# Weirs Creek Solar, LLC Case No. 2024-00099

# Application – Exhibit 12

### Kentucky State Board on Electric Generation and Transmission Siting Weirs Creek Solar, LLC – Case No. 2024-00099 Application – Exhibit 12

### **Filing Requirement**

A site assessment report as specified in KRS 278.708. (KRS 278.706(2)(1))

- (a) A description of the proposed facility that shall include a proposed site development plan that describes:
  - 1. Surrounding land uses for residential, commercial, agricultural, and recreational purposes;
  - 2. The legal boundaries of the proposed site;
  - *3. Proposed access control to the site;*
  - 4. The location of facility buildings, transmission lines, and other structures;
  - 5. Location and use of access ways, internal roads, and railways;
  - 6. Existing or proposed utilities to service the facility;
  - 7. Compliance with applicable setback requirements as provided under KRS 278.704(2), (3), (4), or (5); and
  - 8. Evaluation of the noise levels expected to be produced by the facility;
- (b) An evaluation of the compatibility of the facility with scenic surroundings;
- (c) The potential changes in property values and land use resulting from the siting, construction, and operation of the proposed facility for property owners adjacent to the facility;
- (d) Evaluation of anticipated peak and average noise levels associated with the facility's construction and operation at the property boundary; and
- (e) The impact of the facility's operation on road and rail traffic to and within the facility, including anticipated levels of fugitive dust created by the traffic and any anticipated degradation of roads and lands in the vicinity of the facility. (KRS 278.708(3))

The site assessment report shall also suggest any mitigating measures to be implemented by the applicant to minimize or avoid adverse effects identified in the site assessment report. (KRS 278.708(4))

### **Respondent: Brian Bartels**

Pursuant to KRS 278.708(3) and (4), the attached Site Assessment Report was prepared by

Environmental Consulting and Technology, Inc., under the direction and supervision of Brian

Case No. 2024-00099 Application - Exhibit 12 Attachment (1,120 pages) Bartels, on behalf of Weirs Creek Solar, LLC. The Site Assessment Report summarizes the Weirs Creek project and includes each of the elements required by the statute.

- The following documents are attached hereto and incorporated herein:
- Attachment A: Site Assessment Report (23 Pages)
- Exhibit 1: Property Value Impact Studies (182 Pages)
- Exhibit 2: Legal Property Descriptions of Site (11 Pages)
- Exhibit 3: Preliminary Site Layout (13 Pages)
- Exhibit 4: Noise Impact Assessment (13 Pages)
- Exhibit 5: Preliminary Visual Representations (14 pages)
- Exhibit 6: Traffic and Dust Study (13 Pages)
- Exhibit 7: Phase I Environmental Site Assessment (808 Pages)
- Exhibit 8: Decommissioning Plan (7 pages)

Weirs Creek Solar, LLC Case No. 2024-00099

## Application – Exhibit 12 Attachment A

Site Assessment Report (1,120 Pages)



### Site Assessment Report for Proposed Weirs Creek Solar Project

May 2024 ECT No. 210152-1001

Weirs Creek Solar, LLC Juno Beach, Florida



### **Document Review**

The dual signatory process is an integral part of Environmental Consulting & Technology, Inc.'s (ECT's) Document Review Policy No. 9.03. All ECT documents undergo technical/peer review prior to dispatching these documents to any outside entity.

This document has been authored and reviewed by the following employees:

Hannah French	Beth Wilburn			
Author	Peer Review			
Signature	Beth Wilburn Signature			
5/14/2024	5/14/2024			
Date	Date			



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Exhib	it 7	April 2023 and February 2024 Phase I Environmental Site Assessments - exhibits to SAR were uploaded as stand-alone documents under separate cover			
Exhib	it 8	Decommissioning Plan - exhibits to SAR were uploaded as stand-alone documents under separate cover			



