

BEFORE THE OHIO POWER SITING BOARD

**In the Matter of the Application of
Ross County Solar, LLC for a Certificate
of Environmental Compatibility and
Public Need.**

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Case No. 20-1380-EL-BGN

DIRECT TESTIMONY OF MATTHEW ROBINSON

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

A.1. My name is Matthew Robinson. I am a Visualization Project Manager at Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (“EDR”). My business address is 217 Montgomery Street, Suite 1000, Syracuse, New York 13202.

Q.2. What are your duties as a Visualization Project Manager?

A.2. As Visualization Project Manager, I am responsible for the oversight of all technical analyses associated with visual resource assessments. This includes identification of visually sensitive resources, field evaluation and documentation, visibility analyses, development of detailed and accurate visual simulations, determination of impacts, conceptual mitigation design, and report production.

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

A.3. I graduated from the University of Vermont in 2005 with a Bachelor of Arts in Political Science, and from Cornell University in 2010 with a Master’s Degree in Landscape Architecture. After the completion of each degree, I worked at LandWorks in Middlebury, Vermont as an Associate Landscape Architect and Project Manager. During my six years at LandWorks, I managed a variety of visual impact assessment, landscape architecture, and planning projects. I have previously overseen visual impact assessments,

1 visual screening, and landscape design for a number of solar projects, including, but not
2 limited to the following projects in Ohio: Angelina I Solar Project, Alamo I Solar Project,
3 and Yellowbud Solar Project; the following projects in Vermont: Battle Creek 1 Solar
4 Project, Ryegate GLC Solar Project, and Otter Creek I & II Solar Projects; and the
5 following projects in New York: Mohawk Solar Project, Flint Mine Solar Project, and
6 Morris Ridge Solar Project.

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

8 **A.4.** I am testifying on behalf of the Applicant, Ross County Solar, LLC (“Applicant”),
9 in support of its Application filed in Case No. 20-1380-EL-BGN.

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

11 **A.5.** The purpose of my testimony is to describe the Visual Resource Assessment and
12 Landscape Mitigation Plan (“VRA”) that EDR undertook on behalf of the Applicant, to
13 summarize the results of the analyses, and to provide my overall assessment of the potential
14 visual impact of the Ross County Solar Project (“Project”). A copy of the VRA is included
15 in the Application as Exhibit V. I will also note that glare from the solar panels will not be
16 an issue.

17 **Q.6. Please describe the study that you and your firm undertook on behalf of the**
18 **Applicant.**

19 **A.6.** A VRA was prepared to satisfy those portions of the requirements of Ohio
20 Adm.Code 4906-4-08(D) that relate to the identification of visually sensitive resources,
21 project visibility, and potential visual impacts resulting from construction of the proposed
22 facility. Visually sensitive resources are defined as any formally adopted areas of
23 recreational, historic, religious, archaeological, scenic, natural, or other cultural

1 significance. Examples of visually sensitive resources include properties on the National
2 Register of Historic Places, State Parks, and cemeteries, among others. Of note, the
3 Applicant filed a motion for waiver from Ohio Adm.Code 4906-4-08(D)(2)-(4) to allow
4 for a reduced visual study area regarding the Project's impact on landmarks and recreation
5 and scenic areas, as well as the visual impact of the Project, from a ten-mile radius to (i) a
6 two-mile radius for the Project's impact on landmarks, and (ii) a five-mile radius for the
7 Project's impact on recreation and scenic areas and its general visual impacts, which was
8 granted by the Administrative Law Judge on January 20, 2021.

