

**Review and Evaluation of  
Telesto Energy Project, LLC  
Siting Assessment Report  
Case Number: 2022-00096**

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**REPORT**

**Report**

October 17, 2022

**Review and Evaluation of  
Telesto Energy Project, LLC  
Siting Assessment Report  
Case Number: 2022-00096**

**Prepared for**

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# Table of Contents

## A. General Statement

Provisions of the Act Establishing the SAR Review Process .....	A-1
SAR Review Methodology .....	A-2
Report Format .....	A-2
Certain Limitations .....	A-2

## B. Executive Summary

Description of the Proposed Facility/Site Development Plan .....	B-1
Compatibility with Scenic Surroundings.....	B-3
Potential Changes in Property Values for Adjacent Property Owners.....	B-3
Expected Noise from Construction and Operation .....	B-5
Impacts on Transportation .....	B-5
Other Considerations .....	B-6
Summary Findings .....	B-7
Mitigation Recommendations.....	B-8

## C. Detailed Findings and Conclusions

Description of Proposed Facility/Site Development Plan .....	C-2
Compatibility with Scenic Surroundings.....	C-16
Potential Changes in Property Values for Adjacent Property Owners.....	C-30
Expected Noise from Construction and Operation .....	C-36
Impacts on Transportation.....	C-44
Other Issues.....	C-49

# **SECTION A.**

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## **General Statement**

# SECTION A.

## General Statement

This document provides a review of the Site Assessment Report (SAR) for the proposed Telesto merchant electric generating facility submitted to the Kentucky State Board on Electrical Generation and Transmission Siting (the Siting Board). Telesto Energy Project, LLC submitted an administratively complete document titled “Application of Telesto Energy Project LLC for certificate of Construction for an approximately 110 Megawatt Merchant Electric Solar Generating Facility in Hardin County, Kentucky” (the “Application”) to the Siting Board in late June 2022. The Siting Board assigned the case number 2022-00096 to the Telesto application. The proposed generating facility is subject to review by the Siting Board under KRS 278.700 *et seq.* (the Act), passed by the General Assembly of the Commonwealth of Kentucky in 2002. Board staff retained BBC Research & Consulting (BBC) to perform this review.

### Provisions of the Act Establishing the SAR Review Process

The part of KRS 278 entitled “Electric Generation and Transmission Siting” defined a class of merchant power plants and required them to obtain construction certificates as a prerequisite to the commencement of actual construction activity. Those statutes also created the Siting Board and gave it the authority to grant or deny construction certificates requested by individual applicants. The Board is attached to the Kentucky Public Service Commission (PSC) for administrative purposes.

The Act created the application process and, within the process, a series of steps for preparing and submitting this report:

- The applicant files for a construction certificate and pays the fees. KRS 278.706.
- The applicant submits required items, including an SAR. KRS 278.706 & KRS 278.708.
- If it wishes, the Board may hire a consultant to review the SAR and provide recommendations about the adequacy of the information and proposed mitigation measures. KRS 278.708.
- The consultant must deliver the final report so the Board can meet its own statutory decision deadline — 120 days or 180 days from receipt of an administratively complete application, depending upon whether the Board will hold a hearing. KRS 278.710.

## **SAR Review Methodology**

BBC undertook the following tasks to review Telesto's SAR and complete this report:

- Reviewed prior SAR reviews prepared for the Siting Board by BBC and others for proposed commercial solar generating facilities – including the proposed Turkey Creek and Glover Creek solar facilities which were reviewed in 2020; the proposed AEUG Fleming, Unbridled Solar, Ashwood Solar, Flat Run Solar, Martin County Solar, Horus Kentucky 1, McCracken County Solar, Rhudes Creek Solar, and Seebree Solar facilities which were reviewed in 2021; and the proposed Russellville Solar facility which was reviewed in 2022;
- Reviewed the contents of Telesto's SAR and Application;
- Identified additional information we considered useful for a thorough review, and submitted questions to the applicant through the Siting Board Staff's requests for information;
- Conducted the required site visit, including obtaining oral information supplied by the applicant, in August 2022;
- Completed interviews and data collection with a number of outside sources as sourced in this document; and
- Compiled and incorporated all of the foregoing in the analysis.

## **Report Format**

This report is structured to be responsive to KRS 278 and BBC's contract. It begins with this general statement that introduces the review. In Section B of the report, we present the executive summary and list all of the mitigation measures recommended by BBC. Section C offers detailed findings and conclusions of the study, and provides context for BBC's recommended mitigation measures.

## **Certain Limitations**

There are inherent limitations to any review process of documents such as the SAR. These must be understood in utilizing this report for decision-making purposes.

Based on previous experience with the SAR review process, BBC has exercised judgment in deciding what information is most relevant and what level of detail is appropriate. This relates to project components, geographic extent of impacts, and assessment methodology. Board staff has previously provided review and guidance in this context.

While BBC has thoroughly reviewed the information provided in Telesto's Application and Site Assessment Report and raised questions with the applicant regarding some apparent inconsistencies in that information, we have not conducted an audit of the information and data provided in those documents. Information regarding the layout and features of the proposed project and the surrounding area provided by the applicant are assumed to be accurate for purposes of this review. At this point in the planning process, Telesto has not finalized the

precise layouts of the solar arrays and some other project infrastructure. This review is based on the best available information at this time.

# **SECTION B.**

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## **Executive Summary**



# SECTION B.

## Executive Summary

This report documents the evaluation of a Site Assessment Report (SAR) in compliance with KRS 278.704 and KRS 278.708. The Kentucky State Board on Electrical Generation and Transmission Siting (the Siting Board) received an application from Telesto Energy Project, LLC (Telesto) in late June 2022, for approval to construct a commercial, photovoltaic solar merchant electric generating facility in Hardin County, Kentucky. Siting Board staff retained BBC Research & Consulting (BBC), a Denver-based firm, to review the SAR. BBC was directed by the staff to review the SAR for adequacy, visit the site, conduct supplemental research where necessary and to provide recommendations about proposed mitigation measures.

This is the summary of BBC's final report, which encompasses the SAR review, establishes standards for evaluation, summarizes information from the applicant, notes deficiencies, offers supplemental information and draws conclusions and recommendations related to mitigation. Issues outside the scope of KRS 278.708, including electricity market or transmission system effects and broader environmental issues, were not addressed in this engagement. This report does evaluate and consider the regional economic impacts of the proposed project and plans for future decommissioning.

### **Description of the Proposed Facility/Site Development Plan**

The SAR provides a description of the proposed Telesto facility in terms of surrounding land uses, legal boundaries, access control, utility service, setback requirements, visual impacts, impacts on surrounding property owners, noise levels and traffic impacts. Additional detail on each topic was provided in the applicant's responses to the First and Second Requests for Information (RFI) from the Siting Board Staff during the SAR review process.

The proposed Telesto facility would be a 110-megawatt alternating current (MWac) photovoltaic electricity generation facility situated near the City of Elizabethtown in Hardin County, approximately 50 miles southwest of the City of Louisville.

The proposed site would be situated on 16 parcels totaling 1,028 acres, while the proposed facility components would utilize up to 663 acres. The facility would be situated in a rural area of primarily agricultural land, with some mixed agricultural/residential use and a smaller amount of solely residential land (Application Exhibit E.1, page 4). Three primary roadways and one railroad line run adjacent to, or through, the proposed site, and the eastern edge of the project is situated near the Elizabethtown Addison Field airport. The greatest housing density in the proximity of the project lies between Cecilia Road (which runs roughly north-south through the project's eastern half), Hayden School Road (which runs along the project's southeastern border), and the airport runway.

According to Telesto’s updated 10% design plan,<sup>1</sup> the project’s proposed substation, switchyard, and point of interconnection would be adjacent to the existing Central Hardin substation. The proposed Telesto facility would interconnect to the existing 138kV East Kentucky Power Cooperative Central Hardin substation and the applicant is currently evaluating whether an application for a nonregulated electric transmission line will be necessary. Conclusions with respect to other descriptive elements of the facility follow:

- **Surrounding land use** — Overall, agricultural land comprises 58 percent of adjoining acres, while 27 percent is zoned agricultural/residential, and approximately 15 percent is solely residential. Measured in terms of the number of properties rather than their acreage, residential uses comprise 67 percent of adjoining parcels, while 19 percent of parcels are used in agriculture, and 15 percent are mixed use agricultural/residential parcels. The composition of surrounding land uses — where residential parcels comprise the largest share of adjacent parcels but a much smaller proportion of the total adjacent land area — is typical among the proposed solar facilities that BBC has reviewed for the Siting Board.
- **Proposed access control and security** — The SAR briefly describes proposed access control measures, noting the use of a seven-foot-high fence around the solar arrays and a security fence surrounding the project substation. In response to subsequent requests for information from the Siting Board, Telesto stated that the proposed project’s perimeter safety fence is a seven-foot chain link security fence and that emergency personnel will be able to access the project site and substation if needed, with padlock keys and lockbox combinations shared with the local fire department. Telesto initially identified up to 22 potential access points, which were subsequently reduced to just two anticipated points of access: one on the southeastern boundary of the project along Hayden School Road and another in the eastern portion of the project along Cecilia Road which traverses the project footprint.<sup>2</sup>
- **Utilities** — Telesto does not anticipate requiring external electric service on site during typical plant operation. However, the applicant states that typical operation of the project requires water service, which could be provided by an onsite well or by Hardin County Water District #2. Additionally, the site will require external electric service from Nolin Rural Electric Cooperative Corporation (RECC) during the project’s construction phase.<sup>3</sup>
- **Setback requirements** — The Hardin County conditional use permitting process has been overturned (June 23, 2022 judgement in *Hardin Solar, LLC et al. v. The Hardin County Planning and Development Commission et al*), and as a result Telesto has filed a motion for deviation from State statutory setback requirements, submitted to the Siting Board August 8, 2022. The applicant commits to a minimum distance of 450 feet between electricity generating facilities and the nearest nonparticipating residence and a minimum distance of 1,000 feet between the project substation and nearest residence. The applicant proposes a

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<sup>1</sup> Supplemental Application Exhibit A.5.

<sup>2</sup> Telesto Responses to the Second RFI, #9.

<sup>3</sup> SAR page 6.

minimum distance of 100 feet between solar equipment and the leased property boundary. These setback distances are comparable to those required by other Kentucky county ordinances for some previous solar facility applications to the Siting Board that BBC has reviewed in the past two years.

- **Other facility site development plan descriptions provided in the SAR** — Legal boundaries; right-of-way agreements; location of facility buildings, transmission lines, structures; and location of access roads, internal roads, and railways are addressed in the SAR. Noise levels are addressed in Section D of the SAR. When considered alongside additional information supplied by Telesto in their RFI responses during the review process, these materials appear to meet the informational requirements identified in KRS 278.708.

## **Compatibility with Scenic Surroundings**

The applicant did not include a formal visual assessment in the SAR. However, Section B of the SAR states that the project's landscape plan is intended to mitigate visual impacts and that the glare hazard analysis of the proposed project did not predict glare to occur at nearby buildings and residences, the railroad, or the airport runway. BBC also visited the proposed Telesto project site in August 2022 to review the site and its surroundings.

There are two residential neighborhoods in relatively close proximity to the Telesto site. Near the northeastern corner of the site, the Orchard neighborhood is screened from the site by existing trees. The Ashton Park neighborhood is also screened from the site by existing trees and topography.

There is an industrial park situated just south of the project site as well as the EKPC Central Hardin substation, adjacent to which the Telesto substation would be constructed. Telesto current plans to bury the off-site transmission line to the project substation, which would reduce potential impacts to scenic surroundings.

For visual impact mitigation, Telesto's landscape plan prescribes one of two vegetative screening modules—either single-row or double-row evergreen planting—dependent on topography, existing vegetation, and the level of viewership along the project boundary in each area.

In general, BBC concurs with Telesto's conclusion that the proposed facility would not be incompatible with its surroundings from a scenic standpoint, though our assessment is contingent on successful completion of the proposed vegetative screening plans to reduce visual impact – particularly from areas where views into the site are currently relatively unobstructed by topography or existing vegetation. This assessment reflects the topography of the site, which limits its visibility from some of the nearby homes, the proposed screening plan, and recognizes that solar facilities have a relatively low profile, similar to or lower than most single-family homes.

## **Potential Changes in Property Values for Adjacent Property Owners**

The central issue related to property values is whether or not, and to what extent, property values of other landowners will change as a result of development and operation of the proposed Telesto facility. Telesto engaged both Kirkland Appraisals, LLC and CohnReznick—both of which

have conducted property value impact studies for several previous solar applications to the Siting Board—to examine the proposed project’s potential impact on property values.

In a summary statement, Kirkland Appraisals concludes that there will be no property value impacts from the proposed facility on adjoining agricultural and residential properties and that the proposed facility will be in harmony with the area:

*The matched pair analysis shows no impact on home values due to abutting or adjoining a solar farm as well as no impact to abutting or adjacent vacant residential or agricultural land where the solar farm is properly screened and buffered. The criteria that typically correlates with downward adjustments on property values such as noise, odor, and traffic all indicate that a solar farm is a compatible use for rural/residential transition areas and that it would function in a harmonious manner with this area.<sup>4</sup>*

The property value impact study and study addendum conducted by CohnReznick and included as Exhibits E.1 and E.3 of the Application corroborate the overall conclusions of Kirkland Appraisals’ report. CohnReznick analyzed approximately 1,400 sale transactions for both test area sales (i.e., sales of properties adjoining solar facilities) and control area sales. CohnReznick concludes:

*The solar farms analyzed reflected sales of property adjoining an existing solar farm (Test Area Sales) in which the unit sale prices were effectively the same or higher than the comparable Control Area Sales that were not near a solar farm. The conclusions support that there is no negative impact for improved residential homes adjacent to solar, nor agricultural acreage. This was confirmed with market participants interviews, which provided additional insight as to how the market evaluates farmland and single-family homes with views of the solar farm.<sup>5</sup>*

To date, only a small handful of studies have been conducted by academic researchers or other “third-party” analysts. Using different methods, and different data sources, recent studies by professors at the LBJ School of Public Affairs (University of Texas) and the University of Rhode Island have found that there could be small, negative impacts on property values from proximity to commercial solar facilities. Those negative effects appear to be more likely in suburban settings, rather than more rural settings. Another recent econometric study (at the University of Georgia) focused on solar facilities in North Carolina found no impacts on the value of nearby agricultural land, but did find statistically significant negative effects to the value of smaller residential properties close to solar facilities.<sup>6</sup>

Given the predominantly rural setting for the proposed Telesto project—and acknowledging that the project’s proposed vegetative buffers will help obscure the site’s physical elements from nearby residences and neighborhoods—we conclude that the proposed solar facility is unlikely

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<sup>4</sup> SAR Exhibit E.1, page 1.

<sup>5</sup> SAR Exhibit E.2, page 125.

<sup>6</sup> Abashidze, Nino. *Essays on Economic and Health Effects of Land Use Externalities*. (Under the direction of Dr. Harrison Fell). Page 71. University of Georgia, 2019.

to have measurable adverse impacts on most adjacent properties, but might affect the values of some smaller lot, adjacent residential properties located in closest proximity to nearby solar panels. New or existing vegetative screening near these properties may reduce this risk.

## **Expected Noise from Construction and Operation**

Noise levels generated by facility construction and operation are addressed in Section D of the SAR (Anticipated Operation and Construction Noise Levels) and in Exhibit H (Sound Study, conducted by Stantec). Section D provides an overview of nearby noise receptors and the expected noise generation during construction and operation of the Telesto facility.

Information in the Sound Study and in Telesto's supplemental responses to the First RFI indicate that there are approximately 156 noise receptors that are within 1,800 feet of project equipment (e.g., a solar array).

During the construction phase, vehicles and machinery such as trucks, bulldozers, excavators, and pile drivers will generate noise onsite while preparing the site and installing the facility's panels, racking, inverters, substation, and associated structures. Maximum noise levels will occur during pile driving of the solar arrays, which is consistent with previous solar project noise impact studies reviewed by the Siting Board. Exhibit H states:

*The maximum expected sound due to operation of the pile drivers is 63 at the nearest receptor to the array boundaries. At times, construction activities will be audible to nearby residences or other sensitive receptors; however, not all equipment will be operating at the same time, and activities will be temporary in duration and spread throughout the Project area. To limit construction impact sound, large construction equipment activity will generally be restricted to the hours of 7:00 a.m. to 7:00 p.m., or dusk if sunset occurs after 7:00 p.m.<sup>7</sup>*

However, based on more typical pile driver noise level estimates and distance information provided in the applicant's supplemental responses, BBC calculates that maximum noise levels at the nearest receptor could reach 78 dBA during pile driving activity. While noise from the pile drivers will have the most substantial impact on the nearest noise receptors, a maximum noise level of 78 dBA is not dangerous and does not exceed the NIOSH recommended daily exposure limit as long as the noise is not continuous for a period of more than eight hours. It is also important to note that this noise analysis did not account for noise buffering from intervening vegetation (e.g., buffers) or topography.

During normal operation of the proposed Telesto facility, noise levels from panel tracking motors, inverters, and the substation transformer are unlikely to be disruptive to local residents.

## **Impacts on Transportation**

Section E of the SAR (Effect of Operation on Road and Rail Traffic) supplies information from the applicant regarding anticipated impacts on transportation at and around the proposed project

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<sup>7</sup> Exhibit H, page 8.

site during construction and operation. Exhibit I to the Application (Traffic Impact Study) provides the traffic study conducted for the proposed Telesto project.