### List of Acronyms and Abbreviations

BMP	Best management practices
CWA	Clean Water Act
dBA	A-weighted decibels
DEP	(Kentucky) Department of Environmental Protection
DOW	(Kentucky) Division of Water
E&S	Erosion and sediment control
ECT	Environmental Consulting & Technology, Inc.
EEC	(Kentucky) Energy and Environment Cabinet
ESA	Environmental Site Assessment
kV	Kilovolt
KRS	Kentucky Revised Statue
KYSB	Kentucky State Siting Board
MW AC	Megawatt alternating current
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NFPA	National Fire Protection Agency
OSHA	Occupational Safety and Health Administration
POI	Point of interconnection
PV	Photovoltaic
REC	Recognized Environmental Condition
SCADA	Solar meteorological station, supervisory control, data acquisition
USACE	United States' Army Corps of Engineers
WQC	Water Quality Certification



### 1.0 Description of Proposed Site

<u>REQUIREMENT</u>: per Kentucky Revised Statute (KRS) 278.708 (3)(a); *A description of the proposed facility that shall include a proposed site development plan that describes:* 

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

### COMPLIANCE:

As proposed by Weirs Creek Solar, LLC (Applicant), the Weirs Creek Solar Project (Project) will be capable of generating 150-megawatt alternating current (MW AC). The power generated by the Project will provide clean, renewable electricity and will interconnect the Project collector substation, mapped on the north side of Corinth Church Road, to the point of interconnect (POI), mapped on the north side of U.S. Highway 41A ("US-41 ALT") (Stanhope Road), via an approximately 0.9-mile gen-tie transmission line. The POI will be connecting to the Hopkins-Reid 161 kV line which will be owned and operated by Big Rivers Electric Corporation upon Commercial Operation Date (COD).

The Project is located in Hopkins and Webster Counties, Kentucky, approximately two (2) miles east of the City of Providence, directly west of the City of Nebo, north of US-41 ALT, and south of Kentucky Route 120 (KY 120). The total acreage of the parcels included in the Project boundary is approximately 2,260 acres (Project Area). More specifically, the final Project design footprint of the Project Facilities (i.e., fenced-in array areas with solar panels and access roads) will be constructed within an approximately 810-acre site contained within the larger Project Area. The Project Area has historically been used for agricultural purposes and the Project parcels are predominately bordered by agricultural farmland and scattered rural homesteads.

Photovoltaic (PV) solar panels will be mounted on racking, which will fix the solar panels to the ground. Additional infrastructure at the Project will include central electric inverters and transformers, underground electrical collection systems (distribution equipment), solar meteorological stations, and solar meteorological station, supervisory control, data acquisition (SCADA) hardware. A control house for protective relay panels and site controllers will also be constructed. Permanent private gravel and/or earthen access roads with gated ingress/egress points and security fencing will be constructed to access and maintain the facilities.

An approximately seven (7) foot security fence with one (1) foot of barbed wire will be constructed around the Project's facilities in compliance with the National Electrical Safety Code (NESC).



Access control strategy will also include appropriate signage to warn potential trespassers. The Project will ensure that all site entrances and boundaries have adequate signage, particularly in locations visible to the public, local residents, and business owners.

Where there are potential visual impacts created by the Project, such as areas near adjacent, nonparticipating residences, a naturalized vegetative screening plan will be implemented to minimize these impacts, where practicable. This will also reduce the effects of any noise generated by equipment (primarily inverters) associated with the Project.

As of the date of this report, neither Hopkins County nor Webster County enforce setbacks for solar facilities within their jurisdiction, therefore the Applicant has chosen to impose setbacks for the project that have been previously approved through the Kentucky State Siting Board (KYSB). Components of the proposed Project, including inverters, solar panels, and additional ancillary solar equipment will be set back at least 25 feet from perimeter property lines and at least 100 feet from any residential structure or other occupied building. Additionally, the Project will comply with the KYSB standard setback of 450 feet between occupied structures and central inverters.

