Review and Evaluation of the Barrelhead Solar, LLC Site Assessment Report

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

January 22, 2026

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January 22, 2026

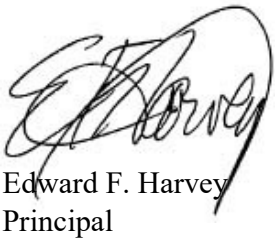
Ms. Nicole Carr
Kentucky Public Service Commission
211 Sower Blvd.
Frankfort, KY 40601

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

Dear Ms. Carr,

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

Yours truly,



Edward F. Harvey
Principal

Report

January 22, 2026

Review and Evaluation of the Barrelhead 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 Barrelhead Solar, LLC solar facility (Project) submitted to the Kentucky State Board on Electric Generation and Transmission Siting (Siting Board). Barrelhead Solar, LLC (Barrelhead 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 October 3, 2025. 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 Barrelhead Solar SAR is the main focus of HE's review. However, the Siting Board also requested that HE review other materials prepared by the Applicant, including the economic impact report. 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 Barrelhead Solar SAR and certain other components of the Barrelhead 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 Barrelhead 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 Barrelhead Solar Facility Application

Barrelhead Solar, LLC's application package to the Siting Board (Application) consists of multiple documents, including the SAR and additional reports and studies provided as appendices to the SAR:

- The main Application document provides a summary overview of the Barrelhead Solar Project and the Applicant's responses to applicable KRS.
- Attachments A through J 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;
    - Cumulative Environmental Assessment;
    - Economic Impact Analysis; and
    - Decommissioning Plan.
- The separate Site Assessment Report (SAR) includes Appendices A through O, which include, but are not limited to, Project Site Layout Maps, Property Value Impact Analysis, Landscape Plan, Visual Impact Analysis, Glare Analysis, Noise Analysis, and Traffic Impact Study.

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 November 17, 2025; Barrelhead Solar provided written responses on December 1, 2025.

HE and certain representatives from the Siting Board also met with the Applicant for an in-person meeting on December 8, 2025, to conduct a site visit and discuss remaining issues.

After HE and the Siting Board staff reviewed Barrelhead 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 December 22, 2025. Barrelhead Solar provided written responses to the second request for information on January 8, 2026 .

Report Format

This report is intended to support the Siting Board in its decision-making process pertaining to a construction certificate for Barrelhead Solar, 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 Barrelhead Solar Project and proposed site development plan;
- Section 4 provides a brief profile of Wayne 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 Barrelhead Solar Project is contractually limited to a review of the SAR and other application materials, including 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 Barrelhead Solar SAR, which we hope 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 information provided. We assume that the Applicant submissions are an honest representation of the Project, based on the best data available at the time.

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

SECTION 2
Summary and Conclusions

On October 3, 2025, Barrelhead Solar, LLC (Barrelhead 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. Barrelhead 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

Barrelhead Solar proposes to construct an approximately 54-megawatt merchant electric solar facility on a portion of a 307-acre area southwest of the City of Monticello in Wayne County, Kentucky.

Solar infrastructure will include approximately 97,600 solar panels, associated ground-mounted racking structures, 15 inverters and underground electrical collection systems. A Project substation (collector substation) and constructed nonregulated transmission line (approximately 100-150 feet long) will connect the Project to the existing Upchurch Tap – Wayne County 69 kV transmission line owned by the Eastern Kentucky Power Cooperative (EKPC) via a co-located switching substation to be constructed and owned by EKPC. Internal access roads will also be constructed, and perimeter fencing will enclose the solar modules and associated Project infrastructure. The substations will have separate fencing.

- ***Surrounding land uses*** – The area around the Project site predominantly consists of agricultural and forested land, as well as rural residential properties. Existing vegetation is also present in the area, including trees and shrubs A church and several small cemeteries are in close proximity to the Project boundary.
- ***Proximity to homes and other structures*** – A total of 43 residential structures and 20 non-residential structures will be located within 2,000 feet of the Project boundary line. The closest home will be more than 180 feet from a solar panel and further from any inverter or the Project substation.
- ***Locations of structures*** – Solar panels, inverters and collection system cabling will be located across the property. The Project substation and Eastern Kentucky Power Cooperative (EKPC) substation will be located within the southwest portion of the Project site. A 100-150 foot transmission line is proposed to connect the Project

substation to an existing EKPC transmission line via the EKPC switching substation, not yet constructed.

- ***Locations of access ways*** – Four separate entrances will allow access to the Project site during construction and operations. The main entrance will be located at the northern end of the Project site. Three other entrances will be located along Massingale Road. Approximately 11,900 linear feet of gravel roads will be constructed across the Project site for internal mobility. The Project will not use railways for any construction or operational activities.

- ***Access control*** – Each entrance will have its own security gate during construction and operations. The Project solar arrays and other infrastructure will be secured with approximately 25,100 linear feet of perimeter fence, consisting of six-foot metal fencing topped with an additional foot of barbed wire. A security fence meeting National Electric Safety Code (NESC) requirements will secure the substation area. Project representatives will engage in site-specific training for local emergency responders. Access for fire and emergency units shall be set up after consultation with local authorities.

- ***Utility service*** – If the Project requires auxiliary electrical service, it will be acquired from the Eastern Kentucky Power Cooperative (EKPC). No utility water or sewage lines are expected to be built or used for the Project. Any water needs would be provided either via on-site groundwater wells or by delivery via water trucks. Portable chemical toilets will be provided on site for construction workers during Project development. Sewage will be pumped out by a licensed contractor, and the sewage waste will be disposed of at the Monticello Waste Water Treatment Plant or other regulated wastewater treatment plant.

- ***Project life*** – The Applicant anticipates a 40-year Project life for the Barrelhead Solar facility.

Project construction is expected to occur over a period of up to 12 months. An average of between 50 and 100 workers will be on-site throughout the construction period. Peak construction activity is expected to occur over a period of approximately five months, requiring between 100 and 150 construction workers during that period.

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.

Project Setting

The area immediately surrounding the Project site can be generally described as rural, including forestland, agricultural operations and a small number of individual residences. The topography of Wayne County is generally hilly, varying from plains and plateaus to ridges and valleys, many carved by the path of the Cumberland River. The highest elevation in the county is a ridge near Round Cliff at 1,788 feet. Lake Cumberland is situated at the lowest elevation

at about 723 feet. The Daniel Boone National Forest is located approximately 23 miles southeast of the Project site.

Wayne County has a current population of about 19,600 people. The County's population has steadily declined over the last several decades and is anticipated to continue that decline in the future. The manufacturing sector is the largest employer in Wayne County, largely driven by the houseboat tourism industry. Recreational boating, fishing, hiking and camping draw visitors to the County. Additionally, many cultural and historical areas draw tourists and support employment in the retail and hospitality sectors. Agriculture and agribusiness remain an important part of the local character and identity in Wayne County, with significant contributions to the poultry industry and production of soybeans, corn and hay.

In terms of economic conditions, per capita income levels are relatively low, compared with the Commonwealth, and County residents currently experience a higher rate of poverty than other areas of Kentucky.

Compatibility with Scenic Surroundings

The Project site and surrounding areas can be described as rural, where the majority of the landscape is agricultural or forested, with rural residential properties scattered throughout. About 88 percent of the acreage adjacent to the Project site is categorized as agricultural or mixed agricultural/ residential. A small portion of the area is developed, including individual single-family homes or churches.

Scenic compatibility focuses largely on Project infrastructure, including solar panels, inverters, fencing, internal roads, the Project substation and a short overhead transmission line. The shortest distance between a residence and a solar panel is about 180 feet; inverters and the Project substation are further from any residence or other structure. Exhibit 2-1 indicates the distance from residences to Project infrastructure.

Exhibit 2-1.
Distances between Nearby Residential Structures and the Proposed Barrelhead Solar Project Solar Panels, Inverters and Substation

Distance from Residence	Solar Panel	Inverter	Substation
0 - 300 feet	8	0	0
301 - 600 feet	7	4	0
601 - 900 feet	3	7	0
901 - 1,200 feet	4	5	1
1,201 - 1,500 feet	8	3	0
1,501 - 1,800 feet	10	5	3
1,801 - 2,000 feet	3	8	3
Total Homes:	**43**	**32**	**7**

Source: Barrelhead Solar, LLC, January 2026.

In some areas panels or other infrastructure will be visible from local roadways or residences. However, the area includes existing natural vegetation in the form of trees, shrubs and hedgerows, and the Applicant has proposed vegetative screening to further reduce visibility of Project infrastructure along roadways and from nearby residences.

Vegetative screening and use of anti-glare panels will reduce the potential for glare from solar panels. However, given the use of a fixed panel array system, the Applicant's glare study predicted relatively high levels of green and yellow glare along some local roadways and at certain residences near the Project site.

Given its rural location, existing vegetation and proposed screening, HE believes the Barrelhead Solar facility can be considered compatible with the existing scenic surroundings for local residents. However, the relatively high levels of predicted glare at certain locations are a concern.

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 Barrelhead 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 Wayne County Judge Executive and Wayne 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.

Recent studies examining the effects of utility-scale solar facilities on nearby property values are mixed, with some studies indicating decreases in property values, others suggesting increases in property values and still others indicating no impacts to property values. Overall, any changes indicated (positive or negative) were relatively small. Most studies noted that visibility of the facilities (or lack thereof) was an important component of the potential impact to property values. The Applicant has proposed vegetative screening along local roadways and other areas within the Project site to reduce visibility of Project infrastructure.

Neither the Wayne County Judge Executive nor the Property Valuation Administrator (PVA) have heard any concerns from residents regarding the impact to property values, but both believe there could be some general push-back to the Project once residents become more engaged. The PVA noted that home prices in Wayne County have increased substantially since COVID, and that few home or property sales occur in the Project area. The PVA does not believe that the Project would have a noticeable effect on local property values.

HE's evaluation of the data provided by Mr. Kirkland also suggests that, overall, 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

existing natural vegetation and proposed vegetative screening. A total of 43 non-participating homes are located within 2,000 feet of a solar panel; the closest is about 180 feet from a panel.

Therefore, HE concludes that negative impacts to property values from this Project are unlikely as a general rule, but that property value impacts are site specific, within a narrow range. This conclusion is predicated on the assumption that the mitigation strategies discussed in Section 6 are adopted by Barrelhead 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 Wayne 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 60 decibels (dBA) at neighboring residences during the 12-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. During that period, noise emissions will exceed 65 dBA for 16 residences within 1,000 feet of the panels. Road construction, substation construction and trenching activities may also be loud activities. Road construction and trenching 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, no hearing loss or long-term annoyance to residents is expected. Substation construction activities may also produce higher levels of noise but will occur more than 1,500 feet from the nearest non-participating residence.

Noise from Project components during operations (inverters, transformers, substations) is not anticipated to result in an increase in 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.

Natural vegetation borders many parcels south of the Project site; this vegetative buffer will help mitigate noise emissions that may be caused by Project construction and operations for homeowners.

Road and Rail Traffic, Fugitive Dust and Road Degradation

The major roads providing access to the Project site are I-75 and KY 90. These roads feed into local roads that provide access to the Project site from south.

Construction activities will cause noticeable increases in traffic volumes on several local roads, given light existing traffic volumes in the area. These impacts will be temporary, occurring over the anticipated 12-month construction period, but may be annoying to local residents.

Local roads are generally paved, two-lane roads, without shoulders present. Local road conditions vary, some requiring improvements. 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.

No active rail lines are located in Wayne County or near the Project area. The Project does not anticipate use of the railway for delivery of Project components. As currently proposed, vehicles will not travel over 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 activities, including the application of water for dust suppression.

Economic Impact Analysis

Construction and operation of the Barrelhead Solar facility will provide some limited economic benefits to Wayne County and the Commonwealth. Construction employment and income opportunities will be temporary, but local hires will increase employment and income in an area that would benefit from 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 include employee income and property taxes. Annual property tax payments will be made to Wayne County taxing authorities, including the Wayne 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. Annual lease payments to the single participating landowner will also provide economic benefits, with new household spending supporting a small number of local jobs.

Economic losses during operations focus on the reduction in agricultural activities within Project boundaries, including crop production. The reduced acreage available to agriculture represents less than half of one percent of total farmland in Wayne County. A small number of jobs and income in the agricultural sector will be lost during the operational period.

Overall, the economic impacts of the Barrelhead Solar facility represent a positive, albeit small, contribution to the region.

Decommissioning

The Applicant assumes a useful life of approximately 40 years for the Barrelhead 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.

The majority of 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 the landowner requests that internal access roads or fencing remain on-site). Underground cabling (to a depth of three feet) will be removed and salvaged. The Applicant stated that the EKPC substation and transmission line will remain, but the Project collector substation will be removed. Site restoration activities include de-compacting subsoils as needed, and restoration and revegetation of disturbed land to pre-construction conditions to the extent practicable. The Applicant will provide a bond or similar financial security to ensure decommissioning occurs once the Project ceases operation.

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

Public Outreach and Communication

The Applicant has engaged in various public outreach activities in Wayne County and in the Project area, including hosting a public meeting, posting notice in the local newspaper, mailing informational letters to adjacent landowners, and meeting with County officials and local residents. A Project website is anticipated to be developed and publicly available early in 2026.

However, the Judge Executive and the Property Value Administrator do not believe that local residents have really engaged with the Project as part of meetings or other materials and are not generally aware of Project details. The Applicant should continue to engage with local residents, businesses and others to provide additional information about the Project and respond to questions and concerns.

Complaint Resolution

The Applicant provided a copy of the draft Barrelhead Solar Complaint Resolution Plan, which outlines the complaint filing, review and response processes. The Plan states that Barrelhead will work in good faith to address and/or resolve reasonable complaints as soon as practicable and is committed to resolving reasonable complaints within 30 days. Safety and good community relations are among the highest priorities to Barrelhead; as such, speedy resolution of legitimate complaints is essential.

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 Barrelhead 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 provided, and that the mitigation measures set forth in Section 6 of this report are adopted.

SECTION 3
Project Overview and Proposed Site Development Plan

Project Overview

Barrelhead Solar application documents describe the Project as a proposed 54-megawatt (MW) alternating current (AC) solar facility to be located in Wayne County, Kentucky. The Project would be situated on approximately 307 acres of private land located south of KY 1009 near its intersection with Massingale Road, southwest of the city of Monticello, Kentucky. The Project site is located to the north of Potts Creek and the community of Happy Top, largely situated along KY 90.

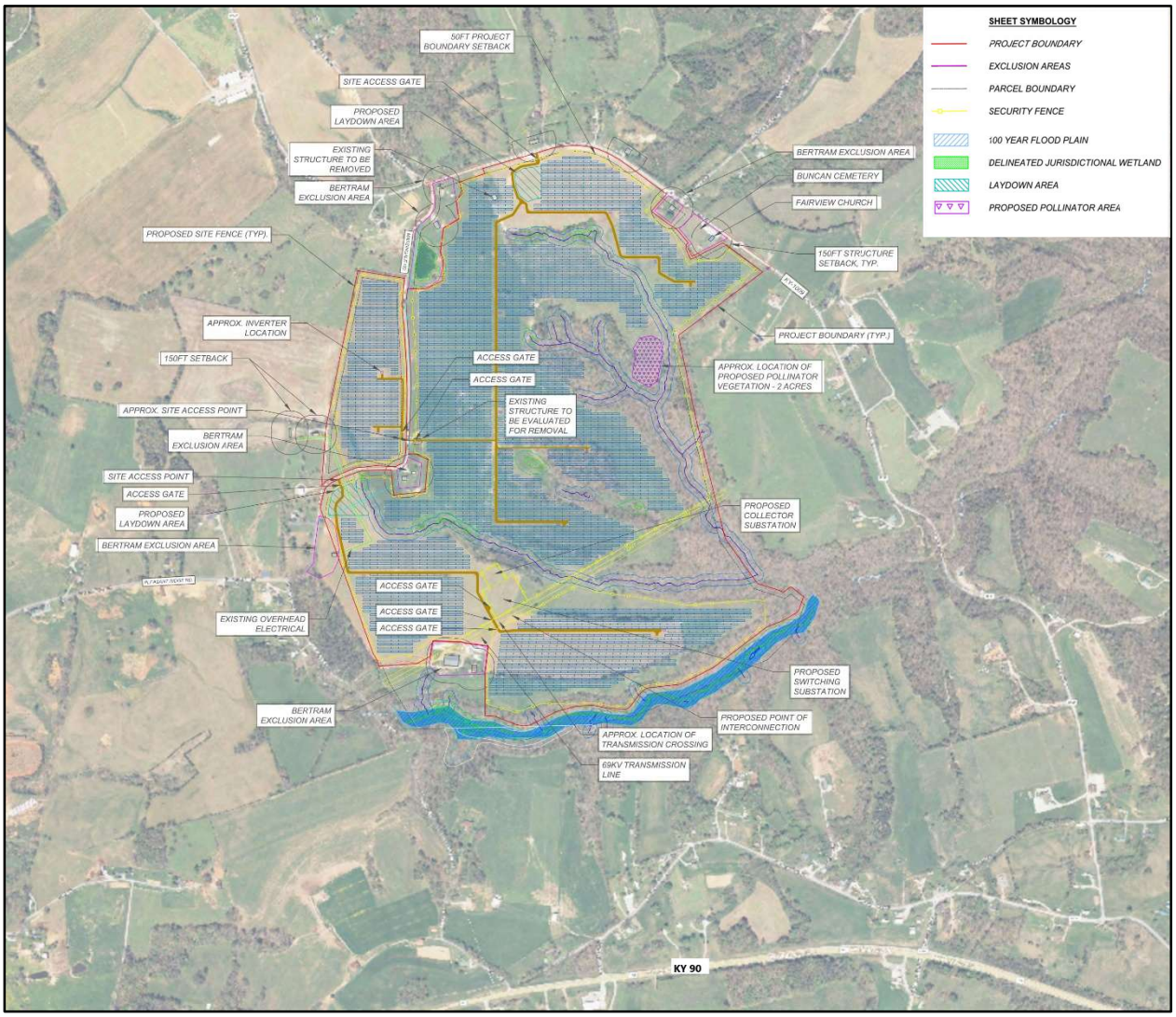
The Project would generate electricity through the use of photovoltaic solar panels. The Project includes approximately 97,600 photovoltaic solar panels, associated racking, 15 inverters, underground electrical conveyance lines, and a collector substation transformer that will interconnect to the Eastern Kentucky Power Cooperative (EKPC) overhead transmission line that crosses the Project site (Upchurch Tap – Wayne County 69 kV line) via an EKPC switching substation that will be constructed on site. The Project's overhead transmission line will be approximately 100-150 feet (0.02 miles) in length.[1]

A total of about 25,100 linear feet (approximately 4.8 miles) of perimeter fencing will enclose the solar modules and associated Project infrastructure. The substation area will have separate fencing. Approximately 11,900 linear feet (approximately 2.3 miles) of internal access roads will be constructed within the Project site, consisting mainly of gravel roadways.

Exhibit 3-1 illustrates the Project boundaries and identifies locations of Project components, as provided by the Applicant.

[1] A revised Decommissioning Plan was submitted by the Applicant in January 2026. The revised Plan included a substantial reduction in the estimated length of the overhead transmission line and small adjustments to estimates of the number of linear feet of perimeter fencing and the number of linear feet of internal access roads included in the Project.

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



Source: Barrelhead Solar, LLC, January 2026.

The Project site is located approximately 12 miles southwest of the small City of Monticello, Kentucky and about 20 miles north of the border with Tennessee. The City of Lexington, Kentucky is located about 100 miles north of the Project site and the City of Knoxville, Tennessee is about 100 miles to the south. The Project site is several miles south of the Cumberland River.

