

**COMMONWEALTH OF KENTUCKY  
BEFORE THE KENTUCKY STATE BOARD  
ON ELECTRIC GENERATION AND TRANSMISSION SITING**

**In the Matter of the Application of Glover Creek Solar, )  
LLC, for a Construction Certificate to Construct a ) Case No. 2020-00043  
Merchant Electric Generating Facility )**

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**PETITION FOR RECONSIDERATION AND CLARIFICATION**

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Glover Creek Solar, LLC (“Glover Creek”), by counsel, hereby respectfully submits this Petition for Reconsideration and Clarification to address certain issues arising out of the Kentucky State Board on Electric Generation and Transmission Siting’s (“Siting Board”) Order issued on September 23, 2020 (the “Order”).

**BACKGROUND**

Glover Creek proposes to construct a 55-megawatt alternating current photovoltaic electricity generation facility, situated on land in Metcalfe County (the “Project”). It filed an application for a certificate to construct this solar-energy project with the Siting Board on March 27, 2020. Notably, no person sought intervention in this matter or filed comments in opposition to the siting of the Project.<sup>1</sup> On September 23, 2020, the Siting Board approved a certificate to construct the Project. As a part of its Order, the Siting Board requires Glover Creek to comply with certain mitigation measures.

Having reviewed the Siting Board’s mitigation measures, Glover Creek requests reconsideration and clarification of certain mitigation measures. Prior to elaborating on what is requested, it is important to provide sufficient context of what phase the development of the Project is in.

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<sup>1</sup> In light of Glover Creek’s extensive public outreach efforts, it is significant that no one has opposed the project.

Glover Creek is currently in the mid-development phase, where the Project has been substantially cleared of environmental, interconnection, site control, and permitting risks. As this stage of development ends, Glover Creek will solicit bids from contractors to design and construct the Project and seek equity, debt, or tax financing for the Project. Additionally, Glover Creek, as with any project developer, must also consider its power purchase agreement, which will generally require multi-million-dollar security that the owner must put at risk in order to move its project forward.

The procurement and contracting, financing, and power offtake processes are extremely rigorous for a project of this size, and every risk area will be carefully reviewed. Each document, and especially permit documents that regulate the construction and operation of the Project such as this Siting Board permit, will be reviewed to determine risk.

Glover Creek's goal during this process is to reduce risk and ambiguity in order to put together a financing and construction bid package for the Project that is as "clean" and straightforward as possible. A comprehensive bid package, with minimal conditions and uncertainty, is imperative to provide assurance for construction bidding, as contractors need to know the defined parameters of the Project when crafting their design, specifications, and proposals. Some permit requirements are expected through this process, but other permit requirements raise red flags, making projects more difficult to finance and more expensive to build. For example, constructing and operating projects, negotiating offtake agreements, and obtaining financing are all more difficult if there are regulatory conditions that are unusual for the industry, that are challenging for compliance based on the nature of the project, or that are ambiguous in a way that creates uncertainty for how to comply with the condition.

Glover Creek has reviewed the Siting Board’s proposed mitigation measures in detail, and the majority of the measures are acceptable to Glover Creek. This Petition is designed to seek changes and clarifications to a small group of mitigation measures that will inhibit the ability for solar to be developed in Kentucky, including the ability of the Project to move forward. The requests are organized below based on the order of how they appear in the Siting Board’s list of mitigation measures. Glover Creek also seeks a modification of the setback requirement for inverters, as discussed near the end of this Petition. Finally, for the Siting Board’s consideration, Glover Creek has proposed language for the revised mitigation measures, which it believes addresses the concerns of the Siting Board, while also maintaining flexibility for Glover Creek to optimize the Project within the Siting Board’s parameters. This proposed language is contained in the Appendix attached hereto, and “marked”<sup>2</sup> versions of the language, showing the specific revisions, are included at the end of each section of this Petition addressing the specific mitigation measure.

## **REQUESTS**

### **1. Final Site Layout Plan**

The Siting Board’s second and fourth mitigation measures relate to the production of a final site layout plan that is to be submitted to the Siting Board. Specifically, the Siting Board will require the following:

2. Upon its completion, a final site layout plan shall be submitted to the Siting Board. Material deviations from the preliminary site layout plan which formed the basis for the instant review shall be clearly indicated on the revised graphic. Those material changes might include substantive changes in the location of solar panels, transformer, inverters, panel motors, substation, or other project facilities or infrastructure.

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<sup>2</sup> With respect to the marking, strikethrough text represents deletions, and underlined text represents insertions.