Compliance Summary:

- 1. A detailed description of the surrounding land uses is identified in the Property Value Impact Report dated February 9, 2024, conducted by CohnReznick (**Exhibit 1**). As described in this report, surrounding land uses are predominately comprised of agricultural fields and residential rural homesteads. The Property Value Impact Report concludes on Page 135 that "...no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent solar farm, with regard to unit sale prices or other influential market indicators."
- 2. **Exhibit 2** contains the legal descriptions of the Project's participating parcels.
- 3. A preliminary layout of the proposed Project is included in **Exhibit 3**, which details the proposed access locations to the site. A seven (7) foot-tall security fence will be constructed around the Project's Facilities and will include gated access to the site. Appropriate signage, including "High Voltage Keep Out" or equivalent warning signs, will also be placed at all gates, entrances, and approximately every 100 to 200 feet along the perimeter of the Project's facilities.
- 4. The preliminary layout of the Project (**Exhibit 3**) details the location of proposed facility arrays and other related infrastructure.
- 5. **Exhibit 3** also provides the preliminary layout of the proposed Project access ways and internal access roads. Use of accessways and internal roads are discussed in the Traffic and Dust Study (**Exhibit 6**).
- 6. The Project collector substation, mapped on the north side of Corinth Church Road, will be connected to the POI, mapped on the north side of U.S. Highway 41A ("US-41 ALT") (Stanhope Road), via an approximately 0.9-mile gen-tie transmission line. The POI will be connecting to the Hopkins-Reid 161 kV line which will be owned and operated by Big Rivers Electric Corporation upon COD. It is not anticipated that additional external utility services or support



will be required during typical plant operation.

- 7. Applicable setback requirements are discussed in Section 2.0 of this Site Assessment Report.
- 8. A Noise Impact Assessment, conducted by DNV Energy Systems (DNV) and dated May 10, 2024, is included in **Exhibit 4** and details the noise levels expected to be produced by the construction and operation of the Project. This report indicates that maximum sound pressure levels at nearby receptors are expected to be 86 A-weighted decibels (dBA) during Project construction and 52 dBA during Project operations. Noise levels during construction are anticipated to be similar in magnitude with other sources that may be active in rural agricultural environments, such as farm machinery. Modeled levels during operation are considered to be similar to a quiet rural environment.
- 9. **Exhibit 6** is a Traffic and Dust Study conducted by PRIME AE and dated May 10, 2024. This study concluded that the local roadway system has adequate excess capacity to continue to perform at a very high level of service despite predicted temporary increases in traffic during the construction phase of the Project. Furthermore, the report indicated that there will be no significant increase in traffic during the operation phase of the Project, and that while land disturbing activities may temporarily contribute to airborne materials, impacts can be reduced through best management practices such as revegetation, application of water, and covering of spoil piles. Lastly, the Project is not expected to have any impact on nearby railways.
- 10. A Phase I Environmental Site Assessment (ESA) was completed in April 2023 for the Project Area which identified three (3) Recognized Environmental Conditions (RECs) in connection with oil and gas infrastructure, farm dumps, and coal mining. In February 2024, a Phase I was conducted for land previously identified as exclusion areas that was then added to the Project and the gen-tie transmission line corridor. The February 2024 Phase I ESA identified the same REC in connection to coal mining as the April 2023 Phase I ESA. Oil and gas infrastructure, farm dumps, and underground and surface coal mining sites will be avoided as part of development activities. A 30-foot setback has been applied to oil and gas infrastructure. The farm dump area has been avoided as a development exclusion. See **Exhibit 7** for the complete Phase I ESA reports from April 2023 and February 2024. The Phase I ESA report will be updated prior to the commencement of construction activities.
- 11. Applicant contracted ECT to prepare a Decommissioning Plan for Project. As of the date of this report, neither Hopkins County nor Webster County has a zoning ordinance that dictate the requirements of a decommissioning plan. Therefore, the Applicant has chosen to prepare the decommissioning plan utilizing the same requirements that have been previously approved through the KYSB. These requirements include the following (1) defining the conditions upon which the decommissioning will be initiated; (2) removal of all non-utility-owned equipment, conduit structures, fencing, roads, and foundations; (3) restoration of the property to a substantially similar physical condition that existed immediately prior to construction; (4) the time frame for completion of decommissioning activities; (5) the party currently responsible for decommissioning, and; (6) Plans for updating the decommissioning plan. See **Exhibit 8** for complete proposed decommissioning procedures, timelines, and estimated costs.