The proposed Telesto site is predominantly defined by three roads: St John Road/SR 1357, running east-west near the northern project boundary; Hayden School Road, which runs along the southeastern edge of the project area; and Cecilia Road, which bisects the eastern portion of the project and connects St John Road to Hayden School Road. Other major roadways in proximity of the project site are KY-86, running south of the site near the community of Cecilia, and US 62, which runs southeast of the site through Elizabethtown.

During construction, daily deliveries on semi-truck trailers and workforce commuter traffic will substantially increase the amount of traffic on primary roadways near the project site. However, given the low traffic levels at present, traffic volume alone is unlikely to impact the level of service.

The Traffic Impact Study uses sensitivity analysis (modeling vehicle traffic increases of 25 to 50 percent on nearby roads) to demonstrate that traffic levels will not have a significant adverse effect on peak hour traffic flow during the 12-month construction phase. The two-lane and multi-lane highways included in the analysis maintain acceptable Level of Service (LOS) ratings even for increases of up to 50 percent, which is likely much higher than will actually occur during project construction.

During the project's operational lifetime, one employee (likely commuting during peak AM/PM times) will be on site each day, with up to three additional employees on site for up to 70 days a year. The increase in daily traffic during standard facility operation is negligible and would have no impact on LOS.

Delivery of the project's substation transformer will likely present some challenges given the load ratings of surrounding roadways, however Telesto's current 10% design plan—which locates the project substation adjacent to the existing Central Hardin substation—likely mitigates some concerns around transportation of the LPT. In general, challenges can be overcome with careful advance planning and an appropriate traffic management plan.

## Other Considerations

**Applicant economic impact study.** Exhibit M to the Telesto Application (Effect on Local and Regional Economies – Economic Impact Analysis) contains a study of the projected economic impacts from the proposed facility. The analysis was conducted by Stantec, using a solar-power specific version of the Jobs and Economic Development Impact (JEDI) tool developed by the National Renewable Energy Laboratory.

Key findings from the analysis include:

- There will be a one-time spike in construction-related employment over about a 12-month period. The spike will include about 336 direct and 170 indirect jobs in Kentucky. These 506 jobs represent an estimated injection of \$43.6 million in wages into the state economy, which will drive an additional \$15.9 million in increased economic activity.

- The economic impact of the project construction phase to Hardin County (which represents 2.49 percent of Kentucky’s GDP) is estimated as approximately 8 direct jobs, 4 indirect jobs, \$1.1 million in new wages, and \$0.4 million in additional economic activity.
- Ongoing economic impacts (e.g., jobs and payroll) from operations will be small, including one direct job and two indirect jobs supported by project operations activity. These jobs represent an estimated \$194,000 in annual wages.
- A total of approximately \$6.7 million in property taxes is estimated to be paid during the 35-year operational life of the project, or about \$191,000 per year.

The level of investment in Hardin County projected in the economic impact analysis appears to be roughly consistent with industry standards for a solar project of the size of the proposed Telesto facility, although Stantec’s estimate of direct employment during construction (336 jobs) is larger than the estimates of direct employment seen in other similar solar facility applications that BBC has reviewed for the Siting Board. The overall conclusions that the operating phase will have very modest economic impacts, but that the proposed solar facility will enhance local government revenue while requiring very few services, are consistent with the findings of other commercial solar economic impact studies.

Some information that would provide a more complete picture but which is not provided in the applicant’s economic study includes the direct, indirect, and induced economic benefits from the current use of the land in agriculture; and the potential induced economic benefits from the additional income received by participating landowners if at least a portion of that income is spent locally. The former would at least slightly reduce the projected net economic benefits from ongoing operations of the facility, while the latter would likely increase those projected net benefits. BBC does not believe that either of these aspects would likely result in a material change to the results of the economic impact analysis.

**Facility Decommissioning.** In prior solar projects reviewed by the Siting Board, plans and assurances for decommissioning the sites at the end of their functional lives have been an important issue of concern to both the Siting Board and local governments.

Exhibit N to the Telesto Application (Decommissioning Plan) contains a plan for the decommissioning of the proposed facility. The plan states that the project facilities will be removed from the site at the owner’s expense within 12 months of the facility reaching the end of its useful life (or, if it has not been in active and continuous service for 12 months).<sup>8</sup> The applicant will provide a financial guarantee to cover the approved decommissioning cost of the project facilities.

## Summary Findings

Telesto has generally provided the required information for the site assessment, including responses to BBC’s questions (included in the requests for information from Siting Board Staff)

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<sup>8</sup> Exhibit N, page 4.

following our review of their SAR. The Telesto site appears to generally be well selected in terms of compatibility with the surrounding area and access to transmission infrastructure. The proposed setbacks and vegetative screening plan should help the facility be compatible with the surrounding area.

## **Mitigation Recommendations**

Including mitigation identified by Telesto in their Application and SAR, BBC recommends the following mitigation measures:

### *Regarding KRS 278.708 (3) (a)– description of the proposed facility –*

1. Telesto should provide a final site layout plan to the Siting Board when site design is finalized. Any change in project boundaries or site layout from the information reviewed during this evaluation—including changes to the locations of solar panels, inverters, transformers, the substation, the transmission line or other project facilities should be clearly documented and submitted to the Siting Board for review.
2. Telesto should also notify the Siting Board of any change to their current plan to bury the off-site portions of their proposed transmission line from the site to the project substation expected to be located near the existing EKPC substation.
3. Telesto or its contractor should control access to the site during construction and operation. All construction entrances should be gated and locked when not in use. The applicant’s access control strategy should include adequate signage at all site entrances and boundaries—particularly in locations visible to the public, local residents, and business owners—to warn potential trespassers.
4. According to National Electric Code regulations, the security fence must be installed prior to any electrical installation work. Further, the substation must have its own separate security fence, with locked access.
5. Should the motion to deviate from setback requirements be approved, Telesto should promptly and fully meet the setback provisions or conditions outlined in its proposed project design.

### *Regarding KRS 278.708 (3) (b)– compatibility with scenic surroundings –*

6. Existing vegetation between the solar arrays and nearby roadways and homes should be left in place to the extent feasible to help minimize visual impacts and screen the project from nearby homeowners and travelers.
7. Telesto should execute the landscape plan supplied as Exhibit F and make sure the proposed new vegetative buffers are successfully established and develop as expected over time. Plantings should reach eight feet high within four years. Should the vegetation used as buffers die over time, Telesto should replace them to maintain the visual buffer.
8. Telesto should cultivate at least two acres of native pollinator-friendly species onsite.



9. Telesto should use panels with anti-reflective coating to reduce glare potential and corresponding visual impacts.
10. Telesto should be open to communication with adjacent landowners regarding viewshed impacts and the implementation of strategic additional vegetative screening, if needed. Communication regarding viewshed impacts and concerns should be incorporated into the Complaint Resolution Program described further in mitigation recommendation #18 later in this section.

*Regarding KRS 278.708 (3) (c)– potential changes in property values and land use –*

11. Telesto’s viewshed screening plan should incorporate particular efforts to reduce impacts on the views from the fourteen smaller lot residential properties (smaller than five acres) adjacent to the proposed project.

*Regarding KRS 278.708 (3) (d)– noise impacts –*

12. If Telesto’s motion to deviate from setback requirements should be approved, the applicant should place panels, inverters and substation equipment no closer to homes and project boundaries than indicated in the application.
13. If pile driving activity occurs within 1,500 feet of a sensitive noise receptor (e.g., residence), Telesto should 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 solar site, or other comparable methods).
14. Similar to other recent solar facility applications reviewed by the Siting Board, construction activity at the Telesto site should be limited to the hours of 8 AM to 6 PM, Monday through Saturday, to reduce impacts from construction noise on nearby residents. Non-noise causing and non-construction activities such as field visits, planning meetings, surveying, mowing, etc. can take place on site between 7 AM and 10 PM Monday through Saturday.
15. Telesto should prioritize vegetative screen planting before commencing construction activity. This will not only mitigate noise but also allow for the growth of the tree screens during the construction phase, providing an established visual screen to protect the viewshed before the facility begins operation. It may also help mitigate against impacts to the property values of the smaller residential properties adjacent to the proposed facility.
16. Telesto should notify residents and businesses within 2,400 feet of the project boundary about the construction plan, the noise potential and mitigation plans one month prior to the start of construction.
17. During construction Telesto should locate stationary noise-generating equipment, such as air compressors or portable power generators, as far as practicable from neighboring residences.

18. Telesto should implement a Complaint Resolution Program to address any complaints from surrounding landowners. Telesto should submit an annual status report on the Complaint Resolution Program to the Siting Board, identifying any complaints, the steps taken to resolve those complaints, and whether the complaint was resolved to the satisfaction of the affected landowner.

*Regarding KRS 278.708 (3) (e)– transportation impacts and fugitive dust –*

19. Telesto should submit a final construction schedule, including revised estimates of on-site workers and commuter vehicle traffic, to the Siting Board prior to commencement of construction.
20. Telesto should develop and implement a traffic management plan for the construction phase of the project to minimize impacts on traffic flow and keep traffic safe. As part of this plan, Telesto should implement ridesharing between construction workers; use appropriate traffic controls; or allow flexible working hours outside of peak hours to minimize any potential delays during AM and PM peak hours.
21. Telesto and its construction contractors should comply with all laws and regulations regarding the use of roadways.
22. Telesto should obtain permits from the KYTC and local road authorities as needed for overweight and overdimensional vehicle transport to the site and comply with all permit requirements, continuing to coordinate with the KYTC District 4 Permits Engineer and the Hardin County Road Department as needed.
23. Telesto should commit to rectify any damage to public roads by fixing or fully compensating the appropriate transportation authorities for any damage or degradation to the existing road network that it causes or to which it materially contributes.
24. Telesto should properly maintain construction equipment and follow best management practices related to fugitive dust throughout the construction process. Dust impacts should be kept to a minimal level.

*Regarding economic impacts, project decommissioning, and other issues –*

25. Telesto should follow through on the commitment to prioritizing local hiring and increasing the proportion of Hardin County residents to fill the projected 335 direct construction jobs.
26. As applicable to individual lease agreements, Telesto, its successors, or assigns should abide by the specific land restoration commitments agreed to by individual property owners, as described in each executed lease agreement.
27. Telesto should follow through with filing a bond with the Hardin County Fiscal Court, equal to the amount necessary to effectuate the explicit or formal decommissioning plan naming Hardin County as a third-party obligee (or secondary, in addition to individual landowners) beneficiary, in addition to the lessors of the subject property insofar as the leases contain a

decommissioning bonding requirement, so that Hardin County will have the authority to draw upon the bond to effectuate the decommissioning plan. For land in which there is no bonding requirement otherwise, Hardin County should be the primary beneficiary of the decommissioning bond for that portion of the project. The bond(s) should be filed with the Hardin County Treasurer or with a bank, title company or financial institution reasonably acceptable to the county. The acceptance of the county of allowing the filing the bond(s) with an entity other than the Fiscal Court, through the Hardin County Treasurer, can be evidenced by a letter from the Judge-Executive, the Fiscal Court, or the County Attorney. The bond(s) should be in place at the time of commencement of operation of the Project. The bond amount should be reviewed every five years at Telesto's expense to determine and update the cost of removal amount. This review should 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 should be provided to the Siting Board or its successors and the Hardin County Fiscal Court. Such certification should be by letter and should include the current amount of the anticipated bond and any change in the costs of removal or decommissioning.

28. Telesto or its assigns should provide notice to the Siting Board if during any two-year (730 days) period, it replaces more than 20 percent of its facilities. Telesto should commit to removing the debris and replaced facility components from the Project site and Hardin County upon replacement. If the replaced facility components are properly disposed of at a permitted facility, they do not have to be physically removed from Hardin County. However, if the replaced facility components remain in Hardin County, Telesto should inform the Siting Board of where the replaced facility components are being disposed.
29. Any disposal or recycling of Project equipment, during operations or decommissioning of the Project, should be done in accordance with applicable laws and requirements.

Subject to the foregoing mitigation measures, and subject to the outcome of Telesto's motion to deviate from State statutory setback requirements, BBC recommends that the Board approve the application for a certificate to construct based upon the siting considerations addressed in this review. This recommendation presumes that the project is developed as described in the applicant's SAR and supplemental information, and that the mitigation measures above are implemented appropriately. If these presumptions are correct, and based upon the information available to BBC at the time of this report, there are unlikely to be significant unmitigated impacts from construction and operation of the Telesto generation project regarding scenic compatibility, property values, noise or traffic.

# **SECTION C.**

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## **Detailed Findings and Conclusions**

# SECTION C.

## Detailed Findings and Conclusions

This section provides detailed review and evaluation of each element of the Telesto Energy Project Site Assessment Report (SAR) as prescribed in Section 5 of KRS 278.708. It is organized into six subsections:

1. Description of Proposed Facility/Site Development Plan;
2. Compatibility with Scenic Surroundings;
3. Potential Changes in Property Values for Adjacent Property Owners;
4. Expected Noise from Construction and Operation;
5. Impacts on Transportation; and
6. Other Issues – Economic Impacts, Project Decommissioning, and Site-Specific Considerations

Although the Board will likely consider other issues in making its decision, these are beyond the present scope of our inquiry and so are not addressed here.

In evaluating these components of the SAR, BBC has followed a consistent pattern:

- First, BBC describes the generally accepted assessment criteria or methodology necessary to evaluate impacts of a project of this nature (**Potential Issues and Standard Assessment Approaches**).
- Secondly, we summarize relevant information included in the initial SAR (**Information Provided in the Applicant's SAR**).
- Thirdly, we describe supplemental information about the proposed Telesto project facility, along with other information BBC was able to gather about the project and its impacts (**Supplemental Investigations, Research, and Analysis**).
- Finally, BBC draws its own conclusions about the project's potential impacts and recommended mitigation (**Conclusions and Recommendations**).

We believe that this format transparently presents the basis for our conclusions and recommendations.

## Description of Proposed Facility/Site Development Plan

### Potential Issues and Standard Assessment Approaches

As required by KRS 278.708(3)(a), the SAR must contain the following information:

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

BBC found each of these required information items in the SAR and examined them. To some extent, the required elements of the description of the facility and site development plan specified in the legislation overlap with topic-specific evaluations also required in the statute. In particular, the statute calls for specific evaluations of impacts on nearby property values, traffic, and noise levels. Both the applicant's SAR and the BBC team's evaluation provide further detail on these topics in subsequent sections.

### Information Provided in the Applicant's SAR

The required description of the proposed Telesto facility and site development plan is mainly set forth in the Site Assessment Report Section A (Description of Proposed Facility) and in Exhibit A of the Application (Figures/Maps). Other related or supplementary information comes from various other sections of the SAR and other attachments included with the Application.

**Overview of proposed facility.** Section A of the SAR (Description of Proposed Facility) supplies an overview of the project. The proposed Telesto facility would be a 110-megawatt alternating current (MWac) photovoltaic electricity generation facility situated near the City of Elizabethtown in Hardin County, approximately 50 miles southwest of the City of Louisville. The proposed facility would be located on about 650 acres of contiguous property in an unincorporated area<sup>1</sup> northwest of the Elizabethtown airport and north of the community of Cecilia. Three primary roadways and one railroad line run adjacent to, or through, the proposed site.

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<sup>1</sup> Application, page 4.

*The Project site is crossed in the northeast by Cecilia Road and in the west by the Paducah & Louisville Railway (P&L), a regional Class II railroad; SR 1357 (Saint John Road) and Hayden School Road are to the north and south of the site, respectively.<sup>2</sup>*

The SAR indicates that the fenced areas of the proposed project facility would occupy 546 acres of the land leased to the project,<sup>3</sup> although elsewhere the application materials state that project components will occupy 563 acres.<sup>4</sup> In the Siting Board's First Request for Information (RFI), BBC requested clarification from Telesto regarding the total area of land leased to the project and the area of the proposed project footprint.

The proposed Telesto solar generation facility would consist of approximately 276,000 modules of solar panels that would rotate through the day via single-axis tracking; most of these modules would be monofacial, but the project plans for 9 percent to be bifacial and able to absorb sunlight from both panel surfaces. The greatest height of each module would be 8 to 12 feet above ground. Electricity would be collected from the solar modules through DC cables connecting to the 34 planned project inverters (which will invert power from DC to AC), and the AC collection system (including underground and overhead components) would transfer the power to the project's substation where the 120-megavolt transformer would step up the electricity to high voltage in order to interconnect via transmission line to the existing 138 kV Central Hardin substation located southeast of the project footprint and owned by the East Kentucky Power Cooperative (EKPC).

The applicant states an intent to construct a 9,000-foot gen-tie line to connect the proposed project to the Central Hardin substation, but the Application and SAR materials did not supply detail on the gen-tie line component, required rights-of-way, or whether Telesto plans to lodge an application to the Siting Board for its construction. BBC requested this information from the applicant in the Siting Board's First RFI.

Figure C-1 is excerpted from Application Exhibit A (Figures/Maps) and shows a high-level view of the proposed Telesto project. BBC has added labels showing the locations of the two roadways nearest the proposed project (Cecilia Road and Hayden School Road) as well as the railroad that bisects the western portion of the project footprint.

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<sup>2</sup> SAR, page 2.

<sup>3</sup> Ibid.

<sup>4</sup> Exhibit F, page 41.

**Figure C-1.**  
**High-level Site Map for Telesto Project**



Figure C-1 depicts the proposed project’s solar modules in shades of blue and green (dependent on row length and module type), as well as the operations & maintenance building, project substation, and 22 site access points (red arrows). Also depicted are 34 inverters, numerous project access roads, and the perimeter security fencing surrounding the 15 sections of solar modules that comprise the proposed project. The Elizabethtown regional airport runway is visible in the eastern portion of Figure C-1.