9 EDR conducted background research of publicly available documents to compile a
10 database of any potential visually sensitive resources located within the visual study area
11 (a five-mile radius area around the Project site). Next, a viewshed analysis was performed
12 in order to identify geographic areas and resources with potential Project visibility. The
13 viewshed analysis incorporated and considered the screening effect of topography,
14 structures, and vegetation, as captured in high-resolution lidar data from the Ohio
15 Statewide Imagery Program. The areas of visibility are displayed on a map along with the
16 visually sensitive resources to assist field crews in the representative site photography. A
17 field visit on August 28, 2020 served the following purposes: (1) to verify potential
18 visibility of the Project (as suggested by the viewshed analysis); (2) to document the visual
19 character of the various landscape types within the visual study area; (3) to identify the
20 type and extent of existing visual screening; and (4) to obtain photographs for subsequent
21 use in the development of visual simulations. Visual simulations were produced from four
22 representative viewpoints. Each represented the various distance zones, user groups, and
23 landscape similarity zones identified throughout the visual study area. Once complete, the

1 simulations were evaluated by a visual expert and used to characterize the type and extent
2 of visibility and visual impact likely to result from the Project. The methodology and
3 results of the evaluation are then presented in the VRA report.

4 **Q.7. What was your role in the VRA conducted for the Application?**

5 **A.7.** My role was to manage and provide oversight of the analyses contained in the
6 VRA, including (1) planning, scheduling, organization, and staff management; (2)
7 conducting field reviews, including photography for use in the development of visual
8 simulations; (3) production and/or oversight of the individual analyses and products
9 contained in the VRA (e.g., report, figures, tables, and visual simulations); and (4)
10 providing communication with the Applicant regarding the study's progress, results, and
11 Project implications.

12 **Q.8. What were the results of the VRA you performed?**

13 **A.8.** The viewshed analysis indicated that the proposed solar panels could potentially be
14 visible from approximately 4.6% of the area between four and five miles away from the
15 Project in the background distance zone of the visual study area. The proposed substation
16 would potentially be visible from only 0.9% of the background distance zone. As
17 explained further in the VRA, the topography and vegetation associated with Buckskin
18 Creek, Paint Creek, Rattlesnake Creek, and Paint Creek Lake, as well as the beginnings of
19 Appalachian Plateau play a significant role in reducing visibility of the solar arrays and the
20 substation. In some areas within the Project area, views of the solar panels will be obscured
21 or blocked by isolated woodlots that will be preserved by the Applicant. The structures
22 and vegetation associated with the villages of Greenfield and South Salem also
23 significantly limit views from the northwest and east beyond 1.5 miles. Outside of the near

1 foreground distance zone (up to one-half mile away from the Project), potential visibility
2 is primarily concentrated to the northeast of the Project within the open plain bounded by
3 Paint Creek to the west and Buckskin Creek to the east. Due to the height of the substation,
4 outside of the near foreground distance zone, potential visibility of its facility components
5 will be more pronounced in the middle ground distance zone (between 1.5 and 4 miles
6 away from the Project) between State Route 138 and State Route 28. Actual visibility of
7 these components from the middle ground and background (between 4 and 5 miles away
8 from the Project) distance zones will be diminished due to their narrow profile and neutral
9 color, allowing them to blend with the background vegetation and sky.

10 Field review generally confirmed the viewshed analysis results, with open views toward
11 the Project largely restricted to areas adjacent to the Project area where public roads are
12 bordered by open agricultural fields. Field review also confirmed that existing, mature
13 vegetation associated with Buckskin Creek, Paint Creek, Rattlesnake Creek, and Paint
14 Creek Lake, as well as the beginnings of Appalachian Plateau will largely screen the
15 Project from areas beyond one mile. As indicated by the viewshed analysis, areas northeast
16 of the Project between Paint Creek and Buckskin Creek will have increased opportunities
17 for views of portions of the Project. Additionally, field review of the isolated areas of more
18 distant visibility confirmed that discerning the Project will be a much greater challenge
19 than suggested by the viewshed analysis, due to vegetative screening and the effects of
20 distance. During the growing season, visibility of the Project from residences and
21 roadways may also be limited by crop (corn) growth in the foreground agricultural fields.
22 Overall, the field review confirmed that the combination of relatively low panel height,

1 along with existing streamside vegetation, hedgerows, and the atmospheric effects of
2 distance, will limit visibility of the Project from the majority of the visual study area.
3 Finally, visual simulations confirm the results of the viewshed analysis and field review.
4 Visual simulations were produced from four representative locations to illustrate the
5 appearance of the Project and to evaluate its potential visual impact on the existing
6 landscape and viewers within the visual study area. The visual simulations illustrate that
7 visibility of the solar panels diminishes rapidly as the Project is viewed from greater
8 distances. Consequently, it is anticipated that impacts will be largely limited to areas
9 directly adjacent to the Project. In locations where panels are directly adjacent to roads
10 and residences, in addition to providing aesthetic benefits, the installation of mitigation
11 plantings will lessen the visual impact of the Project, allowing the Project to blend with the
12 new and existing vegetation.