4. The Siting Board shall determine whether any deviation in the boundaries or site development plan is likely to create a materially different pattern or magnitude of impacts. If not, no further action is required, but if that is the case, Glover Creek shall support the Siting Board's effort to revise its assessment of impacts and mitigation requirements.

Glover Creek seeks clarification from the Siting Board on these requirements. Notably, the Siting Board indicated that *substantive changes* "in the location of solar panels, transformer, inverters, panel motors, substation, or other project facilities or infrastructure" would need to be clearly indicated on the revised graphic. Glover Creek submits that *substantive changes* would be changes from the preliminary site plan that negatively impact the surroundings of the facility. For example, Glover Creek would interpret the following scenarios to be substantive changes that would negatively impact the surroundings of the facility:

- An increase in the footprint;
- A decrease in setback distances;
- A change in location of vegetative buffers;
- Increased noise levels above what was proposed in this matter or reduced buffering, such that there is a material difference in noise at the property boundary;
- Increase in height of infrastructure that would be noticeable from neighboring properties; and
- Alteration in the type of equipment used at the facility that would create additional noise or other negative impact to surrounding properties.

In contrast, Glover Creek does not consider movement of solar panels, inverters, and related infrastructure within the anticipated footprint of the project to be a substantive change. Glover Creek believes that this interpretation is consistent with its response to Harvey Economics' report, where Glover Creek explained:

Glover Creek submits minor modifications in compliance with this note need not be identified. For example, if the solar panels end at a point resulting in more distance from the property boundary than initially identified, it would be unnecessary to provide an

explanation as to the modification. Similarly, if motors are placed on alternate paneling, it would be insignificant unless it impacted a neighboring property owner. If, however, the substation is relocated to the opposite side of the property, a substantial deviation would exist and notification to the Siting Board is reasonable.<sup>3</sup>

Accordingly, Glover Creek respectfully requests clarification from the Siting Board that its interpretation of the Siting Board's requirements on this item is correct, as well as the Siting Board's adoption of the revised mitigation measure below.

***Requested Revised Mitigation Measures***

2. Upon its completion, a final site layout plan shall be submitted to the Siting Board. Material deviations from the preliminary site layout plan which formed the basis for the instant review shall be clearly indicated on the revised graphic. ~~Those material changes might include substantive changes in the location of solar panels, transformer, inverters, panel motors, substation, or other project facilities or infrastructure.~~ Changes from the preliminary site development plan will be considered material deviations if they are changes to the footprint, buffering, setbacks, height, noise, and equipment that result in a negative impact to neighboring properties in comparison to the preliminary site development plan.

4. The Siting Board shall determine whether any deviation in the boundaries or site development plan is likely to create a materially different pattern or magnitude of negative impacts to neighboring properties. If not, no further action is required, but if that is the case, Glover Creek shall support the Siting Board's effort to revise its assessment of impacts and mitigation requirements.

**2. Vegetative Buffers**

The Siting Board's seventh mitigation measure relates to the vegetative buffer that will be located on site. Specifically, the Siting Board will require the following:

7. Where there are potential visual or noise impacts created by the solar facility, Glover Creek shall plant a 15-foot wide vegetative buffer consisting of two staggered rows of evergreen

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<sup>3</sup> Response at 4-5 (filed July 24, 2020).

shrubs. The evergreen shrubs shall be either mature at the time of planting of at least six feet in height, or if Glover Creek elects to plant non-mature evergreen shrubs of at least 3 feet at the time of planting, Glover Creek shall also include additional temporary buffers that would immediately help to mitigate any potential noise and visual impacts until the evergreen shrubs have grown to maturity.

Glover Creek seeks clarification on two aspects of this mitigation measure. First, the initial clause mentions that the vegetative buffer should be installed where there are *potential* visual or noise impacts created by the solar facility. This clause leaves room for ambiguity as to the specific location of where the vegetative buffer should be planted. Glover Creek interprets this mitigation measure to require a 15-foot wide vegetative buffer in the locations marked on the preliminary site plan filed in this matter by Glover Creek.<sup>4</sup> It is important for Glover Creek to have confirmation that the locations where the vegetative buffers are marked on the preliminary site plan are deemed sufficient, so there is not ambiguity about the locations where the vegetative buffer needs to be installed. Because the site layout, including the buffer locations, were reviewed by the Siting Board, its consultant, and the community during the public comment process, Glover Creek requests confirmation that the locations in the site plan be approved and deemed to satisfy this mitigation measure.