Regarding the closest noise sensitive receptors, the SAR states:

*In the preliminary site design, the nearest public sensitive receptor —the Elizabethtown Regional Airport — is over 2,000 feet from the nearest solar panels and the nearest non-participating residence is more than 450 feet from any Project component and more than 1,800 feet from the substation location. [...] The nearest concentration of sensitive receptors are two small neighborhoods — one across Hayden School Road (KY 1357) from the Airport and the other south of St. John Road and predominantly west of Cecilia Road.<sup>5</sup>*

Residences located along Cecilia Road and Hayden School Road are visible in Figure C-1.

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<sup>5</sup> SAR, page 12.



Another high-level view of the proposed project is included in Exhibit A and depicts the residences and public resources within two miles of the project site. This figure provides context for the proposed site and surrounding area; it is excerpted in part as Figure C-2.

**Figure C-2.**  
**Two-Mile Vicinity Map of Proposed Telesto Project**

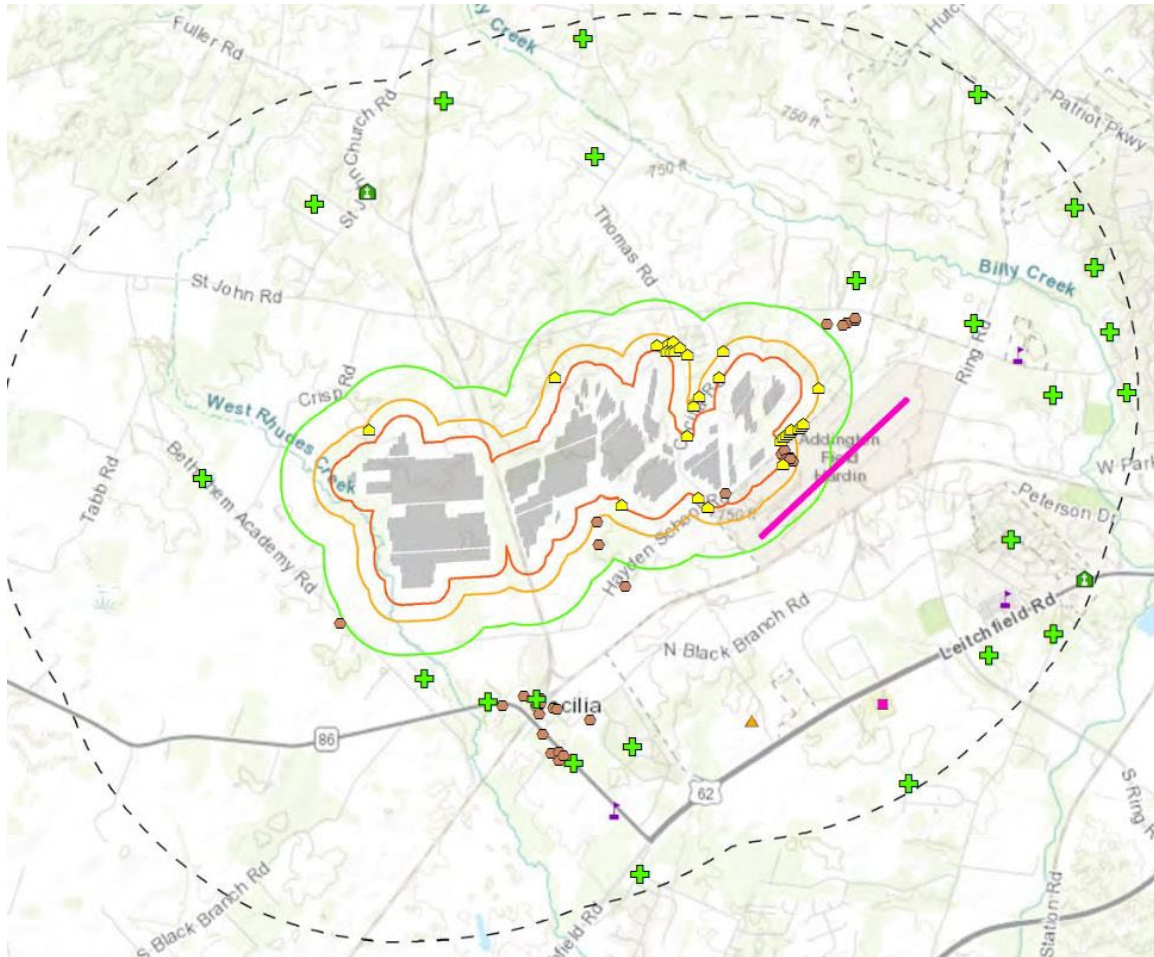


Figure C-2 shows the proposed project area in grey (excluding the gen-tie line route). Color-coded buffers around the project area indicate the 500-foot, 1,000-foot, and 2,000-foot radii. The black dotted line is the two-mile radius; within this radius, there are three schools, one cemetery, two churches, one designated historic site, 23 residential neighborhoods (green crosses), and numerous homes and historic structures.

In the Siting Board's Second RFI, BBC asked Telesto to provide clarification regarding whether any of the clusters of residences within the 2,000-foot project radius meets the KRS 278.700 definition of a neighborhood, particularly given that the SAR refers to two neighborhoods adjacent to the project on Cecilia Road and Hayden School Road.

**Surrounding land uses.** Page 2 of the SAR states that the surrounding area is primarily crop agriculture, pastureland, and residences. Exhibit E.1 of the Application (Kirkland Appraisals Report)

provides greater detail on the composition of the surrounding land. Figure C-3, excerpted from Exhibit E.1, summarizes the use of land adjoining the proposed project.

**Figure C-3.  
Adjoining Parcel Land Use for Telesto Project**

<b>Adjoining Use Breakdown</b>		
	<b>Acreage</b>	<b>Parcels</b>
Residential	14.64%	66.67%
Agricultural	58.41%	18.75%
Agri/Res	26.96%	14.58%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>

Overall, agricultural land comprises 58 percent of adjoining acres, while 27 percent is zoned agricultural/residential, and 15 percent is solely residential. Measured in terms of the number of properties rather than their acreage, residential uses make up 67 percent of adjoining parcels, while 19 percent of adjoining parcels are used in agriculture, and 15 percent are agricultural/residential.

**Legal boundaries.** Page 5 of the SAR notes that deeds enclosed in Exhibit D of the Application (Legal Description) comprise the description of the proposed site’s legal boundaries. BBC’s review of Exhibit D identified six landowners, cumulatively owning 16 parcels and a total of 1,200 acres, which are engaged to lease land to the proposed project. However, the parcel boundary map included in Exhibit A (Figures/Maps) and excerpted below as Figure C-4 depicts 10 parcels that are part of the project.

**Figure C-4.  
Parcel Boundary Map**



In the Siting Board’s First RFI, BBC asked Telesto to confirm that the deeds in Exhibit D are accurate and representative of what would be leased to the project.

**Access control.** The Telesto SAR briefly describes proposed access control measures:

*A preliminary facility layout is included in Exhibit A.1. The layout shows the placement of perimeter fencing and the access points to the site. All entrances will comply with applicable design requirements for safe access and egress. To secure the facility in compliance with National Electric Safety Code requirements, a seven-foot-high farm style fence consisting of pressure-treated wood poles will be constructed around the solar arrays and other Project site facilities; the Project substation will be surrounded by a security fence.<sup>6</sup>*

BBC examined the site maps included in Exhibit A (Figures/Maps). The maps include locations of proposed perimeter fencing and access gates. In the Siting Board's First RFI, BBC asked the applicant to describe the safe access and egress requirements for the proposed project during both the construction and operation phases, including the design of any perimeter safety fencing for the substation; access for workers on site during construction and operation phases; and access for emergency services if required.

**Location of buildings, transmission lines, and other structures.** Page 5 of the SAR states that the location of buildings and project structures are depicted in the maps included in Exhibit A to the Application (Figures/Maps), while the path of the proposed gen-tie line—from the project substation to the Point of Interconnection at the Central Hardin substation—is described on page 4 of the SAR.

BBC examined the maps in Exhibit A. These plans depict the proposed substation, O&M building, and locations of project components such as security fencing, gateways, solar modules, and inverters. However, the applicant has not included the gen-tie transmission line in this facility application and has not submitted a separate application for the transmission line to the Siting Board. In the First RFI, BBC requested more information from the applicant regarding the transmission line, including whether an application for its construction as part of the Telesto project is forthcoming.

**Location and use of access ways, internal roads, and railways.** Page 6 of the SAR states that the location of access ways, internal roads, and railways are depicted in Exhibit A (Figures/Maps).

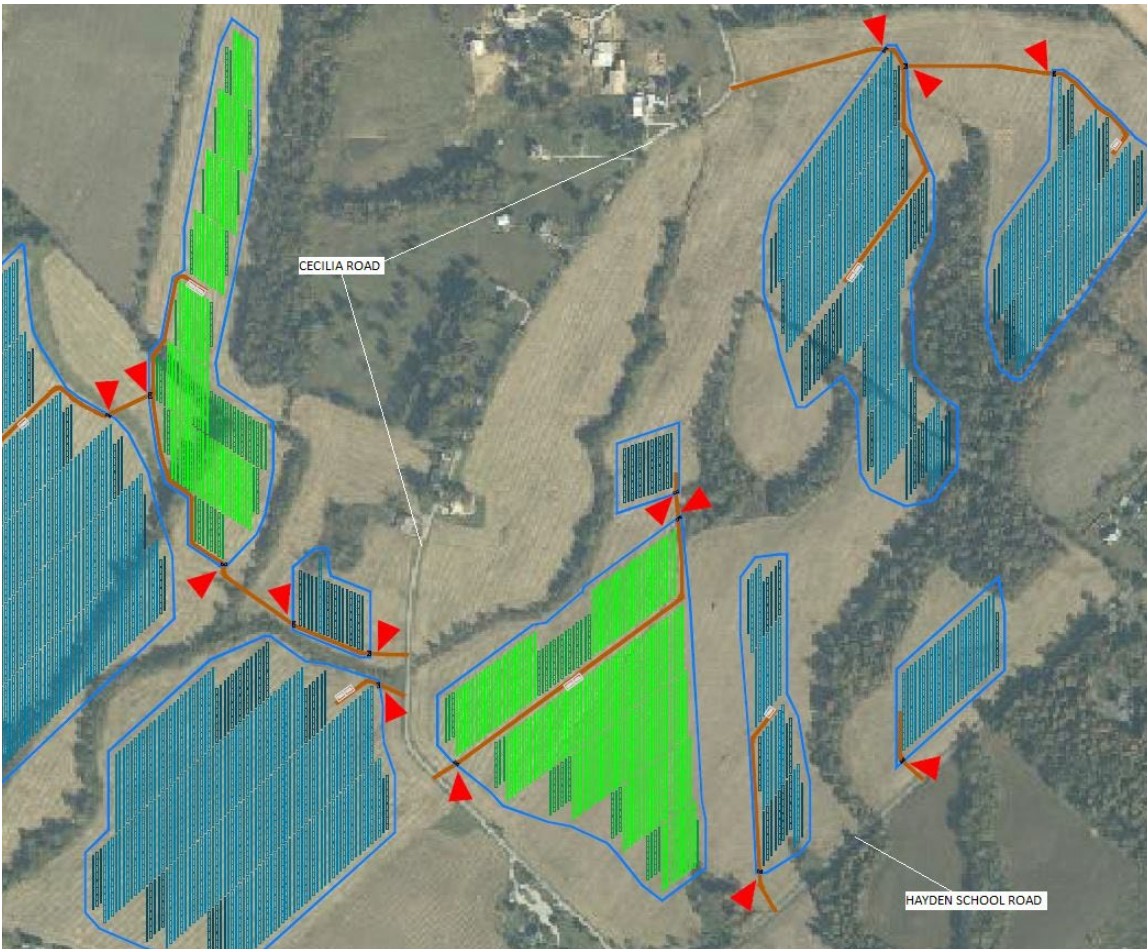
BBC examined the maps in Exhibit A, which depict 22 access points across the project site. An excerpt of Exhibit A is seen in Figure C-1. Three project driveways intersect Hayden School Road along the southeastern edge of the project boundary. Four project driveways intersect Cecilia Road, which traverses the eastern portion of the project footprint and connects St John Road (SR 1357), north of the project site, with Hayden School Road south of the project site. Along the northern edge of the project footprint, one project driveway is located off of Goodman Lane (a non-thru road that travels south from St John Road).

The remaining access points to the Telesto project are located along internal project roads that connect the distinct, fenced areas of solar modules to one another. Figure C-5 shows a close-up of six project driveways accessible along Cecilia Road and Hayden School Road (labels added by BBC), as well as several access points (red arrows) only reachable via internal project roads.

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<sup>6</sup> SAR, page 5.

**Figure C-5.**  
**Project Driveways and Access Points near Cecilia Road and Hayden School Road**



One railway line (Paducah & Louisville Railway, a regional Class II railroad) runs through the western portion of the project footprint; it is marked in Figure C-1. There is one proposed access road crossing at the railroad, connecting the western portion of the project area to the eastern. The applicant does not plan to utilize the railway for any construction or operation activities.

**Existing or proposed utilities.** Telesto does not anticipate requiring external electric service on site during typical plant operation. However, page 6 of the SAR states that typical operation of the project requires water service, which could be provided by an onsite well or by Hardin County Water District #2. Additionally, the site will require external electric service from Nolin Rural Electric Cooperative Corporation (RECC) during the project's construction phase.

**Compliance with applicable setback requirements.** Kentucky statute 278.704(2) states that "...beginning with applications for site compatibility certificates filed on or after January 1, 2015, the proposed structure or facility to be actually used for solar or wind generation shall be required to be at least one thousand (1,000) feet from the property boundary of any adjoining property owner and two thousand (2,000) feet from any residential neighborhood, school, hospital, or nursing home facility."

Discussion of the setback requirements and zoning applicable to this project is found in both the Application and in the SAR, which states:

*The proposed design complies with Hardin County Development Guidance System Zoning Ordinance, 2009 and adopted Resolution #2020-011 for Non listed Use: Solar Farm (collectively, “the Zoning Ordinance”). [...]*

*The perimeter fencing will be at least 100 feet from any leased property boundaries, and thus enclosed Project equipment and structures will meet the 100-foot general setback requirement for Agricultural Zones and specific setback requirements for such zones adjacent to a Residential Zone in Development Guidance System (DGS) Sections 3-6 and 17-4, respectively. [...]*

*In granting a Conditional Use Permit for a solar farm, the Board of Adjustments is to designate conditions, including setbacks and buffers (see Exh. K.2, Resolution #2020-011 and DGS Section 16-4(D) and (F)); Telesto will comply with any designated conditions, including setbacks and buffers.<sup>7</sup>*

In the Siting Board’s First RFI, the applicant was asked for more information regarding the proposed project’s conditional use permit status with the Hardin County Planning and Development Commission.

**Evaluation of noise levels.** Section D of the SAR (Anticipated Operation and Construction Noise Levels) and Exhibit H to the Application (Sound Study) provide Telesto’s assessment of the noise levels that will be generated during the construction and operation of the proposed facility. During the construction phase of the project, activities on site will generate intermittent noise at the nearest receptors (nearby residences). The construction phase is expected to last approximately 1 year and the operation phase 35 years.

The applicant anticipates a maximum noise level of 63 dB at the nearest residence during the loudest part of construction (pile driving during solar array installation). During the operational life of the project, Telesto anticipates a maximum daytime noise level of 43.5 dBA when measured at the nearest residence. During the operational lifetime of the proposed project, noise impacts from inverters and the substation transformer are expected to be minimal or negligible.<sup>8</sup>

Noise levels and the details of Exhibit H are discussed in greater depth and detail later in this section of BBC’s report (Expected Noise from Construction and Operation).

### **Supplemental Investigations, Research, and Analysis**

After reviewing the applicant’s SAR, the BBC team sought to supplement the information provided in the SAR where necessary to describe the proposed facility and site development plan more fully.

**Overview of proposed facility.** BBC posed several questions to Telesto in the First RFI regarding the proposed facility, including a request for clarification regarding the project’s total acreage. Telesto

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<sup>7</sup> SAR, pages 6-7.

<sup>8</sup> SAR, page 12.

responded that a total of 1,028 acres of land are covered by Option to Purchase and Option to Lease agreements.

*[...]Within that total leased acreage, the Project's fenced acreage depicted in Application Exhibit A.5 (the 10% design plan layouts) is 559 acres; the acreage within the Project boundary that may be designed to contain Project components is 633 acres. ... [The] current site plan anticipates only building on 559 acres, but the Application requested approval for construction on 633 acres. That request is still in effect. While the current site plan only anticipates needing 559 acres, the request for 633 acres remains in effect in order to accommodate any subsequent siting plan changes that require panels to be moved from one portion of the project to another. The Application anticipated building on the full 633 acres, thus all notice and other requirements were met in regards to these properties and locations.<sup>9</sup>*

Telesto confirmed that the proposed project is 110 MW.<sup>10</sup> The updated 10% design plan submitted by the applicant on August 23, 2022 shows new proposed locations for the project substation and gen-tie line. These would now be located directly adjacent to the Central Hardin substation and point of interconnection. Details on Telesto's 10% design plan are discussed in the following section on the location of buildings, transmission lines, and other structures.