13 **Q.9. Are measures being proposed to mitigate potential Project visibility and visual**
14 **impact?**

15 **A.9.** Yes, approaches to visual mitigation for this Project include the following:

- 16 • configuration of solar panels less than ~15 feet in height,
- 17 • siting the facility away from visually sensitive resources, and
- 18 • the proposed use of vegetative buffers to screen portions of the Project.

19 EDR prepared a Landscape Mitigation Plan as part of the VRA (see Appendix C to Exhibit
20 V of the Application) that includes a landscaping layout with the location of various
21 screening modules to be utilized. That Landscape Mitigation Plan will be updated and
22 included as part of the final design for the Project. The Applicant is proposing perimeter
23 plantings comprised of native materials to screen or soften the view of the Project (see the

1 Landscape Mitigation Plan, Appendix C to Exhibit V for additional details). As
2 demonstrated in the visual simulations contained within the VRA, the conceptual planting
3 plan will soften the horizontal line created by the installation of the solar panels and will
4 aid in blending the Project into the surrounding landscape. In addition to helping to blend
5 the Project into the surrounding landscape, the use of native plant species will also provide
6 environmental benefits to native wildlife and pollinator species. Although the mitigation
7 represented in the visual simulations is conceptual at this time, the design approach and
8 goals for the visual mitigation will not change, even if plant material in certain locations
9 may need to be adjusted.

10 **Q.10. What has been your experience in the use of planting and vegetation to screen**
11 **previous projects?**

12 **A.10.** The different plantings and vegetation that EDR has recommended and designed in
13 the Landscape Mitigation Plan (Appendix C to Exhibit V of the Application) for the Project
14 are similar to those that I have used previously to reduce the visual impact of installations
15 which in general are taller than solar panels and more visually impactful before the use of
16 screening and mitigation. I have had success mitigating the impact of substations,
17 pipelines, and associated equipment, along with different types of building construction,
18 and a similar mitigation approach will be successful for this Project as well.

19 **Q. 11. Does the type of planting or mitigation vary based on the size of the project?**

20 **A.11.** Not substantially. The vast majority of a solar farm does not result in any visual
21 impact, because it is in the “internal” part of the project and distant from any potential
22 viewer. Mitigation strategies are typically used only around the borders of a project, so

whether a project encompasses tens, hundreds, or thousands of acres, visual impact most often occurs on the perimeter of a project, allowing for similar mitigation approaches.

Q.12. Is glare from solar panels as described in the Project Application a concern?

A.12. No. Solar panels are designed to maximize energy production by capturing as much light as possible, which means that they inherently have low levels of glare from reflection of sunlight. In fact, the potential for reflectivity or glare from solar panels is generally lower than the glare and reflectance generated by common surfaces in the surrounding environment, including grasslands, water, and glass. Solar panels are designed to absorb as much of the solar spectrum as possible to maximize electricity generation, and there is an inverse correlation between light absorption by the solar panels and reflection from them. For instance, it is common practice in recent years to incorporate anti-reflective coatings on the solar panels to minimize reflection and maximize energy absorption.

The reflectivity of a surface is often measured as albedo, which is the fraction of solar energy reflected by that surface. For comparison, the albedo of solar panels (0.10 - 0.30) is generally similar to, or lower than, many natural surfaces such as coniferous forests (0.20), grasslands (0.25), dry sand (0.45), and snow cover (0.50). Furthermore, the glare and reflectivity of solar panels have been found to be lower than the glare and reflectivity generated by standard glass.

Finally, as part of my preparation for my testimony, I reviewed Exhibit P (Glare Analysis), which the Applicant submitted as part of its Application. This glare study was produced to analyze nearby flight paths and two roadways, and utilized industry accepted methods to analyze those routes. No glare issues were noted.