Second, Glover Creek is concerned about the requirement that “if Glover Creek elects to plant non-mature evergreen shrubs of at least 3 feet at the time of planting, Glover Creek shall also include additional temporary buffers that would immediately help to mitigate any potential noise and visual impacts until the evergreen shrubs have grown to maturity.” Glover Creek

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<sup>4</sup> If there are material changes to the final site development plan, the locations of the buffers could change, and, as Glover Creek acknowledges in Section 1, the Siting Board would have the right to review and approve such substantive changes.

initially notes that this condition was not a recommendation of Harvey Economics, and therefore, Glover Creek has not previously had an opportunity to comment on it.<sup>5</sup>

Glover Creek's primary concern with this requirement is that it will place an unnecessary economic strain on the Project. Planting trees that are a minimum of six-feet tall is significantly more expensive than planting non-mature trees that are a minimum of three-feet tall, but which will grow. In addition, although it is not clear what the Siting Board meant by "additional temporary buffers," two possible buffers would be to affix a temporary canvas or install green slats on the chain link fence. Inclusion of either measure would similarly add unanticipated expense to the project. Moreover, if slats were to be used permanently, it would be duplicative to also require a vegetative buffer because the slats would serve the same purpose.

Glover Creek submits that additional temporary buffers are unnecessary. As indicated on the attached Noise Addendum prepared by Pond, the loudest anticipated noise for the tamping process will be 95 decibels at the property line that is 100 feet from the nearest possible pile-driving location,<sup>6</sup> and there are a limited number of residences located within close proximity to the property lines.<sup>7</sup> The vast majority of the solar-racking system will be installed in the interior of the site further from the property boundaries, and the tamping process will occur over a limited period of time during construction.

Accordingly, Glover Creek respectfully requests that the Siting Board eliminate the requirement that Glover Creek shall include additional temporary buffers to mitigate any potential noise and visual impacts until the evergreen shrubs have grown to maturity if Glover Creek elects to plant non-mature evergreen shrubs of at least 3 feet at the time of planting. If the

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<sup>5</sup> KRS 278.708(6) states that "The applicant shall be given the opportunity to present evidence to the board regarding any mitigation measures."

<sup>6</sup> Noise Addendum attached as Exhibit 1.<sup>7</sup> See Harvey Economics' Report at V-15.<sup>8</sup> See Harvey Economics' Report at V-23, V-24.

<sup>7</sup> See Harvey Economics' Report at V-15.<sup>8</sup> See Harvey Economics' Report at V-23, V-24.

Siting Board denies this request and requires additional temporary buffers, Glover Creek requests that the Siting Board confirm that the vegetative buffer locations marked on the site plan are appropriate for such temporary buffers, and identify which type of temporary buffers would be acceptable (e.g., canvas or slats for fence).

***Requested Revised Mitigation Measure***

7. Where there are ~~potential~~ anticipated visual or noise impacts created by the solar facility, Glover Creek shall plant a 15-foot wide vegetative buffer consisting of two staggered rows of evergreen shrubs in accordance with the vegetative buffer locations indicated on the preliminary site layout plan. ~~The evergreen shrubs shall be either mature at the time of planting of at least six feet in height, or if Glover Creek elects to plant non-mature evergreen shrubs of at least 3 feet at the time of planting, Glover Creek shall also include additional temporary buffers that would immediately help to mitigate any potential noise and visual impacts until the evergreen shrubs have grown to maturity.~~

**3. Tamping Process**

The Siting Board's eighth mitigation measure relates to the tamping of the racking system and vegetative buffer. Specifically, the Siting Board will require the following:

8. Glover Creek shall implement the modified vegetative buffers to those properties that are within 1,500 feet of the solar facilities' boundary lines before the tamping of the racking panels and Glover Creek shall schedule the tamping process at these nearby homes so that the tamping will occur at the end of the tamping process period.

This condition was not a recommendation of Harvey Economics, and therefore, Glover Creek has not previously had an opportunity to comment on it.

Glover Creek is concerned that this requirement is vague and ambiguous as to the required location of the modified vegetative buffer. As described above, the preliminary site plan shows the location of Glover Creek's proposed vegetative buffers. It is not clear how to apply a modified buffer to benefit properties that are 1,500 feet away, and what that means for



the specific location of the proposed vegetative buffer. Similar to mitigation measure 7, without clarification from the Siting Board, it is also unclear what process Glover Creek should follow to confirm whether its proposed vegetative buffer locations are deemed to satisfy this mitigation measure because the proposed site layout, including the buffer locations, have already been reviewed by the Siting Board, its consultant and the community during the public comment process.