### 2.0 Compatibility with Scenic Surroundings

<u>REQUIREMENT</u>: per KRS 278.708 (3)(b); An evaluation of the compatibility of the facility with scenic surroundings.

### COMPLIANCE:

Compatibility with the surrounding land uses is discussed in the Property Value Impact Study (**Exhibit 1**), which determined on Page 135 that "...no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent solar farm, with regard to unit sale prices or other influential market indicators." The Project is situated in relatively simple terrain, consisting of flat and occasionally elevated farmland, with project equipment base elevations ranging from approximately 380 feet to 420 feet above sea level. as described in Section 4.0 of **Exhibit 4**.

Additionally, solar panel heights will not exceed 25 feet from the highest natural grade below each solar panel. Neither Hopkins County nor Webster County enforce setbacks for solar facilities within their jurisdiction, therefore the Applicant has chosen to impose setbacks for the project that have been previously approved through the Kentucky State Siting Board (KYSB). Components of the proposed Project, including inverters, solar panels, and additional ancillary solar equipment will be set back at least 25 feet from perimeter property lines and at least 100 feet from any residential structure or other occupied building. Additionally, the Project will comply with the KYSB standard setback of 450 feet between occupied structures and central inverters.

A proposed vegetative screening, approximately 11,023 feet in total length, will be planted in areas adjacent to non-participating residential properties around the Project boundary where one does not already exist. Vegetative screening will include a naturalized mix of native and/or non-invasive trees and shrubs suitable for the specific site conditions. The Applicant believes that vegetative screening combined with seven (7) foot tall fencing will provide reasonable screening to reduce the view of the Project Facilities from residential dwelling units on adjacent lots (including those lots located across a public right of way).

The proposed vegetative screening will provide an attractive buffer to help draw the viewer's attention, effectively mitigating any potentially negative visual impacts from the Project. Additionally, Applicant will leave existing vegetation between solar equipment and neighboring residences in place, to the extent practicable, to help screen the Project and reduce visual impact. The preliminary site plan (**Exhibit 3**) shows the locations planned for the vegetative screening and **Exhibit 5** depicts a visual representation, using visual simulations conducted by ECT, of the potential vegetative screening throughout the Project Area at one (1) and five (5) year's growth. Species to be utilized for the vegetative screening will include native and/or non-invasive trees and shrubs suitable to the site conditions. A mixture of evergreen and deciduous species may be utilized to provide visual interest across all seasons. Utilizing a variety of species is also beneficial to minimize the risk of pests and disease. Preference will be given to commercially available cultivar species that are native to the state of Kentucky and may include a mixture of the following species detailed in **Table 1**.



Туре	Species	Scientific Name	
5	White Pine	Pinus strobus	
Coniferous Trees and Shrubs	Virginia Pine	Pinus virginiana	
	Red Cedar	Juniperus virginiana	
	Common Juniper*	Juniperus communis	
	Serviceberry	Amelanchier spp.	
	Dogwood	Cornus spp.	
	Winterberry	llex spp.	
Broadleaf Small Trees and Shrubs	Chokecherry	Prunus virginiana	
	Ninebark	Physocarpus opulifolius	
	Sumac	Rhus spp.	
	Viburnum	Viburnum spp.	

### Table 1. Potential Evergreen and Deciduous Species Utilized by the Proposed Project

\*an upright growing habitat cultivar



### 3.0 Property Value Impacts

<u>REQUIREMENT</u>: Per KRS 278.708 (3)(c); The potential changes in property values and land use resulting from the siting, construction, and operation of the proposed facility for property owners adjacent to the facility.