Construction Activities

Construction of the Barrelhead Solar facility is expected to occur over a period of up to 12 months, with the potential for weather or shipping delays to cause deviations to that schedule. Construction activities and the Project's anticipated schedule is outlined in Exhibit 3-2.

Exhibit 3-2.
Proposed Barrelhead Solar Project Construction Schedule

Task	Estimated Duration (Days)	Anticipated Timeframe
Site Preparation	60	2/2028 - 3/2028
Pile Installation *	150	4/2028 - 8/2028
Racking Installation *	150	5/2028 - 9/2028
Module Installation *	170	6/2028 - 11/2028
Project Substation	180	6/2028 - 10/2028
Transmission Line	30	11/2028
Mechanical Completion	60	1/2029 - 2/2029
Commissioning	150	3/2029

Notes: 1. Peak construction activities are noted by an asterisk.
2. Mechanical Completion was noted as anticipated for "January-February 2028" in the Applicant's response to the first data request; HE corrected the task year to 2029 in line with the task's sequential order.

Source: Barrelhead Solar, LLC, December 2025.

According to the Applicant, construction activity would be limited to the hours of 7am to 7pm, Monday through Saturday. Construction activities that create a higher level of noise, such as pile driving, will be limited to 8am to 5pm, Monday through Friday.

Select non-noise causing activity and non-construction work may be required during night hours when equipment is not energized. Non-noise-causing and non-construction activities could take place between 6am and 10pm, Monday through Sunday, including field visits, arrival, departure, planning, meetings, mowing, and surveying.

On average, between 50 and 100 construction workers will be on-site each day over the duration of the approximately 12-month construction period. Peak construction activity is anticipated to occur over about six months, requiring between 100 and 150 construction workers during that period.

Operational Activities

Routine operation and maintenance activities would take place on fewer than half of the days of the year and may take place during typical daytime hours, from 8 am to 5 pm, Monday through Friday. Non-noise-causing maintenance may be carried out during nighttime hours for up to 50 days per year.

Life of the Project

The Barrelhead Solar facility is anticipated to operate for approximately 40 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 predominantly consists of agricultural and forested land, as well as rural residential properties, as shown in Exhibit 3-3. The small communities of Alpha and Happy Top are located south of the Project site.

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

Land Use	% Total Adjoining Acres	# Adjoining Parcels
Agricultural	60.6%	7
Agriculture / Residential	27.1%	1
Residential	12.1%	15
Religious	0.2%	1
Total	100.0%	24

Source: Barrelhead Solar, LLC, October 2025.

Section 4 of this report provides a general overview of Wayne 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 substation. The area within 2,000 feet of the Project site includes 43 homes (including three participating residences) and 17 non-residential structures (including three participating barns). Exhibit 3-4 summarizes information about the distances between existing structures and the Project boundary.[2]

[2] The information presented in Exhibit 3-4 was submitted by the Applicant in response to the second Siting Board data request. It has been revised from the materials provided in the Application documents.

Exhibit 3-4.
Distances of Residential and Non-Residential Structures within 2,000 Feet of the Proposed Barrelhead Solar Project Boundary

Distance from Project Boundary	Residential Structures	Non-Residential Structures
0 - 300 feet	9 (1)	4 (1)
301 - 600 feet	6	1
601 - 900 feet	3	4
901 - 1,200 feet	4	2
1,201 - 1,500 feet	12	1
1,501 - 1,800 feet	8	3
1,801 - 2,000 feet	1	2
Total Structures	**43**	**17**

Note: (1) Three residential structures and three non-residential structures located within 300 feet of the Project boundary are owned by the participating landowner.

Source: Barrelhead Solar, LLC, January 2026.

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

- Solar panels: 182 feet
- Inverter: 529 feet
- Project substation: 1,616 feet

Legal boundaries. The Project will be located on privately owned land leased by the Applicant, consisting of five parcels owned by a single landowner. Appendix C of the SAR provides a narrative description of each parcel. Supplemental materials provided by the Applicant include a parcel map of the proposed Project site, which identifies individual parcels, the acreage of each parcel and parcel ownership. Several identified exclusion areas include acreage outlined in the Lease Agreement that the landowner plans to retain for their own use. Barrelhead Solar is not leasing those areas. The exclusion areas consist of residential buildings as well as a barn on the southern end of the property being used by the landowner.

Access control. A total of four separate entrances (access points) will be used to access different areas of the Project site during construction and operations. The main entrance will be located at the northern end of the Project Site. Three other entrances, all located along Massingale Road, will be used for the construction phase and for periodic maintenance during the operations phase.

The Project solar arrays and other infrastructure will be enclosed with approximately 25,100 linear feet (about 4.8 miles) of perimeter fence, which will be six-foot-tall metal fencing (chain link) topped with an additional foot of barbed wire. Separate security fences meeting National Electric Safety Code (NESC) requirements will secure the substation area and will be installed prior to any electrical work on the Project. All project gates will be closed and locked when

not in use; emergency services and Project employees will have access to all entrances. The substation and photovoltaic (PV) arrays will have security camera monitoring.

Prior to construction, the Applicant will develop an Emergency Response Plan in consultation with 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.

Location of buildings, transmission lines and other structures. Approximately 98,000 solar panels, 15 inverters, a Project substation, an EKPC switching substation, overhead and underground electric conveyance lines and an overhead transmission line will be located within the Project site. The preliminary locations of Project infrastructure can be seen in Exhibit 3-1 of this report. The substation area will be located in the southwestern portion of the Project site. The Project also includes construction of an approximately 0.02 mile (between 100 -150 feet) long overhead transmission line.[3]

A small portion of the Project site will be used for temporary construction mobilization and laydown areas. A proposed pollinator meadow will be located within the northeastern portion of 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. The location of each entrance is indicated on the Project facilities map provided in Exhibit 3-1.

Approximately 11,900 linear feet (approximately 2.3 miles) of private access roads will be developed within the Project site. All access roads will be composed of gravel and will be approximately 13 feet wide.

No railways would be used for construction or operational activities related to the Project.

Existing or proposed utilities to service facility. If the Project requires auxiliary electrical service, it will be acquired from the retail electric supplier for the area, which is Eastern Kentucky Power Cooperative (EKPC). No utility water or sewage lines are expected to be built or used for the Project. Any water needs would be provided either vis on-site groundwater wells or by delivery via water trucks. Portable chemical toilets will be provided on site for construction workers during Project development. Sewage will be pumped out by a licensed contractor, and the sewage waste will be disposed of at the Monticello Waste Water Treatment Plant or other regulated wastewater treatment plant.

Compliance with applicable setback requirements. KRS 278.706(2)(d) states that a completed Application shall include "A statement certifying that the proposed plant will be in compliance with all local ordinances and regulations concerning noise control and with any

[3] A revised Decommissioning Plan was submitted by the Applicant in January 2026. The revised Plan included a substantial reduction in the estimated length of the overhead transmission line, as compared to the information provided in the initial Application documents.

local planning and zoning ordinances. The statement shall also disclose setback requirements established by the planning and zoning commission as provided under KRS 278.704(3)."

The Barrelhead Application includes a statement certifying that the proposed Project will follow all applicable local ordinances and regulations (Attachment C of the Application). However, Wayne County has not established a Planning Commission and does not have any planning or zoning requirements applicable to the Project. Therefore, the State statutory setback requirements apply to the Barrelhead Solar facility.

Applicable portions of the setback statute (KRS 278.706(2)(e)) state that "all proposed structures or facilities used for generation of electricity be 2,000 feet from any residential neighborhood, school, hospital, or nursing home facility".[4] In the case of the Barrelhead Project, there are no schools, hospitals or nursing homes within 2,000 feet of the Applicant's proposed location of Project structures or facilities; however, there are two residential neighborhoods within 2,000 feet. Those neighborhoods are located adjacent to one another on the south side of the Project site, along Old Happy Top Road, on the north side of KY 90.

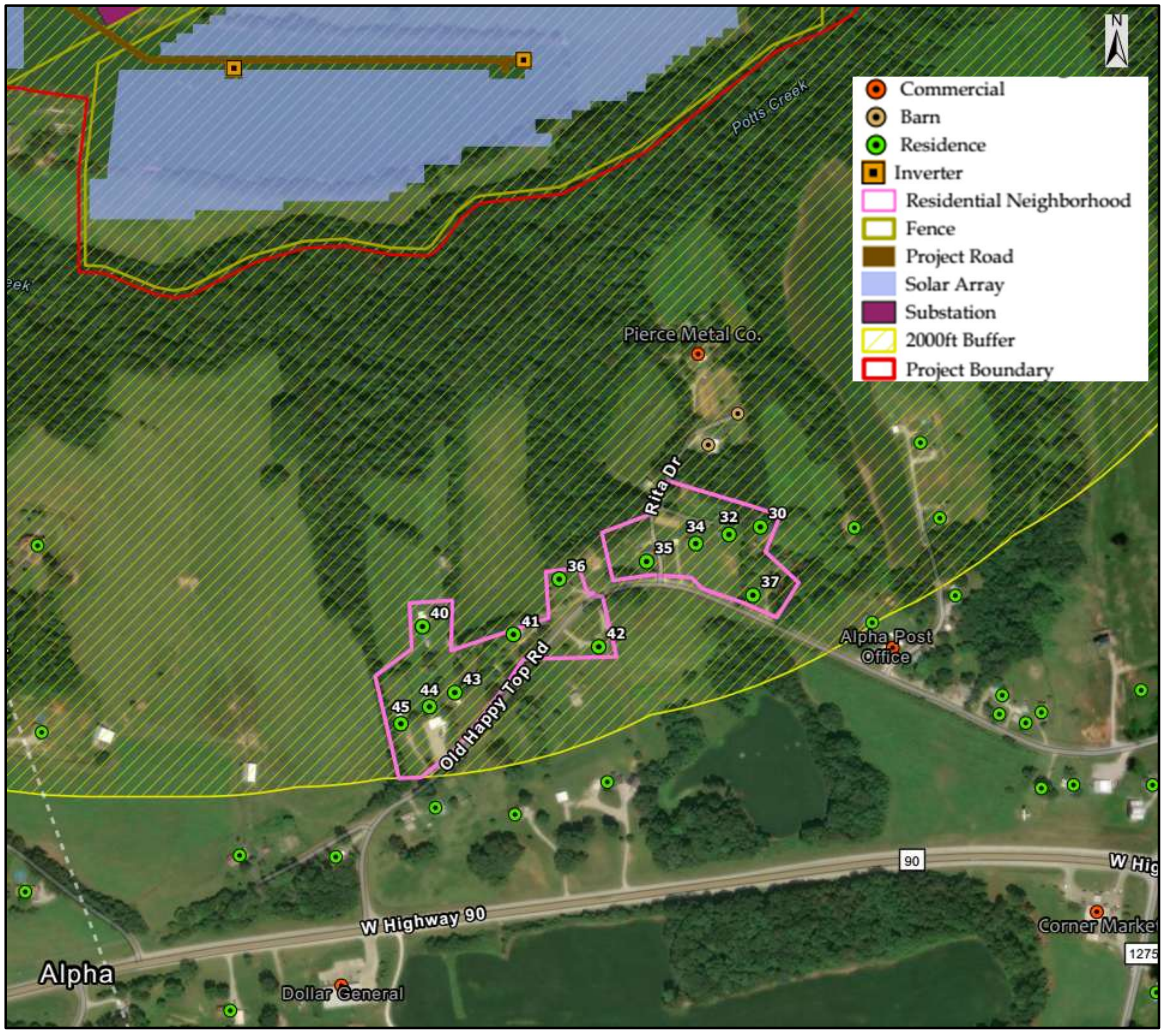
KRS 278.704(4) states that deviations from the setback requirements may be granted "on a finding that the proposed facility is designed to, and as located, would meet the goals of KRS 224.10-280, 278.010, 278.212, 278.214, 278.216, 278,218, and 278.700 to 278.716 at a distance closer than those outlined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

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

Residential neighborhoods. Exhibit 3-5 illustrates the two residential neighborhoods identified in the Motion for Deviation as being located within 2,000 feet of the Project boundary. Photos of the homes located within each neighborhood are provided in the Motion for Deviation.

[4] According to KRS 278.700(6), a residential neighborhood is a populated area of five or more acres containing at least one residential structure per acre.

Exhibit 3-5.
Location of Residential Neighborhoods Located within 2,000 Feet of the Barrelhead Solar Project Boundary



Note: Structure numbers shown were revised in the Applicant's responses to Siting Board data requests.

Source: Barrelhead Solar, LLC, November 2025.

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 Barrelhead Solar Project Boundary

Residential Neighborhood	Number of Residences in Neighborhood	Nearest Project Component	Distance to Nearest Project Component
East Side	5	PV Array	1,465 feet
West Side	7	PV Array	1,437 feet

Sources: Barrelhead Solar, LLC, November 2025; Barrelhead Solar, LLC, December 2025.

Compliance with statutory requirements. The Motion for Deviation described the Applicant's or Project'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 (Attachment H of the Application) provides a detailed discussion of each topic area. The Motion for Deviation includes the following:

    - ***Air pollutants –*** The CEA evaluates the air pollutants to be emitted by the facility and the associated control measures. The solar panels produce zero emissions. During operation, only workers' vehicles and maintenance activities, such as mowers to control vegetation onsite, will generate emissions. During construction, the Project will generate temporary fugitive air pollutant emissions, largely from vehicles and general construction activities. These emissions will be minor and well below applicable regulatory levels. The Project's contractor will maintain all equipment and use best management practices to reduce fugitive dust emissions. Barrelhead Solar will also revegetate disturbed areas in compliance with Kentucky Department of Water Construction Storm Water Discharge General Permit to minimize fugitive dust emissions.

    - ***Water evaluation –*** The CEA evaluates the water pollutants to be emitted by the facility and the associated control measures. During construction, to prevent stormwater erosion, Barrelhead Solar will utilize existing landscape and will minimize grading work to install the panels. Further, Barrelhead Solar will comply with the Construction Storm Water Discharge General Permit requirements. Using best management practices, Barrelhead Solar will complete a stormwater pollution prevention plan to minimize sediment entering waters during construction. New vegetation will be planted after construction and will be maintained by sheep grazing and mowing. Barrelhead Solar will only use EPA registered and approved herbicides.

      Barrelhead Solar does not anticipate any direct or adverse impact to groundwater. The rainwater runoff from the solar panel systems will drain onto the vegetated ground. Barrelhead Solar will never store materials that will contaminate the groundwater on the Project site – even during construction.

    - ***Wastes –*** The CEA evaluates the waste to be generated by the facility and the associated control measures. Barrelhead Solar will dispose of all waste generated from the Project consistent with local, state, and federal regulations. During construction, the Project will generate construction debris and general trash. Barrelhead Solar will dispose of all non-recyclable material at an off-site permitted facility and, to the extent feasible, will recycle material. All construction materials will be properly stored on site and in the event of a spill or accident, the contractor will follow spill prevention, control, and countermeasure plans. During operation, waste will be minimal and will only arise from maintenance or replacement of broken or defective equipment. Barrelhead Solar will dispose of all waste based on local, state, and federal requirements.

- ***Water withdrawal –*** The CEA identifies the source and volume of anticipated water withdrawal needed to support facility construction and operations describes the methods to be used for managing water usage and withdrawal. Aquifers beneath the Project site and water brought in from outside sources will be used during construction and operation of the Project. During construction, water will be used for grading activities, dust control and compaction, and minor uses related to equipment management. The volume of water needed for construction activities will not adversely impact local water resources.

  During operation, the Project will not be water intensive. Precipitation will be adequate to remove dust and debris from the panels, so washing panels will not be part of regular maintenance. Precipitation will also maintain vegetation, but some water may be needed while installing vegetative screening and during times of drought.

- ***KRS 278.010: Definitions applicable to associated statutes:*** The Motion for Deviation states that in filing a complete Application pursuant to the applicable statutes in this proceeding, Barrelhead Solar has satisfied the goal of providing the required information utilizing the definition of any applicable term defined in KRS 278.010.

- ***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 Barrelhead Solar will comply with all applicable conditions relating to electrical interconnection with utilities by following the PJM interconnection process. Additionally, Barrelhead Solar will accept responsibility for appropriate costs which may result from its interconnecting with the electricity transmission grid.

- ***KRS 278.214: Curtailment of service or generation and transmission cooperative:*** The Motion for Deviation states that Barrelhead Solar will abide by the requirements of this provision to the extent that these requirements are applicable.

- ***KRS 278.216: Site compatibility certificate; site assessment report; commission action on application:*** Barrelhead 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 Barrelhead Solar's application includes detailed discussion of all of the criteria applicable to its proposed facility under KRS 278.700-278.716

and that Barrelhead Solar has clearly met the goals of KRS 278.700 et seq. in locating its proposed facility in an environmentally compatible location.

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 Barrelhead 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.

- Wayne County has not established a Planning Commission and has not enacted any planning or zoning requirements applicable to the Project or to the Project site. No applicable setback requirements have been established by Wayne County.

- The Barrelhead Solar Project does not meet the Commonwealth's statutory setback requirements, and 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. Recommended mitigation measures 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. Future deviations from the preliminary, exiting site layout plan, which formed the basis for HE's review, should be clearly indicated on a revised graphic. Those changes could include, but are not limited to, the location of solar panels, inverters, transformers, substations or other Project facilities or infrastructure, including internal access roads.

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

5. 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.

6. The Applicant shall submit a status report every six months until the project commences construction to update the Siting Board on the progress of the Project.

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. The fence enclosing the substation will adhere to North American Electric Reliability Corporation (NERC) safety standards and will be appropriately spaced, bonded, and grounded in compliance with National Electrical Safety Code (NESC) requirements prior to installation of any electrical equipment.

10. The Applicant will meet with local law enforcement agencies, EMS 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 an 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

The Barrelhead Solar Project site is located southwest of the City of Monticello, which is the Wayne County seat, in south central Kentucky. The site abuts Clinton County to the west. The Cumberland River runs along Wayne County's northern border, and the state border of Tennessee adjoins to the south. The area's topography ranges from plains and plateaus to rugged hills and valleys. Wayne County encompasses sections of the Pennyrile Plateau and Eastern Coalfield regions.[5] The highest elevation in the county is a ridge near Round Cliff at 1,788 feet. Lake Cumberland is the lowest elevation area, with a normal pool elevation of 723 feet.[6] The Project site is located amongst rolling hills bordered by valleys to the south and east along Potts Creek.