In addition, it is not clear why the tamping process close to nearby homes must be scheduled at the end of the tamping process. Residences within 1,500 feet are scattered along various portions of the Project limits. Scheduling all of the tamping near residences within 1,500 feet at the end of the tamping process will be inefficient and likely to cause increased costs, delays, or other unintended consequences during construction with uncertain benefit to the community. Glover Creek is committed to advising residents within 1,500 feet of the property boundaries of potential construction noises as required by the eighteenth mitigation measure, but adjusting its construction schedule in a way that is likely to be inefficient and take longer creates unnecessary burdens on the Project and, in the end, does not actually spare the residents from the temporary noise of the tamping. Accordingly, Glover Creek respectfully requests elimination of the requirement that it schedule tamping of select portions of the site on a certain schedule, so that tamping can be planned according to the most efficient schedule based on site conditions at the time of installation.

***Requested Revised Mitigation Measure***

~~8. Glover Creek shall implement the modified vegetative buffers to those properties that are within 1,500 feet of the solar facilities' boundary lines before the tamping of the racking panels and Glover Creek shall schedule the tamping process at these nearby homes so that the tamping will occur at the end of the tamping process period.~~

**4. Working Hours**

The Siting Board's eleventh mitigation measure relates to the hours that activities can be conducted on the Project site. Specifically, the Siting Board will require the following:

11. Glover Creek's construction activity, process, and deliveries shall be limited to the hours of 8 a.m. and 6 p.m. Monday through Saturday.

This requirement is unusual for the solar industry and places a substantial restriction on Glover Creek's ability to meet construction and operational deadlines. This restriction could interfere with Glover Creek's interconnection agreements and agreements with end-users, which carry significant penalties for delay and missed milestone dates. It also restricts Glover Creek's ability to respond to unanticipated delays caused by weather, logistics, international events, or other events outside of Glover Creek's control. In addition, it would likely lengthen the overall duration of construction activities.

Glover Creek has not had an opportunity to comment on this mitigation measure. Harvey Economics did not recommend any limitation on time of day for construction activities, process, or deliveries. It appears that this condition was modified from the consultant's report in Case No. 2020-00040, which recommended that construction activities and deliveries be limited to the hours of 7 a.m. until 9 p.m. without limitation on the days of the week, to which the Applicant agreed.

Assembly of the panel tracking system, the installation of solar panels, inverters, battery storage units, and other electrical equipment associated with the solar facility and substation will likely employ typical manual hand tools and power tools. These assembly operations will occur a hundred feet to thousands of feet inside the property boundary, will occur during normal business hours on weekdays, and any noise generated by power equipment would be short in duration.

Regrettably, Glover Creek did not catch this error until after the Siting Board's September 23, 2020, Order. The limitation placed by the Siting Board for construction activity, process, and deliveries to be restricted to the hours between 8 a.m. and 6 p.m., Monday through Saturday would severely impact the viability of all solar projects in Kentucky, including the Project. In addition, finishing the project timely and quickly benefits the neighbors of the project by not unnecessarily prolonging construction activities. Accordingly, Glover Creek respectfully requests the Siting Board amend this condition to be consistent with Harvey Economics' recommendation that construction activities and deliveries be limited to the hours of 7 a.m. until 9 p.m. without limitation on the days of the week.

***Requested Revised Mitigation Measure***

11. Glover Creek's construction activity, process, and deliveries shall be limited to the hours of 7 a.m. and 9 p.m. ~~8 a.m. and 6 p.m. Monday through Saturday.~~

**5. Potential damage to roads**

The Siting Board's seventeenth mitigation measure relates to potential damage to roads. Specifically, the Siting Board will require the following:

17. Glover Creek shall fix or pay for damage resulting from any vehicle transport to the project site.

This requirement appears to be a measure modified from Harvey Economics' following recommendations:

The Applicant will inform and obtain permits from State and local road authorities as pertaining to the Class 21 vehicle transport to the site. The Applicant will comply with those permit requirements.

The Applicant will fix or pay for damage resulting from Class 21 vehicle transport to the Project site and will coordinate with proper road officials prior to these trips.

Glover Creek is dedicated to being a good member of the community and not adding additional cost and burden to Metcalfe County. However, it is unclear from this requirement how road damage will be assessed or allocated to Glover Creek and with which regulatory body Glover Creek should work to confirm compliance with this mitigation measure. This uncertainty has the potential to add significant cost and risk to Glover Creek's construction and transport contracts.

Glover Creek or its vendors will be required to obtain necessary transportation permits.<sup>8</sup> Glover Creek or its vendors would be liable for citations if the applicable permits were not acquired from the Kentucky Transportation Cabinet prior to any shipments within or into Kentucky.<sup>9</sup> Those potential assessments associated with failing to comply with the permit requirements presumably encompass all concerns of the Kentucky Transportation Cabinet and other agencies regulating transportation. Accordingly, Glover Creek requests a clarification that this mitigation measure would require that Glover Creek fix or pay for damage resulting from any vehicle transport to the project site as may be required by the applicable transportation permits obtained from State and local road authorities.