The proposed Telesto facility would sit about 1.75 miles from the planned Rhudes Creek Solar facility and about 2.6 miles from the proposed Stonefield Solar facility; applications for both of these projects—which are also located within Hardin County—have been submitted to the Siting Board. As the timelines for the three projects are not definite, Telesto was unable to say whether there would be any overlap in construction schedules between the three projects and therefore whether there would be any simultaneous and cumulative impacts on noise and traffic levels. However, the applicant did note that the three projects plan to utilize three separate roadways as primary access points to the respective project sites and that the distance between project sites would prevent construction noise impacts from having a cumulative effect on surrounding sensitive receptors if onsite construction did overlap.<sup>11</sup>

The applicant was asked to supply the stormwater management plan for construction and operation. In response, Telesto stated:

*A Notice of Intent will be submitted in compliance with the KYR10-Stormwater Construction General Permit. A Stormwater Pollution Prevention Plan (SWPPP) will be drafted and followed in accordance with this permit prior to construction.<sup>12</sup>*

**Surrounding land uses.** The composition of surrounding land uses — where residential parcels comprise the majority of adjacent parcels but a small proportion of the total adjacent land area — is typical among the proposed solar facilities that BBC has reviewed for the Siting Board.

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<sup>9</sup> Telesto Responses to the First RFI, #1.

<sup>10</sup> Telesto Responses to the First RFI, #2.

<sup>11</sup> Telesto Responses to the First RFI, #3-10.

<sup>12</sup> Telesto Responses to the First RFI, #14.

**Legal boundaries.** In response to questions posed by the Siting Board and BBC in the First RFI, Telesto provided an updated parcel map similar to that seen in Figure C-4, showing parcels participating in the project as well as those sitting adjacent to the proposed project.<sup>13</sup> Additionally, Telesto submitted to the Siting Board a copy of the lease and purchase agreements for parcels in the proposed project.<sup>14</sup>

**Access control.** The First RFI requested additional information on Telesto's safety requirements for access and egress at the site during construction and operation. In their Responses to the First RFI, Telesto stated that the proposed project's perimeter safety fence is a seven-foot chain link security fence<sup>15</sup> and that emergency personnel will be able to access the project site and substation if needed, with padlock keys and lockbox combinations shared with the local fire department.<sup>16</sup>

**Location of buildings, transmission lines, and other structures.** In Telesto's Response to the First RFI, the applicant supplied the requested detail on the proposed project's updated route for the medium voltage (MV) AC collection lines as well as an updated location for the project's substation, which is now proposed to be located adjacent to the Central Hardin substation to which the project will connect.

*At this time, the design plan is to construct the Telesto substation immediately adjacent to EKPC's Central Hardin Substation and run a 34.5 kV medium voltage (MV) line or group of MV lines underground from the Project's PV arrays to the Telesto substation. See 10% design plan filed August 23, 2022, App. Exh. A.5. Easements or other property rights for the off-site MV lines and location of the Telesto substation are still being secured, but the corridor for the MV line path will be approximately as shown in Exhibit A.5, and the Telesto substation will be adjacent to the EKPC substation [...] The grouped MV lines are anticipated to begin near the Project boundary and travel underground approximately 8,900 feet to the Telesto substation.<sup>17</sup>*

Telesto supplied an excerpt of the updated site map, included as part of their Response to the First RFI and shown here in Figure C-6. The area shown is southeast of the proposed project's solar arrays; project arrays in black can be seen in the northwestern corner of the figure. Green polygons depict the easement parcels, red lines indicate AC collection lines, and the proposed substation (outlined in black) is visible on the eastern edge of the southernmost easement parcel.

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<sup>13</sup> Telesto Responses to the First RFI, #12.

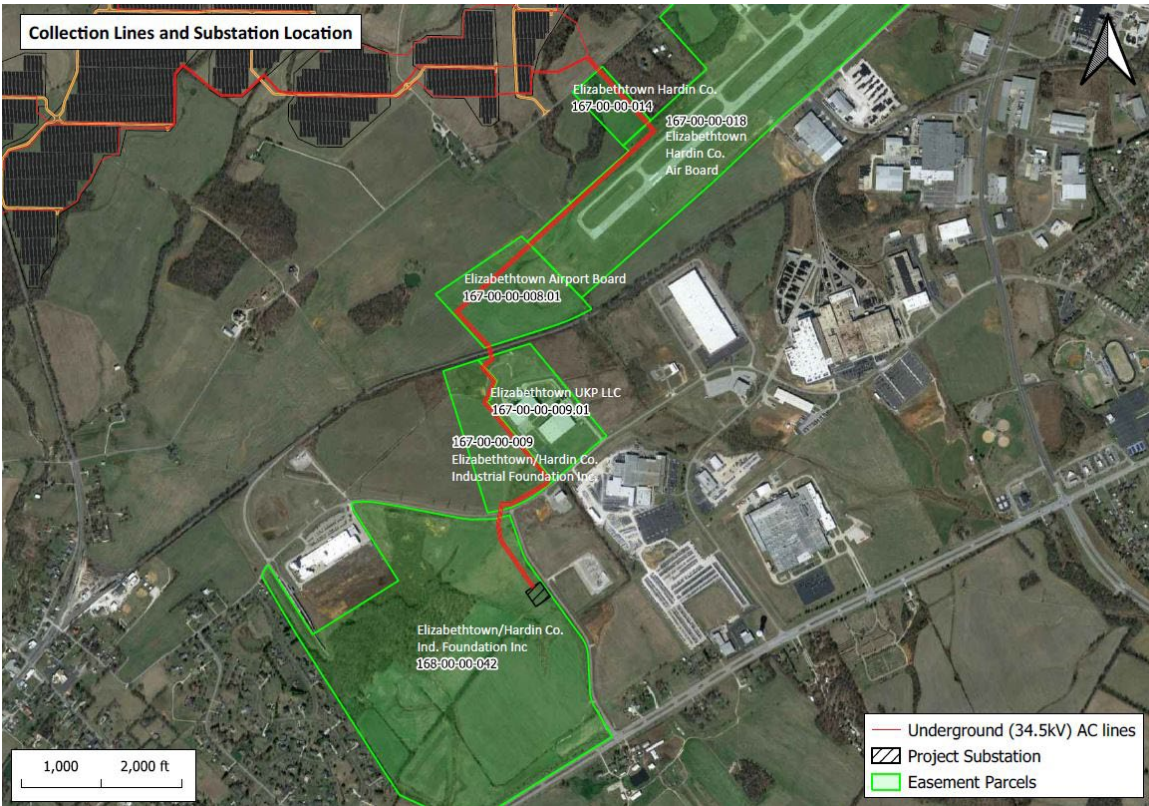
<sup>14</sup> Telesto Responses to the First RFI, #47.

<sup>15</sup> Telesto Supplemental Responses to the First RFI, #23.

<sup>16</sup> Telesto Responses to the First RFI, #23.

<sup>17</sup> Telesto Responses to the First RFI, #19.

**Figure C-6.**  
**Updated Locations of Collection Lines, Substation, and Easement Parcels for Proposed Project**



Telesto responded to BBC’s question in the First RFI regarding why the applicant had not submitted an application for a non-regulated transmission line, stating that as the proposed site plan has changed to the 10% design plan (referenced above)—with the project substation now located directly adjacent to the Central Hardin substation and point of interconnection—Telesto is currently evaluating whether an application for a non-regulated transmission line is necessary.<sup>18</sup>

Finally, in the First RFI, BBC had requested greater detail from the applicant on why portions of the alternating current (AC) collection system would be above ground. In response, Telesto clarified:

*With the exception of where the alternating current collection lines emerge to connect to inverters and MV breakers, all of the collection system will be underground. The collection system lines will come up above ground to connect with inverters and MV breakers and then return below ground; there will be no significant travel above ground and the above-ground portion will not reach heights that could be characterized as overhead.<sup>19</sup>*

<sup>18</sup> Telesto Responses to the First RFI, #18.

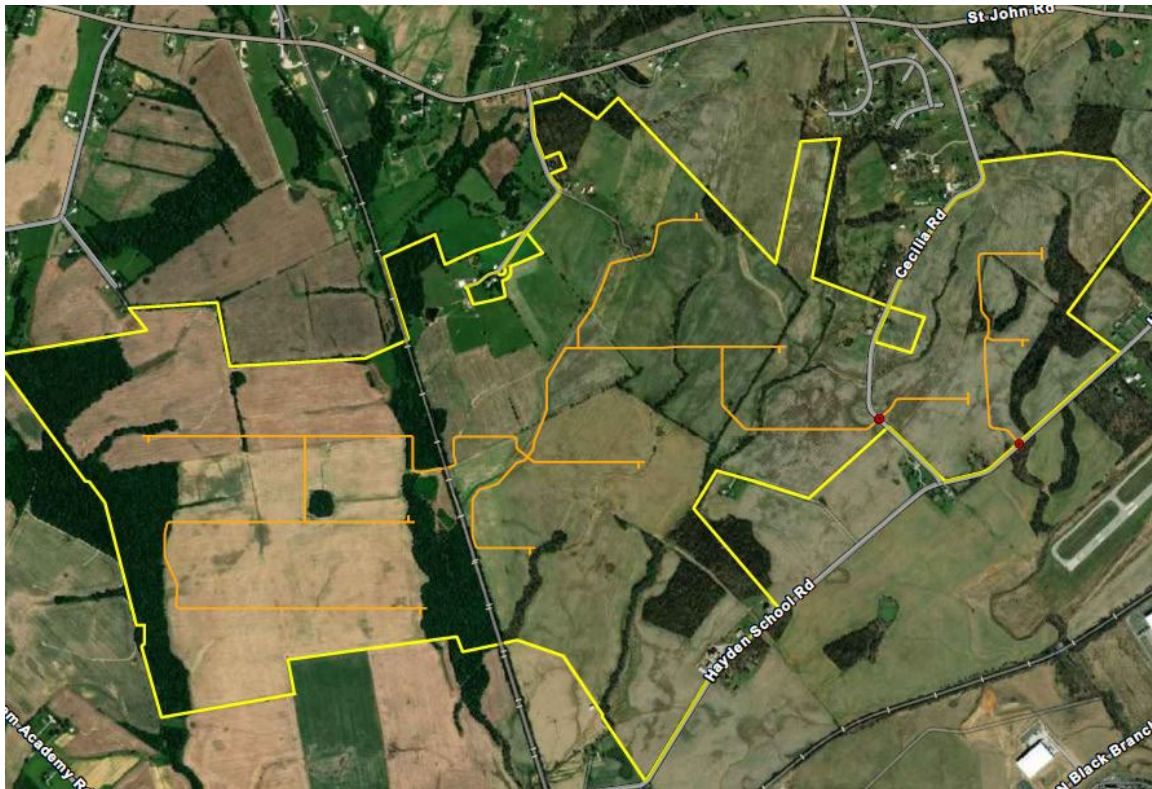
<sup>19</sup> Telesto Responses to the First RFI, #21.



**Location and use of access ways, internal roads, and railways.** During BBC’s visit to the proposed project site in August 2022, Telesto indicated that the number of planned access points to the site has been substantially reduced to just two entrances.

BBC requested an updated map of site access points in the Second RFI. In their response, Telesto provided a map depicting the two current planned site entrances on Cecilia Road and Hayden School Road. This map is excerpted in part as Figure C-7.

**Figure C-7.**  
**Updated Locations of Site Entrances for Proposed Project**



The proposed project boundary is outlined in yellow in Figure C-7. Proposed site entrances are shown as red dots: one sits on the southeastern boundary of the project along Hayden School Road and another in the eastern portion of the project along Cecilia Road which traverses the project footprint.

**Compliance with applicable setback requirements.** The Hardin County conditional use permitting process has been overturned (June 23, 2022 judgement in *Hardin Solar, LLC et al. v. The Hardin County Planning and Development Commission et al*)<sup>20</sup>, and as a result Telesto has filed a motion for deviation from setback requirements, submitted to the Siting Board August 8, 2022.

*All solar equipment will be set back at least 100 feet from the leased property boundary and is at least that distance from any adjacent residence. In the initial layout design filed with the Application*

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<sup>20</sup> Telesto Responses to the First RFI, #30.

*(Exh. A.1), project components are more than 450 feet from the nearest nonparticipating residence and the proposed Telesto substation is approximately 1,800 feet from the nearest non-participating residence.*

*In requesting a deviation from the state statutory setback requirement (Motion ¶ 22), Telesto has committed to place electricity generating facilities and structures no closer than 450 feet, and the Telesto substation no closer than 1,000 feet, from any nonparticipating residence or participating residence.<sup>21</sup>*

**Evaluation of noise levels.** BBC's investigation of the proposed project's expected noise levels is addressed in full in a subsequent section of this report (Expected Noise from Construction and Operation).

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<sup>21</sup> Telesto Responses to the First RFI, #24.

## **Conclusions and Recommendations Regarding the Description of the Proposed Facility and Site Development Plan**

Based upon review of the applicant's SAR, subsequent conversations with the applicant, and additional data collected by the BBC team, we reach the following conclusions concerning the description of the facility and the proposed site development plan:

- The applicant has generally complied with the legislative requirements for describing the facility and site development plan, with the exception of the information required under KRS 278.714(2)(b) regarding the proposed gen-tie transmission line if an application is required.

**Recommended mitigation.** Based on our review of the SAR and Application, the applicant's responses to the RFIs from the Siting Board and BBC, and our visit to site—as well as recent Siting Board orders in other solar cases—BBC recommends the following mitigation measures regarding this portion of the Kentucky statutory requirements (KRS 278.708(3)(a):

- Telesto should provide a final site layout plan to the Siting Board when site design is finalized. Any change in project boundaries or site layout from the information reviewed during this evaluation—including changes to the locations of solar panels, inverters, transformers, the substation or other project facilities should be clearly documented and submitted to the Siting Board for review.
- Telesto should also notify the Siting Board of any change to their current plan to bury the off-site portions of their proposed transmission line from the site to the project substation expected to be located near the existing EKPC substation.
- Telesto or its contractor should control access to the site during construction and operation. All construction entrances should be gated and locked when not in use. The applicant's access control strategy should include adequate signage at all site entrances and boundaries—particularly in locations visible to the public, local residents, and business owners—to warn potential trespassers.
- According to National Electric Code regulations, the security fence must be installed prior to any electrical installation work. Further, the substation must have its own separate security fence, with locked access.
- Should the motion to deviate from setback requirements be approved, Telesto should promptly and fully meet the setback provisions or conditions outlined in its proposed project design.

## Compatibility with Scenic Surroundings

This section of the SAR review addresses the compatibility of the proposed Telesto facility with the scenic surroundings. This component of the SAR is identified in KRS 278.708(3)(b).

### Potential Issues and Standard Assessment Approaches

Various government agencies throughout the country employ visual assessment methodologies based on professionally accepted techniques. These techniques are fundamentally consistent in their approach to evaluating the elements of a project and its compatibility with existing landscapes and other surroundings.

An example of a visual assessment methodology in use by a state power plant siting agency is the methodology employed by the staff of the California Energy Commission. In California siting assessments, the assessment of potential incompatibility between a project and its scenic surroundings focuses on project structures, such as smokestacks. Typically, the assessment also addresses project lighting and the potential for visible cooling tower plumes.

A standard visual analysis generally proceeds in this sequence:

- Analysis of the project's visual setting;
- Identification of key observation points (KOP);
- Descriptions of visual characteristics of the project; and
- Evaluation of impacts to KOPs.

A KOP is a location where people may periodically or regularly visit, reside, or work within the viewshed of the project's structures or emissions.<sup>22</sup>

In general practice, visual impact evaluations are conducted within one of three general frameworks, depending upon the relevant jurisdiction and its level of involvement at the project site. These are listed in order of structural formality:

- A formal visual resource or scenery management system, typically in effect only on federal lands, such as the U.S. Forest Service Scenery Management System or the U.S. Bureau of Land Management Visual Resource Management System;
- Locally applicable laws, ordinances, regulations, or standards, where imposed by state or local governments; and
- The cultural context, including the influence of previous uses on the landscape and public attitudes toward the compatibility of various types of land use.

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<sup>22</sup> The viewshed is defined as an area of land, water, or other part of the environment visible to the eye from a vantage point. Conversely, the vantage point is presumed to be visible from locations within the viewshed.

Each framework, in its own way, embodies explicit or implicit consideration of some or all of the standard measures of visual impact: viewer exposure and sensitivity; relative project size, quality, visibility, exposure, contrast and dominance; and prevailing environmental characteristics, such as season and light conditions. Local regulations especially focus on screening of facilities from public view and the effects of glare from outdoor lighting upon adjacent property.

In this instance, the visual impact evaluation followed the third, and least formal, of the three approaches listed above. The selected approach is appropriate given that there is no formal visual resource system, nor are there currently local ordinances specifically related to visual impacts in effect for the area surrounding the proposed facility, though the applicant's CUP negotiation with Hardin County is not yet finalized.

### **Information Provided in the Applicant's SAR**

In compliance with KRS 278.708, Section B of the SAR summarizes the assessment of compatibility with scenic surroundings. The SAR describes the landscape context of the proposed project:

*The Project site is rolling terrain, and the facilities will be sited on portions of the leased properties that are currently open fields dedicated to crop cultivation. Acreage of the leased properties not used for Project facilities includes a high proportion of open fields used for crops, but also wooded areas along the railroad, waterways, and fence lines; there are also some residences and farm structures. Beyond the leased property boundaries to the northwest is agricultural land; to the southwest, agricultural land and then the community of Cecilia. To the southeast are agricultural land and then a predominantly industrial area and the airport runway; the east and northeast include small residential developments and agricultural land.<sup>23</sup>*

Section B cites the findings from Telesto's two property value impact studies (Exhibit E to the Application), one conducted by Kirkland Appraisals and another by CohnReznick. Both studies conclude that a solar farm is a compatible and harmonious use for rural agricultural/residential areas such as the proposed Telesto project site.