1 **Q.13. Does the Landscape Mitigation Plan address maintenance that may be needed for the**
2 **vegetative screening?**

3 **A.13.** Yes. In addition to describing the screening modules to be used, the Landscape
4 Mitigation Plan also addresses the maintenance of the screening modules to ensure they
5 are functioning as designed after the initial installation. For woody plant material, the
6 Applicant will retain a qualified landscape architect to inspect visual mitigation planting
7 after one year from its installation to identify plant material that did not survive, appears
8 unhealthy, or otherwise needs to be replaced. The Applicant will remove and replace
9 plantings that fail in materials, workmanship, or growth within one year following the
10 completed installation of the plantings. Following the first year of inspections, the
11 Applicant will retain a qualified landscape architect to review the planting on an annual
12 basis for the next four years. Additionally, if dieback occurs after the initial five-year
13 period, a qualified professional will determine if the planting is still accomplishing its
14 function, and if it is not, new planting or other means of screening will be recommended
15 for installation. For herbaceous plant materials, the Applicant will conduct periodic
16 mowing to assist in the establishment of the material and promote re-propagation, and areas
17 of dieback will be reviewed by a qualified professional to determine if further action is
18 needed to meet the visual impact goals of the Landscape Mitigation Plan.

19 **Q.14. Have you reviewed the Staff Report and Recommendation in this proceeding,**
20 **including the condition addressing landscaping?**

21 **A.14.** Yes, I have reviewed the Staff Report and Recommendation and Condition 14
22 which addresses landscaping. Condition 14 as recommended by Staff requires the
23 Applicant to implement the landscape mitigation listed in the Visual Resource Assessment

1 and to implement the “Mitigation Plan” and the Lighting Plan. I also have reviewed Mr.
2 Risse’s testimony, and agree with Mr. Risse’s recommended revisions to Condition 14
3 because the actual mitigation for Project landscaping is in Section 5 of the Landscape and
4 Mitigation Plan and will consist of the landscaping modules listed in that section. Mr.
5 Risse’s revisions also take into account that landscaping may be updated based on the
6 Project’s final engineered design as well as through communications with non-
7 participating property owners. Any updates would be provided to Staff prior to
8 implementation of the landscaping.

9 **Q.15. Did the Applicant consider the interests of nearby landowners when determining the**
10 **lighting scheme to be used for the Project’s facilities?**

11 **A.15.** Yes. The Lighting Plan attached to the Application as Exhibit F addresses
12 construction lighting, equipment illumination, security lighting, and lighting during Project
13 operations. Lighting at the substation will be downward facing, and lighting at facility
14 entrances, the operations and maintenance building, and inverters will be downward facing
15 and motion-activated, thereby limiting lighting impacts. Overall, the Lighting Plan will
16 further ensure that the visual impact of the Project is minimized through proper siting
17 combined with well-developed landscape and lighting plans.

18 **Q. 16. What is your overall assessment of the potential visual impact of the Project?**

19 **A.16.** The results of the viewshed analysis, field review, and visual simulations performed
20 by EDR indicate that the proposed solar panels should be screened from view in
21 approximately 88.7% of the five-mile radius visual study area. The proposed substation
22 and associated structures will likely be screened from view in approximately 94.6% of the
23 visual study area. Where views of the Project are available, its visibility and visual impact

1 will be minimal at distances beyond one-half mile. Where visible, the Project will
2 introduce a new contrasting use to the landscape. However, as noted in my testimony
3 above, the existing screening provided by topography, structures, and vegetation, along
4 with the Applicant's use of mitigation plantings as shown in the Landscape Mitigation Plan
5 included with the Application will soften the visual impact of the Project. Visual impacts
6 from Project lighting will also be minimal through the use of lights that are motion-
7 activated, downward facing, and/or fitted with side shields in order to narrowly focus the
8 light inward towards the Project.

9 **Q.17. Does this conclude your direct testimony?**

10 **A.17.** Yes, it does.

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Summary: Testimony Direct Testimony of Matthew Robinson electronically filed by Ms. Anna Sanyal on behalf of Ross County Solar, LLC