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<sup>8</sup> See Harvey Economics' Report at V-23, V-24.

<sup>9</sup> *Id.*

***Requested Revised Mitigation Measure***

17. Glover Creek shall fix or pay for damage resulting from any vehicle transport to the project site in accordance with all applicable transportation permits obtained from State and local road authorities.

**6. Communication with nearby property owners regarding noise**

The Siting Board's nineteenth, twentieth, and twenty-first mitigation measures relate to communication with nearby property owners regarding potential construction and operational noise on site. Specifically, the Siting Board will require the following:

19. Glover Creek shall remain in contact with nearby residents to confirm that noise levels are not unduly high or annoying after the pounding and placement of the solar panel racking begins. Any noise generator that creates noise levels in excess of 120 dB shall be considered unduly high or annoying.

20. If noise levels during the construction period are unacceptable to nearby residents or landowners (i.e., noise levels greater than 120 dB), Glover Creek shall take such steps to mitigate the noise impact.

21. Glover Creek shall contact nearby residents to confirm that noise levels are not unduly high or annoying after operations begin. Any noise generator that creates noise levels in excess of 120 dB shall be considered unduly high or annoying.

Glover Creek is concerned about the ambiguity of the measurement location for the 120 dB threshold. It is unclear whether the Siting Board's requirement relates to noise where it is generated or where it is heard on a neighboring property (the receptor).

The description of the requirements and reasons for such requirements appear to focus on a nearby resident who could be impacted by noise. For example, two of the requirements are focused on communications with the nearby residents to ensure that the noise they hear is not

unduly high or annoying. Similarly, the twentieth measure indicates that a noise level greater than 120 dB is deemed “unacceptable to nearby residents and landowners.”

However, the specific language of two of the requirements shifts that focus from the receptor to the source, indicating that “[a]ny noise *generator* that *creates* noise levels in excess of 120 dB shall be considered unduly high or annoying.” (Emphasis added.) That interpretation would change focus from the nearby resident who would be impacted to the noise generator. If the standard is based on noise measured at the noise generator, it would severely impact the viability of solar projects in Kentucky, including the Project. Rather, it is more appropriate to have a standard based on noise measured at the noise receptor, and not the noise generator.

Based on these reasons, Glover Creek respectfully requests confirmation that these three mitigation measures are focused on a potential noise receptor on a neighboring property. Because the noise could impact neighboring properties at the property boundaries, Glover Creek requests Siting Board confirmation that only noise levels of 120 dB or greater at the project’s external property boundaries would be considered unduly high or annoying.

***Requested Revised Mitigation Measure***

19. Glover Creek shall remain in contact with nearby residents to confirm that noise levels are not unduly high or annoying after the pounding and placement of the solar panel racking begins. Noise levels from the project in excess of 120 dB at the project's external property boundaries shall be considered unduly high or annoying. ~~Any noise generator that creates noise levels in excess of 120 dB shall be considered unduly high or annoying.~~
20. If noise levels during the construction period are unacceptable to nearby residents or landowners (i.e., noise levels greater than 120 dB at the project's external property boundaries), Glover Creek shall take such steps to mitigate the noise impact.
21. Glover Creek shall contact nearby residents to confirm that noise levels are not unduly high or annoying after operations begin. Noise levels from the project in excess of 120 dB at the project's external property boundaries shall be considered unduly high or annoying. ~~Any noise generator that creates noise levels in excess of 120 dB shall be considered unduly high or annoying.~~

**7. Setback for Inverters**

In its Order, the Siting Board approved Glover Creek's motion for deviation from the setback requirements with one exception: "that the inverters be located at least 2,000 feet from the closest residence given that the application provided that the location of the inverters will be at least at such a distance." Any requirement that inverters be located no closer than 2,000 feet to the closest residence may threaten the viability of solar development projects in Kentucky. Accordingly, Glover Creek requests the Siting Board reconsider this requirement.

Glover Creek acknowledges that there were imprecise and inconsistent statements in the Application materials regarding the distance of any inverters to the closest residence and apologizes for the inconsistent statements in the Application materials regarding the inverter setbacks. The Pond Noise and Traffic Assessment that was filed with the Application incorrectly mentions that the preliminary site plan would have the distance of the closest inverter to a residence at a minimum of 2,000 feet. In Section 4 of the Site Assessment Report ("Anticipated Noise Levels at Property Boundary"), Glover Creek incorrectly quoted the Pond Noise and

choice of racking system manufacturer (for the single axis tracking racks that will hold the solar panels) will be an important input into that final detailed design step since the racking system used will determine row length and spacing.

