BEFORE THE OHIO POWER SITING BOARD

In the Matter of the Application of Sycamore Creek Solar, LLC for a Certificate of Environmental Compatibility and Public Need.	**)** **)** **)**	**Case No. 20-1762-EL-BGN**

DIRECT TESTIMONY OF KENNETH KALISKI

Q.1. Please state your name, title, and business address.

A.1. My name is Kenneth Kaliski. I am employed by Resource Systems Group, Inc. ("RSG") as a Senior Director. My business address is 55 Railroad Row, White River Junction, VT 05001.

Q.2. What are your duties at RSG?

A.2. I have worked with RSG since its founding in 1986 and served on its Board of Directors for fifteen years. In my role as Senior Director, I direct and manage projects related to acoustics and noise. This includes noise assessments for projects from a wide variety of sectors, including solar power development. I manage and mentor acoustics staff and am responsible for business development and client relationships.

Q.3. What is your educational and professional background?

A.3. I have a Bachelor of Arts in Biology and Environmental Studies from Dartmouth College and a Bachelor of Engineering from the Thayer School of Engineering at Dartmouth College. My educational experience includes coursework in sound level monitoring, noise control engineering, active noise control, indoor and outdoor acoustical modeling, vibration control, sound level meter design, and the physics and mathematics

involving sound and its propagation. I am the co-holder of a patent for an environmental noise monitoring system.

I am a professional engineer, with licenses in Vermont, New Hampshire, Massachusetts, Illinois, and Michigan. I am Board Certified through Institute of Noise Control Engineering ("INCE"), and within INCE, I formally served as its Vice President for Board Certification and on its Board of Directors. I am currently the co-chair of INCE's Wind Turbine Noise Technical Activity Committee. In 2020, I received the INCE William W. Lang Distinguished Noise Control Engineer award for my "meaningful service to and enthusiastic support of INCE Board Certification, notable contributions to the field of wind turbine acoustics, and use of rigorous analytics and novel approaches to advance the field of noise control engineering."[1]

I am a member of the Acoustical Society of America and RSG is a member of the National Council of Acoustical Consultants. I am a Qualified Environmental Professional as certified through the Institute of Professional Environmental Practice.

I have been involved with noise from solar projects since 2014. I am the co-author of "An overview of sound from commercial photovoltaic facilities," published in the Proceedings of Noise-Con 2020.

Q.4. On whose behalf are you offering testimony?

A.4. I am testifying on behalf of the Applicant, Sycamore Creek Solar, LLC ("Applicant"), regarding its Application filed in Case No. 20-1380-EL-BGN.

Q.5. What is the purpose of your testimony?

[1] Quote from INCE citation.

A.5. The purpose of my testimony is to describe the noise assessment study conducted by RSG and included in the Application as Exhibit P and to summarize the results of that study. Additionally, I will be addressing Conditions 18 and 19 of the Joint Stipulation filed on September 22, 2021, which I have reviewed.

Q.6. Please describe the noise assessment study included in the Application.

A.6. RSG carried out a noise impact assessment for the Sycamore Creek Solar Project ("Project") to determine existing ambient sound levels in the Project area and to model sound emissions of the primary sound-producing Project components, namely inverters and transformers, so that projected sound levels could be compared to the existing ambient conditions.

Typical operations of the Project include transformers and inverters operating during the day, and only transformers operating at night. However, the inverters may operate sometimes at night to provide reactive power management. As such, the study assumed that all sources could operate at night.

The Project area is primarily agricultural with scattered residences and farmsteads throughout. 582 sensitive receptors were included in the study, of which 579 were non-participating sensitive receptors.

Q7. Did you conduct background sound monitoring?

A7. Yes, background sound level monitoring was conducted at three locations around the Project Area. The three monitors were representative of residences (A) along OH-602, a major collector road that runs north and south through the Project Area; (B) along Heetrich Road, a local road in the Project Area with light traffic; and (C) on Chatfield Center Road, a greater traveled local road in the Project Area. Sound levels were

continuously measured from October 30, 2020, through November 6, 2020. During analysis, sound level data was removed from the dataset during the periods that would cause false sound level readings or artificially high levels, such as wind speeds above 11 mph; precipitation and thunderstorm events; anomalous events; or equipment interactions by RSG staff, other people, or animals.

