact information.

APPENDICES

Appendix A

Photo Log Index Map


Legend
Residences
Residences Within Neighborhoods and 2000 Foot Buffer
Cemetery
Church
School
Residential Neighborhood
Project Site
Two Mile Buffer
500 Foot Buffer
1000 Foot Buffer
2000 Foot Buffer
Proposed Arrays
Proposed Inverter
Proposed Substation
80 Foot Contour
N
0
0.5
1
Miles
Elevation: 1360 ft-amsl
Neighborhood 2
Neighborhood 1
Neighborhood 3
23
8,9
1,2,3,4
6
7
5
11
12
13
14
10
22
Neighborhood 4
20
15
Neighborhood 6
Neighborhood 5
18, 19
21
Neighborhood 7
Elevation: 880 ft-amsl
Neighborhood 8
16
17
Elevation: 1080 ft-amsl

Appendix B

Site Photos

Exhibit B-1.
Access Road to Site Entrance, off Brushy Road

Exhibit B-2.
Site Entrance Gate Location, Top of Access Road from Brushy Road

Exhibit B-3.
View of Substation Area from Site Entrance, Facing North

Exhibit B-4.
Substation Area

Exhibit B-5.
View from Panel Parcel 6, Facing South and Southwest

Exhibit B-6.
Leftover Coal Stockpile in Center of Panel Parcel 5, Facing North / Northeast

Exhibit B-7
Proposed Laydown Area, with Abandoned Coal Trucks, Middle of Site, Southwest of Panel Parcel 5

Exhibit B-8.
Middle of Panel Parcel 5 - View of Proposed Panel Area, Facing Northwest

Exhibit B-9.
Middle of Panel Parcel 5 – View of Proposed Panel Areas

Exhibit B-10.
North Edge of Panel Parcel 4 – View of Proposed Panel Areas

Exhibit B-11.
View Towards Indicated Wetlands in Panel Parcel 3

Exhibit B-12.
Middle of Panel Parcel 3 – View of Proposed Panel Areas

Exhibit B-13.
View from KOP 2 on Ford Mountain Road, Facing Panels to Southeast and Southwest

Exhibit B-14.
Entrances 2 and 3, Ford Mountain Road, with Panels to East and West

Exhibit B-15.
Entrance 1, off Ford Mountain Road, Location of Panel Parcel 2

Exhibit B-16.
Johns Creek Elementary School and View of Ford Mountain Road

Exhibit B-17.
Meta Baptist Church on Meta Highway, Facing East

Exhibit B-18.
Weight Restricted Bridge at Bent Branch Road and Smith Fork Road

Exhibit B-19.
Smith Fork Road, Facing South to Bent Branch Road

Exhibit B-20.
North End of Smith Fork Road, Facing North to Project Site

Exhibit B-21.
Bent Branch Road, near Neighborhood 7

Exhibit B-22.
View of Project Site from North End of Neighborhood 4

Exhibit B-23.
View East toward the POI from Brushy Road, West of Neighborhood 3