In that same filing, Glover Creek explained that transformers would be co-located with inverters and 150 feet from the property lines.

Q. How far away from the nearest dwelling will the transformers be?

A. The transformers that are co-located with the inverters throughout the project site will be located at minimum 150' from the external property lines of the parent parcel tracts. Most transformers will be internal to the Project site, and much further than 150' from the external property lines.<sup>10</sup>

In response to the next round of data requests, Glover Creek had the opportunity to elaborate on its plans.

Q. Location of transformers/inverters/ESS – the response to RFI #1 indicates that the final locations of those facilities has not been determined, but that they will be at least 150 feet from the property boundary. The Pond report states that the inverters will be located at least 2,000 feet from any homes. Does this mean that the nearest home to the property boundary is 1,850 feet? Please confirm those distances or resolve the differences. Does the site layout graphic provided in Exhibit D of RFI #1 provide a likely representation of those locations?

A. The Project is committed to placing inverters, transformers and ESS at least 150 feet away from the property boundary. The distance stated in the Pond report of 2,000 feet away is incorrect. Please see Exhibit E for a corrected Pond report. Please note that in addition to correcting the inverter setbacks, the updated Pond report also includes updates to the traffic table – some new traffic data has been released since our original submittal. As described in the answer to Harvey Economics question IIF3 in RFI #1, finalizing the location of the inverters and energy storage systems will be part of the final site design process.

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<sup>10</sup> Glover Creek Response to Item VII(B)(5) of Harvey Economics' First Request for Information.



The locations shown on the site layout in Exhibit D of RFI #1 are indicative.<sup>11</sup>

In addition to providing that narrative response, Glover Creek also filed a revised Pond Report, which states: “The noise produced by the inverters is 67.0 dBA, which is slightly above that of a typical person-to-person conversation (i.e., 60.0). Inverters may be located as close as 150 feet from the nearest noise receptor (i.e., single-family residences).” Based on this information, Glover Creek respectfully submits that it appropriately clarified the possible setbacks for inverters being at least 150 feet from the nearest residence.

Glover Creek also requests that the Siting Board consider additional information in the Noise Addendum attached hereto as Exhibit 1 regarding operational noise. In addition to providing information on central inverters, the Noise Addendum also explains the difference in operational noise between central inverters and string inverters. As the addendum indicates, string inverters are installed at the end of rows of solar panels and, therefore, are located on the edges of the footprint, which for Glover Creek is at least 100 feet from the property boundary. But because string inverters produce less noise compared to a central inverter, there would actually be a reduction in the amount of noise at the nearest noise receptor 100 feet away from a string inverter, compared to 150 feet away from a central inverter. Both central and string inverters are commonly used in the solar industry, and Glover Creek seeks flexibility in the use of either type of inverter.

Based on the foregoing information, Glover Creek requests that the Siting Board amend its requirement that the inverters be located at least 2,000 feet from the closest residence such that the minimum setback of central inverters be 150 feet away from property lines, and string inverters be the same as other facility infrastructure that will be no closer than 100 feet from the

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<sup>11</sup> Glover Creek Response to Item II(C) of Harvey Economics’ Second Request for Information.

project's external property boundaries.<sup>12</sup> This amendment is critical in order for Glover Creek to proceed towards financing and construction.

***Requested Revised Ordering Paragraph***

2. Glover Creek's motion for deviation from the 2,000 feet setback requirement is granted ~~except for the location of the inverters~~. All solar infrastructure (including string inverters, if used) shall be at least 100 feet from the project's external property boundaries, and central inverters, if used, shall be at least 150 feet away from the project's external property boundaries.

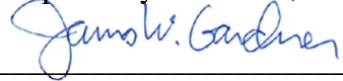
**CONCLUSION**

Glover Creek is excited to be one of the first utility-scale solar projects in Kentucky. It appreciates the opportunity afforded by the Siting Board in this case to explain the Project and the effort of the Siting Board and its consultant in evaluating its proposal. Glover Creek understands the concerns of the Siting Board as reflected in the Siting Board's mitigation measures, and is hopeful that the Siting Board will understand Glover Creek's concerns about ensuring that the Project—and future Kentucky solar projects—are viable. Accordingly, Glover Creek respectfully requests the Siting Board approve the above-mentioned amendments and clarifications to the Siting Board's mitigation measures. The proposed language for the mitigation measures is contained in the Appendix.

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<sup>12</sup> The setback of inverters being at least 100 feet from property boundaries provides more than 150 feet to the nearest residence. As Harvey Economics reported, the closest residence is 55 feet from the property boundary, thereby making it more than 150 feet from the closest solar equipment. And with respect to that specific property, Harvey Economics indicated that there would be an additional distance because of the existing floodplain.