### COMPLIANCE:

A detailed description of the surrounding land uses is identified in the Property Value Impact Study dated February 9, 2024, conducted by CohnReznick, and is attached as **Exhibit 1.** The Property Value Impact Study examines property values adjacent to solar uses for ten existing solar facilities in Michigan, Indiana, Ohio, Georgia, Iowa, Florida, and North Carolina. It then provides site specific analysis focused on the Project and determines whether it will result in any significant measurable and consistent impact on adjacent property values in Webster and Hopkins Counties, Kentucky. In summary, the Property Value Impact Study determined that the proposed Project is not anticipated to negatively impact property values in and around it.

The Property Value Impact Study also reviewed published studies that analyzed the impact of solar farms on adjacent property values. On page 134, the report states that "These studies found little to no measurable and consistent difference between the Test Areas Sales and the Control Areas Sales attributed to the solar farms." Furthermore, on 135, the report states "The conclusions support that there is no negative impact for improved residential homes adjacent to solar, nor agricultural acreage." And that "no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent solar farm, with regard to unit sale prices or other influential market indicators".

Additionally, market participants were interviewed in the Property Value Impact Study, including County Property Value Administrators in Kentucky, to provide additional insight as to how farmland and single-family homes with views of solar farms were evaluated on the market. On page 4, the report states "A *Grant County, Kentucky Assessor stated that they have not seen a reduction in assessed property values or market values for adjacency to solar farms".* The Report also states "A *Clark County, Kentucky Property Valuation Administrator, Jason Neely, noted that there have been no complaints regarding East Kentucky Power Cooperative, Inc.'s Cooperative Solar One project installed in November 2017 located in the county, which has a capacity to generate 8.5MW of electricity. Additionally, Neely states he has not seen any evidence of lowered property values in the area and no reduction in assessed property values has been made due to proximity to the solar farm".* 



### 4.0 Anticipated Noise Levels at Property Boundary

<u>REQUIREMENT</u>: Per KRS 278.708 (3)(d); *Evaluation of anticipated peak and average noise levels associated with the facility's construction and operation at the property boundary.* 

### COMPLIANCE:

A Noise Impact Assessment was conducted by DNV for the Project and is included as **Exhibit 4**. The Noise Impact Assessment evaluated potential noise impacts resulting from both the construction and operation of the Project. During Project development, construction is anticipated to occur intermittently over the course of eighteen months at different locations throughout the Project site. Noise-producing construction activities include pile driving for solar array panel racking as well as demolition and site preparation activities involving grading.

The Project layout consists of a total of 41 inverters, as well as one 170 MVA-165 kV step-up transformer at the substation. These will be the primary sound sources during operation. A total of 214 receptors were identified within 1-mile of the Project. Additionally, the acoustic impact of construction activities was calculated for the Project on the 214 receptors.

A summary of the Noise Impact Assessment results is located in Sections 5.0 and 6.0 of the Noise Impact Assessment (**Exhibit 4**). The Noise Impact Assessment determined that maximum sound pressure levels at nearby receptors are expected to be 86 dBA during Project construction and range from 24 dBA to 52 dBA during Project operations. These results were adjusted with an A-weighting filter, which was *"applied to closely approximate the human ear's response to sound"* as dBA, which is commonly used when assessing environmental and industrial sounds.

A detailed discussion of noise impacts during construction, included in Section 5.0 of **Exhibit 4**, indicates that "The loudest construction sound level calculated at a participating receptor for the pile driving phase is 86 dBA and 93 dB at receptor 76 located 133 ft from the nearest PV panel. The loudest construction sound level calculated at a non-participating receptor for the pile driving phase is 76 dBA and 86 dB at receptor 99 located 297 ft from the nearest PV panel." Additionally, the report states "It is important to note that this analysis assumes the construction equipment associated with each phase is operating simultaneously at the specified distance. This assumption is conservative as the equipment will likely be more spread out around the site and not likely to be operating at the same time. Other noise attenuation effects such as atmospheric absorption, ground effect, reflection and shielding by topographical features or objects were not considered in the analysis."