The county was named in honor of General Anthony Wayne. General Wayne is considered a Revolutionary War hero, one of the Founding Fathers, and Batman's namesake.[7,8] Wayne County's location along the Cumberland River historically contributed to the county's commerce and settlement. The Cumberland River remains a significant regional resource for transportation, recreation and tourism. Monticello is the largest city in Wayne County and located on Lake Cumberland, which is considered the largest manmade lake in the world with over 1,200 miles of shoreline.[9,10] Recreational activities at Lake Cumberland and along the Cumberland River include houseboating, boating, kayaking, water sports, fishing, hunting, hiking and camping. The Mill Springs Mill near Monticello is the location of a historic Civil War battleground and home to the largest waterwheel still in operation. Daniel Boone National Forest expands along most of Wayne County's eastern border and overlaps the southeastern edge of the county, providing access to additional recreational activities. The county is also notable for its three walkable swinging bridges over the Little South Fork of the Cumberland River.[11]

Population and housing density. As of mid-2023, approximately 19,590 people resided in Wayne County.[12] The county's population has decreased modestly over the past two decades;

[5] Kentucky Atlas & Gazetteer. Wayne County, Kentucky. https://www.kyatlas.com/21231.html
[6] Kentucky Geological Survey. Groundwater Resources of Wayne County, Kentucky. https://www.uky.edu/KGS/water/library/gwatlas/Wayne/Topography.htm
[7] Kentucky Comprehensive Genealogy Website. Wayne County KYGenWeb. https://sites.rootsweb.com/~kywayne/wayne.html
[8] Wayne State University. Anthony Wayne: Wayne State's Namesake and Batman's Ancestor. https://s.wayne.edu/eld/digital-stories/anthony-wayne-wayne-states-namesake-and-batmans-ancestor/
[9] Wayne County, Kentucky. https://waynecounty.ky.gov/Pages/default.aspx
[10] Wayne County, Kentucky. Tourism & Recreation. https://waynecounty.ky.gov/pages/tnr.aspx
[11] Only in Kentucky. Three Swinging Bridges Wayne County. https://www.onlyinyourstate.com/experiences/kentucky/three-swinging-bridges-wayne-county-ky
[12] U.S. Census Bureau. Wayne County ACS Demographic and Housing Estimates. https://data.census.gov/table/ACSDP5Y2023.DP05?q=Wayne+County,+Kentucky

in 2000 the population was 19,923 and in 2010 the population was 20,716.[13,14] Limited traditional job opportunities and outmigration of working-age adults have contributed to the nearly six percent decrease in the county's population between 2010 and 2023.[15] Over 92 percent of the population is white and the median age of residents is 43.4 years old.[16] Wayne County is predicted to continue its decline in population; the Kentucky State Data Center estimates 14,689 people will reside in the county in 2050, which is a greater than 25 percent decrease from 2023.[17] Currently, there are around 8,028 households in the county, with an average of 2.4 persons per household.[18] Wayne County has a lower-than-average population density for Kentucky with 44.9 people per square mile.[19]

Monticello, population 6,116, is the only incorporated city in the county.[20] Monticello is approximately 11 miles northeast of the Project site. The small communities of Alpha and Happy Top are located about one mile south of the Project site. The closest metropolitan areas include Lexington, Kentucky (about 60 miles to the north), with a population of approximately 322,000, and Louisville, Kentucky (about 120 miles to the northwest), with a population of approximately 1,116,000.[21, 22]

Income. In 2023, the per capita personal income in Wayne County was $27,424. This was about 28 percent less than the average per capita personal income in the Commonwealth of Kentucky, and 37 percent less than the average for the United States.[23] Approximately 24 percent of the Wayne County population lived in poverty as of mid-2023.[24]

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[13] U.S. Census Bureau. Wayne County, Kentucky, Profile of General Demographic Characteristics, 2000. https://data.census.gov/cedsci/table?q=wayne%20county%20kentucky&y=2000&tid=DECENNIALDPSF42000.DP1&hidePreview=true

[14] U.S. Census Bureau. Wayne County, Kentucky, Profile of General Demographic Characteristics, 2010. https://data.census.gov/table/ACSDP5Y2010.DP05?q=wayne+county+kentucky&y=2010

[15] USA Facts. Our Changing Population: Wayne County, Kentucky. https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/state/kentucky/county/wayne-county/

[16] U.S. Census Bureau. Wayne County, Kentucky, Age and Sex. https://data.census.gov/table/ACSST5Y2022.S0101?q=wayne%20county%20kentucky&hidePreview=false

[17] 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

[18] U.S. Census Bureau. Wayne County Households and Families. https://data.census.gov/table/ACSST5Y2023.S1101?q=wayne+county+ky+households

[19] Statistical Atlas. Wayne County, Kentucky. https://statisticalatlas.com/county/Kentucky/Wayne-County/Population

[20] World Population Review. Wayne County, Kentucky Cities. https://worldpopulationreview.com/us-cities/kentucky/wayne-county

[21] U.S. Census Bureau. Lexington-Fayette Metropolitan Statistical Area. https://www.census.gov/quickfacts/fact/table/lexingtonfayetteurbancountykentucky/IPE120224

[22] Macro Trends. Louisville Metro Area Population. https://www.macrotrends.net/global-metrics/cities/23053/louisville/population

[19] U.S. Census Bureau. Wayne County, Kentucky. QuickFacts - Income and Poverty. https://www.census.gov/quickfacts/fact/table/waynecountykentucky/HSD410223

[24] U.S. Census Bureau. Wayne County, Kentucky. https://data.census.gov/profile/Wayne_County,_Kentucky?g=050XX00US21231#income-and-poverty

Exhibit 4-1.
WWI "Doughboy" Memorial in Monticello, Kentucky

Source: Harvey Economics, 2025.

Business and industry. About 7,200 civilians were employed in Wayne County in 2023.[25]

- Agriculture is not a large employment sector in the county but is an important component of the social culture. More than 114,000 acres of the county are farmland. Soybeans, corn and hay were the top crops by acre in 2022. Wayne County ranks 18th in the state for market share of livestock and poultry sales.[26] The 2022 livestock inventory for the county included about 20,000 cattle and approximately 1.2 million poultry. Cobb-Vantress, a major poultry production operation, maintains a substantial facility in Wayne County with approximately 300 employees, making it one of the largest individual employers in the region.[27]

- Manufacturing is the largest employment sector in Wayne County with 1,526 jobs.[28] Due in part to its proximity to Lake Cumberland, Wayne County has historically been a houseboating hub; at one point it was home to the largest number of houseboat

[25] U.S. Census Bureau. Wayne County. Industry by Occupation for the Civilian Employed. https://data.census.gov/table/ACSST5Y2023.S2405?q=Wayne+County,+Kentucky+employment
[26] USDA Census of Agriculture. County Profile, Wayne County Kentucky. https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Kentucky/cp21231.pdf
[27] Lake Cumberland Area Development District. Comprehensive Economic Development Plan FY 22-27. https://www.lcadd.org/wp-content/uploads/2023/12/FINAL-CEDS-FY-22-27-FY-23-UPDATES.pdf
[28] Statistical Atlas. U.S. Census Bureau Data. Industries in Wayne County, KY. https://statisticalatlas.com/county/Kentucky/Wayne-County/Industries

manufacturers in the world.[29] More recently, the manufacturing industry in the area has expanded to include metal fabrication, cabinetry making, textiles, and automobile parts.[30]

- The healthcare sector follows manufacturing employment with 1,062 jobs.[31] Several medical facilities are located in Monticello, including Wayne County Hospital and a few outpatient and primary care providers. Wayne County Hospital is a 25-bed Critical Access Hospital serving Wayne, Pulaski, McCreary and Clinton counties with about 275 employees.[32,33]

- Retail is the next largest employment sector with 684 jobs in 2023. The retail sector is largely driven by the tourism industry. Recreational boating, including houseboating and kayaking, hiking, camping and other outdoor activities draw visitors to the county. Lake Cumberland, the Cumberland River and Daniel Boone National Forest are easily accessible from Wayne County. Historical attractions in the region include Mill Springs Mill and the Mill Springs Battlefield National Monument, site of a notable conflict during the Civil War.[34] The Conley Bottom Resort and Beaver Creek Marina are both located within the county, contributing to retail and tourism employment.

Major and minor roads and railways. The Project site is bordered to the north and east by KY-1009 running northwest to southeast from Clinton County to KY 90 near the communities of Alpha and Happy Top. Massingale Road intersects with KY-1009 along the northern border of the Project and heads south to the Clinton County line at Pleasant Ridge Road, bisecting the northwestern portion of the Project area. Project components are located to the west, east, and south of Massingale Road. Happy Top Road runs parallel to the southern bounds of the Project across Potts Creek. The nearest highway is KY Route 90. KY 90 travels east-west from Burkesville to Burnside through Monticello, passing just south of the Project site. Interstate 75, the major north-south interstate corridor in eastern Kentucky, passes through nearby Rockcastle and Pulaski counties, with the nearest access points approximately 40 miles from Monticello. I-75 connects Cincinnati, Ohio, with Chattanooga, Tennessee.[35] There are no active freight or passenger railways currently operating within Wayne County.[36]

[29] Monticello-Wayne County Chamber of Commerce.
https://monticellokychamber.com/presidents-message/
[30] Monticello-Wayne County Chamber of Commerce. Manufacturing.
https://monticellokychamber.com/single-category/manufacturing/?in_cat=48&directory_type=general
[31] Statistical Atlas. U.S. Census Bureau Data. Industries in Wayne County, KY.
https://statisticalatlas.com/county/Kentucky/Wayne-County/Industries
[32] Wayne County Hospital.
https://waynehospital.org/
[33] Cause IQ. Wayne County Hospital.
https://www.causeiq.com/organizations/wayne-county-hospital,610847215/
[34] National Park Service. Mill Springs Battlefield.
https://www.nps.gov/misp/index.htm
[35] USA County Maps. Wayne County Map, Kentucky.
https://uscountymaps.com/wayne-county-map-kentucky/
[36] Kentucky Transportation Cabinet. Kentucky Active Rail Lines.
https://transportation.ky.gov/MultimodalFreight/Documents/Railroads%20Map.pdf

Exhibit 4-2.
Connie's Corner Market at KY 90 and KY 1009, South of the Project Site

Source: Harvey Economics, 2025.

Overall area description. Based on HE's research, the area around the Project site can be generally described as rural with smaller residential communities. It was historically a manufacturing and agricultural county and these industries remain dominant. This area has a picturesque, rolling landscape with access to rivers, recreation and historical sites. Wayne County has a median age of 43.4; overall population is expected to continue to decrease over the next 25 years and the median age of the population is expected to increase. Residents' income levels are low, and they currently experience a higher rate of poverty than the entire state of Kentucky, which is higher than in the U.S.[37]

[37] U.S. Census Bureau. Poverty Status in the Past 12 Months. Wayne County. https://data.census.gov/table?q=wayne+county+ky+poverty

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 Barrelhead 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.[38] 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.[39]

A standard visual analysis generally proceeds in this sequence:[40]

- 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 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 97,600 solar panels. Solar arrays consist of panels placed in rows on racking structures, supported by steel piles driven into the ground. The Applicant is proposing a fixed tilt system; height above ground for the fixed arrays is 10 feet.

[38] 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/.
[39] Dean Apostol, James Palmer, Martin Pasqualetti, Richard Smardon, Robert Sullivan. (2016). *The Renewable Energy Landscape: Preserving Scenic Values in our Sustainable Future*. September 2016.
[40] Environmental Design & Research. *Visual Impact Analysis*. May 2019.

- ***Solar inverters and transformers:*** 15 inverters/ transformer stations will connect to the panel arrays, converting the direct current (DC) power generated by the solar panels to alternating current (AC) power from the inverters.

- ***AC Collection system.*** The alternating current collection system will include overhead elements, such as wiring and cables.

- ***Project substation:*** The Project substation (collector substation) will be located in the southwestern portion of the Project site, with a footprint of approximately 0.5 acres. The Project substation will be co-located with a switching substation that will be constructed and owned by EKPC. The substation area will contain a gravel pad, one power transformer and footings, electrical control house, concrete foundations and the Project transmission line.

- ***Transmission line:*** The Project transmission line will be approximately 100-150 feet in length and will connect the Project substation to the switching substation and to EKPC's existing Upchurch Tap – Wayne County 69 kV transmission line. A total of six new poles will be required to connect the Project to the existing EKPC infrastructure. Typical pole heights range from about 70 to 95 feet above ground.

- ***Fencing:*** Approximately 25,100 linear feet of six-foot high fencing with three strand barbed wire on top will enclose the solar panels and associated infrastructure. Separate six-foot fences topped with three strand barbed will surround the Project substation.

- ***Access Roads:*** Approximately 11,900 linear feet of gravel access roads will be constructed within the Project boundary.

The Applicant indicated in their response to the first Siting Board data request that they do not anticipate including an O&M building or any weather stations as part of the Project.

Summary of information provided by the Applicant. The Barrelhead SAR includes a Landscape Plan (Appendix F), Visual Impact Study (Appendix G) and Glare Analysis (Appendix H), each prepared by the Applicant's consultants.[41,42,43] The Applicant's Property Value Impact Analysis (Appendix A of the SAR) also provides a description of surrounding land uses.

Scenic surroundings. The Visual Impact Study describes the Project area as "a mosaic of agricultural and pasture lands in addition to deciduous and mixed forest. The setting in the analysis area is rural. Existing infrastructure within the Project Area includes common features,

[41] A revised Landscape Plan was submitted by the Applicant in response to the Siting Board's first data request. The revised plan includes additional standard screening along a portion of the eastern side of the Project site.
[42] A revised Visual Impact Study was submitted by the Applicant in response to the Siting Board's first data request. The revised study includes two additional residences located outside the Project boundary and owned by the participating landowner.
[43] A revised Glare Analysis was submitted by the Applicant in response to the Siting Board's first data request. The revised analysis provides additional modeling results for tracking arrays.

such as roads, state highways, and electrical and utility transmission lines. Scattered residential homes, as well as some commercial businesses, surround the Project Area."

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.

Vegetation removal. The Applicant estimates that approximately 13.5 acres of vegetation will be cleared during construction.

Visual impacts. The Applicant's Visual Impact Study uses GIS software to quantify levels of potential visibility for residences and other receptor locations within 2,000 feet of the Project boundary.[44] The visibility model accounts for topography, existing vegetation, and the general height and surface of the Project infrastructure. The report states that the Applicant's landscape plan would likely aid in further obscuring portions of the Project Area from view.

The analysis identifies three non-participating residences and one non-residential structure (Fairview Church) from which Project infrastructure might be moderately or highly visible.[45] Moderate visibility is defined as between 15 and 28 percent of the Project potentially being visible; that applies to one residence and the church. High visibility is defined as more than 29 percent of the Project potentially being visible; that applies to two residences, one with 38 percent visibility, the other with 41 percent visibility. The residences with High potential visibility are located on the south side of the Project site. Visibility at those locations are mainly due to the topography of the area; the homes are located at a higher elevation than existing vegetation, which is largely located down a nearby ravine between the Project and the homes.

The document concludes that, "overall, visibility of the Project is expected generally to be minimal and is not anticipated to result in any adverse impacts on the receptor locations, aesthetic resources, or scenic views. The proposed solar facility is consistent with the existing infrastructure and sights within the vicinity of the Project and would not further detract from the rural character of the area."

Applicant's approach to Project screening. The Applicant's Landscape Plan identifies areas along Project boundaries and within the Project site where standard to heavy screening is proposed. Heavy screening areas include a higher percentage of evergreens and fewer small trees and shrubs. Approximately 5,240 linear feet of standard screening is proposed along certain portions of KY 1009 and Massingale Road and along a small area west of the proposed substation. Approximately 4,664 linear feet of heavy screening is proposed along other areas of KY 1009 and Massingale Road and a small area along the western side of the Project site.

Appendix C of this report provides an overview map of the Project site, identifying areas where screening is proposed by the Applicant, as well as the location of a multi-acre pollinator meadow.

[44] Visibility is defined as a portion of the Project being visible, even if such a view of minimal, partial, or viewed through obstructions.

[45] An additional 15 structures would have low visibility of the Project, where between one and 14 percent of the Project might be visible.

Locations for screening were selected by the Applicant and its consultants based on evaluation of existing vegetation, terrain, viewsheds, and areas of potential high visibility.

Proposed evergreen species used for vegetative screening include Eastern Red Cedar, Eastern White Pine and Viginia Pine. Several species of shrubbery will also be included in the screening. In locations identified for screening, planting will consist of a mix of evergreens and shrubbery. Evergreens are anticipated to reach between 15 and 80 feet in height at maturity, depending on the species, while shrubs will reach mature heights of between four and 35 feet. All plantings are expected to reach at least six feet within four years. The Applicant will monitor, replace and supplement plantings, as necessary, over the life of the Project. A pollinator meadow will be planted within the northeastern area of the Project site, south of KY 1009. The Applicant will maintain the pollinator meadow throughout the life of the Project; maintenance activities will include mowing, weed control and supplemental seeding, as necessary.

Potential for glare from Project panels. The Glare Analysis describes use of ForgeSolar software to determine the potential for glare from solar panels to affect local residents and area drivers.[46] That document notes that solar panels are designed to absorb rather than reflect sunlight to maximize energy capture; however, some reflection can occur, especially during sunrise and sunset, when the angle of the panels is highest. The Project's solar panels will include anti-reflective coatings, which reduces the potential for glare.

As explained in the Glare Analysis, potential concerns associated with glare may include:

- Safety impacts, such as the potential to disorient motorists when driving or pilots when taking off or landing; or

- Annoyance impacts, such as distraction, after-image in the viewer's vision, or temporary avoidance of a view due to the presence of reflected light.

The Project's Glare Analysis addressed the potential for glare along three two-way road segments and at 22 observation points representing residences in the vicinity of the Project.[47] The report provides the following results regarding glare from Project solar panels:

- ***Roadway segments:*** Based on the design and layout of the Project, the GlareGauge modeling showed green and yellow glare generated along the road segments analyzed using the tool. No red glare would occur at any of the roadway segments.

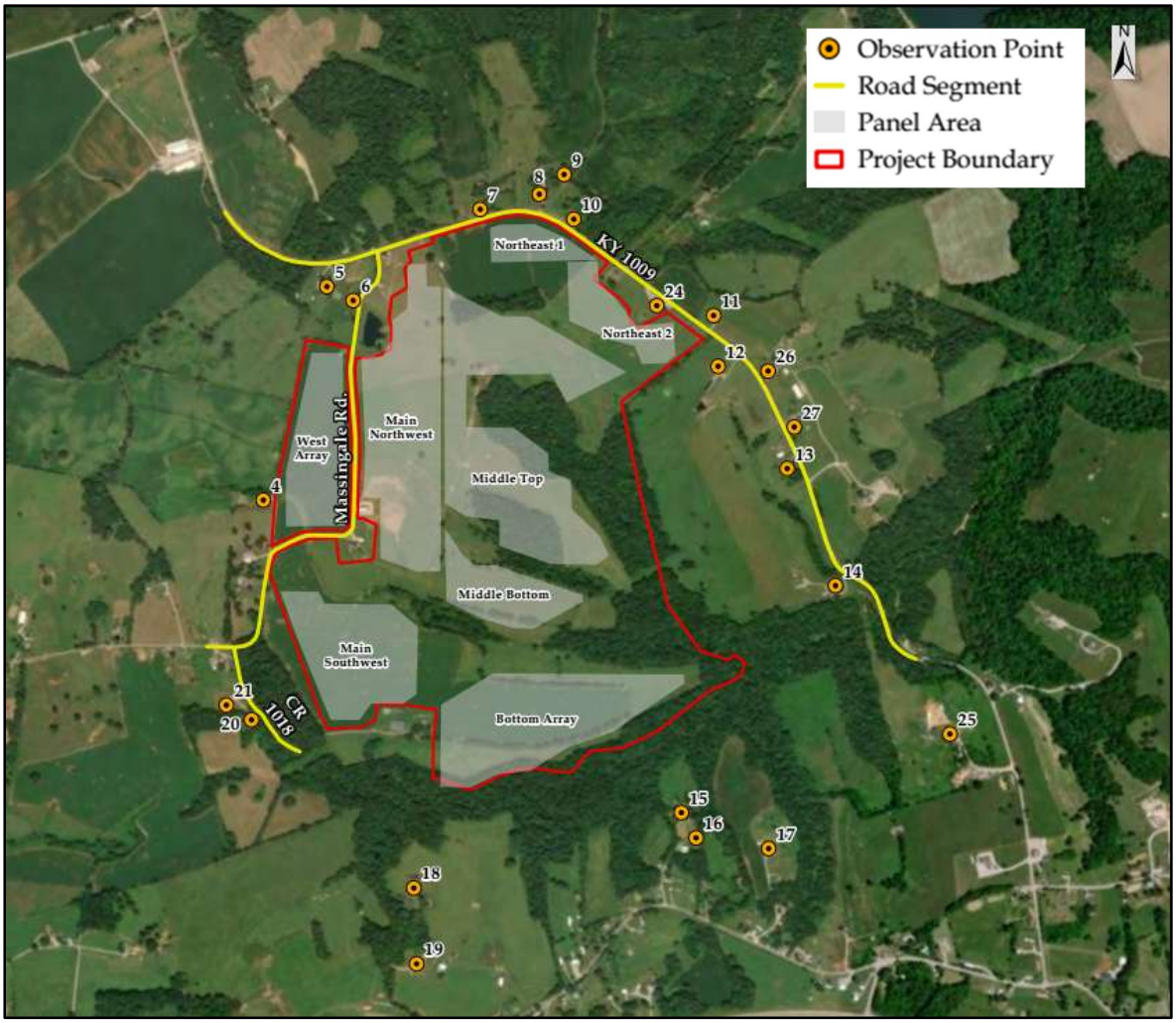
- ***Observation points:*** Based on the design and layout of the Project and existing vegetation, the GlareGauge model showed that green glare would be experienced at many of the 22 observation points. Yellow glare would be experienced at three observation points. No red glare would occur at any of the observation points.