Respectfully submitted,



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ATTORNEYS FOR GLOVER CREEK SOLAR, LLC

## APPENDIX

### AMENDED MITIGATION MEASURES

2. Upon its completion, a final site layout plan shall be submitted to the Siting Board. Material deviations from the preliminary site layout plan which formed the basis for the instant review shall be clearly indicated on the revised graphic. Changes from the preliminary site development plan will be considered material deviations if they are changes to the footprint, buffering, setbacks, height, noise, and equipment that result in a negative impact to neighboring properties in comparison to the preliminary site development plan.
4. The Siting Board shall determine whether any deviation in the boundaries or site development plan is likely to create a materially different pattern or magnitude of negative impacts to neighboring properties. If not, no further action is required, but if that is the case, Glover Creek shall support the Siting Board's effort to revise its assessment of impacts and mitigation requirements.
7. Where there are anticipated visual or noise impacts created by the solar facility, Glover Creek shall plant a 15-foot wide vegetative buffer consisting of two staggered rows of evergreen shrubs in accordance with the vegetative buffer locations indicated on the preliminary site plan.
8. [deleted]
11. Glover Creek's construction activity, process, and deliveries shall be limited to the hours of 7 a.m. and 9 p.m.
17. Glover Creek shall fix or pay for damage resulting from any vehicle transport to the project site in accordance with all applicable transportation permits obtained from State and local road authorities.
19. Glover Creek shall remain in contact with nearby residents to confirm that noise levels are not unduly high or annoying after the pounding and placement of the solar panel racking begins. Noise levels from the project in excess of 120 dB at the project's external property boundaries shall be considered unduly high or annoying.
20. If noise levels during the construction period are unacceptable to nearby residents or landowners (i.e., noise levels greater than 120 dB at the project's external property boundaries), Glover Creek shall take such steps to mitigate the noise impact.
21. Glover Creek shall contact nearby residents to confirm that noise levels are not unduly high or annoying after operations begin. Noise levels from the project in excess of 120 dB at the project's external property boundaries shall be considered unduly high or annoying.

## **APPENDIX**

### **ORDERING PARAGRAPH #2**

2. Glover Creek's motion for deviation from the 2,000 feet setback requirement is granted. All solar infrastructure (including string inverters, if used) shall be at least 100 feet from the project's external property boundaries, and central inverters, if used, shall be at least 150 feet away from the project's external property boundaries.

**Noise Addendum**  
**Glover Creek Solar Facility**  
October 13, 2020



**Construction Noise**

In Section 2.2. of the Noise and Traffic Assessment (Assessment) for the Glover Creek Solar Facility (dated June 22, 2020), proposed construction noise was addressed by using the typical noise levels produced by construction equipment as published by the U.S. Department of Transportation, Federal Highway Administration. To supplement the information produced within the Assessment, this addendum outlines the noise produced from the loudest equipment potentially used during the construction phase of the proposed facility (i.e., pile driver), and operational noise (i.e., inverters). Distance attenuation calculations for pile driver operational noise (assuming no obstructions, barriers, or sound dampening) is presented below.

**Anticipated Noise Produced by Very Loud Construction Equipment (pile driver)**

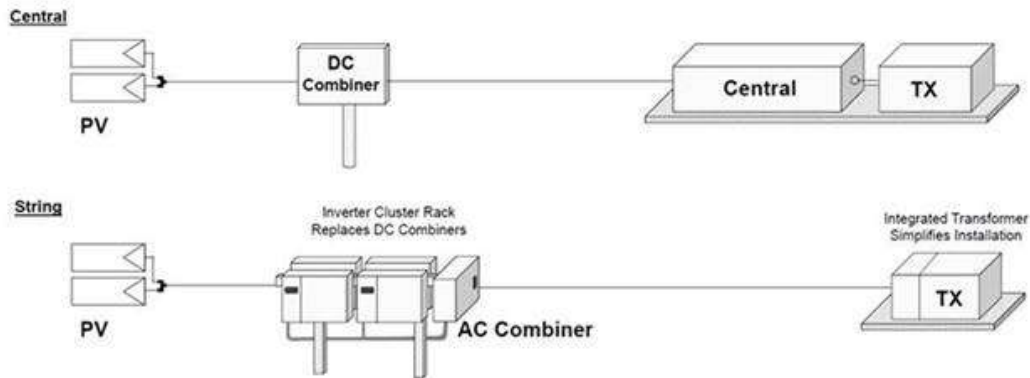
Distance from Noise Source to Receptor (feet)	Noise Experienced at Noise Receptor (dB)
50	101.00
100	94.98
200	88.96
300	85.44
500	81.00
1,000	74.98
1,500	71.46

According to the calculations above, very loud construction noise (i.e., the operation of a pile driver) will be reduced to approximately the same decibel level as a hair dryer at 300 feet and further decreasing to the level of a washing machine or dishwasher by 1,000 feet. As discussed in the Assessment, construction activities and their associated noises are typical of construction activities for other development activities and are temporary by nature.