Q.8. How did you select the three monitoring locations?

A.8. We selected representative soundscapes in the Project area and then worked with the Applicant to identify specific locations where we could gain site access. We typically consider factors such as land use, road traffic, distance to roadways, population density, and distance to geographic features (rivers, relative elevation, ground cover, etc.). Consideration is also given to security of the monitoring equipment. In this case, the factors that affect the soundscape in the Project area are not too complex and the monitor location decisions were primarily driven by the location of the sensitive receptors and roadways. The distance a monitor is placed from a roadway is determined by the setback distance of sensitive receptors along the roadway. That is, monitors are placed at a setback distance similar to nearby homes. The characteristics that are represented at each monitor location that played a role in monitor location selection are listed in the Table below:

Monitor	Factors for Selection	Distance to Nearest Road
A	Southern half of the Project Area. Near the proposed substation. Setback from OH-602 at a distance comparable to or larger setback distances to most residences along the road. OH-602 classified as "major collector" by ODOT.	509 feet
B	Setback from a less traveled local road, Heetrich Road, comparable to setback distances for residences along local road.	39 feet
C	Setback from a greater traveled local road, Chatfield Center Road, comparable to setback distances for residences along local rural road.	36 feet

Q.9. Do you believe the three monitoring locations are representative of a significant amount of the Project area?

A.9. Yes. Monitor A is representative of the eastern side of the Project area along SR-602, Monitor B is representative of the southern rural extent of the Project area, and Monitor C is representative of the northern rural extent of the Project area. Note that Monitor C was set closer to the road than the setback of most of the nearby residences. As a result, we adjusted the results of the monitoring by -7 dB to account for the further setback.

Q.10. What did the survey results indicate with respect to the sound levels that currently exist in the area?

A.10. Based on the background sound monitoring conducted at the three monitoring locations in the Project area, the average existing daytime and nighttime equivalent continuous sound levels (L_{eq}) in the area are 47 dBA and 42 dBA, respectively.

Q.11. Based on these results, did you establish a project noise design goal?

A.11. Although there is a specific sound level limit for wind power projects within the Ohio Administrative Code, there is not one for solar power projects. For this project, we used a similar procedure established for wind projects. That is, the design goal for non-participating sensitive receptors used in the assessment of the Project is the measured ambient sound level plus 5 dBA for daytime and nighttime periods. This sets the daytime design goal at 52 dBA and the nighttime design goal at 47 dBA.

Q.12. What did your modeling results indicate with respect to the projected sound levels when the Project is in operation?

A.12. Sound propagation modeling was conducted at the 582 receptors throughout the Project Area, using the inverter with the highest sound emissions and substation transformer model that are representative of the equipment that may be used for the Project. The modeling shows that all sensitive receptors are projected to be below the Project design goals. Notably, none of the non-participating sensitive receptors were modeled to receive a sound pressure level of over 37 dBA, which is below the daytime and nighttime project design thresholds of 52 and 47 dBA respectively.

Q.13. Can mitigation be utilized in the event an operational noise issue developed?

A.13. Yes. In the unlikely event an operational noise issue developed, noise barriers could be strategically placed next to inverters to mitigate sound from propagating in specific directions. Alternatively, some inverter manufacturers have additional noise

mitigation elements that could be installed to reduce the sound from specific inverters that need it. While these mitigation options may be available, our assessment does not include these elements as they were not necessary to meet the design goal of ambient sound levels plus 5 dBA at non-participating receptors.

Q.14. Are there any other potential noise sources associated with the Project?