[46] According to the Glare Analysis, the closest public airport, the Wayne County Airport, is 9.5 miles from the Project site.

[47] According to the Glare Analysis, the observation points are primarily residences, along with Fairview Church. The full length of each roadway segment included in the glare analysis was evaluated.

Exhibit 5-1 provides a map identifying each road segment and all observation points included in the glare analysis.

Exhibit 5-1.
Roadways and Observation Points Evaluated in the Barrelhead Solar Project Glare Analysis Model



Source: Barrelhead Solar, LLC, January 2026.

Exhibit 5-2 presents a summary of the yellow glare generated by the Project as provided in the Applicant's Glare Analysis. Yellow glare is the middle level of glare, defined as having potential for generating an after-image.

Exhibit 5-2.
Modeled Yellow Glare at Roadways and Observation Points Around the Barrelhead Solar Project Site, Fixed Array System

		Fixed Array			
Location	Panel Area	Annual Minutes of Yellow Glare	Time of Year	Avg. Minutes per Day	Max. Minutes per Day
KY 1009	Middle Top	1,557 minutes	March, Sept.	26	100
	Northeast 2	1,553 minutes	March, April, Sept	17	100
Massingale Road	Main NW	2,093 minutes	March, April, Aug, Sept.	17	Not provided
OP #12	Middle Top	860 minutes	March, April, Sept., Oct.	7	Not provided
	Northeast 2	562 minutes	March, Sept.	9	Not provided
OP #26	Middle Top	646 minutes	March, April, Sept., Oct.	5	Not provided
OP #27	Middle Top	408 minutes	March, Sept.	7	Not provided

Note: Glare from different panel areas at one location are not additive. There will be some overlap of the timing of glare from multiple panels at individual locations.

Source: Barrelhead Solar, LLC, December 2025 and January 2026.

On KY 1009 and at the affected observation points, yellow glare would occur in the evenings, generally between 5pm and 7pm. On Massingale Road, yellow glare is predicted to occur in the mornings, between about 6am and 9am.

As noted previously, the Glare Analysis also includes estimates of the number of minutes of green glare generated at different locations. Green glare is defined as having low potential for generating an after-image. Among the three roadways evaluated, estimates of green glare ranged from 0 minutes per year up to 11,685 minutes per year. Among the 22 observation points evaluated, estimates of green glare ranged from 0 minutes per year up to 5,567 minutes per year. Eleven observation points would experience more than 1,000 minutes of green glare per year; of those 11, five would experience more than 4,000 minutes of glare per year.

The Glare Analysis states that the Applicant's planned screening is accounted for in the evaluation; however, there are model limitations that result in more modeled glare than may be likely to occur in actuality. Examples include how topography is addressed and how the planned screening is incorporated in the model.

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 December 8, 2025. During this site visit, HE staff drove around the Project site 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 rural and agricultural, with clusters of residences and some natural vegetation, including trees, bushes and grass. The Project site itself is largely comprised of crop and pastureland, with scattered areas of trees. About 39 percent of land in Wayne County is considered farmland (approximately 114,100 acres), with about 34 percent of farmland acreage used for crop production (mainly corn, soybeans and wheat), with the remainder used for pasture, woodland or other uses.[48] A branch of the Cumberland River is located to the north and east of the Project site and Potts Creek is located to the south of the site.

Several homes are located in close proximity to the Project boundary, mainly along KY 1009 and Massingale Road. The small community of Happy Top is located south of the Project site. Most local roads surrounding the Project site are paved, two-lane roads without existing shoulders. Several local roads are relatively narrow. Traffic in the Project area is generally light. KY 90 is located south of the Project site; that road is more heavily trafficked.

The Applicant provided information about the distances between nearby residential and non-residential structures and the Project boundary, solar panels, inverters and the substation.[49] Exhibit 3-4 of this report described proximity of residential and non-residential structures to the Project boundary. A total of 43 residential structures are located within 2,000 feet of the Project boundary.[50] Exhibit 5-3, below, presents data on the distances between those residences and Project infrastructure - solar panels, inverters and the substation.

Exhibit 5-3.
Distances between Nearby Residential Structures and the Proposed Barrelhead Solar Project Solar Panels, Inverters and Substation

Distance from Residence	Solar Panel	Inverter	Substation
0 - 300 feet	8	0	0
301 - 600 feet	7	4	0
601 - 900 feet	3	7	0
901 - 1,200 feet	4	5	1
1,201 - 1,500 feet	8	3	0
1,501 - 1,800 feet	10	5	3
1,801 - 2,000 feet	3	8	3
Total Homes:	**43**	**32**	**7**

Notes: (1) Three residences within 600 feet of a solar panel are owned by the participating landowner.
(2) Residential structures include those located within 2,000 feet of the Project boundary line.

Source: Barrelhead Solar, LLC, January 2026.

[48] USDA, National Agricultural Statistics Service, 2022 Census of Agriculture, Wayne County profile.
[49] The Applicant provided data for structures within 2,000 feet of the Project boundary.
[50] Three residences are owned by the participating landowner.

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

- Solar panels: 182 feet
- Inverter: 529 feet
- Project substation: 1,616 feet

Many of the 43 homes within 2,000 feet of the Project boundary line are located south of the Project site, along Old Happy Top Road. A number of additional homes are located along KY 1009. Non-residential structures within 2,000 feet of the Project boundary include a church, barns, churches and commercial property.

At the request of the Siting Board, the Applicant provided photos of existing conditions and simulations of the view of the Project with and without vegetative screening at several locations around the Project site. HE's interpretation of each set of photos is as follows:

1. *Fairview Church:* Solar panels are highly visible from the church in the photo depicting conditions after panel installation. However, heavy landscape screening is proposed in this area and after screening is established there appears to be no view of the solar panels from this location (at least at times when leaves are on deciduous shrubbery).

2. *Fairview Church / Buncan Cemetery:* Similar to the photos described above, solar panels are highly visible from the church and cemetery in the photo depicting conditions after panel installation. However, heavy landscape screening is proposed in this area and after screening is established there appears to be no view of the solar panels from this location (at least at times when leaves are on deciduous shrubbery).

3. *Home on Massingale Road:* Without screening, solar panels located behind the home are highly visible from the road. After screening is established, there appears to be almost no view of the solar panels from this location (at least at times when leaves are on deciduous shrubbery).

4. *View from a location along KY 1009:* Without screening, solar panels located behind a fence are highly visible from the road. After screening, it appears that panels would be partially visible from this location (at least at times when leaves are on deciduous shrubbery).

Glare. In response to a request from the Siting Board, the Applicant provided an additional glare analysis assuming a tracking array system (as opposed to the proposed fixed array system). This additional analysis evaluated the same roadways and the same observation points as for the fixed array system. Exhibit 5-4 presents the estimates of yellow glare generated by use of a tracking array system.

Exhibit 5-4.
Modeled Yellow Glare At Roadways and Observation Points Around the Barrelhead Solar Project Site, Tracking Array System

		Tracking Array			
Location	Panel Area	Annual Minutes	Time of Year	Avg. Minutes per Day	Max. Minutes per Day
KY 1009	Middle Top	2,302 minutes	March - Sept	11	Not provided
Massingale Road	NA	0	NA	NA	Not provided
OP #12	Middle Top	96 minutes	April, May	2	Not provided
OP #26	Middle Top	55 minutes	March, April	1	Not provided
OP #27	Middle Top	236 minutes	May, June	4	Not provided

Source: Barrelhead Solar, LLC, January 2026.

Under the fixed array system, estimates of green glare ranged from 0 minutes per year up to 409 minutes per year. Among the 22 observation points evaluated, estimates of green glare ranged from 0 minutes per year up to 453 minutes per year. Only five observation points would experience any green glare.

Comparison of the estimated number of minutes of green and yellow glare generated by fixed array versus tracking array systems indicates that the tracking array system would create significantly less glare of both types – green and yellow. For example, a tracking array system would completely eliminate yellow glare along Massingale Road.

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

- Relatively few homes are located within half a mile of the Project site. Those local residents will be able to see trucks and other equipment during construction.
- Drivers on surrounding roadways, including local roads near the Project site, will be able to see construction activities occurring on the Project site from certain locations.
- Existing vegetation in the area will reduce visibility of some Project construction activities.
- According to the general construction schedule provided by the Applicant, construction activity would occur over a period of up to about 12 months, with peak activity occurring over a period of about five months. Construction activity would be limited in duration.

Because of the rural nature of the area and the fact that construction will be temporary, 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, transmission line and other structures, as those components may be visible from local residences and roads for the 40 years of Project operations.

- The Project site includes existing natural vegetation, such as trees, shrubs and hedgerows. Additionally, the Applicant's Landscape Plan includes strategically placed vegetative screening across the Project site to reduce views of Project facilities from residences and roadways. However, some Project facilities may be more visible in winter and early spring months in areas where existing vegetation is mainly deciduous.

- The smallest distance between a residence and a Project solar panel is more than 180 feet; other components are located at even further distances. Given the area's natural vegetation and the Applicant's proposed vegetative screening plan, few homes or other buildings would likely have a view of Project facilities during most of the year.

- Fairview Church is about 208 feet from the closest solar panels and more than half a mile from the Project substation. As indicated in the photo renderings provided by the Applicant, vegetative screening would largely shield the panels from view at this location.

- The closest residence to the Project substation will be more than 1,600 feet from that facility. Visibility of the substation may be limited due to the distance from nearby homes and the Applicant's planned vegetative screening.

- The Project's overhead transmission line will be relatively short in length and is located more than half a mile from most residences, making it unlikely to been seen by local residents. Although several additional poles will be required, distance from that area may limit its visual impact. Existing and planned vegetation may further reduce any potential view of the transmission line.

- Overall, Project infrastructure may be highly visible at two non-participating residences, due mainly to the topography of the area. That topography may also work to limit the effectiveness of any proposed vegetative screening at those locations.

- According to the Applicant's Glare Analysis, the fixed tilt array system is predicted to generate green and yellow glare along local roadways and at several specific observation points in the vicinity of the project area. In certain roadway locations, more than 1,500 to 2,000 minutes of yellow glare may occur each year (up to 100 minutes per day in some months). Yellow glare would generally occur in the later evening and early morning hours, which could coincide with drivers commuting to and from work or school.

Due to the rural nature of the Project area, the existing vegetation and the Applicant's proposed vegetative screening, HE would expect the visual impacts associated with the presence of Project facilities to be minimal; however, the relatively high levels of predicted glare at certain locations are a concern.

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 will likely be visible from local roadways and at different vantage points around the Project site, but these effects will be temporary and limited due to the rural nature of the Project site. Natural vegetation exists in many areas along the Project boundary line and will reduce visibility of construction activities occurring on-site in many areas.

- Operational infrastructure, including solar panels, fencing and Project substation may be visible in some locations; however, the Applicant's Landscape Plan includes about 1.9 miles of vegetative screening in different areas around the Project site, which will reduce views of Project facilities in many locations. The existence of relatively few homes in close proximity to Project infrastructure will reduce the extent of visual effects; however, some Project infrastructure may be highly visible at two residential locations.

- 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 predicts relatively high levels of green and yellow glare along several local roadways and at local residences near the Project when assuming a fixed array system. Yellow glare has the potential to cause an after-image for drivers and annoyance for residents at different observation points around the Project site.

- Given that the Applicant's evaluation of glare for a tracking array system predicts significantly less green and yellow glare in different locations over the course of a year, HE recommends further consideration of that type of system for the Barrelhead Project.

- The Applicant has developed a Complaint Resolution Plan, which describes the process for filing and resolving any Project related complaints. The Applicant will work to address site-specific concerns that may arise during construction or operation of the facility, including those related to scenic compatibility.[51]

- A large portion of Wayne County is considered farmland, including active crop production, acreage used as pasture and woodlands. Farmland and other undeveloped areas surrounding the Project site include existing natural vegetation in many locations. Vegetative screening proposed by the Applicant would add to the rural and natural feel of the area, while also shielding Project facilities from view.

Based on our understanding of the Project area in Wayne County and of Project-specific characteristics, HE believes that the Barrelhead solar facility would not be incompatible with the existing scenic conditions for residents or drivers on local roads. However, the relatively high levels of predicted glare at certain locations are a concern.

[51] The topic of Complaint Resolution is addressed later in this report.

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. The Applicant will implement vegetative screening as proposed in the revised Landscape Plan as a minimum, including vegetative screening along roadways and near the Project substation.

4. The Applicant will maintain planted screening vegetation and the developed pollinator meadow, including establishment, supplemental plantings and on-going maintenance.

5. The Applicant will provide any changes to the Preliminary Landscape Plan to the Siting Board.

6. 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 revise the submitted Landscape Plan.

7. The Applicant will work with local homeowners or religious establishments to address and resolve complaints related to view of Project facilities via the Applicant's Complaint Resolution Plan.

8. 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 work with affected local residents or Wayne County representatives to address and resolve complaints about glare via the Applicant's Complaint Resolution Plan.

9. The Applicant will specifically work with the residents at the three observation points identified to be affected by yellow glare and with the Wayne County Road Department to discuss glare impacts at those locations and to address and resolve any glare related issues. The Applicant will provide documentation of those meetings and any agreed upon resolutions to the Siting Board and/or to the Kentucky Energy and Environment Cabinet.

Potential Changes in Property Values and Land Use

The construction and operation of industrial facilities have the potential to 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 Analysis (provided as Appendix A to 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 agricultural and rural residential uses. About 61 percent of the acreage adjacent to the Project site is agricultural, an additional 27 percent is mixed agricultural / residential and about 12 percent is purely residential. A small amount of acreage adjacent to the Project site is identified as for religious purposes (less than half of one percent).

- ***Distances between solar panels and homes on adjacent properties*** – The Kirkland report indicated that the closest residential structure will be about 150 feet away from a solar panel.[52] 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 51 homes and six non-residential structures are located within 2,000 feet of the Project boundary.[53,54]

- ***Academic research studies, appraisal market studies, other publications and broker comments*** **–** The Kirkland report provides summaries of several research papers and

[52] Subsequent data provided by the Applicant indicates that the smallest distance between any home and a solar panel is 182 feet.
[53] One additional residence is located just outside the 2,000-foot designation, at 2,011 feet. That residence is located more than 2,200 feet from any Project components (panels, substation, inverters).
[54] Non-residential structures within 2,000 feet the Project boundary include churches, barns and cemeteries.

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 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.[55] 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.

- ***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 [Barrelhead 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 the following analyses and conclusions:

1. A sale/ resale analysis of 16 properties located near solar facilities (sales price before and after development of the facility, adjusted for inflation). Ten of those properties are

[55] 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 in Kentucky and several are located near recently developed large scale projects (i.e., Turkey Creek, Mt Olive Creek, Russellville). He found price differences ranging from -5 percent to +15 percent, with an average impact of +3 percent and a median impact of +2 percent.

2. A matched pair analysis accounting for property price differentials of 47 matched pair sets associated with 16 different solar facilities in the Southeast and Midwest U.S.[56] Kirkland states that the difference in sales prices for those matched pair sets ranged from -7 percent to +12 percent with an average of +1 percent and median of +/-0 percent.

3. Data specific to facilities in the Southeast U.S. (77 matched pair sets associated with 35 solar facilities) show price differentials ranging from -10 percent to +10 percent with an average of +1 percent and median of +1 percent.

4. A larger dataset for a broader geographic area of the U.S. (138 matched pair sets associated with 74 solar facilities) shows price differentials ranging from -10 percent to +14 percent with an average of +1 percent and median of +/-0 percent.

Based on the data and analysis in this report, it is Mr. Kirkland's "professional opinion that the solar farm proposed at the subject property will have no negative impact on the value of adjoining or abutting property."

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 Wayne County Property Valuation Administrator; (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. A summary of recent studies that address the issue of changes in property values specifically related to solar facilities can be found in Appendix E of this report.[57] Based on review of the identified academic studies, HE offers the following observations:

- The results and conclusions of recent studies examining the effects of utility-scale scale solar facilities on nearby property values are mixed, with some studies indicating decreases in property values within a certain distance, others suggesting increases in property values and still others indicating no impacts to property values.

- In all the studies reviewed, potential positive or negative changes in property values were relatively small, generally less than five percent.

[56] 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.

[57] Several of these studies are also addressed in the Kirkland report and considered in his evaluation and conclusions.

- In most cases, researchers noted that property values are influenced by a wide range of factors and that the presence of a solar facility is not the main driver of a property's value (or sales price).

- In most studies, researchers noted that visibility of the facilities was an important component of the potential impact to property values.

- Many of these studies use large databases, including many solar projects and thousands of housing transactions, as inputs into various statistical models. While use of those extensive datasets is beneficial for developing results that might reflect an average effect over a large geographic area, it is likely that the impacts to individual properties will differ from the average based on the characteristics of that property.

- Impacts to the value of individual homes may be different than an estimated average impact to property values at a regional level. For individual homes, considerations might include the types of other surrounding land uses and the ability for project facilities to be screened. For example, the value of a home located near other commercial or industrial activity may be unaffected by development of a solar facility. Homes without any views of the solar project (due to existing vegetation, screening, slope or other factors) may be unaffected by the solar facility even if they are in relatively close proximity. The value of specific features of the home or property may outweigh the effects of a nearby solar facility. The real estate market and demand for housing in a specific area may also have influences that outweigh the effects of a nearby solar facility.

In addition to academic literature, HE also reviewed several reports developed by independent property appraisers. 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. The appraisal reports reviewed indicate differences in property values ranging from about -3.2 percent to as much as +27 percent, although generally in cases with positive impacts, property values increased by about 5 percent or less. Overall, the conclusions were that solar facilities do not negatively impact property values.[58]

It is interesting to note that local residents often raise concerns about property values during public hearings or open houses related to specific solar facilities, despite the fact that many existing studies related to this issue generally indicate no impacts to property values. In many cases, newspaper articles and other media indicate that residents believe property values will be reduced by nearby solar farms, suggesting that there may be a perception of negative effects on

[58] 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.

property values from portions of the community. In the case of the proposed Barrelhead facility, no comments indicating concerns related to property values have been submitted to the Siting Board and no traditional media or social media information was identified that would suggest such a concern specific to this Project.

Interview with Wayne County officials. HE spoke with the Wayne County Judge/Executive (Mr. Scott Gehring) and the Wayne County Property Value Administrator (PVA) (Mr. Bobby Upchurch) on December 8, 2025, as part of the on-site visit. Mr. Gehring stated that he had not yet reviewed Project materials, but that he has concerns regarding runoff from the facility. He also noted concerns he has heard from the county magistrates regarding environmental degradation on the Project site. Mr. Gehring stated that no local residents have made any complaints or voiced any concerns directly to him about the Project to date, but he is concerned that there will be opposition once the public becomes more aware of it.