The Noise Impact Assessment further states that "Typical farming equipment such as a tractor can emit sound levels at approximately 80 dBA at 50 feet. The calculated construction sound pressure levels are expected to be similar or lower than typical farming equipment at all receptors. Considering farming activity occurs during the day when construction is scheduled, sound emitted by construction equipment should be familiar to what the community currently experiences in the existing sound environment. Due to the conservative nature of the assessment, it is expected that sound levels may be less than the referenced tractor sound level at 50 feet for most of the day during of a given day of construction."



A detailed discussion of noise impacts during operation, included in Section 6.0 of **Exhibit 4**, indicates that "the highest modelled results throughout the Project Area for A-weighted sound pressure levels ... are 52 dBA at receptor76 (participant). The A-weighted (dBA) sound level can be considered similar to sound levels in a quiet urban environment." Further, the report states that, "additional attenuation from foliage was not considered in this assessment, implying that lower sound levels are expected in areas where there is foliage present in the line of sight between any noise generators and a sound receptor. Similarly, because the model assumes every receptor is downwind of every sound source at all times, lower sound levels are expected at times when a receptor is upwind of any sound source."

The Project anticipates that all construction and maintenance activities will generally occur from 6:00 AM to 6:00 PM. There may be some occasions during commissioning when activities will occur later into the evening, but this would be a rare exception. The duration of the construction period is anticipated to last for eighteen (18) months.



### 5.0 Effect on Road, Railways, and Fugitive Dust

<u>REQUIREMENT</u>: Per KRS 278.708 (3)(e); The impact of the facility's operation on road and rail traffic to and within the facility, including anticipated levels of fugitive dust created by the traffic and any anticipated degradation of roads and lands in the vicinity of the facility.

### COMPLIANCE:

A Traffic and Dust Study was conducted by PRIME AE for the Project and is included as **Exhibit 6**. This study assesses the Project's potential impacts to road and rail traffic, as well as anticipated levels of fugitive dust created from construction and operational traffic.

The Traffic and Dust Study determined that "even though the traffic in the Project vicinity is predicted to increase during the construction phase of the Project, there is so much excess capacity that this roadway system will continue to perform at a very high level of service. This includes morning and evening peaks as construction workers enter and exit the Project site and periodic delivery of construction materials and equipment." A detailed discussion of the effect of Project construction and operation on roadway traffic is included in Section 2.0 of **Exhibit 6**. Furthermore, Applicant will develop a traffic management plan, implement traffic guidance, and install appropriate signage to ensure driver safety during construction. During Project operations "Employees will drive mid or full-sized trucks and will contribute less to existing traffic than a typical single-family home; operation of this solar facility will not significantly increase traffic in the project vicinity."

Section 3.0 of **Exhibit 6** describes anticipated Fugitive Dust Impacts associated with the proposed Project. During Project construction, "land disturbing activities associated with the proposed Project may temporarily contribute to airborne materials. To reduce wind erosion of disturbed areas, appropriate revegetation measures, application of water, or covering of spoil piles may occur. In addition, any openbodied truck transporting dirt will be covered when the vehicle is in motion. The size of the Project site, distance to nearby structures and roadways, combined with vegetative screenings along property boundaries and fencerows will aid in managing off sites dust impacts. Internal roads will be compacted gravel, which may result in an increase of airborne dust particles during dry conditions and when internal road traffic is heavy. During construction activities, water may be applied to the internal road system to reduce dust generation."

No rail lines are present within the Project Area.



### 6.0 Mitigation Measures

<u>REQUIREMENT</u>: Per KRS 278.708(4); The site assessment report shall also suggest any mitigating measures to be implemented by the applicant to minimize or avoid adverse effects identified in the site assessment report; and per KRS 278.708(6); The applicant shall be given the opportunity to present evidence to the board regarding any mitigation measures. As a condition of approval for an application to obtain a construction certificate, the board may require the implementation of any mitigation measures that the board deems appropriate.