The proposed Telesto project would be a large, commercial solar facility similar in size to several previous solar projects reviewed by BBC and other consultants for the Siting Board. As with these similar projects, much of the project's compatibility with the scenic surroundings will depend on a strategic and well-executed vegetative screening plan.

A landscaping plan is included with the Application as Exhibit F (Landscape Plan) and provides specific details on the two planting module types planned for use in screening and softening the visual impact of the proposed project's components, namely the solar panels. Exhibit F includes plans for retaining existing landscape vegetation where possible as well as matching the screening module type used at the boundary (i.e., low- or high-density planting) with the viewership intensity and adjacent land use at that location.

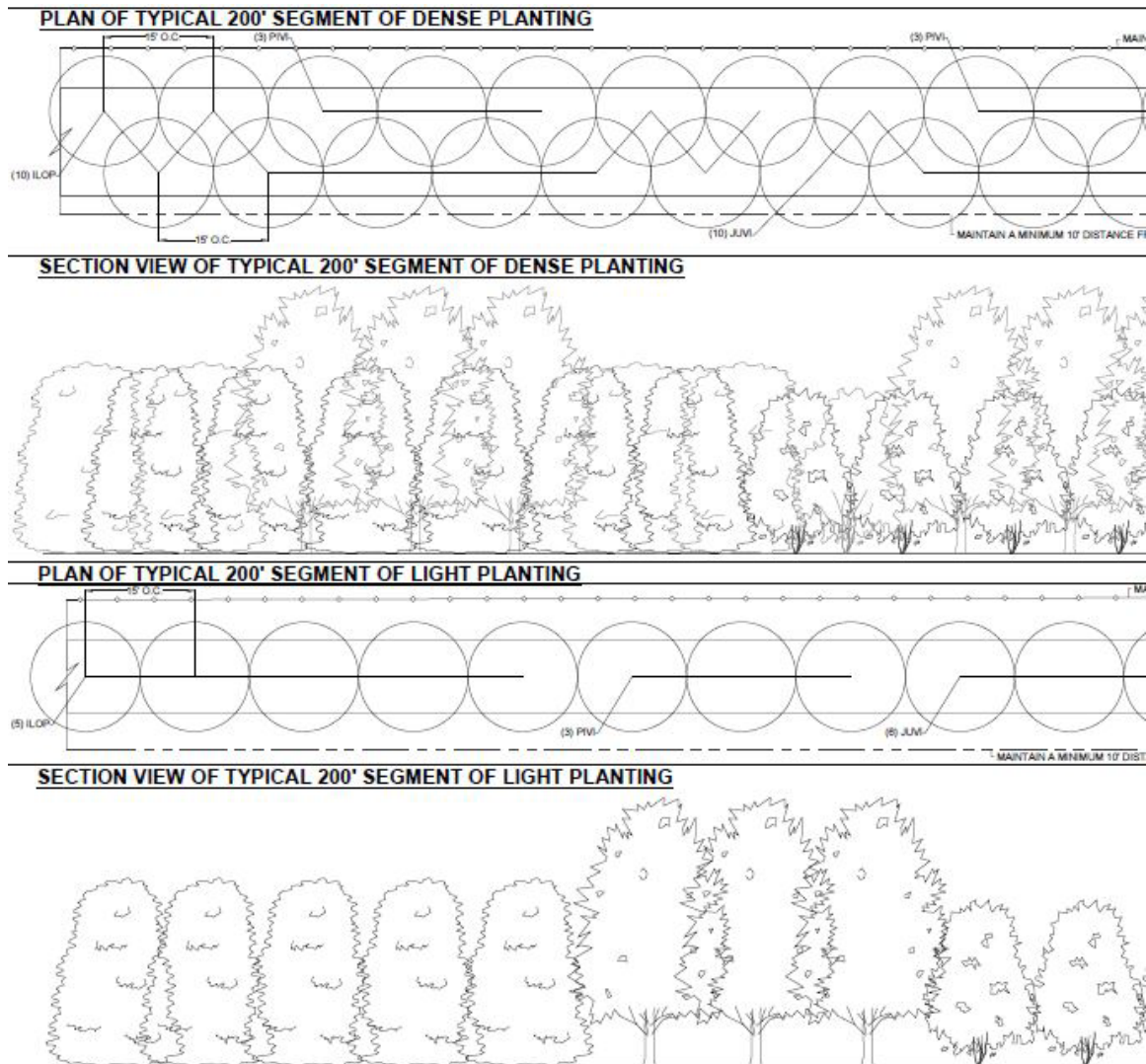
Exhibit F defines two planting module types for the proposed project as shown in Figure C-7. Module 1 is a single row of evergreen trees spaced at 15 feet on center to provide softening, visual interest,

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<sup>23</sup> SAR, pages 7-8.

and some screening in areas of higher viewership, such as Hayden School Road where the project components would be located close to the road. Module 2 is a double row of evergreen trees spaced at 15 feet on center to provide softening, visual interest, and more robust screening in areas of the highest viewership, for example when a residence is located across the street or adjacent to the project components.<sup>24</sup>

**Figure C-7.  
Dense (Double-row) and Light (Single-row) Vegetative Screening Modules for Proposed Project**



<sup>24</sup> Exhibit F, page 11.

The applicant also supplied visual representations of the project's proposed vegetative screening in Exhibit F to the Application (Landscape Plan), which is excerpted in part here as Figures C-8, C-9, and C-10. This visual simulation is from a viewpoint along Hayden School Road on the southeastern edge of the project area.

**Figure C-8.**  
**Viewpoint #5 at Hayden School Road, Existing Conditions**



**Figure C-9.**  
**Viewpoint #5 at Hayden School Road, Visual Simulation with Project Components**



Figure C-9 shows Module 1 (single-row density) vegetative screening to mitigate the visual impact of the project's solar panels that are visible from the road.

**Figure C-10.**

**Viewpoint #5 at Hayden School Road, Visual Simulation with Mature Vegetative Screen**



Telesto also commissioned a glare analysis for the proposed project, which was included with the Application as Exhibit G (Glare Hazard Analysis). The issue of potential glare is particularly important in assessing the compatibility of the project with surroundings given the project's location near the Elizabethtown regional airport.

The study results were that glare was not predicted to occur from observation points along the railway line or any of the project's 125 proximate structures (mostly residences) analyzed.<sup>25</sup> Additionally, glare from the project's solar panels is not predicted to affect pilots landing at the Elizabethtown regional airport (Addington Field) or at the Baptist Health Hardin hospital helipad or three smaller airfields within 10 miles of the project site.

The glare hazard analysis also studied potential glare for vehicles traveling along 18 nearby roadways. One spot for green glare (low potential for temporary after-image) was identified in a residential cul-de-sac near the northeastern portion of the project, although actual occurrence of glare would be mitigated by existing structures and trees, which were not accounted for in the glare analysis model.<sup>26</sup>

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<sup>25</sup> SAR, page 9.

<sup>26</sup> Ibid.



## Supplemental Investigations, Research, and Analysis

**Visual assessment.** BBC visited the proposed Telesto project site in late August 2022 to review the site and its surroundings. Figure C-11 shows the view from one of the two planned access points into the site from public roadways. This access point is from Cecilia Road, and would access the site on both sides of the road. Figure C-11 shows the immediate area that would be accessed to the east from Cecilia Road.

**Figure C-11.**  
**View to east from dual access point off of Cecilia Road**



Figure C-12 is a photograph taken from the same access point on Cecilia Road, showing the area that would be accessed on the other (western) side of the road.

**Figure C-12.**

**View west from dual access point on Cecilia Road, with non-participating residence**



Figure C-13 shows a portion of the Orchard neighborhood, one of two residential neighborhoods in relatively close proximity to the Telesto site. This neighborhood is well screened from the site by existing trees.

**Figure C-13.**  
**Orchard neighborhood near NE corner of site**



Figure C-14 shows a small portion of the industrial area located to the south of the Telesto site. This industrial area is proximate to the proposed off-site project substation and the adjacent, existing EKPC substation.

**Figure C-14.**  
**Industrial park south of project and substation**



Figure C-15 shows the existing EKPC substation located across Hayden School Road (to the south) from the proposed location of the project substation. Telesto's plans call for a new, underground transmission line from the edge of their site to the project substation. EKPC is expected to build a short overhead transmission line crossing Hayden School Road to connect to the project substation from the one shown in the photograph.

**Figure C-15.**  
**EKPC substation across Hayden School Road from project substation**



Figure C-16 shows the field where Telesto would build their project substation, directly across Hayden School Road from the existing EKPC substation shown in Figure C-15.

**Figure C-16.**  
**Future project substation location across road from EKPC substation**



Figure C-17 shows a portion of the Ashton Park neighborhood, the other of the two residential neighborhoods in relatively close proximity to the Telesto site. Like the Orchard neighborhood shown in Figure C-13, the Ashton Park neighborhood appears to be well screened from the site by existing trees and topography.

**Figure C-17.**  
**Ashton Park neighborhood near northeast corner of project**



Figure C-18 shows the approximate location of the other planned access point into the Telesto site from public roadways. This access point would be from Hayden School Road and would access the southern portion of the project site.

**Figure C-18.**  
**Approx location of access point from Hayden School Road**





## **Conclusions and Recommendations Regarding Compatibility with Scenic Surroundings**

The proposed Telesto facility would be located in an area of predominantly agricultural and some low-density residential land. The proposed facility is compatible with the scenic surroundings, provided the applicant follows through with their screening mitigation plan to reduce the visual impact on some of the nearby homes. Telesto's current plan to bury the off-site transmission line to the project substation would also reduce potential impacts to scenic surroundings.

**Recommended mitigation.** BBC recommends the following mitigation measures regarding this portion of the Kentucky statutory requirements (KRS 278.708(3)(b)):

- Existing vegetation between the solar arrays and nearby roadways and homes should be left in place to the extent feasible to help minimize visual impacts and screen the project from nearby homeowners and travelers.
- Telesto should execute the screening plan proposed in their Landscape Plan and make sure the proposed new vegetative buffers are successfully established and develop as expected over time. Plantings should reach eight feet high within four years. Should the vegetation used as buffers die over time, Telesto should replace them to maintain the visual buffer.
- Telesto should cultivate at least two acres of native pollinator-friendly species onsite.
- Telesto should use panels with anti-reflective coating to reduce glare and corresponding visual impacts.
- Telesto should be open to communication with adjacent landowners regarding viewshed impacts and the implementation of strategic additional vegetative screening, if needed.

## Potential Changes in Property Values for Adjacent Property Owners

### Potential Issues and Standard Assessment Approaches

Development of new power plants can raise issues related to potential changes in property values for nearby property owners. These issues may arise from the widespread perception that a power plant and its ancillary facilities—such as ash disposal landfills, overhead electric transmission lines and electric transformer sites—may be “undesirable land uses” whose impacts are expected to be translated economically into negative effects on property values. Studies also show that impacts may extend for some distance from the site, and possibly beyond the immediately adjacent properties. These findings, however, primarily apply to conventional, fossil fuel-fired plants.

Criteria for evaluating property values effects that reflect the concerns of a broad range of interested parties typically include these aspects of the issue:

- Land use compatibility;
- Findings from other empirical studies; and
- Potential for effects to other than adjacent property owners.

**Land use compatibility.** State and local governments around the country use standards of land use compatibility to minimize the effect of industrial land uses, like power plants, upon nearby properties. KRS Chapter 278 incorporates setback requirements as its primary standard for buffering the siting of power plants. Land use compatibility, in the strict sense of legal use, and in the general sense of reasonably probable use for a given location and “neighborhood,” are also factors in a general appraiser’s judgment and analysis concerning the “highest and best use” of a property.

Other general issues are also considered to encourage facility siting in compatible settings where negative effects would be minimal to the uses and values of nearby properties. In Wisconsin, for example, the Public Service Commission publishes this general definition of the range of potentially compatible sites for power plants:

“Typically, active or vacant industrial lands may be more compatible and urban residential lands may be less compatible with power plants. Generally, sites that are more compatible with present and planned land uses are more desirable, as are those where the plant would comply with existing land use regulations.”

General land use planning practice offers the option to adopt or negotiate for performance standards for outdoor lighting, noise, vibration, odor, smoke, or particulate matter, and so forth to minimize off-site impacts to adjacent uses.

**Findings from empirical studies.** Standard real estate appraisals are the most common type of empirical study used to evaluate potential changes to property values. The appraiser generally relies upon an examination of as many actual sales as possible of comparable properties in similar locations and with similar expectations for highest and best use.

Academic studies published in the land and environmental economics literature have used a variety of property value-based analyses to estimate the actual effect of power plants and other “undesirable

land uses” whose impacts may have translated economically into negative effects on adjacent property values. So called “undesirable” uses that have been studied in this fashion over time include nuclear and non-nuclear power generation; hazardous, toxic, and nuclear waste disposal; conventional solid waste disposal; waste incineration; and hazardous industrial facilities.

For example, one study investigated the effect newly opened power plants had on property values in neighborhoods located within five miles of the plant. The study included 60 power plants, several of which were located in Kentucky and the surrounding states. The study found that housing values decreased by 3 to 5 percent between 1990 and 2000 in these neighborhoods compared to neighborhoods located further away from the plant. Another study of 262 undesirable or “noxious” facilities located across the country, including 92 coal, natural gas, or oil-fired power plants (of which two were in the East South Central region that includes Kentucky), illustrates this effect. Power plants were found to significantly decrease property values in the communities where they are located. The literature also includes numerous studies of the effect of electric transmission lines upon property values.

The standard statistical technique for evaluating the potential effects of an environmental amenity (such as beach frontage) or a disamenity (such as proximity to a hazardous waste site) is called hedonic pricing analysis. This technique recognizes that before one can evaluate the impact of an external characteristic on property values, the influences of other important value factors must be isolated and held constant using statistical techniques (e.g., multiple regression analysis). A hedonic pricing model treats the good in question (in this case local property values) as a bundle of amenities (size, aesthetic quality of property, access to local town, etc.) and disamenities (pollution, noise, etc.). Such a model is designed to isolate and quantify the implied effect on overall property value from each amenity or disamenity. Hedonic pricing models have been used to evaluate the impacts of many different factors contributing to the value of a piece of property. Examples include examining the effect of the proximity to hog farms (Palmquist, Roka and Vukina, 1997), beaches (Pompe and Rinehart, 1995), airports, and electric power plants (Blomquist, 1973).

Hedonic models are statistically estimated using multiple regression analysis. However, hedonic studies are complex and require extensive statistical training and large amounts of data. Moreover, not all factors that influence a home’s selling price can be measured, and housing markets vary greatly from one region to another.

**Potential for more distant off-site effects.** Most analyses of property value impacts are local in scope. However, the effect of power plants and other facilities on property values has been shown to extend well beyond the site. This has been shown in at least one study, where negative effects of a small power plant located within the city of Winnetka, Illinois, were significant out to a distance of 11,500 feet, or more than two miles. As noted earlier, these findings also primarily apply to conventional, fossil-fuel fired plants.

### **Information Provided in the Applicant's SAR**

Telesto engaged both Kirkland Appraisals, LLC and CohnReznick—both of which have conducted property value impact studies for several previous solar applications to the Siting Board—to examine the proposed project’s potential impact on property values.

Exhibit E.1 to the Application (Kirkland Appraisals Report) provides a comparative study of property values in proximity to solar facilities in Kentucky and in other states across the US, using a matched pairs design. The study draws its conclusions regarding the impacts of the proposed facility on adjacent property values based on market analysis of value impacts from numerous other solar facilities.

Exhibit E.1 states that the closest home to the proposed project will be 500 feet from the nearest solar panel and that the average distance will be 941 feet. Additionally, surrounding residential density is low and most of the surrounding acreage is agricultural. In a summary statement, Kirkland Appraisals concludes that there will be no property value impacts from the proposed Telesto facility on adjoining properties and that the proposed facility will be in harmony with the area.

*The matched pair analysis shows no impact on home values due to abutting or adjoining a solar farm as well as no impact to abutting or adjacent vacant residential or agricultural land where the solar farm is properly screened and buffered. The criteria that typically correlates with downward adjustments on property values such as noise, odor, and traffic all indicate that a solar farm is a compatible use for rural/residential transition areas and that it would function in a harmonious manner with this area.<sup>27</sup>*

Exhibit E.2 to the Application (CohnReznick Adjacent Property Value Impact Report) provides an analysis of property transactions adjacent to existing solar farms as well as interviews with real estate professionals and county assessors active in markets where solar farms are located. The purpose of the study is to determine whether proximity to a solar farm has an impact on adjacent property values.<sup>28</sup>

*[...] We evaluated 44 property sales adjoining existing solar facilities (Test Area Sales) and 289 Control Area Sales. In addition, we studied a total of 62 Test Area Sales and 1,035 Control Area Sales in four Before and After analyses. In total, we have studied over 1,430 sale transactions.*

*The solar farms analyzed reflected sales of property adjoining an existing solar farm (Test Area Sales) in which the unit sale prices were effectively the same or higher than the comparable Control Area Sales that were not near a solar farm. The conclusions support that there is no negative impact for improved residential homes adjacent to solar, nor agricultural acreage. This was confirmed with market participants interviews, which provided additional insight as to how the market evaluates farmland and single-family homes with views of the solar farm.<sup>29</sup>*

CohnReznick also provided a study addendum (Exhibit E.3) to its property value impact report. Along with additional evaluation of academic and peer-authored studies, the addendum analyzes interviews with a Clark County, Kentucky Property Valuation Administrator as well as with a Grant

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<sup>27</sup> Exhibit E.1, page 1.

<sup>28</sup> Exhibit E.2, page 2.

<sup>29</sup> Exhibit E.2, page 125.