Mr. Upchurch is familiar with the Project area but stated that no one in the PVA's office has been contacted or informed about the Project. In terms of the local housing market, Mr. Upchurch indicated that home prices in Wayne County have "skyrocketed" since COVID. He is not sure the Project will have much of an effect on nearby property values, positive or negative, but commented that it might slow the increase in local prices. Few sales occur in that area of the county – it's a pretty quiet rural area. He has heard concerns from PVAs in other counties regarding the potential for local pollution and land degradation, but that discussion was not specific to Wayne County or the Barrelhead Solar Project.

Review of Kirkland data and conclusions. Although Mr. Kirkland concludes that there would be no impact on property values from the Barrelhead 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 the Southeast and Midwest to determine the likelihood of a positive impact, negative impact, or no impact.

Exhibit 5-5 presents a detailed picture of the distribution of price differences for matched pair sets associated with solar facilities in Kentucky and adjoining states. About 83 percent of matched pair comparisons reflected a sales price differential of between negative five percent and positive five percent, with about six percent of comparisons showing no price differential at all. About 43 percent of all comparisons showed a negative impact on home prices, while another 51 percent indicated a positive effect. Overall, these data appear to support Mr. Kirkland's conclusion of no property value impacts due to proximity to solar facilities when averaging all the data.[59]

[59] Mr. Kirkland states that impacts of between -5 percent and +5 percent can be considered within the typical variation of real estate transactions.

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

	Kentucky / Adjoining States Solar Facility Analysis	
# Facilities Included	16	
# Matched Pair Sets	47	
Range of Price Impact	**Number of Sets**	**% of Sets**
-6% or greater	1	2%
-1% to -5%	19	40%
0%	3	6%
1% to +5%	17	36%
+6% or greater	7	15%
Total	47 Pairs	100%

Note: The largest negative difference a matched pair set was -7 percent; The largest positive difference was 12 percent.
Source: Kirkland Report, August 2025.

The range of price differences reflected in all of the datasets provided in the Kirkland materials also appears to support the proposition that any impacts to property values associated with the presence of a solar facility are largely site- or property-specific and may occur within a range, likely to be small.

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 largely 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.

- The nearest non-participating home would be located more than 180 feet from a solar panel. A total of 43 homes would be located within 2,000 feet of a panel (Exhibit 5-3), including three homes owned by the participating landowner. The closest home to an inverter would be more than 500 feet away and the closest home to the Project substation would be more than 1,600 feet away.

- Project infrastructure may be moderately or highly visible for three non-participating residences and one non-residential structure (Fairview Church).[60] The two residences with high potential visibility are located on the south side of the Project site. Both of those homes are located more than 1,500 feet from the closest solar panel and further

[60] An additional 15 structures would have low visibility of the Project, where between one and 14 percent of the Project might be visible.

from the substation or any inverter. Visibility at those locations are mainly due to the topography of the area; the homes are located at a higher elevation than existing vegetation, which is largely located down a nearby ravine between the Project and the homes.

- The Applicant is proposing vegetative buffers along portions of KY 1009 and Massingale Road; west of the substation; and near Fairview Church. Additionally, the presence of existing trees, shrubs and other vegetation will also 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.

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 12 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 the purchase price.

- Relatively few (43) homes are located within 2,000 feet of a solar panel, with the closest located more than 180 feet from a panel. Distances to other Project infrastructure are much greater. Those distances are relatively far when considering visibility of the facility.

- Certain literature suggests that concerns about impacts to property values from solar facilities stem from visibility of panels and other infrastructure. If that is the case, existing vegetation in the Project area should help mitigate any potential reductions in property values. Additionally, the Applicant is proposing about 1.9 miles of vegetative buffers along local roadways and other areas within the Project boundary.

- As discussed in a later section of this report, operational noise levels are estimated to be below the World Health Organization's estimates of moderate or annoying noise levels for all nearby residences.

- Current research suggests that the existence of solar facilities does not, in general, measurably result in changes to property values, although there may be small risk of negative impacts in certain cases.

- After considering the available research and other information, it is HE's opinion that any impact on property values due to the presence of a solar facility will be site specific, project specific and property specific. Application or assumption of a single, blanket percentage change in property values is not appropriate or accurate, when it comes to the presence of a solar facility. A small, narrow range is more meaningful.

- Neither the Wayne County Judge Executive nor the Property Valuation Administrator (PVA) have heard any concerns from residents regarding an impact to property values, but awareness of the Project is low on the part of local residents and county officials. The PVA noted that home prices in Wayne County have increased substantially since COVID, but that few sales occur in the Project area since it is relatively rural. He stated that he does not expect the Project to have much of an impact on local property values.

- HE concludes that, overall, property values in the Project area and in Wayne County are unlikely to be affected by the siting of the Barrelhead Solar facility. This conclusion assumes that the mitigation strategies discussed in Section 6 are adopted by Barrelhead 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, coordination by the Applicant with local 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 backhoes, pile drivers, concrete pump trucks, flatbed trucks, generators, and other equipment. During operations, noise will be emitted from inverters, and the 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.

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.[61] 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.[62] 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.

[61] 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

[62] 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.

A standard noise impact assessment focuses on several key factors:[63]

- 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. A noise analysis for the Project (Appendix E of the SAR) was prepared by Copperhead Environmental Consulting, Inc. (Copperhead), focusing on noise emissions during construction and the operational phases, with descriptions of existing noise conditions in the area. A revised acoustical analysis with updated data on expected noise conditions during construction and operations was provided in response to the first Siting Board data request; a revised acoustical analysis for operations and estimation of maximum pile driving sound levels were provided in response to the second data request.

Baseline (ambient) noise levels. Existing land uses in the Project area are mainly agricultural; scattered residences and forested land are also present in the area. The Applicant indicated that baseline noise levels for a rural/ agricultural area, similar to the area surrounding the Project, would result in daytime sound levels of approximately 45 to 55 dBA.[64] The area surrounding the Project site includes secondary roads, active agricultural lands, residential structures, a church and several cemeteries.

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 annoyance). Local conditions such as traffic, topography and wind characteristics of the region can alter background sound conditions. The Applicant identified 40 non-participating residences and 16 non-participating non-residential receptors within 2,000 feet of the Project boundary. Non-residential receptors include 12 barns, a commercial property, a church, and two cemeteries.[65] Participating receptors within the 2,000 foot buffer include three residences and four barns; one barn and one residence are located within the Project area but outside of Project perimeter fencing.[66]

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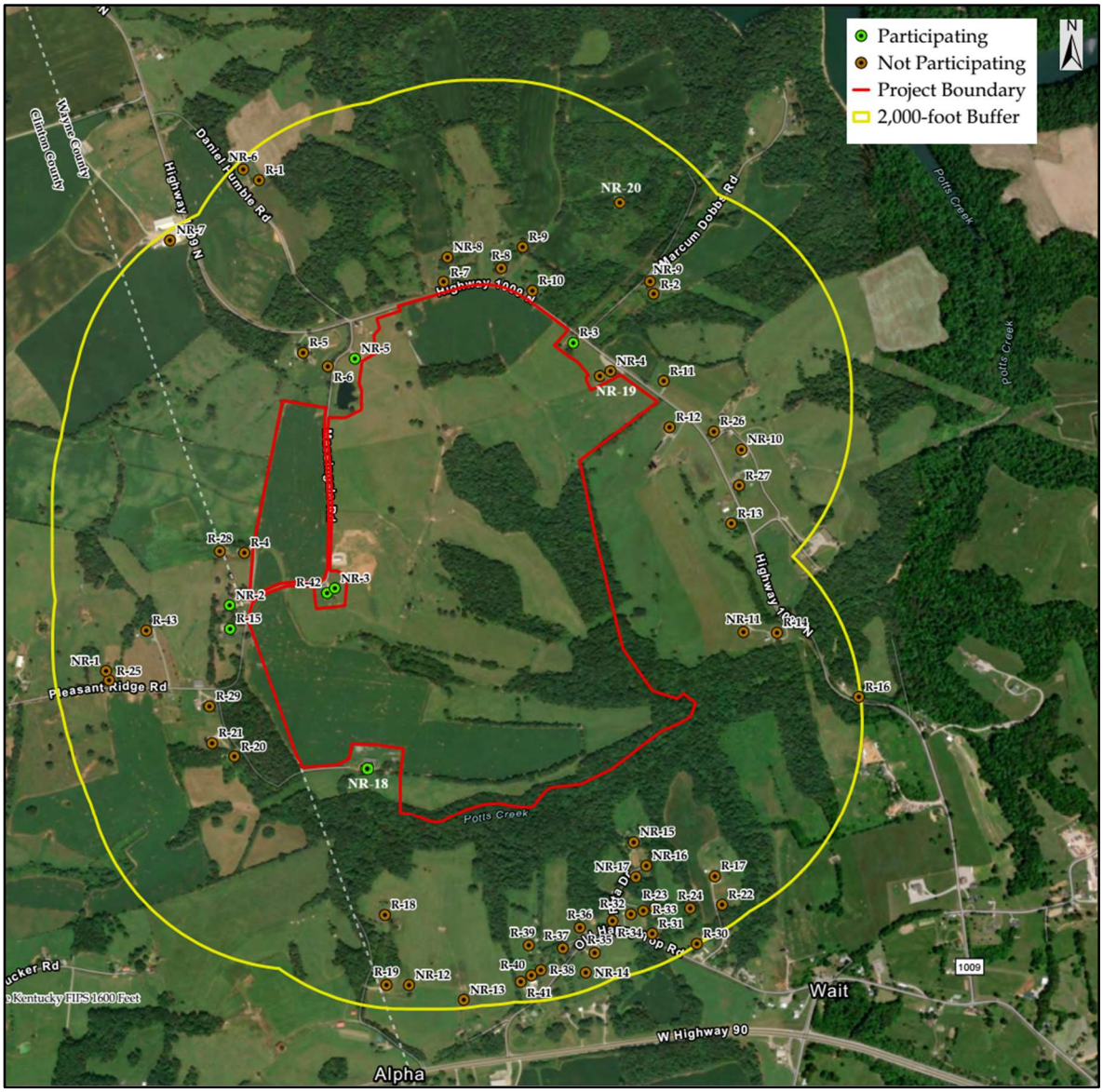
[63] Department of Energy. Noise and Vibration Impact Assessment Methodology. https://www.energy.gov/sites/prod/files/edg/media/EIS0250F-S2_0369_Volume_V_Part_3.pdf;
[64] SAR Appendix E – Noise Analysis Report.
[65] Two cemeteries located within 2,000 feet of the Project boundary were included in the Noise Analysis submitted with the SAR but omitted from revised analysis submitted in response to the first data request.
[66] An agricultural barn located along the southwestern Project boundary near the substation area was not included in the revised acoustical analyses or receptor maps. This barn is within an exclusion area and

Exhibit 5-6, below, provides the locations of the residential (R) and non-residential (NR) noise receptors within 2,000 feet of the Project boundary.

Exhibit 5-6.
Noise Sensitive Receptors near Barrelhead Solar Project



Note: 1. NR-18 (Barn), NR-19 (Buncan Cemetery), and NR-20 (Clark-Coop Cemetery) were omitted from the revised acoustical analyses.
2. NR-4 is Fairview Church.

Source: Barrelhead Solar, LLC, December 2025 and January 2026; Harvey Economics, January 2026.

belongs to the participating landowner. HE included this barn as NR-18 in Exhibit 5-3; No further data is available for analyzing impacts.

Construction noise emitters. During the construction phase, a variety of heavy equipment will be utilized. Peak construction noise will be created by pile driving at approximately 90 dBA from a distance of 50 feet, with compactors, backhoes, graders, pavers, cement mixers, flatbed trucks, and generators emitting sound levels greater than 80 dBA at a distance of 50 feet.[67] Pile driving will be used to install the Project solar arrays. Exhaust noise from diesel engines that power construction equipment is also a significant source of noise generation.[68]

The Applicant's consultant, Copperhead, calculated estimated sound pressure levels at residential and non-residential receptors for pile driving during Project construction.[69]

Fifteen non-participating residences are located within 1,000 feet of a solar array.[70] Construction sound levels during operation of a single pile driver would be greater than 65 dBA for all but one of these noise receptors. Maximum construction noise levels will likely be higher than the estimated data when multiple pieces of construction equipment are in operation simultaneously.

Exhibit 5-7 provides the range of sound levels during pile driving at non-participating residential receptors within 1,000 feet of an array. The maximum anticipated sound levels (Lmax) are shown.

Exhibit 5-7.
Pile Driving Sound Levels at Select Non-Participating Residential Receptors

Receptor ID	Distance from Solar Array (ft)	Estimated Lmax Sound Level (dBA)
R-10	182	78.4
R-7	205	77.3
R-4	214	77
R-8	252	75.6
R-11	277	74.7
R-12	353	72.6
R-6	372	72.2
R-28	442	70.7
R-9	502	69.6
R-5	534	69
R-20	592	68.1
R-29	664	67.1
R-21	741	66.2
R-26	750	66.1
R-2	940	64.1

Note: Sound level reflects noise level generated by the operation of a single piece of construction equipment from the nearest site of pile driving to a noise sensitive receptor.

Source: Barrelhead Solar, LLC., December 2025 and January 2026.

[67] SAR Appendix E – Noise Analysis Report; Applicant's response to the first data requests.
[68] Identification of Dominant Noise Sources in a Diesel Power Group. Hassoun, et al., 2019. https://d-nb.info/1214765556/34
[69] Sound pressure levels provided are for the Vermeer PD-10 pile driver (Deutz engine).
[70] Three participating residences are owned by Bertram, also the owner of the Project parcels.

Of the 16 non-participating, non-residential receptors, eight are within 1,000 feet of the Project boundary. The Fairview Church and Buncan Cemetery (NR-4 and NR-19) are located 75 feet and 56 feet from the nearest solar panel, respectively, and are most likely to be impacted by construction noise. Exhibit 5-8, below, provides the range of construction equipment sound levels at select non-residential receptors. Maximum construction noise levels will likely be higher than the estimated data when multiple pieces of construction equipment are in operation simultaneously. The maximum anticipated sound levels (Lmax) are shown.

Exhibit 5-8.
Pile Driving Sound Levels at Select Non-Residential Receptors

Receptor ID	Identifier	Distance from Project Boundary (ft)	Estimated Lmax Sound Level (dBA)
NR-19	Cemetery	56	79
NR-4	Church	75	77
NR-8	Barn	305	71
NR-15	Commercial	708	62
NR-11	Barn	794	59
NR-9	Barn	882	60
NR-10	Barn	898	60
NR-16	Barn	954	59

Notes: 1. Construction sound level reflects noise level generated by the operation of a single piece of construction equipment from the nearest site of pile driving to a noise sensitive receptor.

2. Receptors shown are non-participating.

Source: Barrelhead Solar, LLC., December 2025 and January 2026.

Construction noise at these levels will be noticeable and potentially annoying for local residents but will not be sustained long-term. For comparison, city traffic ranges from 70 to 85 dB from inside a vehicle and a vacuum cleaner operates at 70 to 80 dB; these levels can be challenging but will not affect hearing unless exposure is for an extended period.[71]

Peak construction activities are expected to occur over a period of about five to six months. Pile installation will occur during the second phase of the Project, which is anticipated to last for 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. The "worst case" noise levels would be expected to occur over even briefer 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.[72] Therefore, residences more than 2,000 feet from the panels would experience lower levels of noise from the construction of the panels. The topography and existing natural vegetation in the southern portion of the Project site will likely contribute to further reduction of sound pressure levels for residences.

[71] 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.
[72] http://hyperphysics.phy-astr.gsu.edu/hbase/Acoustic/isprob2.html#c1

Operational noise emitters. During the Project's operational phase, the primary sources for noise will be (1) the Project substation transformer; (2) the EKPC substation transformer; and (3) fifteen inverters, which will be distributed throughout the Project site. Most of the operational noise will occur during daylight hours, as Project inverters and transformers are in "standby mode" at night.[73] The nearest non-participating residence (R-20) is located about 1,650 feet from the substation transformers, with the next closest residences being further than 1,750 feet away.[74] Excluding the participating barns located near Project boundaries, non-residential receptors are located further than 1,500 feet from the substations.

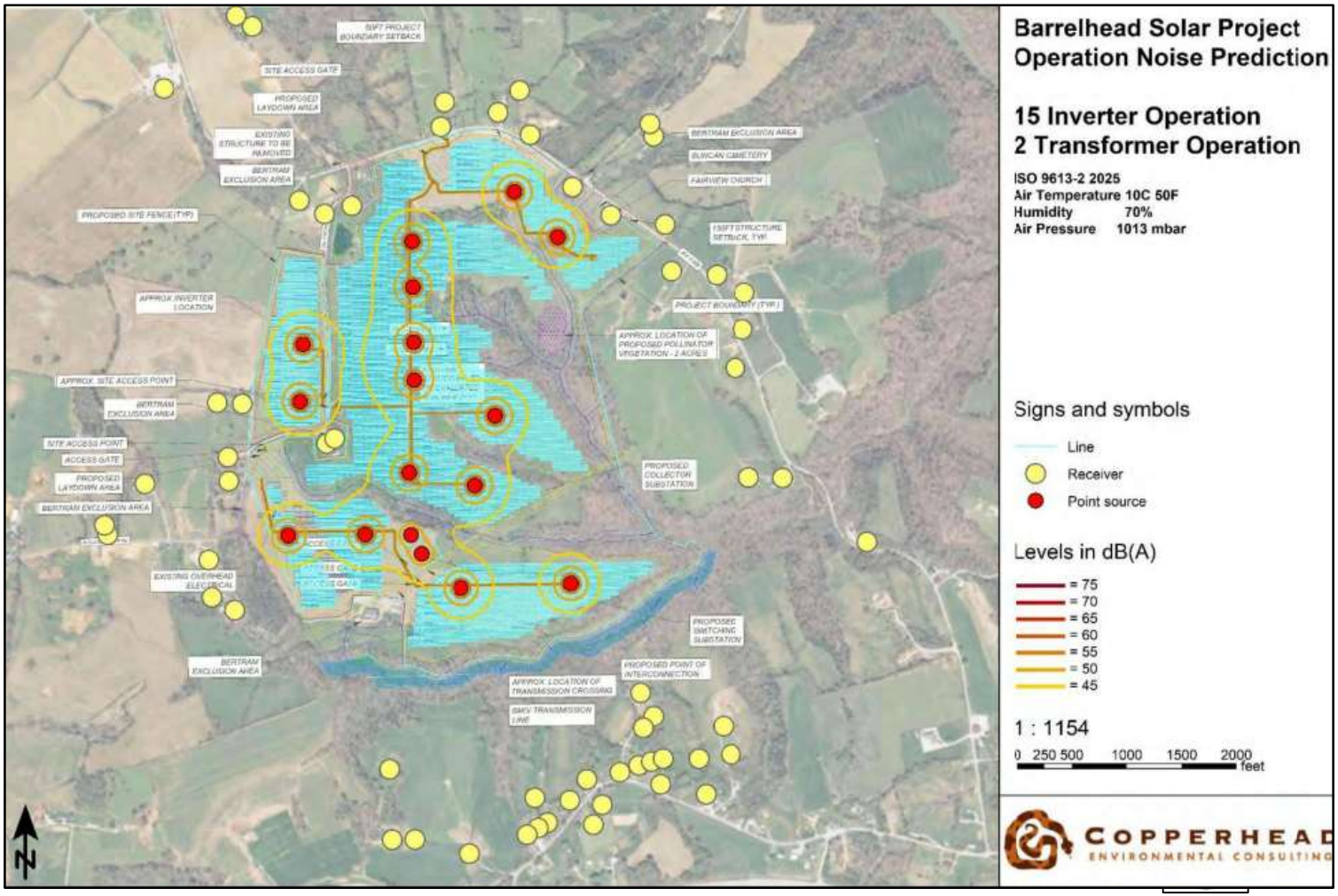
Copperhead analyzed the cumulative operational noise levels for all receptors located within 2,000 feet of Project boundaries using SoundPLAN6.0.[75] Five non-participating receptors are expected to experience noise levels at or above 40 dBA during operations: 1) Residence R-4, located closest to an inverter; 2) Residence R-28, located off Massingale Rd near the West Array panel area; 3) Residence R-10, located near the Northeast 1 panel area and the closest residence to an array; 4) Fairview Church (NR-4); and 5) Buncan Cemetery (NR-19), which is the closest non-residential receptor to an inverter.