A.14. In addition to operational sound, a certain amount of unavoidable noise will be generated during construction. Construction activities include road construction, substation construction, trenching, inverter installation, piling, and racking. In any given area, construction will be relatively short in duration, particularly for road construction, trenching, piling, and racking. Construction equipment will be fitted with exhaust systems and mufflers to reduce exhaust noise. In addition, the material staging areas will be located away from sensitive receptors when feasible. To the extent possible, circular vehicular movements will be established to minimize the use of back alarms.

In an effort to further mitigate construction noise, the Applicant has committed in the Application that construction will take place between 7 a.m. and 7 p.m., or until dusk when sunset occurs after 7 p.m., though limited construction that does not contribute to excess noise at sensitive receptors may occur outside of these hours. The Applicant also has committed to limiting pile driving operations to the hours of 8 a.m. to 7 p.m. Extended pile driving hours will increase efficiency and reduce the total number of days necessary for pile driving activities. Facility setbacks assist in the mitigation of sound during construction as installation will mostly be at least 300 feet from non-participating sensitive

receptors. Equipment will be kept in good working conditions to minimize excess noise emissions.

Q.15. Have you reviewed the Joint Stipulation filed in this proceeding?

A.15. Yes.

Q.16. Do you support Condition 18 of the Joint Stipulation?

A.16. Yes. This condition is drafted to ensure that construction noise impacts emanating from pile driving and hoe ram operations are mitigated. Specifically, the Applicant has committed to limiting pile driving operations to the hours of 9 a.m. to 7 p.m. (or until dusk when sunset occurs after 7:00 p.m.), except in areas where pile driving noise will not exceed the daytime ambient L_{eq} (47 dBA) plus 10 dBA, within which pile driving may also occur between 7 a.m. and 9 a.m. Further, the condition requires Applicant to provide a map to Staff indicating areas where pile driving cannot occur from 7 a.m. to 9 a.m. because pile driving noise in those areas will exceed 57 dBA. The condition also limits hoe ram operations from 10 a.m. to 4 p.m., Monday through Friday. Finally, the Applicant is required to provide a notice to adjacent landowners regarding upcoming construction activities, including the potential for nighttime construction. While the Applicant has committed to minimizing construction noise to the extent practicable in the Application, Condition 18 will ensure further mitigation of construction noise.

Q.17. Do you support Condition 19 of the Joint Stipulation?

A.17. Yes. The condition lays out the process the Applicant must follow if the final inverters and substation transformer selected for the Project have higher sound power output than the sound power output data used in RSG's sound modeling (Exhibit P to the Application). If so, then the Applicant will submit an updated noise model for the Project

to show that as modeled the sound levels of the final inverters and substation transformer will not exceed the Project Area average daytime ambient level of 47 dBA plus five dBA at any nonparticipating landowner's residence.

Additionally, the condition also directs what the Applicant must do if sound power output data for the inverters or transformer is not available. First, if the transformer data from the manufacturer is not available, the Applicant is to update the noise model using the NEMA TR1 standard. Second, if inverter data from the manufacturer is not available, the Applicant will utilize a similar inverter model to update the noise model prior to construction. Once constructed, the Applicant is to take sound level measurements in close proximity to the inverter to determine the sound power level of the installed inverter. If the sound power level of the installed inverter is 2 dBA or more above the sound power level used in the updated pre-construction model, then the sound propagation model will be updated to ensure project-wide compliance with the applicable sound level limit. If the sound power level is determined to be less than 2 dBA above the sound power level used in the updated pre-construction model, then the Project will be deemed in-compliance. Overall, the condition ensures that the sound modeling data previously submitted as Exhibit P is appropriately updated if the inverters or transformers finally chosen for the Project have a higher sound output or if the noise data from the manufacturer is not available.

Q.18. Does this conclude your direct testimony?

A.18. Yes, it does.

CERTIFICATE OF SERVICE

The Public Utilities Commission of Ohio's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served upon the persons below via electronic on September 24, 2021.

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Summary: Testimony Direct Testimony of Ken Kaliski electronically filed by Ms. Anna Sanyal on behalf of Sycamore Creek Solar, LLC