County, Kentucky Assessor, both of which state that they have not witnessed a reduction in assessed property values due to adjacency to a solar farm.<sup>30</sup>

### **Supplemental Investigations, Research, and Analysis**

**BBC’s investigation of additional research.** To obtain further perspective on this issue, BBC reviewed recent studies regarding solar facility effects on nearby property values. As commercial scale solar facilities become more prevalent in the central and eastern portions of the United States, the research and information concerning potential impacts on property values is also continuing to evolve.

In 2018, a study of the potential effects of commercial solar farms on nearby property values was conducted by the LBJ School of Public Affairs at the University of Texas. That study contacted public sector property assessors in 430 counties across the United States that had at least one utility-scale PV solar facility in place. Thirty-seven residential property assessors agreed to fill out the on-line survey asking their opinion on the likelihood that a solar farm would impact nearby residential property values. Among the findings of that study were that:

- “The majority of responses suggested either no impact (66 percent of all estimates) on home prices, or a positive impact (11 percent of all estimates), as a result of proximity to solar installations.”
- “However, some respondents did estimate a negative impact on home prices associated with solar installations.” In the 23 percent of cases where negative impacts on value were estimated, the negative effect was estimated to increase with closer proximity and larger scale solar installations. Respondents who had actual experience in assessing homes near solar installations estimated a 3 percent decline in value for homes within 100 feet of a 20 MW solar installations and a 5 percent decline in value within 100 feet of a 102 MW solar facility.
- “The results also suggest that experience assessing near a solar installation is associated with a much less negative estimate of impact.”<sup>31</sup>

Most recently, a 2020 study published by economists from the University of Rhode Island using the hedonic pricing analysis approach described earlier identified statistically significant negative impacts on home prices due to proximity to commercial solar sites in Rhode Island and Massachusetts —under certain conditions. Of the studies BBC has reviewed, this study appears to be the most robust in the sense that it covers a wide and diverse geographic area, observes hundreds of thousands of home sales transactions over a long period of time pre- and post-solar farm development, and has results that are robust to many different model specifications.

The study, based on “over 400,000 transactions within three miles of a solar site”, found that residential property values in suburban areas within one mile of a solar facility declined by 1.7 percent (on average) compared to surrounding properties, with larger effects on home values within

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<sup>30</sup> Exhibit E.3, page 4.

<sup>31</sup> *An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations*. Project Director: Dr. Varun Rai. Policy Research Project (PRP), LBJ School of Public Affairs, The University of Texas at Austin, May 2018.

0.1 miles (500 feet) of a solar site (-7.0 percent). However, solar sites in industrial or rural areas<sup>32</sup> had no statistically significant impact on home prices.<sup>33</sup>

Another recent contribution to the research on this topic is the 2019 PhD Dissertation of Dr. Nino Abashidze, an economist at the University of Georgia. Dr. Abashidze used the hedonic pricing model approach and econometric regression analysis to evaluate the effects from proximity to solar farms on both agricultural land values and residential property values in North Carolina. Dr. Abashidze found that proximity to solar farms had no discernable effect on *agricultural* land values (properties 30 acres or larger in size). However, Dr. Abashidze did find statistically significant, negative impacts on *residential* property values. Dr. Abashidze's econometric analysis found that (on average) homes within one mile of solar facilities experienced an estimated nine percent decrease in value, while homes closer to the facilities (within one-half mile) experienced an estimated 12 percent decrease in value. It is also important to note, however, that most of the residential properties in Dr. Abashidze's analysis were located on relatively small lots (average lot size of 0.9 acres, sample standard deviation in lot size of 1.6 acres) and that the study was based on a relatively small number of home sales transactions compared to the University of Rhode Island study.<sup>34</sup>

## Conclusions and Recommendations

With the proliferation of commercial solar facilities across the U.S., there is an increasing focus on the potential effects on residential property values from proximity to such facilities.

Most studies sponsored by solar developers have analyzed this question using sales price comparisons of homes near solar facilities to comparable homes that are not proximate to a solar facility, using techniques similar to the approach used in appraising homes. These studies identify similar homes (except for their proximity to solar facilities) and use appraisal techniques, which may be more subjective than the statistical techniques used in econometric studies, to adjust for differences in age, square footage, and other home characteristics. BBC has reviewed several of these studies and can confirm that they have consistently found no impact on property values from proximity to solar installations.

To date, relatively few studies have been conducted by academic researchers or other “third-party” analysts, but the body of research is slowly growing. Using different methods, and different data sources, recent studies by professors at the LBJ School of Public Affairs (University of Texas) and the University of Rhode Island have found that there could be small, negative impacts on property values from proximity to commercial solar facilities. However, those negative effects appear to be more likely in suburban settings, rather than rural settings. Another recent study by a University of Georgia economist of impacts to property values from solar farms in North Carolina – using a hedonic pricing model and econometric approach similar to the University of Rhode Island study – found that solar

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<sup>32</sup> In the study by Gaur and Lang cited below, “rural” is defined as areas with municipal population density of less than 850 people per square mile. The proposed Telesto facility would sit in unincorporated Hardin County, and the surrounding area has a low population density.

<sup>33</sup> *Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island*. Vasunda Gaur and Cory Lang, University of Rhode Island. September 29, 2020. Available at [https://works.bepress.com/cory\\_lang/33/](https://works.bepress.com/cory_lang/33/)

<sup>34</sup> Abashidze, Nino. *Essays on Economic and Health Effects of Land Use Externalities*. (Under the direction of Dr. Harrison Fell). Page 71. University of Georgia, 2019.

facilities did not impact nearby *agricultural land* values but did reduce nearby *residential* values (within one mile) by nine to 12 percent, on average. Overall, the two econometric property value studies indicate that the likelihood of adverse impacts on property values from nearby solar facilities increases with proximity to the solar site and with residential density, and decreases in more rural, agricultural settings. The duration of adverse effects on nearby residential property values has yet to be established by the econometric research studies.

As shown earlier in Figure C-3, about 85 percent of the land use adjacent to the proposed Telesto facility is considered to be either agricultural or large lot “agri/residential.” These properties appear unlikely to experience a measurable adverse impact on their values from the proposed solar facility. About 15 percent of the adjacent land is considered residential, and fourteen of the 48 adjacent properties are residential homes on smaller than five acre lots.<sup>35</sup> These properties may be at risk of a reduction in value, though the findings from the economists at University of Rhode Island and at the University of Georgia are not entirely consistent in this regard.

Given the predominantly rural setting for the proposed Telesto project—and acknowledging that the project’s proposed vegetative buffers will help obscure the site’s physical elements from nearby residences and neighborhoods—we conclude that the proposed solar facility is unlikely to have measurable adverse impacts on most adjacent properties, but might affect the values of some smaller lot, adjacent residential properties – particularly those with homes located in closest proximity to nearby solar panels.

**Recommended mitigation.** It is important to note that while the academic studies discussed above have documented negative impacts to home values, the cause of the impacts has not been well researched. The studies hypothesize that solar farms may act as a visual disamenity, which suggests there is potential to mitigate negative impacts through actions designed to buffer the view of solar facilities from nearby homes. Consequently, BBC believes that Telesto’s vegetative screening plans may help to minimize any adverse impact on nearby residential property values and recommends the following mitigation.

- Telesto’s viewshed screening plan should incorporate particular efforts to reduce impacts on the views from the fourteen smaller lot residential properties (smaller than five acres) adjacent to the proposed project.

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<sup>35</sup> Exhibit E.1, page 6.

## Expected Noise from Construction and Operation

This section evaluates the studies and conclusions discussed in the SAR concerning peak and average noise levels associated with construction and operation of the proposed Telesto Energy facility. This component of the SAR is identified in KRS 278.708(3)(d).

### Potential Issues and Standard Assessment Approaches

Various governmental agencies throughout the country employ noise assessment methodologies based on professionally accepted techniques. In evaluating the construction and operational stages of a project, these techniques are fundamentally consistent in that they seek to estimate the potential contribution to ambient noise levels at the site in terms of sensitive receptors. Generally, the assessment methodologies are meant to measure the increase in noise levels over the ambient conditions at residential and non-residential sensitive receptors.

A standard noise impact assessment focuses on several key factors:

- Identification of sensitive receptor sites;
- Existing local ambient noise levels;
- Estimated construction or operational noise intensities;
- Distances between noise sources and sensitive receptors;
- Time of day during which peak noises are anticipated;
- Noise created by transportation features such as conveyors, trucks, and rail lines; and
- Calculation of the cumulative effect of the new noise sources when combined with the existing ambient noise level, recognizing that new noise sources contribute to the ambient noise level, but not in an additive way.

### Information Provided in the Applicant's SAR

Noise levels generated by facility construction and operation are addressed in Section D of the SAR (Anticipated Operation and Construction Noise Levels) and in the Sound Study, conducted by Stantec, included as Exhibit H of the Application. Section D provides a summary of noise generation during construction and operation of the proposed facility:

*Offsite noise is not anticipated to be a material issue for either construction or operation of the Project. At the Project's leased property boundaries and for the nearest receptors beyond those boundaries anticipated peak (maximum) and average noise levels from the Project's operation are expected to be negligible additions and are similar to the existing background agricultural and airport noise characteristics. No prolonged noise levels above background levels are expected from Project construction activities even for the nearest receptors.<sup>36</sup>*

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<sup>36</sup> SAR, page 11.

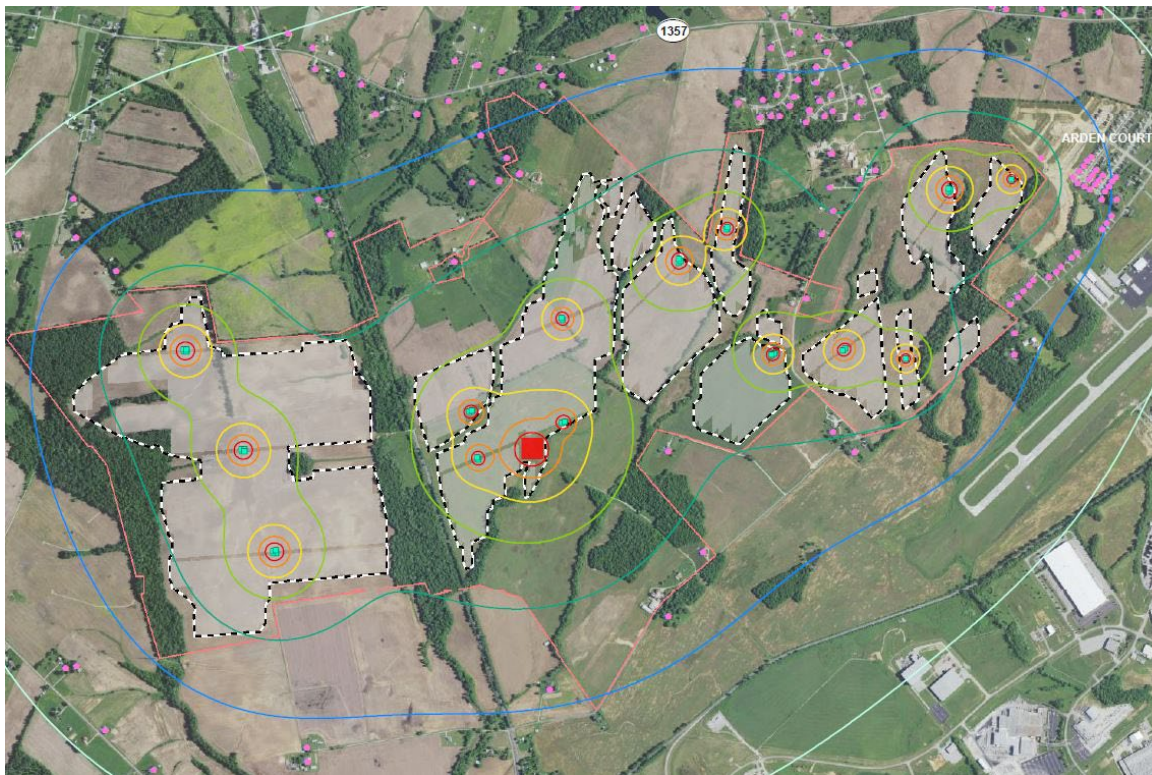


The proposed Telesto project site is already subject to existing noise levels owing to its placement in a predominantly agricultural landscape and in close proximity to both an airport runway and a railway line. Exhibit H (Sound Study) provides a full assessment of sound impacts during both the operation and construction phases of the proposed Telesto project. Sound levels due to operation of the project were predicted with a noise prediction model in the Computer Aided Noise Abatement computer program; the program allows for the use of parameters such as meteorological conditions and ground attenuation factor, which accounts for the hardness or porosity of the ground.

Exhibit H states that the primary sources of sound emissions during project operations will be the 34 solar inverters (sound power level of 95.5 dBA used in the model) and the substation transformer (sound power level of 107.7 dBA).<sup>37</sup> Both the inverters and the substation transformer will operate during the day, and the substation transformer will continue to operate through the night. The nearest non-participating residence is more than 450 feet from any project component, 850 feet from the nearest inverter, and more than 1,800 feet from the proposed project's substation.

Figure C-19, excerpted from the sound study in Exhibit H, shows the proposed project inverter and substation locations along with the nearest residential noise receptors and the color-coded noise contours ranging from 30 dBA (pale blue contour lines furthest from solar equipment) to 60 dBA (red lines closest to the equipment) indicating the level of noise impact within a certain distance from a sound source.

**Figure C-19.**  
**Operational Sound Modeling Results (Daytime)**



<sup>37</sup> Exhibit H, page 6.

The densest concentration of noise receptors can be seen in the north and east portions of the project, along Cecilia Road and Hayden School Road. Sound level impacts during daytime project operation vary across receptors based on proximity to sound sources. Figure C-20, below, summarizes the maximum sound level estimated at the 156 nearest noise receptors.

**Figure C-20.**  
**Summary of Sound at Receptors Due to Daytime Project Operation**

Maximum Sound Level	Number of Receptors
35 dB(A) or less	77
35.1 dB(A) to 40 dB(A)	73
40.1 dB(A) to 45 dB(A)	6
Greater than 45.0 dB(A)	0

The greatest maximum sound level for daytime operation, as estimated by the model used in Exhibit H, is 43.5 dBA or approximately the background sound level in a library. Only six receptors are estimated to experience noise at or near this level. For reference, a whisper has a sound power level of approximately 30 dBA.

During the construction phase, vehicles and machinery such as trucks, bulldozers, excavators, and pile drivers will generate noise onsite while preparing the site and installing the facility’s panels, racking, inverters, substation, and associated structures. Maximum noise levels will occur during pile driving of the solar arrays, which is consistent with previous solar project noise impact studies reviewed by the Siting Board. Exhibit H states:

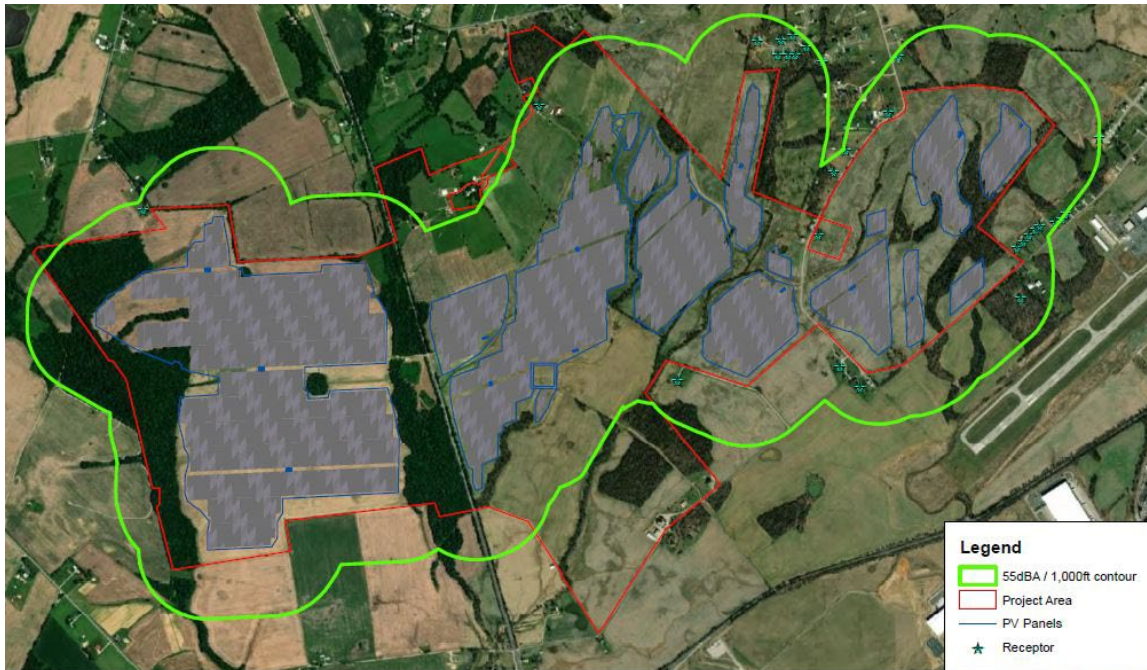
*The maximum expected sound due to operation of the pile drivers is 63 at the nearest receptor to the array boundaries. At times, construction activities will be audible to nearby residences or other sensitive receptors; however, not all equipment will be operating at the same time, and activities will be temporary in duration and spread throughout the Project area. To limit construction impact sound, large construction equipment activity will generally be restricted to the hours of 7:00 a.m. to 7:00 p.m., or dusk if sunset occurs after 7:00 p.m.<sup>38</sup>*

Figure C-21, excerpted from Exhibit H, shows a 55 dba/1,000-foot noise contour for the construction phase of the proposed project.