Exhibit 5-9, below, provides the modeled operational daytime sound level contours produced by the Project components for residential and non-residential receptors.[76] The contours depict sound levels between 45 dBA (yellow contour lines) and 75 dBA (dark red contour lines) in 5 dBA increments.[77] Focusing on daytime operations and noise levels, all sensitive receptors are outside of the 45 dBA sound contour. The highest predicted sound level during operations is 42 dBA at R-4 (non-participating) and 44 dBA at R-42 (participating).

Routine maintenance and repair activities will occur during operations but will not materially impact noise levels in the area.

[73] Applicant's response to the Siting Board's second data request.
[74] Applicant's response to the Siting Board's first data request.
[75] These calculations are representative of cumulative sound levels for all operations noise producing components, including 15 inverters and two transformers.
[76] Operational sounds levels for NR-18, NR-19, and NR-20 were not included in the analysis.
[77] Noise modeling does not include cumulative sound pressure levels from existing ambient noise. Daytime ambient sound pressure levels for the area, estimated to be approximately 45-55 dBA, are higher than the modeled operational sound levels for all noise sensitive receptors.

Exhibit 5-9.
Predicted Sound Contours of the Barrelhead Solar Facility during Daytime Operation, dBA



Notes: 1. Operation sound level reflects cumulative noise level generated by the operation of 15 inverters and two substation transformers.
2. Receptors NR-18, NR-19, and NR-20 were not included in this analysis.

Source: Barrelhead Solar, LLC, January 2026.

HE's evaluation of impacts. Neither the Commonwealth of Kentucky nor Wayne 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.[78]

- 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.[79]

Construction noise. Construction activities will produce sporadic noise that will substantially exceed 55 dBA during daytime hours. Residential noise sensitive receptors less than 1,000 feet from pile driving locations will experience estimated sound levels of greater than 65 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 rolling topography and natural vegetation surrounding sections of the Project area will likely diminish the noise impacts as well.

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 approximately a six-month peak period. 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 were not provided. It is unlikely that construction noise would be limited to that shown in Exhibits 5-7 and 5-8. 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.[80] 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."[81] This means that very different types of noises could have a greater cumulative impact than expected. Cumulative

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[78] 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

[79] World Health Organization. *Guidelines for Community Noise*. April 1999. https://www.who.int/publications/i/item/a68672

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

[81] 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 5-10.

Exhibit 5-10.
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.

Sound levels during peak construction with pile driving are anticipated to exceed 70 dBA at eight non-participating residences located within 500 feet of a solar array.[82] The WHO indicates that exposure to sound levels greater than 70 dBA Leq can increase the risk of noise-induced hearing impairment.[83]

Although 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 receptor to a panel (R-42) will experience predicted noise levels of about 44 dBA during daytime operations. The closest non-participating receptor to an inverter (R-4) is predicted to experience the greatest sound levels during daytime operations, at 42 dBA. These levels are below the 45-55 dBA estimated daytime ambient

[82] SAR Appendix E; Applicant response to second data request.
[83] World Health Organization. *Guidelines for Community Noise*. April 1999. https://www.who.int/publications/i/item/a68672

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:

- 12 residences within 1,000 feet of panels are estimated to experience L_{max} sound levels over 70 dBA during peak construction when pile installation is occurring, and those residents will be subject to negative noise impact, albeit temporary.

- Construction phase noise may be annoying for other 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.

- Construction phase noise may be annoying or disruptive for those visiting the Fairview Church and Buncan Cemetery, particularly while pile driving is occurring.

- Barrelhead Solar has stated that during the construction phase, noise-producing work will occur between the hours of 7am and 7pm Monday through Saturday, with louder noise producing activities such as pile driving limited to between 8 am and 5 pm Monday through Friday. 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.

- Barrelhead Solar has stated that during the construction phase, non-noise producing and non-construction activities may occur between the hours of 6am and 10pm, Monday through Sunday; No mowing will occur on Sundays.

- 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 not anticipated to result in increases beyond the local sound environment. In most locations, project operations would be unnoticeable to residents or drivers in the area.

- The existing topography, natural vegetation and planned vegetation buffering 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, responses to Siting Board data requests, or recommended by HE, which are related to the reductions of noise impacts include:

1. The Applicant shall notify all residents and businesses within 2,400 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 5:00 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 Fairview Church to limit pile driving and heavy or oversize deliveries passing near the Church and Cemetery during their services, including funerals.

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 inverters 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 Barrelhead Solar facility during the construction or operational phases are addressed in this section. The approximately 12-month construction phase will 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. Appendix I of the SAR is a Traffic Impact Study (Traffic Study) prepared by Copperhead. 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. 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 likely use I-75 and KY 90 to reach local roads accessing the site.[84] Local roads used to reach the four access points/entrances proposed for the Project include KY 1009, and Massingale Road/Pleasant Ridge Road (CR 1249). The main access point is located on KY 1009 and the other three access points are located on Massingale Road (Exhibit 3-1). Local roads around the Project site will be traveled by worker vehicles and delivery trucks, including for delivery of the substation transformer. The Engineering, Procurement, and Construction (EPC) contractor will be responsible for determining Project haul routes and assessing bridges for deliveries as well as obtaining necessary road and delivery permits. As of the January 2026 submission of a revised Traffic Study, the Project has not obtained an EPC contractor.

Two laydown yards are planned within the Project area, one located adjacent to the main access point off KY 1009 and one at the southern access point off Massingale Road, with smaller staging areas anticipated across the site within individual panel areas.[85]

Approximately 11,900 linear feet of private access gravel roadways will be constructed across the Project site. Access road construction will take place during the site preparation period at the start of the Project.[86]

Baseline traffic volumes and road conditions. The Applicant provided traffic data and other descriptors for local roads used to access the Project during construction. Annual average daily traffic (AADT) and other road descriptors are provided in Exhibit 5-11.

[84] The Traffic Study focused only on the local roads in the immediate Project area.
[85] Provided in Applicant's response to the Siting Board's second data request.
[86] Provided in Applicant's response to the Siting Board's second data request.

Exhibit 5-11.
Baseline Traffic Data for Roads in the Project Area

Roadway	AADT	Weight Limit	No. of Lanes	Shoulder
Interstate 75	36,280	AAA	2	Y
KY 90 (East of KY 1009)	6,123	AAA	2	Y
KY 90 (West of KY 1009)	5,205	AAA	2	Y
KY 1009	253	A	2	N
Massingale Road / CR 1249	N/A	County	1	N
Pleasant Valley Road / CR 1249	N/A	County	1	N

Notes: (1) N/A indicates data not available.
(2) "AAA" rating is 40 tons gross vehicle weight (gvw); "A" rating is 22 tons gvw; "County" rating is 18 tons gvw.

Source: Barrelhead Solar, LLC, January 2026; Kentucky Transportation Cabinet, 2026; Harvey Economics, 2026.

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

- An average of 50-100 workers 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 one to two workers per vehicle. During peak periods, up to 150 workers are anticipated on-site.
- Multiple delivery trucks (tractor trailers, flatbeds, other large vehicles) are anticipated per average day including 5 or fewer tractor trailers. The average day number of cement and water trucks was not specified.
- During peak construction periods, 10-20 semi-trucks for delivery are anticipated daily in addition to other delivery vehicles. The peak day number of cement and water trucks was not specified.
- Delivery trucks will include cement trucks with 80,000 pounds max load weight, water trucks with 40,000 pounds max load weight, tractor trailers with 80,000 pounds max load weight, medium-duty trucks with 26,000 pounds max load weight, and general delivery trucks with 20,000 pounds max load weight. Weights for deliveries of the solar panel modules and inverters have not been specified.
- The Project's substation transformer will be an especially heavy delivery, with an estimated load weight of 206,000 pounds.[87] Delivery of the transformer will be coordinated by the EPC contractor and the transportation provider.
- Worker vehicles will access the Project site via four access points; three located on Massingale Road and one on KY 1009 Road. Internal access roads will be utilized to move between panel areas that do not have direct access points (Exhibit 3-1).

[87] Applicant response to first data request.

- Workers are anticipated to gather at the main Project entrance on KY 1009 each day before dispersing to their work locations.
- Project construction delivery traffic will access the site via the four Project access points, primarily using the main entrance on KY 1009. Two of the access points are in proximity to Project laydown areas.
- The Project substation and transformer will likely be delivered to the southernmost access point on Massingale Road.

The Applicant has stated that haul routes for large deliveries will be determined by an EPC contractor, once hired; however, travel on local roads will also be necessary for direct site access. Barrelhead Solar will obtain all necessary permits for oversized or overweight deliveries.[88]

During the site visit, HE staff observed portions of local roads used to access the Project site to be in poor condition or damaged, and local roads do not have shoulders. Improvements to local roads may be necessary prior to construction to allow for large and/or overweight deliveries. Such improvements may include road widening or surface repairs. Barrelhead Solar indicated that they would coordinate with the Wayne County Road Department or the Commonwealth about traffic plans and mitigation measures; The Project will coordinate with Clinton County Road Department as appropriate.

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

- Appropriate signage and traffic signaling will be used during construction.
- Barrelhead Solar will consult and coordinate with the Wayne County Road Department to obtain road use permits, as necessary, and develop a road use agreement.
- Barrelhead Solar will consult and coordinate with the Clinton County Road Department to obtain road use permits and develop a road use agreement, as necessary.
- Barrelhead Solar will consult and coordinate with Kentucky Transportation Cabinet (KYTC) to obtain road use permits, as necessary.
- Barrelhead Solar will coordinate with the KYTC and Wayne County prior to expected large truck deliveries. Deliveries will be limited to the hours of 7 am to 7 pm, Monday through Saturday.
- Permanent road closures are not anticipated during Project construction. Temporary road closures may be employed to minimize potential risks. Any anticipated stoppages are expected to be brief in duration.
- A Traffic Management Plan will be developed by the Applicant and their engineering contractor in coordination with the Wayne County Road Department and KYTC prior to construction.

[88] Applicant's response to the second data request.

The Traffic Study encouraged implementing traffic mitigation measures to minimize the potential for delays during morning and evening peak hours including ridesharing for construction workers, using appropriate traffic controls, and allowing flexible working hours.

Operations related traffic volumes. The Traffic Study indicated that traffic in the operational phase will be negligible with just a small number of worker vehicles traveling to the site in light trucks. The site will otherwise be monitored remotely. Larger truck traffic may occur occasionally for transportation of maintenance equipment or sheep for solar grazing. Work in the evenings may occur for up to 30 days each year. The study concluded that traffic volume and function would not be significantly impacted.

Road degradation. Barrelhead Solar does not anticipate any damage to existing roadway infrastructure. The Applicant committed to fix or pay to repair damage to roadways or bridges related to Project transport and will incorporate this in their road use agreements.

Railways. No railway lines are located in the Project area or in Wayne County. Barrelhead Solar has indicated that they will not use this method of transportation for Project deliveries. Construction vehicles will not cross the railroad along the anticipated 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 90, KY 1009, and Massingale Road/Pleasant Ridge 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, KY 90 is rated 80,000 pounds (40-tons) gvw. KY 1009 is rated 44,000 pounds (22-tons) gvw. Massingale Road/Pleasant Ridge Road are rated 36,000 pounds (18-tons).

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

- *KY 90* – two-lane, striped, blacktop road in fair condition; some cracking in areas; shoulders present.
- *KY 1009* – two-lane, striped, blacktop road in fair condition; sections are in poor condition with cracking present; no shoulders.
- *Massingale Road/Pleasant Ridge Road* – narrow, one-lane, unlined, chip and seal road with no shoulders; sections are in poor condition with cracking present. There is poor visibility for turning vehicles at the intersection with KY 1009. A culvert is present along the portion inside the Project area that runs east-west.

During the site visit (a weekday), there was little traffic on the local roads surrounding the Project site. Appendix B of this report 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 5-8. HE confirmed that no additional data for other roads is available.

Construction related traffic impacts. Barrelhead Solar provided estimates of the number of construction vehicles accessing the Project site on an average and peak day, shown in Exhibit 5-12. Peak day construction vehicle estimates are predicted to be highest while multiple construction activities overlap. The peak construction period is expected to occur over about six months. Each vehicle is anticipated to make 3-5 trips per day as the workers are expected to gather at the main entrance upon arrival, disperse to their work sites, take lunch offsite, and then commute home.

Exhibit 5-12.
Estimated Daily Vehicles Commuting to the Mantle Rock Solar Project Site

	Vehicles	
	Average Day	Peak Day
Worker Vehicles	50	50 - 150
Delivery Trucks	5	10 - 20

Notes: (1) Worker vehicles are expected to make 3-5 trips to and from the Project site each day.
(2) Each worker vehicle is predicted to transport one to two workers.
(3) Other truck traffic, including number of general delivery trucks, cement trucks and water trucks are unknown.

Sources: Barrelhead Solar, LLC, December 2025; Harvey Economics, 2025.

The estimated traffic increases may create noticeable, but acceptable, increases on I-75 and KY 90. However, it is difficult to determine the effects on other local roads in the Project area. Those roads are lightly traveled, so any 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:

- Although there are multiple access points for the Project, the majority of deliveries and daily workers will arrive via the main entrance on KY 1009 Road, consolidating the bulk of the morning construction traffic to one entrance and traffic impacts to one road.
- A non-participating residence, R-7, is located directly across KY 1009 from the Project main entrance. This residence will be especially impacted by Project construction traffic (visibility, traffic noise, and potential travel delays).
- The relative increase in traffic on local roads could be substantial and will be noticeable, especially during the peak construction period. Since the impact will likely be on local residents, this change may create negative attitudes about the Project.

- The lack of shoulders on local roads in the Project area may 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 on narrower sections of roads where there is nowhere for either the truck or oncoming vehicles to pull over.

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 during 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 railways. There are no rail lines in the Project area or within Wayne county.

Road degradation. The lack of information about baseline traffic levels on some roads makes it difficult to predict if road degradation will occur. Potential for degradation due to construction traffic on local roads including Massingale Road/Pleasant Valley Road, which has existing areas of damage, should be assessed during pre- and post-construction road surveys. The existing condition and nature of 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 Barrelhead Solar will need to work with Wayne County or Clinton 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.[89] Pavement conditions are rated on a scale of green/good, yellow/fair and red/poor. KY 90 near the Project site is color coded green, and treatments are not recommended until 2030. Pavement conditions data for I-75, Massingale Road, and other local roads are unavailable.

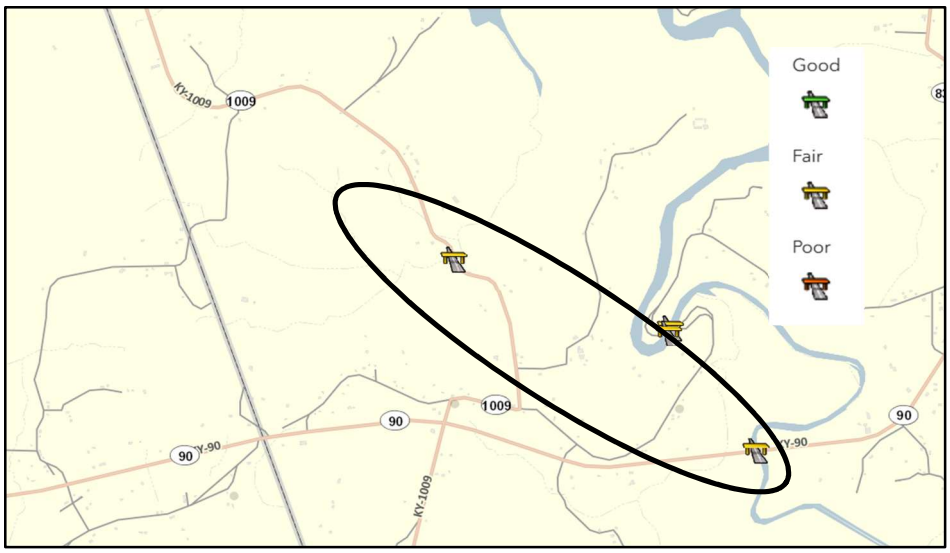
Bridges The Applicant identified eight bridges within two miles of the Project site. Two of these bridges are located on local roads that connect to the Project site and are likely to be used for Project deliveries: one on KY 90, and one on KY 1009. HE consulted KYTC's Bridge Weight Limits and Bridge Data Miner Maps for additional information and did not identify additional relevant bridges in the Project area.[90]

On the Bridge Weight Limit Map, both of the identified bridges are shown as black, which indicates "no restrictions." The bridges were observed to be in acceptable condition during the

[89] https://maps.kytc.ky.gov/pavementconditions/
[90] https://maps.kytc.ky.gov/bridgedataminer/; https://maps.kytc.ky.gov/bridgeweightlimits/

site visit, and confirmed by KYTC's Bridge Data Miner, as shown in Exhibit 5-13.[91] The bridges are rated yellow, which indicates "fair" condition.

Exhibit 5-13.
Bridge Conditions near the Barrelhead Solar Project



Notes: Bridges discussed in this section are indicated by the black oval.

Sources: KYTC Bridge Data Miner, January 2026; Harvey Economics, 2026.

Additionally, HE staff noted an unidentified culvert on Massingale Road during the site visit.[92] This culvert is along the route that construction and delivery traffic will travel to reach designated Project access points but is not marked with weight limits. The culvert on Massingale Road is located between the northern and southern access points. The condition of the culvert is unknown.

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 natural vegetation surrounding the Project site.

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

1. Access to the Project site from I-75 and KY 90 will require cars and semi-trucks to travel on local roads. The site entrances and delivery points planned for the Project site will consolidate construction vehicle traffic primarily to one route, potentially minimizing the distribution of traffic impacts, or might result in a feeling of overwhelming traffic on that route for local residents.

[91] https://maps.kytc.ky.gov/bridgedataminer/
[92] Pictures of the culverts are included in Appendix B, Site Visit Photos.

2. Construction traffic will likely be noticeable on local roads surrounding the Project site, particularly KY 1009 and Massingale Road. The increased traffic will likely be noticeable to local drivers as well as residents near the Project. Construction traffic could be irritating to these local residents.

3. The main site entrance, where workers will gather in the mornings before dispersing to their worksites, has the potential to be a "chokepoint" for traffic impacts as many vehicles will arrive within a narrow timeframe and without a protected turn. This entrance is in close proximity to several residences which may result in significant traffic impacts to those residents during construction.

4. The multiple Project access points may reduce construction traffic impacts during lunch breaks and evening commutes when workers are leaving from separate areas across the site.

5. The nature of several of the local roads may require temporary stoppages or that drivers pull over for large vehicles. While residents may be accustomed to this, it might be a point of frustration.

6. 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 in finalizing Project delivery routes.

7. Road degradation may be an issue for local roads. Some local roads and bridges or culverts may need improvements prior to the start of Project construction.