**Operational Noise**

In Section 2.3.2. of the Assessment, the inverters proposed for use were SMA Sunny Central UP inverters, or similar. As discussed in the Section 2.3.2., the SMA Sunny Central UP inverters produce noise of 67.0 at 10 meters, which is roughly the equivalent to the hum of a household air-conditioning unit. These inverters are considered “central” inverters and typically produce more noise than “string” inverters, which is another type of inverter commonly used in solar installations in the US. String inverters transform the direct current (DC) from the photovoltaic modules into an alternating current (AC) that can be fed into the electrical grid. PV modules are arranged into groups connected by strings. Multiple strings of PV modules can be connected to a single inverter, which transforms the DC electricity produced by the PV modules into AC electricity. String inverters are located at the end of a row of solar panels, and are therefore more likely to be located near the perimeter of a solar project, as opposed to “central” inverters, which as their name suggests, are most often located closer to the center of different areas within a solar project.

The image below compares the central and string architecture.



A typical string inverter is the SUNGROW Grid-connected PV Inverter, or similar. This unit produces a noise level of 74.4 dB at a distance of one meter. According to distance attenuation calculations, the noise produced at 10 meters by the SUNGROW inverter is 54.4 dB, which is 12.6 dB less than the central SMA inverters. See the table below for additional distance attenuation calculations, which assume no obstructions, barriers, or other sound dampening occurs.

**Anticipated Noise produced by the SMA Sunny Central UP (or similar) central inverter**

Distance from Noise Source to Receptor (feet)	Noise Experienced at Noise Receptor (dB)
3.28 (1 meter)	97.32
25	69.36
32.8 (10 meters)	67.00
50	63.00
100	57.32
150	53.80
200	51.30
300	47.78
400	45.28
500	43.34

**Anticipated Noise produced by the SUNGROW Grid-connected PC (or similar) string inverter**

Distance from Noise Source to Receptor (feet)	Noise Experienced at Noise Receptor (dB)
3.28 (1 meter)	74.40
25	56.76
32.8 (10 meters)	54.40
50	50.74
100	44.72
150	41.20
200	38.70
300	35.18
400	32.68
500	30.74

At the time of the Assessment, the noise receptor nearest to any inverter was approximately 2,000 feet away, according to preliminary site plans. However, Pond provided updated reports in response to Harvey Economics questions, confirming that central inverters would be no less than 150 feet from property boundaries. At the time, we were not aware that there might be specific setbacks placed on inverters in the Siting Board permit.

As described above, string inverters are mounted at the end of rows of solar panels, and by their design are not able to be set back inside the project footprint. String inverter setbacks are therefore proposed to be in line with the property line setbacks imposed on the preliminary site plan, no less than 100 feet from the property boundary.

The distance attenuation for the noise produced from the SMA central inverters at 150 feet is approximately 53.8 dB. The distance attenuation for the noise produced from the SUNGROW string inverters at 100 feet is approximately 44.7 dB. According to the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) and the Center for Disease Control, National Institute for Occupational Safety and Health (NIOSH), typical sound levels for a conversation is 60 dB, an urban residence is 50 dB, a whisper is around 30-40 dB, a silent study room and ticking watch is 20 dB, and normal breathing is 10 dB.

The noise produced by the SMA central inverter at a distance of 150 feet (53.8 dB) will produce roughly the noise level between a conversation and an urban residence, and the SUNGROW string inverter at a distance of 100 feet (44.7 dB) will produce noise slightly louder than a whisper. Both types of inverters typically do not operate or produce noise during non-daylight hours when the solar panels are not generating electricity.

In addition, energy storage systems (ESS) will be used in conjunction with central inverters (or will be centrally located, if string inverters are used). ESS have associated air-conditioning units that regulate temperatures within the ESS. The noise produced by the ESS air-conditioning units are comparable to that of typical household air-conditioning units.

In conclusion, inverters will not be a significant contributor if located 150 feet (central inverters) or 100 feet (string inverters) or greater from the property boundary. Locating the inverters at such distance from a noise receptor would not represent a materially different magnitude of impact.



## Signature of Professionals



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