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<sup>38</sup> Exhibit H, page 8.

**Figure C-21.**  
**Construction Sound Modeling Results**



In the Siting Board’s First RFI, BBC requested that the applicant provide additional tables detailing distances from sound sources (i.e., nearest project inverter, nearest project solar panel, and project substation) to each uniquely identified noise sensitive receptor within 1,000 feet (participating and non-participating).

### **Supplemental Investigations, Research, and Analysis**

**Information in the Sound Study.** On Page 5 of Exhibit H (Sound Study), the applicant provides a table showing typical sound levels generated by construction equipment. In this table, pile drivers (which are the most substantial source of construction noise for this and other solar projects) are estimated to have a noise level of 84-101 dBA as measured at 50 feet. The Sound Study cites the FHWA Construction Noise Handbook as the source of these construction equipment noise level estimates.

In spite of this estimate provided, the Sound Study calculates construction noise levels from pile drivers as approximately 79 to 90 dBA at 50 feet,<sup>39</sup> and it is unclear why the pile drivers used at the Telesto project site would be substantially quieter than standard impact pile drivers used in other similar projects.

BBC requested further information regarding noise level estimates and distances to nearest receptors in the First RFI.

**Pile driving noise estimates for KY solar projects.** BBC compared the projected construction and operational noise levels from the Telesto project to previous estimates for other Kentucky solar

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<sup>39</sup> Exhibit H, pages 5 and 6.

projects we have reviewed for the Siting Board over the past two years.<sup>40</sup> We found that the noise level estimates in the Telesto Sound Study for pile driving activity are generally on the low end of the noise level projections from these other proposed solar facilities. Figure C-22 summarizes the pile driving noise levels estimated in these proposed solar facility applications.

**Figure C-22.**  
**Estimated Noise Levels from Pile Driving, KY Solar Project Proposals (dBA)**

	Maximum estimated noise level at 50 ft (dBA)
<i>Telesto Energy</i>	
Pile drivers (impact)	90.0
<i>Russellville Solar</i>	
Pile drivers (impact)	102.0
<i>Rhudes Creek Solar</i>	
Pile driver & other equip.	90.0
<i>Green River Solar</i>	
Pile driver	94.9
<i>Martin County Solar</i>	
Pile driver (impact)	101.0
Pile driver (sonic)	95.0
<i>Flat Run Solar</i>	
Pile driver	100.6
<i>Ashwood Solar</i>	
Pile driver (impact)	101.0
Pile driver (sonic)	95.0
<i>Unbridled Solar</i>	
Pile driver (impact)	101.0
<i>Turkey Creek Solar</i>	
Pile driver (impact)	101.0
Pile driver (sonic)	96.0

**Sound modeling results.** In response to BBC’s request in the First RFI, Telesto provided a table of distance measurements between each noise receptor within 1,000 feet—whether belonging to a parcel participating in the proposed project or not—to its nearest inverter, nearest solar panel, and to the substation. The table supplied indicates that the minimum distance between a noise receptor and the nearest inverter is 514 feet.<sup>41</sup>

BBC mapped these distances to the receptor ID map provided as part of Telesto’s Supplemental Responses to the First RFI. Neither of the noise receptors (R-109 and R-230) cited above with minimum distances of 514 and 515 feet to the nearest inverter appear to be located on parcels that are participating in the proposed project.<sup>42</sup> This contradicts the Sound Study statement that the nearest non-participating residence is more than 850 feet from its nearest inverter.

<sup>40</sup> In addition to the proposed Telesto project, BBC has also reviewed the proposed Turkey Creek, Unbridled, Ashwood, Flat Run, Martin County, Green River, Rhudes Creek, and Russellville solar facilities.

<sup>41</sup> Telesto Supplemental Responses to the First RFI, #35.

<sup>42</sup> Telesto Responses to the First RFI, #12; Telesto Supplemental Responses to the First RFI, #36.

Regarding operational noise, BBC calculates that, based on the sound pressure level (79.0 dBA) of an inverter as measured at 1 meter,<sup>43</sup> the noise impact from an inverter to a noise receptor at 514 feet remains minimal (35 dBA) in spite of the apparent contradiction with receptor distance information given in the Sound Study.

However, the issue of construction noise is different. Based on the table supplied in Telesto’s Supplemental Responses to the First RFI, the minimum distance between a noise receptor (labeled R-242) and the nearest solar panel/array is 380 feet.<sup>44</sup> BBC calculates that this receptor could experience noise levels up to 78 dBA during pile driving activity, using a noise level estimate of 95 dBA produced by a pile driver as measured at 50 feet. (An estimate of 95 dBA bridges the gap between the maximum 90 dBA estimate given by the applicant and the maximum 101 dBA estimate as supplied by the FHWA Handbook as well as other KY solar project proposals that BBC has reviewed. A 95 dBA estimate is not in conflict with standard pile driver noise range estimates.)

Additionally, there are a further 19 noise receptors that are 600 feet or less from their nearest panel/array.<sup>45</sup> These receptors would likely experience noise levels between 74 and 76 dBA during pile driving. As pile driving is essential for installation of the solar arrays, these receptors are unlikely to avoid the noise impacts of pile driving during construction.

**Commonly accepted noise level exposure limits.** BBC researched noise level exposure limits advocated by public health agencies such as the CDC and the National Institute for Occupational Safety and Health (NIOSH). NIOSH has a recommended exposure limit of 85 dBA (note that decibels are measured on a logarithmic scale).<sup>46</sup> Figure C-20 identifies the time that it takes for a person to reach their full daily noise dose based on differing levels of noise exposure.

**Figure C-21.**  
**Time to Reach 100 Percent of Daily Noise Dose**

Source: Centers for Disease Control and Prevention, The National Institute for Occupational Safety and Health, Guidance and Regulations

Time to reach 100% noise dose	Exposure level (dBA)
8 hours	85
4 hours	88
2 hours	91
1 hour	94
30 minutes	97
15 minutes	100

At 78 dBA—BBC’s conservative estimate of maximum noise level during construction, as measured at the proposed project’s nearest noise-sensitive receptor—the 100% daily noise dose would not be reached in more than 8 hours of continuous noise. Pile driving (the greatest sole contributor to

<sup>43</sup> Telesto Responses to the First RFI, #37.

<sup>44</sup> Telesto Supplemental Responses to the First RFI, #35.

<sup>45</sup> Ibid.

<sup>46</sup> Noise and Hearing Loss Prevention. The National Institute for Occupational Safety and Health. <https://www.cdc.gov/niosh/topics/noise/default.html>

construction noise) will be an intermittent activity on site, and pile drivers will move regularly around the site to install the panel support systems.

**Noise suppression methods.** In the Siting Board's First RFI, the applicant was asked to describe why the SAR and Application materials do not propose noise mitigation during project construction and why the applicant believes mitigation is not necessary – or, to describe methods that will be used if the applicant does anticipate the need for noise mitigation.

Telesto responded that significant noise impacts are not anticipated during either the construction or operation of the proposed project. Additionally:

*Telesto has planned significant buffer and vegetation zones around the entirety of the Project. For example, pile driving will only be intermittent and will not cause significant noise pollution that would require additional noise mitigation measures. Furthermore, there is no evidence or support showing that other possible noise mitigation measures (sound blankets, etc.) suppress noise in any effective manner.<sup>47</sup>*

In response to additional questions from the Siting Board in the Second RFI regarding noise levels during construction and any appropriate mitigation measures, the applicant further stated:

*Noise impacts above 55dBA at any one receptor are not expected for more than 3-5 days during the daylight working hours. Telesto does not propose installing noise mitigation measures for this brief period of time.<sup>48</sup>*

### **Conclusions and Recommendations**

During construction, noise from the pile drivers will have the most substantial impact on the nearest noise receptors, but the maximum noise level at the nearest receptor (which Telesto estimates as 63 dBA, and which BBC estimates could be as high as 78 dBA based on Telesto's receptor distance data and pile driving noise level estimates from multiple other sources), is not dangerous and does not exceed the NIOSH recommended daily exposure limit as long as the noise is not continuous for a period of more than eight hours.

During normal operation of the proposed Telesto facility, noise levels from tracking motors, inverters, and the substation transformer are unlikely to be disruptive to local residents.

The area in which the proposed project site sits is a working agricultural and residential landscape bordered by an active regional airport, an active railway line, and several roadways. It is unlikely that the noise levels at the site during construction or operation will be incongruous with the existing noise profile of the area.

**Recommended mitigation.** Telesto should clarify precisely where pile driving will occur and mitigate hazardous or annoying noise as necessary. Further:

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<sup>47</sup> Telesto Responses to the First RFI, #42.

<sup>48</sup> Telesto Responses to the Second RFI, #3.

- If Telesto's motion to deviate from setback requirements should be approved, the applicant should place panels, inverters and substation equipment no closer to homes and project boundaries than indicated in the application.
- Similar to other recent solar facility applications reviewed by the Siting Board, construction activity at the Telesto site should be limited to the hours of 8 AM to 6 PM, Monday through Saturday, to reduce impacts from construction noise on nearby residents. Non-noise causing and non-construction activities such as field visits, planning meetings, surveying, mowing, etc. can take place on site between 7 AM and 10 PM Monday through Saturday.
- Telesto should prioritize vegetative screen planting before commencing construction activity. This will not only mitigate noise but also allow for the growth of the tree screens during the construction phase, providing an established visual screen to protect the viewshed before the facility begins operation. It may also help mitigate against impacts to the property values of the smaller residential properties adjacent to the proposed facility.
- Telesto should notify residents and businesses within 2,400 feet of the project boundary about the construction plan, the noise potential, and mitigation plans one month prior to the start of construction.
- If pile driving activity occurs within 1,500 feet of a sensitive noise receptor (e.g., residence), Telesto should 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 solar site, or other comparable methods).
- During construction, Telesto should locate stationary noise-generating equipment, such as air compressors or portable power generators, as far as practicable from neighboring residences.
- Telesto should implement a Customer Resolution Program to address any complaints from surrounding landowners. Telesto should submit an annual status report on the Customer Resolution Program to the Siting Board, identifying any complaints, the steps taken to resolve those complaints, and whether the complaint was resolved to the satisfaction of the affected landowner.

## Impacts on Transportation

This portion of the SAR review examines the impacts of the proposed Telesto facility on road transportation. This also includes traffic effects, such as congestion, safety, fugitive dust, and degradation of the transportation infrastructure. This component of the SAR corresponds to KRS 278.708(3)(e).

### Potential Issues and Standard Assessment Approaches

Development of a new power plant can raise a variety of potential traffic related issues. These issues may arise from the movement of construction workers and heavy and oversized loads during the construction process and added congestion during both construction and subsequent operations.

Standard components of the evaluation of traffic-related impacts include:

1. Identification of access methods, and a description and visual portrayal of primary access routes to the site during construction and during operation.
2. Description of baseline traffic conditions: existing traffic counts, road capacity and level of service and any major existing constraints (e.g., bridge weight limitations, etc.).
3. Identification of any special transportation requirements during construction (e.g., the need to reinforce or "ramp over" existing bridges, detours, temporary closures, etc.).
4. Projection of traffic volumes related to construction and operation.
5. Determination of whether the additional traffic, during construction and operation, would lead to congestion, changes in the level of service of the existing road network or additional road maintenance costs.

### Information Provided in the Applicant's SAR

Section E of the SAR (Effect of Operation on Road and Rail Traffic) and Exhibit I to the Application (Traffic Impact Study) provide information regarding anticipated impacts on transportation at and around the proposed project site during construction and operation.

As discussed in earlier sections of this report, the proposed Telesto site is predominantly defined by three roads: St John Road/SR 1357, running east-west near the northern project boundary; Hayden School Road, which runs along the southeastern edge of the project area; and Cecilia Road, which bisects the eastern portion of the project and connects St John Road to Hayden School Road. KY 253 borders the project site to the west and Goodman Lane (a no-exit road) was originally planned to provide one access driveway at the northern part of the site. Other major roadways in proximity of the project site are KY-86, running south of the site near the community of Cecilia, and US 62, which runs southeast of the site through Elizabethtown. The SAR states:

*A road traffic impact study was completed for the Project in May 2022 (Exh. I). Impacts are projected to be minimal and to occur only during the construction phase of the Project. [...]*

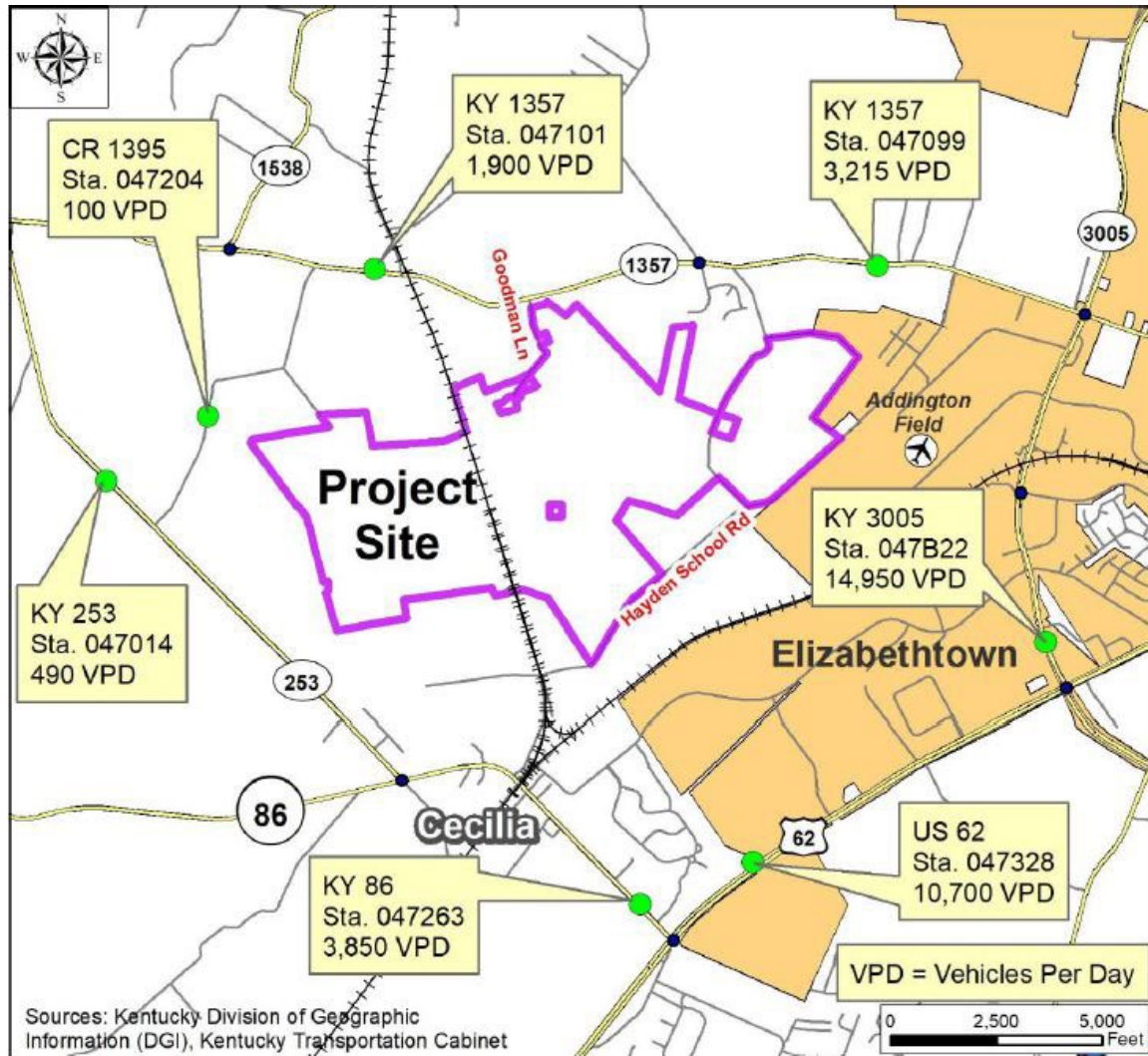
*Construction[...] will not produce significant operational changes to existing roadways. Roadways in the Project area will continue to operate at acceptable (or better) levels of service, even*



during peak a.m. and p.m. construction traffic. [...] Equipment deliveries are expected to “occur on trailers, flatbeds, or other large vehicles at various times during the day and from different inception locations.”<sup>49</sup>

Exhibit I establishes existing traffic conditions through Kentucky Transportation Cabinet (KYTC) Station traffic counts. Figure C-22, excerpted from Exhibit I, shows the traffic stations used in the traffic study.

**Figure C-22.**  
**KYTC Traffic Station Counts Used in Traffic Impact Study**



<sup>49</sup> SAR, page 15.

Currently, all two-lane and multi-lane highways in the project vicinity operate at acceptable Levels of Service (LOS) during both AM and PM peak driving hours.<sup>50</sup>

Exhibit I does not provide an estimate of the vehicle traffic anticipated during the project's construction phase. Rather, the Traffic Impact Study uses sensitivity analysis (modeling vehicle traffic increases of 25 to 50 percent on nearby roads) to demonstrate that traffic levels will not have a significant adverse effect on peak hour traffic flow during the 12-month construction phase.<sup>51</sup> The two-lane and multi-lane highways included in the analysis maintain acceptable LOS ratings even for increases of up to 50 percent, which is likely much higher than will actually occur during project construction.