8. Barrelhead 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.

9. Heavy delivery vehicles will exceed the gross vehicle weight limits on local roads traveled to reach site entrances.

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

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

12. 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 Wayne County Road Department (WCRD) regarding truck and other construction traffic and obtain necessary permits from the WCRD.

4. The Applicant shall coordinate with the Clinton County Road Department (CCRD) regarding truck and other construction traffic and obtain necessary permits from the CCRD if final delivery routes involve travel on Clinton County Roads.

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

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

7. The Applicant shall comply with any road use agreement executed with Wayne County, Clinton County or their road departments. Such an agreement might include special considerations for overweight loads, routes utilized by heavy trucks, road weight limits and bridge weight limits. It may also include prioritizing access for residents or use of flaggers during heavy commute periods.

8. The Applicant shall fix or pay to repair damage to roads and bridges resulting from any Project-related commuting or heavy vehicle transport to the Project site during construction.

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

10. 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.

11. The Applicant shall respond to any complaints related to traffic management for nearby residents occurring during construction via a timely, formal and clearly developed complaint resolution program.

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 Barrelhead 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 Barrelhead Solar Application included an Economic Analysis (Attachment F) prepared by consulting economist Dr. Joshua Pinkston.[93]. That report includes discussion and explanation of the Project's economic benefits, including estimates of employment, labor income and economic output generated by Project construction and operations within Wayne 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. Additionally, Dr. Pinkston addresses the economic benefits associated with lease payments made to the participating landowner and the losses resulting from reduced agricultural production within the Project site.

Information provided by the Applicant in the Application materials and as part of subsequent data requests includes the following:

Capital investment: The Applicant expects to invest approximately $81 million in the solar project. The investment involves land acquisition, site preparation, solar panel and electrical

[93] A revised version of the Economic Analysis was submitted in response to the Siting Board's first data request. The revised report includes additional explanation of certain assumptions, but analytical results are the same as in the original report.

equipment installation, plus landscaping and security fencing. The majority of the $81 million investment will likely be spent on equipment for the solar site, including electrical infrastructure. However, very little, if any, of these materials would be available from vendors in the Wayne County region or the Commonwealth of Kentucky. Local purchases might include construction materials such as concrete, earth moving equipment, timber cutting, fencing, and landscaping.

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. Pinkston for this 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 expected to generate approximately 129.6 full-time equivalent (FTE) positions, or about 133 total jobs.[94] Those jobs will include construction managers, earth grader operators, panel installers, electricians, fencers and other skilled labor positions. The number of construction workers anticipated to be hired from Wayne County is unknown, but the Applicant will encourage the construction contractor to hire as many qualified local workers as feasible. The construction industry is prone to traveling workers moving from site to site and workers may not live in the local area where construction activities are taking place. Given the historical lack of solar farms in the Wayne County region, solar panel installers are likely to live outside of the area. However, workers in other occupations, such as earth moving, concrete powering, fencing, and landscaping might be hired locally.

Assuming average annual earnings per construction worker of about $59,300 (including benefits), Dr. Pinkston estimated direct construction labor compensation to be approximately $7.9 million. Construction spending would also generate an additional $3.0 million in proprietor income.[95] The circulation of construction-related monies throughout the local area (induced and indirect effects) would also generate additional jobs and income in other economic sectors.[96] 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 residents of Wayne County or surrounding counties as the result of local construction related spending. Exhibit 5-14 presents the estimated employment, labor income, value added and economic output generated by Project construction.[97]

[94] 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 be greater than the estimated number of FTEs.

[95] Proprietor's income is the total earnings (after expenses) of self-employed individuals and owners of unincorporated businesses. This estimate only includes income expected to be paid to proprietors located in Wayne County.

[96] 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.

[97] The estimated Value Added component of economic activity reflects the portion anticipated to remain in Wayne County. Labor income is one component of Value Added.

Exhibit 5-14.
Estimated Economic Benefits of the Proposed Barrelhead Solar Project, Construction Phase

	Employment	Labor Income	Value Aded	Economic Output
Direct	133.4	$10.9 M	$15.1 M	$35.0 M
Indirect / Induced	50.1	$2.16 M	$4.5 M	$8.6 M
Total	183.5	$13.1 M	$19.6 M	$43.6 M

Notes: (1) Employment is defined as the total number of jobs (full and part-time).
(2) Labor income includes employee compensation and proprietor income.
(3) Labor income is one component of the Value Added estimate. Value Added reflects the portion of economic activity that is anticipated to remain in Wayne County.

Source: Barrelhead Solar, LLC, November 2025.

Project employment and earnings during operations: Approximately four jobs would be generated by the Project's required regular operations activities.[98] Salaries for operational employees are estimated to be approximately $152,100 per year.[99] The circulation of operations-related monies throughout the local area (induced and indirect effects) would also generate additional new jobs and income in other economic sectors. Jobs generated by Project operations are more likely to be filled by residents of Wayne County or surrounding counties. Exhibit 5-15 presents the employment, labor income, value added and total economic output generated by Project operations.[100]

Exhibit 5-15.
Estimated Economic Benefits of the Operation of the Proposed Barrelhead Solar Project

	Employment	Labor Income	Value Added	Economic Output
Direct	4.0	$608,266	$1.5 M	$2.6 M
Indirect / Induced	3.9	$209,118	$0.3 M	$1.0 M
Total	7.9	$817,384	$1.8 M	$3.6 M

Notes: (1) Labor income is one component of the Value Added estimate. Value Added reflects the portion of economic activity that is anticipated to remain in Wayne County.
(2) Direct economic output is the estimate of total annual electricity sales associated with operating the Barrelhead Solar facility.

Source: Barrelhead Solar, LLC, November 2025.

Tax revenues: Wayne County and the Commonwealth of Kentucky levy property taxes on real estate and tangible property, and the Commonwealth taxes the value of manufacturing

[98] The report notes that the Applicant estimated between three and seven full-time employees required for operations. Dr. Pinkston assumed four employees for this analysis.
[99] Salary estimates are based upon industry specific information for Metcalfe and Whitley Counties in Kentucky since data for the solar industry is not available for Wayne County.
[100] The estimated Value Added component of economic activity reflects the portion anticipated to remain in Wayne County. Labor income is one component of Value Added.

machinery. Much of the capital expenditures will be for equipment classified as manufacturing machinery, which is taxed at the state level, but not locally.

According to the Economic Analysis, Wayne County jurisdictions can expect to receive about $1.6 million in property tax revenues over the 40-year life of the Project, including the following:

- Wayne County School District:[101] $887,544
- Other Wayne County Jurisdictions:[102] $712,456

The Applicant is pursuing an Industrial Revenue Bond (IRB) for the project through the Wayne County Fiscal Court. Under an IRB, the County owns the property for the life of the bond and thus is exempt from property taxes. Under the IRB, the Applicant makes the debt service payments, and the County incurs no financial risk. Moreover, the company would likely agree to make Payments in Lieu of Taxes (PILOT) each year to replace the tax revenues that the IRB exempts. No estimates of county tax revenues with an IRB/ PILOT have been developed.

Wayne County also levies a 0.9 percent occupational tax on wages and salaries. Construction activities would generate a one-time increase in tax revenues of about $74,900. The operations phase would generate approximately $5,900 in occupational taxes each year. Over the 40-year life of the Project, including the construction phase, total occupational tax revenues would amount to approximately $309,200.

Lost economic activity from farming: The conversion of agricultural land to a solar farm involves both positive and negative economic effects on the regional economy. The negative effects involve the reduction in farming activity, and the linkages that it has on local suppliers of seed, feed, fertilizer, equipment and labor, summarized by a reduction in business activity employment and personal income. The Economic Analysis and subsequent information provided offers the following information regarding the agricultural impacts of the Barrelhead Solar Project.

- The 307-acre site currently supports agricultural activities. Within Project boundaries, about 75 acres of cropland (evenly divided between corn and soybeans) and about 140 acres of pasture will be removed from production.

- Applying county-wide yields and prices to the assumed agricultural activity at the Project site results in an estimate of about $101,500 in current total annual agricultural revenue. However, the landowner does not keep all the revenue generated – farmers purchase inputs and only a portion of the purchase price of those inputs stays in the county.

[101] The net financial benefit to the schools is complex. Extra property tax revenues to the County school system would trigger a reduction in state funding to the district.
[102] Including Extension Service, Fiscal Court, Health services, Library services and Soil Conservation.

- The full economic impact of the agricultural revenues currently generated on the Project site includes a total of 1.7 jobs and about $21,500 in labor income. This includes direct jobs and income in the agricultural sector, as well as the indirect and induced jobs created by business and household spending.

- The overall loss in economic output due to the Project would amount to about $131,000 per year; however, less than half of that lost output, about $61,400, would be lost to Wayne County.

New income from landowner leases: Dr. Pinkston did not have exact lease details available to him, as those are confidential. However, based on his research, he assumes an average lease payment of about $800 per acre per year. Assuming that half the lease payments are used to pay off debt and half are available for household spending, results in a total of 1.1 new jobs generated by the lease income, and a total of about $59,200 in new labor income each year in Wayne County.[103]

Net economic impacts from Project operations. Exhibit 5-16 presents the net economic impacts of Barrelhead Solar operations, accounting for operation and maintenance of the solar facilities, the effects of additional household spending by participating landowners associated with lease payments, and the loss of agricultural activity within the Barrelhead project site. Overall, during operations, a net of 7.3 jobs will be created, generating approximately $855,100 in labor income each year. Over the life of the Project, more than $34 million in labor income and almost $75 million in value added would be generated by the Project.[104]

Exhibit 5-16.
Net Estimated Annual Economic Benefits of the Proposed Barrelhead Solar Project, Operations Phase

	Employment	Labor Income (Annual)	Labor Income (40-Year Total)	Value Added (40-Year Total)
Solar Facility Operations	7.9	$817,384	$32.7 M	$72.5 M
Lease Payment Spending	1.1	$59,192	$2.4 M	$4.7 M
Lost Agricultural Activity	-1.7	-$21,453	-$858,120	-$2.5 M
Net	**7.3**	**$855,123**	**$34.2 M**	**$74.8 M**

Notes: (1) Estimates of employment and labor income for lease payment spending assume that half of payments are used for debt payment and half are available for household spending. The summary table included in the Applicant's Economic Analysis presents a slightly more conservative assumption.
(2) Labor income is one component of the Value Added estimate. Value Added reflects the portion of economic activity that is anticipated to remain in Wayne County.

Source: Barrelhead Solar, LLC, November 2025.

[103] The Economic Analysis also includes a scenario in which the entire lease payment is considered household income. That scenario results in lower estimates of employment, labor income and economic output.

[104] The estimated Value Added component of economic activity reflects the portion anticipated to remain in Wayne County. Labor income is one component of Value Added.

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 Wayne 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-month construction period. Additionally, the portion of construction period jobs realized for Wayne 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.

- Lease payments to the participating landowner would provide additional household income. Household spending would generate a limited number of additional local jobs and income over the operational period.

- Economic losses would result from reduced agricultural production within the Project site during operations. Overall, the lost agricultural revenues and reduced employment and labor income would amount to a minor portion of the County's overall agricultural economy.

- Loss of landowner revenue from the sale of agricultural products due to the transition from active agriculture to solar facility activity will be more than offset by the lease payments.

- Property tax payments distributed to local entities within Wayne County 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 in any single year.

Conclusions and recommendations. Construction and operation of the Barrelhead 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 for local residents. 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 very small, but will generate local income, and local purchases of materials or supplies will generate additional economic activity.

Need for mitigation. Socioeconomic impacts of the Barrelhead solar facility represent a positive, albeit small, contribution to the region. The following mitigation measures could be implemented to increase economic benefits within Wayne 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.[105] 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. A Decommissioning Plan for the Project was submitted by the Applicant, including 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 Stantec in October 2025. According to the Applicant, the Barrelhead solar facility would have an expected useful life of approximately 40 years.

[105] Project decommissioning may be triggered by events such as the end of a power purchase agreement, expiration of lease agreement(s), abandonment 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.

Decommissioning plan and activities. According to the Decommissioning Plan, it is anticipated that decommissioning will begin within 18 months of the facility ceasing to produce electricity. The following general decommissioning activities are anticipated, with overlap in activities expected:

- Reinforce access roads, if needed, and prepare site for component removal
- Install temporary erosion control fencing and best management practices (BMPs) to protect sensitive resources
- De-energize solar arrays
- Dismantle modules and above-ground wiring
- Remove racking equipment and piles
- Remove inverter stations along with support piers and piles
- Remove above and below-ground electrical cables to a depth of three feet
- Remove perimeter fence
- Remove access and internal roads and grade site, as needed
- Remove substation and overhead transmission, if decommissioned
- De-compact subsoils (if required), and restore, to allow for a substantially similar land use as it was prior to commencement of Project construction.

Some components may be left in place under certain circumstances, as noted in the Decommissioning Plan. For example, access roads and fencing may be left in place if requested and/or agreed to by the landowner. Additionally, the Project substation and transmission line are considered "interconnection and other facilities" as described in 2023 KRS 278.706 and thus, will remain in place unless otherwise requested by the landowner. If the landowner requests that, the facilities will be removed and the land will be restored to a substantially similar state as it was prior to commencement of construction of the Project.

According to the Decommissioning Plan, the Project will be returned to a substantially similar state as it was prior to the commencement of construction. Topsoil will be placed on disturbed areas, as needed, and seeded with appropriate vegetation in coordination with landowners. Restored areas will be revegetated in compliance with applicable laws and regulations in place at the time of decommissioning. Barrelhead will communicate with the appropriate local agency to coordinate the repair of public roads damaged or modified during the decommissioning and reclamation process.

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 $1,421,384,

excluding the substation and transmission line.[106] After returns for salvaged materials, the net decommissioning costs are projected to be $444,735, again excluding the substation and transmission line.

In response to a request from the Siting Board, the Applicant provided the following estimates of the costs and potential salvage value of the substation and transmission line:

- Removal of substation with one transformer. (At this time, Barrelhead Solar assumes one transformer due to the size of the project). Decommissioning costs for one transformer are estimated at $330,000. If during final design, the Project needs two transformers, the decommissioning costs would be approximately $495,000.

- Project substation typically has a power transformer(s), an electrical control house, gravel pads and concrete foundations. The items typically included as potential salvage revenue consist of any steel from the control house as well as the transformer itself. Barrelhead Solar assumes one transformer and therefore the potential salvage revenue for the substation would be approximately $50,000. With two transformers, the estimated salvage revenue would be approximately $75,000.

- In the decommissioning plan, it was assumed approximately 0.65 linear mile of overhead transmission line. Based on the revised site design plan, the interconnection/transmission line may only be approximately 100 – 150 feet in length. Therefore, the estimated removal cost for 150 feet or 0.03 linear mile would be approximately $6,300. With what was measured on the original site plan of 0.65 linear miles, the removal cost could be up to $135,850.

- Transmission lines are comprised of the overhead line itself and the kV rating, electrical conductors, insulators and crossarms, and the steel poles supporting the line. Revenues are based on the steel from the line and poles as well as the number and type of conductors. Stantec does not have enough technical information at this time to provide a potential revenue estimate for the transmission line.

Financial assurance. The Applicant has indicated they will comply with KRS 278.706 requirements. A decommissioning bond will be provided prior to the beginning of construction. The Decommissioning Plan and cost estimate shall be reviewed and updated every five years, submitted to the Kentucky Energy and Environment Cabinet and Wayne County for approval, and the security revised as appropriate based upon the revised cost estimate at the Applicant's expense.

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,

[106] Although some access roads and fencing may be left in place at the request of the landowner, estimated decommissioning costs have been included for those items in the Decommissioning Plan.

the benefits to local employment and income during decommissioning would be somewhat less than those described for the construction phase.

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

3. 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.

4. 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).

5. 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 Wayne 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.

6. 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.

7. 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.

8. 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 the older facility components from the Project site upon replacement. The Applicant must inform the Siting Board of where the removed facility components are being disposed of.

9. 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 Barrelhead Solar, LLC staff. Those activities included the following events and actions taken to notify and inform Wayne County officials and residents about the Project:

- Public meetings and events:
    - A public meeting was held on the evening of April 2, 2025, at the Aspire Center in Monticello, Kentucky to inform the public about the Project and answer questions. A notice announcing the public meeting was published in the Wayne Weekly, the local newspaper, on March 12, 2025. Letters were also sent to adjacent landowners.
    - On July 17 and July 29, 2025, notice of application letters were sent to landowners whose property borders the proposed site via regular USPC mail and via USPS Certified Mail, respectively. The notice was also published in the Wayne Weekly on September 24, 2025.
- Outreach to local officials, surrounding landowners and others:
    - Mr. Scott Gehrig - Wayne County Judge Executive
    - Mr. Jeffrey Dishman – Wayne County Magistrate
    - Wayne County Emergency Management
    - Monticello Fire Department
- According to the Applicant, a Project website will be developed and is anticipated to be available to the public in the first quarter of 2026.

In response to a request from the Siting Board, the Applicant stated that they have discussed construction noise with the Pleasant Ridge Amish Mennonite Church and is continuing outreach to nearby landowners.

Public comments. The Kentucky PSC document website for the Barrelhead Project provides all the formally submitted comments from members of the public. As of the date of this report, no comments have been filed.

HE site visit summary. As part of HE's site visit to the Project area on December 8, 2025, HE met with local officials, including the Wayne County Judge/Executive (Mr. Scott Gehring) and the Wayne County Property Value Administrator (PVA) (Mr. Bobby Upchurch). Mr. Gehring stated that he had not yet reviewed Project materials, but that he has concerns regarding runoff from the facility. He also noted concerns he has heard from the county magistrates regarding environmental degradation on the Project site. Mr. Gehring stated that no local residents have made any complaints or voiced any concerns directly to him about the Project to date, but he is concerned that there will be opposition once the public becomes more aware of it. Other comments from Mr. Gehring included the importance of job creation in Wayne County, the presence of the Amish / Mennonite community in the region and the fact that KY 1009 is a narrow road without shoulders.

Mr. Upchurch is familiar with the Project area but stated that no one in the PVA's office has been contacted or informed about the Project. Aside from a few comments regarding property values, it is Mr. Upchurch's opinion that the public will not be happy about the Project; however, he has not heard or read anything negative specifically about the Barrelhead Project to date.

Need for mitigation. The following measures should be undertaken to continue public outreach and communication:

1. The Applicant should continue to engage with local residents, businesses and others to provide additional information about the Project, provide a forum for hearing comments and concerns, and to address questions as they arise.

2. A Project website should be developed and active as soon as possible to provide information about the Project to residents and others in Wayne County. The Project website should be updated, as necessary, to provide current up-to-date information.

Complaint Resolution

The Barrelhead SAR states that "Barrelhead Solar will initiate and maintain the Complaint Resolution Program provided to the Siting Board in the case record to address any complaints from community members. Barrelhead Solar will also submit annually a status report associated with its Complaint Resolution Program, providing, among other things, the individual complaints, how Barrelhead Solar addressed those complaints, and the ultimate resolution of those complaints identifying whether the resolution was to the complainant's satisfaction."

In response to the Siting Board's first data request, the Applicant provided a copy of the draft Barrelhead Solar Complaint Resolution Plan, which outlines the complaint filing process and complaint review process. The complaint review process describes how each complaint will be investigated and Barrelhead's process for responding to complaints. The Plan states that "Barrelhead Solar will work in good faith to address and/or resolve reasonable complaints as soon as practicable. Barrelhead Solar is committed to resolving reasonable complaints within 30 days unless extenuating circumstances necessitate a longer time period or it is determined that the complaint is unresolvable. Safety and good community relations are among the highest priorities to Barrelhead Solar; as such, speedy resolution of legitimate complaints is essential."