During the project's operational lifetime, one employee (likely commuting during peak AM/PM times) will be on site each day, with up to three additional employees on site for up to 70 days a year. The increase in daily traffic during standard facility operation is negligible and would have no impact on LOS.<sup>52</sup>

Regarding the existing railroad that runs through the western part of the site, Telesto states:

*The Project will not be using railways for any construction or operational activities. No impacts to the operation of the P&L railroad that bisects the Project area are anticipated to occur. There will be one internal access road crossing the railroad tracks, and Telesto will comply with P&L requirements regarding the siting, construction, and operation of that crossing.*<sup>53</sup>

Finally, Telesto anticipates minor fugitive dust impacts from construction, but these should be modest as the applicant will use best management practices to mitigate dust, such as dewatering procedures, concrete waste management, stormwater detention, watering for dust control, construction of perimeter silt fences, and covering trucks to transport dirt. Once the construction phase is concluded and the project moves into its operational life, no dust or degradation is anticipated on nearby roads or land.<sup>54</sup>

In the First RFI, BBC requested more information about the estimated number and class of delivery trucks anticipated on site and the load weight of the substation transformer delivery, as well as documentation of any correspondence between Telesto and the KYTC District Engineer or the Hardin County road department.

### **Supplemental Investigations, Research, and Analysis**

**Worker-related traffic during construction.** Responding to BBC's questions in the First RFI, Telesto stated that the number of workers onsite will average approximately 200 per day during the construction phase, with a possible peak of about 400 per day during module installation.

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<sup>50</sup> Exhibit I, page 9.

<sup>51</sup> Exhibit I, page 12.

<sup>52</sup> Exhibit I, page 14.

<sup>53</sup> SAR, page 15.

<sup>54</sup> SAR, page 16.

**Vehicle load weights and compatibility with local roadways.** BBC conducted further research on the weight limits and vehicle classes permitted to travel on specific roadways in Kentucky. The primary route adjoining the proposed project site (St John Road/SR 1357) is rated for 44,000 pounds (KYTC Truck Weight Classification). Any vehicle loads exceeding this limit could subject the roadway and shoulder to damage or degradation. Additionally, local roads transited by delivery trucks—such as Cecilia Road or Hayden School Road—may be more susceptible to degradation from heavy loads.

Regarding potential damage to local roadways, the most concerning delivery to site would be that of the proposed project’s substation transformer. A 2012 publication on Large Power Transformers (LPTs) by the U.S. Department of Energy states:

*Transporting an LPT is challenging – its large dimensions and heavy weight pose unique requirements to ensure safe and efficient transportation... When an LPT is transported on the road, it requires obtaining special permits and routes from the department of transportation of each state on the route of the LPT being transported. According to an industry source, obtaining these special permits can require an inspection of various infrastructure (e.g., bridges), which can add delay. In addition, transporting LPTs on the road can require temporary road closures due to traffic issues, as well as a number of crew and police officers to coordinate logistics and redirect traffic.*

BBC contacted the Kentucky Transportation Cabinet’s Department of Overweight/Over-dimensional Vehicles regarding their permitting process. BBC then utilized the KYTC Route Evaluation online tool to ascertain potential route restrictions for oversized deliveries. The BBC team input information for several sample configurations into the KYTC Route Evaluation tool and found that there could be problems with load clearances, particularly during delivery of the power transformer, dependent on the exact configuration of the delivery load.

Additionally, any local roads that are not state routes are not covered by KYTC permits and must instead go through the appropriate county entity. However, overall BBC finds that the limitations and challenges of the primary roadways adjacent to the proposed Telesto project site are comparable with those of several other recent solar facility applications reviewed and approved by the Siting Board within the past 12 months.

BBC expects that advance planning between Telesto and the KYTC (as well as the Hardin County road department, as applicable) can mitigate problems resulting from overweight and over-dimensional load delivery.

In the First RFI, BBC requested further information from the applicant regarding planning or correspondence between Telesto and the KYTC or the Hardin County road department. The applicant stated:

*Telesto has had one conversation with Michael Steck, Hardin County’s Assistant Road Supervisor. Telesto will confer and coordinate with Mr. Steck and the Kentucky Transportation Cabinet regarding impact on roadways as needed and as design and construction plans become more finalized.<sup>55</sup>*

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<sup>55</sup> Telesto Responses to the First RFI, #46.

**Delivery and commuter vehicles.** The SAR and Traffic Study did not provide an estimate of the number of commuter vehicles or weight of delivery vehicle loads that will arrive at the project site during construction. Responding to the First RFI, Telesto supplied additional detail:

*Telesto estimates that there will be 15-20 semi-trucks (80,000 pounds max.) per day for a total of 3 months during module delivery along with 5-10 light duty trucks. There will be 5-10 semi-trucks and 5-10 light duty trucks per day during the ramp up of construction and after module delivery.*

*The total weight of the substation transformer with oil is approximately 280,000 pounds; it would need a truck with a 170-foot trailer for its delivery. Telesto now plans that the substation will be located adjacent to the EKPC Hardin County substation rather than on the Project site.*

*Telesto estimates peak equipment deliveries and traffic to the site in 4Q2023 and the beginning of 1Q2024. Peak delivery times will be between 7am and 3pm local time. The number of workers during the construction phase will average about 200 per day and may peak around 400 per day during module installation.<sup>56</sup>*

### **Conclusions and Recommendations**

During construction, daily deliveries on semi-truck trailers and workforce commuter traffic will substantially increase the amount of traffic on primary roadways near the project site. However, given the low traffic levels at present, traffic volume alone is unlikely to impact the level of service.

Delivery of the project's substation transformer will likely present some challenges given the load ratings of surrounding roadways, however the current 10% design plan—which locates the project substation adjacent to the existing Central Hardin substation—likely mitigates some concerns around transportation of the LPT. In general, challenges can be overcome with careful advance planning and an appropriate traffic management plan.

**Recommended mitigation.** BBC recommends the following measures to mitigate potential impacts on traffic and the local road network:

- Telesto should submit a final construction schedule, including revised estimates of on-site workers and commuter vehicle traffic, to the Siting Board prior to commencement of construction.
- Telesto should develop and implement a traffic management plan for the construction phase of the project to minimize impacts on traffic flow and keep traffic safe. As part of this plan, Telesto should implement ridesharing between construction workers; use appropriate traffic controls; or allow flexible working hours outside of peak hours to minimize any potential delays during AM and PM peak hours.
- Telesto and its construction contractors should comply with all laws and regulations regarding the use of roadways.

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<sup>56</sup> Telesto Responses to the First RFI, #45.

- Telesto should obtain permits from the KYTC and local road authorities as needed for overweight and overdimensional vehicle transport to the site and comply with all permit requirements, coordinating with the KYTC District 4 Permits Engineer and the Hardin County Road Department as needed.
- Telesto should commit to rectify any damage to public roads by fixing or fully compensating the appropriate transportation authorities for any damage or degradation to the existing road network that it causes or to which it materially contributes.
- Telesto should properly maintain construction equipment and follow best management practices related to fugitive dust throughout the construction process. Dust impacts should be kept to a minimal level.

## Other Issues

While not specifically required under the statutes authorizing SAR reviews by consultants for the Siting Board (KRS 278.708), it has become customary to consider additional issues in these reviews, including economic impacts and project decommissioning. This final portion of this section of BBC's report includes these aspects.

### Economic Impacts

**Current economic conditions and trends.** As discussed previously, the proposed Telesto Energy facility would be located in Hardin County, west of the county seat of Elizabethtown. Ranked by population, Hardin County is the sixth largest county in Kentucky with about 111,000 residents as of 2020. The county's population has grown at a moderate pace over the past decade, adding about 4,300 new residents since 2010.

Per capita personal income in Hardin County was just under \$47,900 in 2020, slightly higher than the statewide average of about \$47,300.<sup>57</sup> The average annual unemployment rate in Hardin County during 2020 was 7.1 percent, a little higher than the statewide average unemployment rate of 6.6 percent.<sup>58</sup>

There are about 62,600 jobs located in Hardin County as of 2020. The largest employment sector is government (18,261 jobs), including a major presence of both Federal civilian employees (about 5,200) and Military personnel (about 5,400). This substantial Federal government employment is largely attributable to the nearby presence of Fort Knox. The largest private sector industries in Hardin County in 2020 were retail trade (about 7,000 jobs) and manufacturing (about 6,700 jobs). Hardin County's construction sector included over 2,200 jobs in 2020, while its farms employed over 1,300 people.<sup>59</sup>

There were about 110,000 acres of cropland in Hardin County as of the last Census of Agriculture in 2017, less than two percent of the more than 6.6 million acres of cropland across all of Kentucky.

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<sup>57</sup> U.S. Bureau of Economic Analysis, Table CAINC1 Personal Income Summary and Table CAINC30 Economic Profile. Downloaded December 14, 2021.

<sup>58</sup> U.S. Bureau of Labor Statistics.

<sup>59</sup> U.S. Bureau of Economic Analysis, Table CAEMP25N Total Full-Time and Part-Time Employment by NAICS Industry.

Cropland in Hardin County decreased by about 12,000 acres over the ten-year period between the 2007 and 2017 Censuses of Agriculture. Across Kentucky as a whole, cropland decreased by about 650,000 acres over the same period.<sup>60</sup>

**Applicant economic impact study.** Exhibit M to the Telesto Application (Effect on Local and Regional Economies – Economic Impact Analysis) contains a study of the projected economic impacts from the proposed facility. The analysis was conducted by Stantec, using a solar-power specific version of the Jobs and Economic Development Impact (JEDI) tool developed by the National Renewable Energy Laboratory.

Key findings from the analysis include:

- There will be a one-time spike in construction-related employment over about a 12-month period. The spike will include about 336 direct and 170 indirect jobs in Kentucky. These 506 jobs represent an estimated injection of \$43.6 million in wages into the state economy, which will drive an additional \$15.9 million in increased economic activity.
- The economic impact of the project construction phase to Hardin County (which represents 2.49 percent of Kentucky’s GDP) is estimated as approximately 8 direct jobs, 4 indirect jobs, \$1.1 million in new wages, and \$0.4 million in additional economic activity.
- Ongoing economic impacts (e.g., jobs and payroll) from operations will be small, including one direct job and two indirect jobs supported by project operations activity. These jobs represent an estimated \$194,000 in annual wages.
- A total of approximately \$6.7 million in property taxes is estimated to be paid during the 35-year operational life of the project, or about \$191,000 per year.

**Review and assessment of applicant economic information.** The level of investment in Hardin County projected in the economic impact analysis appears to be roughly consistent with industry standards for a solar project of the size of the proposed Telesto facility, although Stantec’s estimate of direct employment during construction (336 jobs) is larger than the estimates of direct employment seen in other similar solar facility applications that BBC has reviewed for the Siting Board. The overall conclusions that the operating phase will have very modest economic impacts, but that the proposed solar facility will enhance local government revenue while requiring very few services, are consistent with the findings of other commercial solar economic impact studies.

A few inconsistencies are present in the economic impact analysis included as Exhibit M to the Application. In the Siting Board’s First RFI, Telesto was asked to confirm that the estimated impacts are based upon accurate inputs and to provide the JEDI model results for the County, as well as describe how results would differ if the analysis used county-level data instead of state-level data scaled down to the county using a multiplier.

In response, Telesto stated:

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<sup>60</sup> 2017 Census of Agriculture and 2007 Census of Agriculture. County Data. U.S.D.A. National Agricultural Statistics Service.

*The JEDI estimated economic impacts for the Project are based on accurate inputs [...]The total number of jobs created during construction in the county is estimated to be 12.6. Of these, 8.4 are direct jobs while an additional 4.2 jobs are anticipated through indirect and induced demand created by construction activities and the ripple effects of associated spending in the economy. These economic impacts estimated for Hardin County are simply scaled down from state estimates, “by a factor determined by the relative GDP of Hardin County, KY to the GDP of Kentucky. For operational phase impacts in particular, this scaling methodology is likely to yield an estimate that underpredicts actual economic impacts.” App. Exh. M p.6 fn.5. Hardin County has a low GDP when compared to that of Kentucky, and as a result, the estimated number of county jobs is lower in proportion to that of the state.*

*[...] Though there are no explicit requirements to do so, Telesto intends to hire from within Hardin County to the greatest extent possible. When working with construction contractor partners, it is Telesto’s policy to ensure local hiring is prioritized. This priority should increase the actual proportion of the projected 335 direct construction jobs created that will be filled by county residents.<sup>61</sup>*

Telesto noted that JEDI could not be natively run at the county level and so a scaling factor was applied to the state level estimates.

Also in the Siting Board’s First RFI, the applicant was asked to explain whether it intends to pursue an Industrial Revenue Bond and a Payment In Lieu of Taxes Agreement with Hardin County and, if so, to describe how that would change the government revenue impact. Telesto responded that they do not intend to pursue an IRB or PILOT Agreement.<sup>62</sup>

Some information that would provide a more complete picture but which is not provided in the applicant’s economic study includes the direct, indirect, and induced economic benefits from the current use of the land in agriculture; and the potential induced economic benefits from the additional income received by participating landowners if at least a portion of that income is spent locally. The former would at least slightly reduce the projected net economic benefits from ongoing operations of the facility, while the latter would likely increase those projected net benefits. Neither of these aspects would likely result in a material change to the results of the economic impact analysis.

**Recommended mitigation.** BBC recommends the following measures in regard to potential economic impacts:

- Telesto should commit to prioritizing local hiring and increasing the proportion of Hardin County residents to fill the projected 335 direct construction jobs, as noted in the applicant’s Response to the First RFI and cited above.

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<sup>61</sup> Telesto Responses to the First RFI, #33.

<sup>62</sup> Telesto Responses to the First RFI, #34.

## Project Decommissioning

In prior solar projects reviewed by the Siting Board, plans and assurances for decommissioning the sites at the end of their functional lives have been an important issue of concern to both the Siting Board and local governments.

**Applicant project decommissioning plan.** Exhibit N to the Telesto Application (Decommissioning Plan) contains a plan for the decommissioning of the proposed facility. The plan was authored by Stantec on behalf of the applicant.

Exhibit N states that the project facilities will be removed from the site at the owner's expense within 12 months of the facility reaching the end of its useful life (or, if it has not been in active and continuous service for 12 months).<sup>63</sup>

Decommissioning activities will include removal of project components including solar modules, cabling, tracking system, steel piles, inverters, access roads, fencing, substation, and underground transmission line. Components may be sold in the wholesale market or recycled at a Solar Energy Industry Association (SEIA) offsite facility.<sup>64</sup>

The sequence of decommissioning begins with removal of physical project components and progresses to the restoration and revegetation of disturbed land to allow a return to pre-construction land use to the extent possible. The decommissioning plan provided as Exhibit N appears thorough and details the installation placement and subsequent removal of each type of project equipment at the facility.

Figure C-23 shows the estimated net decommissioning cost of the facility, as excerpted from Exhibit N.

**Figure C-23.**  
**Net Decommissioning Summary**

Item	Cost/Revenue
Decommissioning Expenses	\$5,744,600
Potential Revenue – salvage value of panel components and recoverable materials	\$1,954,896
<b>Net Decommissioning Cost</b>	<b>\$3,789,704</b>

*Telesto has indicated that, in compliance with the Hardin County Planning and Development Commission – Zoning Ordinance, a financial guarantee to cover the approved decommissioning cost will be provided. The financial guarantee will be in the form of a performance bond, or other approved method of financial assurance that is acceptable to the Hardin County Planning and Development Commissioners. Telesto Energy Project, LLC will be responsible for decommissioning the Project facilities.*<sup>65</sup>

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<sup>63</sup> Exhibit N, page 4.

<sup>64</sup> Exhibit N, page 5.

<sup>65</sup> Exhibit N, page 15.



**Recommended mitigation.** The applicant has provided a detailed decommissioning plan for the proposed Telesto facility. BBC recommends similar mitigation measures related to decommissioning to those that have been included in recent orders by the Siting Board for other proposed solar facilities:

- As applicable to individual lease agreements, Telesto, its successors, or assigns should abide by the specific land restoration commitments agreed to by individual property owners, as described in each executed lease agreement.
- Telesto should follow through with filing a bond with the Hardin County Fiscal Court, equal to the amount necessary to effectuate the explicit or formal decommissioning plan naming Hardin County as a third-party obligee (or secondary, in addition to individual landowners) beneficiary, in addition to the lessors of the subject property insofar as the leases contain a decommissioning bonding requirement, so that Hardin County will have the authority to draw upon the bond to effectuate the decommissioning plan. For land in which there is no bonding requirement otherwise, Hardin County should be the primary beneficiary of the decommissioning bond for that portion of the project. The bond(s) should be filed with the Hardin County Treasurer or with a bank, title company or financial institution reasonably acceptable to the county. The acceptance of the county of allowing the filing the bond(s) with an entity other than the Fiscal Court, through the Hardin County Treasurer, can be evidenced by a letter from the Judge-Executive, the Fiscal Court, or the County Attorney. The bond(s) should be in place at the time of commencement of operation of the Project. The bond amount should be reviewed every five years at Telesto's expense to determine and update the cost of removal amount. This review should 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 should be provided to the Siting Board or its successors and the Hardin County Fiscal Court. Such certification should be by letter and should include the current amount of the anticipated bond and any change in the costs of removal or decommissioning.
- Telesto or its assigns should provide notice to the Siting Board if during any two-year (730 days) period, it replaces more than 20 percent of its facilities. Telesto should commit to removing the debris and replaced facility components from the project site and Hardin County upon replacement. If the replaced facility components are properly disposed of at a permitted facility, they do not have to be physically removed from Hardin County. However, if the replaced facility components remain in Hardin County, Telesto should inform the Siting Board of where the replaced facility are being disposed.
- Any disposal or recycling of project equipment, during operations or decommissioning of the project, should be done in accordance with applicable laws and requirements.