Need for mitigation. The following measures should be undertaken as part of the Applicant's Complaint Resolution Plan:

1. A final Complaint Resolution Plan, including specific Applicant contact information for those filing a complaint, should be provided to the Wayne County Fiscal Court and the Siting Board prior to the start of construction.

2. The Applicant's final Complaint Resolution Plan should include an explanation of how resolution will be determined if the complainant is not satisfied with the response from the Applicant.

3. As noted in the Applicant's draft Complaint Resolution Plan, Barrelhead Solar will publish a summary of the Complaint Resolution Plan on the Project's website at least two weeks prior to the commencement of construction, and the Plan will be made available at the temporary construction office.

4. As noted in the Applicant's draft Complaint Resolution Plan, Barrelhead Solar will maintain a complain log detailing each complaint and the actions taken to resolve the complaint. The complaint log will be available to the Wayne County Fiscal Court for inspection upon request.

5. 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.

6. The Applicant shall provide the Wayne County Fiscal Court with updated contact information for those submitting complaints within 30 days of any change in contact information. The Applicant will also update contact information on the Project's website within 30 days of any change.

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).[107] No action on these actions is required by the Siting Board since these are outside the Siting Board's jurisdiction. The Applicant states that Barrelhead 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.

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

[107] 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 Barrelhead Solar Facility

Type	Permit	Agency	Status
Federal			
Waters of the United States (Wetlands & Streams if impacts <0.5 ac.)	Clean Water Act Section 404 Nationwide Permit No. 51	USACE	Yet to begin
Threatened and Endangered Species	Endangered Species Act Section 7 Consultation	USFWS	Yet to begin
Eagle Protection	Bald and Golden Eagle Protection Act	USFWS	Yet to begin
State			
Kentucky Siting Board on Electric Generation	Siting Board Approval to Construct	KY Siting Board	Underway
Kentucky Siting Board on Transmission Line	Siting Board Approval to Construct	KY Siting Board	Underway
Kentucky Water Quality	Clean Water Act 401 Water Quality Certification	KDOW	Yet to begin
Construction in a Floodplain	Floodplain Permit	KDOW	Yet to begin
Construction in, along, or across a Strean	Stream Construction Permit	KDOW	Yet to begin
Cultural Resources	National Historic Preservation Act Section 106 Consultation	SHPO	Yet to begin
Highway Access Permit (Entrance Permit)	Kentucky Access Permit	KYTC	Yet to begin
Kentucky Overweight/ Oversize Vehicle Permit	Overweight or Oversize Vehicles Using State Roadways	KYTC	Yet to begin
State Stormwater Permits/Land Disturbance	General Permit for Stormwater Discharges Associated with Construction Activities	KDOW	Yet to begin
Local			
Wayne County Building and Electrical Permits	Building and Electrical Permits for New Commercial Construction	Wayne County	Yet to begin
Wayne County Road Use and Access	Road Use, Access, Overweight or Oversized Vehicles	Wayne County	Yet to begin

Notes: 1. Local Permits were incorrectly attributed to Warren County in the Applicant's submission.

2. Applicant may also need to acquire Road Use and Access Permits from Clinton County depending on the final plan for Project delivery routes.

Source: Barrelhead Solar, LLC, December 2025.

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 Barrelhead 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. Future deviations from the preliminary, exiting site layout plan, which formed the basis for HE's review, should be clearly indicated on a revised graphic. Those changes could include, but are not limited to, the location of solar panels, inverters, transformers, substations or other Project facilities or infrastructure, including internal access roads.

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

5. 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.

6. The Applicant shall submit a status report every six months until the project commences construction to update the Siting Board on the progress of the Project.

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. The fence enclosing the substation will adhere to North American Electric Reliability Corporation (NERC) safety standards and will be appropriately spaced, bonded, and grounded in compliance with National Electrical Safety Code (NESC) requirements prior to installation of any electrical equipment.

10. The Applicant will meet with local law enforcement agencies, EMS 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 an 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. The Applicant will implement vegetative screening as proposed in the revised Landscape Plan as a minimum, including vegetative screening along roadways and near the Project substation.

4. The Applicant will maintain planted screening vegetation and the developed pollinator meadow, including establishment, supplemental plantings and on-going maintenance.

5. The Applicant will provide any changes to the Preliminary Landscape Plan to the Siting Board.

6. 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 revise the submitted Landscape Plan.

7. The Applicant will work with local homeowners or religious establishments to address and resolve complaints related to view of Project facilities via the Applicant's Complaint Resolution Plan.

8. 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 work with affected

local residents or Wayne County representatives to address and resolve complaints about glare via the Applicant's Complaint Resolution Plan.

9. The Applicant will specifically work with the residents at the three observation points identified to be affected by yellow glare and with the Wayne County Road Department to discuss glare impacts at those locations and to address and resolve any glare related issues. The Applicant will provide documentation of those meetings and any agreed upon resolutions to the Siting Board and/or to the Kentucky Energy and Environment Cabinet.

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, coordination by the Applicant with local 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 2,400 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 5:00 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 Fairview Church to limit pile driving and heavy or oversize deliveries passing near the Church and Cemetery during their services, including funerals.

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 inverters 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 Wayne County Road Department (WCRD) regarding truck and other construction traffic and obtain necessary permits from the WCRD.

4. The Applicant shall coordinate with the Clinton County Road Department (CCRD) regarding truck and other construction traffic and obtain necessary permits from the CCRD if final delivery routes involve travel on Clinton County Roads.

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

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

7. The Applicant shall comply with any road use agreement executed with Wayne County, Clinton County or their road departments. Such an agreement might include special considerations for overweight loads, routes utilized by heavy trucks, road weight limits and bridge weight limits. It may also include prioritizing access for residents or use of flaggers during heavy commute periods.

8. The Applicant shall fix or pay to repair damage to roads and bridges resulting from any Project-related commuting or heavy vehicle transport to the Project site during construction.

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

10. 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.

11. The Applicant shall respond to any complaints related to traffic management for nearby residents occurring during construction via a timely, formal and clearly developed complaint resolution program.

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

3. 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.

4. 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).

5. 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 Wayne 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.

6. 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.

7. 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.

8. 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 the older facility components from the Project site upon replacement. The Applicant must inform the Siting Board of where the removed facility components are being disposed of.

9. 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 continue to engage with local residents, businesses and others to provide additional information about the Project, provide a forum for hearing comments and concerns, and to address questions as they arise.

2. A Project website should be developed and active as soon as possible to provide information about the Project to residents and others in Wayne County. The Project website should be updated, as necessary, to provide current up-to-date information.

I. Complaint resolution program:

1. A final Complaint Resolution Plan, including specific Applicant contact information for those filing a complaint, should be provided to the Wayne County Fiscal Court and the Siting Board prior to the start of construction.

2. The Applicant's final Complaint Resolution Plan should include an explanation of how resolution will be determined if the complainant is not satisfied with the response from the Applicant.

3. As noted in the Applicant's draft Complaint Resolution Plan, Barrelhead Solar will publish a summary of the Complaint Resolution Plan on the Project's website at least two weeks prior to the commencement of construction, and the Plan will be made available at the temporary construction office.

4. As noted in the Applicant's draft Complaint Resolution Plan, Barrelhead Solar will maintain a complain log detailing each complaint and the actions taken to resolve the

complaint. The complaint log will be available to the Wayne County Fiscal Court for inspection upon request.

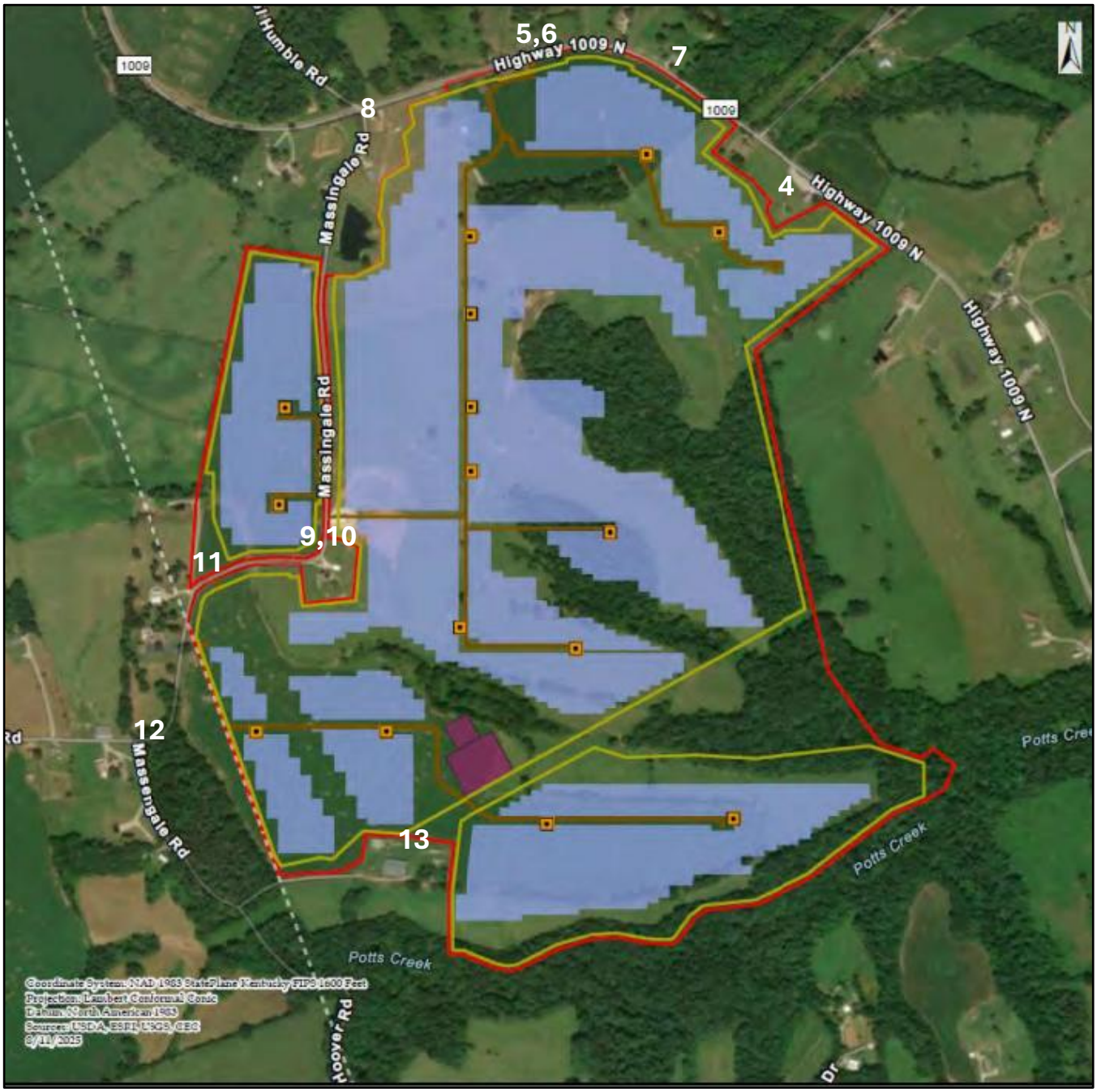
5. The Applicant should submit to the Siting Board, annually, a status report associated with the complaint resolution plan, recounting the individual complaints, how the Applicant addressed those complaints and the ultimate resolution of those complaints.

6. The Applicant shall provide the Wayne County Fiscal Court with updated contact information for those submitting complaints within 30 days of any change in contact information. The Applicant will also update contact information on the Project's website within 30 days of any change.

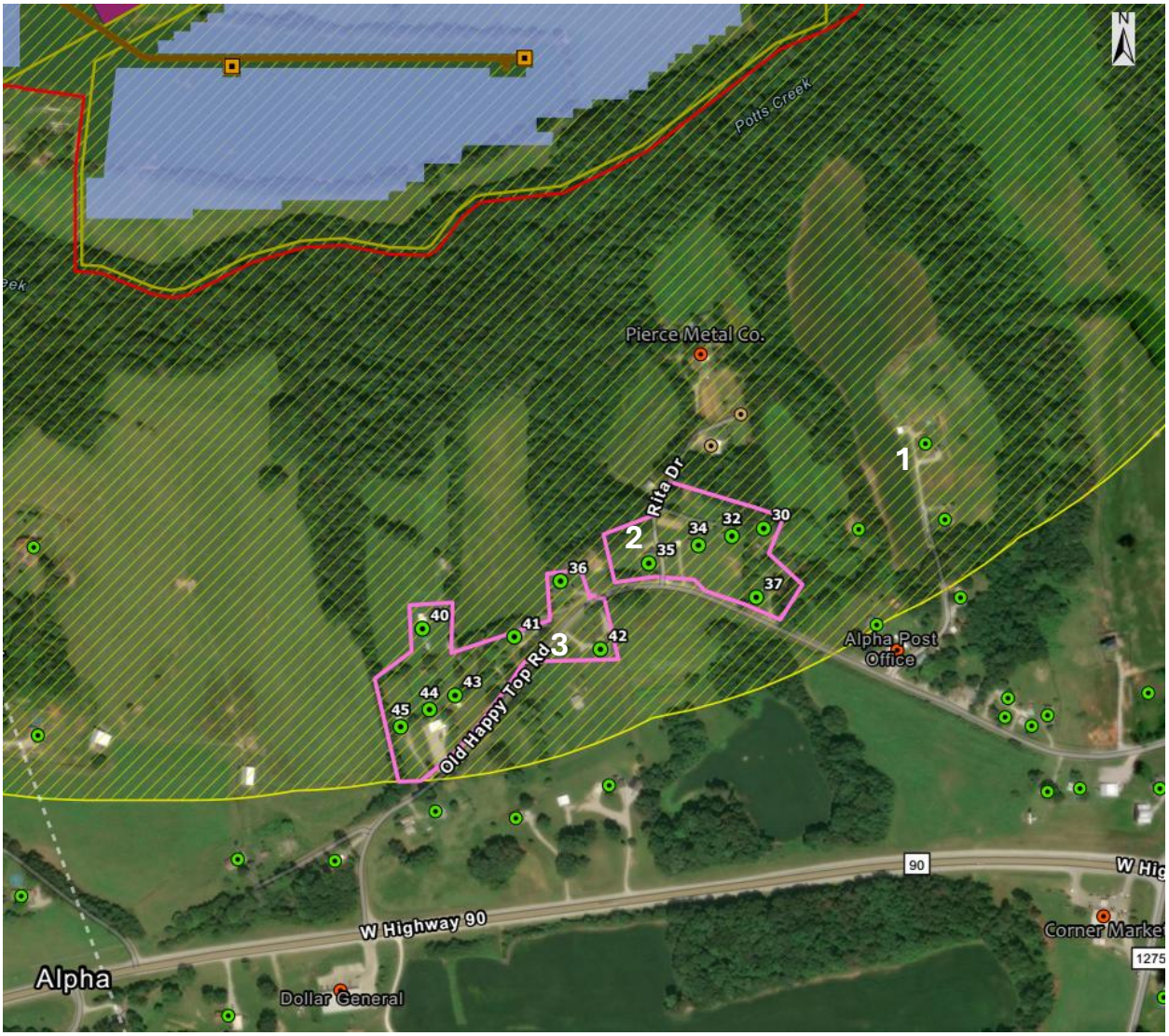
APPENDICES

Appendix A

Photo Log Index



Neighborhoods



Appendix B

Site Photos

Exhibit B-1.
Kempton Lane at R-17, Facing N toward Project

Exhibit B-2.
Rita Drive near R-32, East Neighborhood, Facing N toward Project

Exhibit B-3.
West Neighborhood from Happy Top Road near R-35, Facing NE

Exhibit B-4.
Fairview Church and Buncan Cemetery, Facing NW

Exhibit B-5.
Residence R-7, Across from Main Access Point on KY 1009

Exhibit B-6.
Main Access Point on KY 1009, Facing W-SW

Exhibit B-7.
Residence R-10 on KY 1009, Closest Residence to Panels, Facing SE

Exhibit B-8.
Intersection of KY 1009 and Massingale Rd, Facing SE-SW

Exhibit B-9.
View of Project Area from NR-3, Facing N/E/S

Exhibit B-10.
View from NR-3 of Receptors R-4, R-28 / R-15, NR-2, Facing W

Exhibit B-11.
View from NR-2, Facing NE to Access Points/ E to R-42/ SE

Exhibit B-12.
Intersection of Massengale Road and Pleasant Ridge Road, Facing W

Exhibit B-13.
Substation Area and Point of Interconnection, Facing E/NE near NR-18

Appendix C

Proposed Landscape Plan Map

Source: Mantle Rock Solar, LLC, December 2025.

Appendix D

Summary of Literature Regarding Impacts of Solar Facilities on Property Values

Abashidze, N. ***The Local Cost of Clean Energy: Evidence from Solar Farm Siting and Home Prices.*** **May 2025.**

This study quantifying the impact of solar farm construction on residential property prices in North Carolina suggests an 8.7 percent reduction in price for homes within one mile of a solar facility, relative to homes further away. The largest effects were concentrated on homes within 0.5 miles of the facility; beyond one mile, no price differences were attributable to the solar facility. This study also found evidence that local housing market activity declines after a solar farm becomes operational, with the number of homes sold in the area falling by roughly 6%. However, this study mainly includes smaller scale facilities (less than 5 MWs) and notes that relatively few home sales have occurred near the larger facilities. Additionally, the authors note that "enhancing visual buffers or setbacks could alleviate aesthetic concerns, potentially reducing negative price effects."

Subsequent to HE's obtaining this study, the paper has been removed from the website at the request of the author or other parties.

Hao, S., and G. Michaud. ***Assessing property value impacts near utility-scale solar in the Midwestern United States.*** **Solar Compass, Volume 12, 2024.**[108]

This study focusing on the potential impacts to property values of utility-scale solar facilities in the mid-west found that the presence of these types of solar facilities increases property values by between 0.5 percent and 2.0 percent, although the study also notes that larger facilities (greater than 20 MWs) have less of a positive impact than small facilities. As noted in the report, many counties in the mid-west require relatively large setbacks; those setbacks may reduce views of the projects. The majority of projects included in this study were identified as being located in urban or suburban areas, with a smaller number of projects located in rural settings. Overall, the study acknowledges that utility scale solar projects are not the main driving factor for the change or differences in property values.

Gaur, V., and C. Lang. ***House of the rising Sun: The effect of utility-scale solar arrays on housing prices.*** **Energy Economics, forthcoming, 2023.**

This study focusing on utility-scale solar facilities in Massachusetts and Rhode Island found that homes within about 0.6 miles of a facility depreciate by between 1.5 percent and 3.6 percent following facility construction. In this study, researchers found that those reductions are primarily driven by developments on farm and forest lands in rural areas.[109] At least a

[108] This article was noted as being published on behalf of International Solar Alliance.
[109] Previous work by Guar and Lang (2020) indicated that declines in property values as associated with commercial scale solar facilities were driven by developments in non-rural areas.

portion of the effects may be related to distance to the solar facility, visibility of the facility, loss of open space and changes in rural character.

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.

This 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 two to four miles away. 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.[110]

Abashidze, N. and Taylor, R. *Utility-Scale Solar Farms and Agricultural Land Values*, Land Economics, Vol. 99, Issue 4, November 2023.

This 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. 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.

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.

This 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).

Koster, H. and M. Droes. *Wind turbines and solar farms drive down house prices*. VoxEU, September 2020.

This 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-

[110] 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.

3%). They found these effects to be localized (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).

Coffey, Darren. *Planning for Utility-Scale Soar Energy Facilities*. American Planning Association, PAS Memo, September – October 2019.

This 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."

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.

This 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."