### COMPLIANCE:

Applicant is anticipating implementing the following mitigation measures to minimize or avoid adverse effects identified within the Site Assessment Report:

- 1. Vegetative screening will be used to mitigate viewshed impacts to sensitive receptors, primarily residences, adjacent to the Project. Anticipated planting areas, a preliminary site layout and preliminary visual representation of the proposed vegetative screening are included in **Exhibit 3**. **Exhibit 5** depicts a visual representation, using visual simulations conducted by ECT, of the potential vegetative screening throughout the Project Area at one (1) and five (5) year's growth. Vegetative screenings will be planted primarily in areas where residential parcels adjacent to the Project do not have existing vegetation. Additionally, Applicant will leave existing vegetation between solar equipment and neighboring residences in place, to the extent practicable, to help screen the Project and reduce visual impact.
- 2. Within the Project Area, one (1) to two (2) acres of native pollinator-friendly species will be cultivated.
- 3. Components of the proposed Project, including inverters, solar panels, and additional ancillary solar equipment, will be set back at least 25 feet from perimeter property lines and at least 100 feet from any residential structure. A setback of 450 feet between occupied structures and central inverters will also be imposed.
- 4. Applicant has committed to the use low-sulfur diesel trucks and equipment to the extent practicable during construction in addition to down lighting in locations where lighting is required.
- 5. During Project operations, where lighting installation is required, the Applicant has committed to using downcast lighting.
- 6. Applicant will notify residents and businesses in the vicinity of the proposed Project about the start of construction, potential construction noises, and mitigation plans at least a month prior to commencing Project construction. These notifications will include contact information for receiving complaints.
- 7. Prior to and during construction, Erosion and Sediment Control (E&S) devices and Best Management Practices (BMPs), such as silt fences/silt socks, sediment basins, sediment traps,



and/or buffer zones, will be deployed around sensitive resources.

- 8. Post-construction, disturbed areas will be seeded with a native and/or non-invasive perennial grass and herbaceous seed mix. E&S devices will be inspected and maintained until vegetation in disturbed areas has been returned to pre-construction conditions or the Project site is stable.
- 9. Environmental permitting pertaining to state and federally regulated wetlands and watercourses, as well as stormwater discharges, will be addressed as applicable based on proposed impacts. The following permits and other applications will be obtained from the appropriate regulatory agencies, as applicable, as the proposed Project prepares for construction:
  - a) Wetland delineations have been conducted for all proposed Project parcels. If the Project is expected to impact jurisdictional features, including regulated wetland and watercourses, a Clean Water Act (CWA) Section 404 permit will be required from the USACE. Additionally, depending on anticipated impacts, a CWA Section 401 Water Quality Certification (WQC) may also be required from the Kentucky Energy and Environment Cabinet (EEC) Division of Water (DOW). Applicant has worked to minimize impacts to regulated wetlands and watercourses to the extent possible.
  - b) A General Permit for Stormwater Discharges Associated with Construction Activities will be obtained from the Kentucky Department of Environmental Protection (DEP), which is required for projects that disturb one or more acres of land.
  - c) Prior to construction, Applicant will develop a Ground Water Protection Plan compliant with the Kentucky EEC's guidance to identify activities on-site that have the potential to pollute groundwater and BMPs that will be employed during Project development to protect groundwater resources.
  - d) Where possible, tree clearing activities will be limited seasonally to avoid potential impacts to Indiana and Northern long-eared bat habitat. Additionally, Applicant has been coordinating with the applicable state and federal agencies.
- 10. Access control strategy will also include appropriate signage to warn potential trespassers. The Project will ensure that all site entrances and boundaries have adequate signage, particularly in locations visible to the public, local residents, and business owners. Access control will be provided per the North American Electric Reliability Corporation (NERC), National Fire Protection Association (NFPA), and Occupational Safety and Health Administration (OSHA) guidelines.
- 11. A Traffic Management Plan will be developed to minimize impacts of any traffic increases and keep traffic safe. The Project will use appropriate signage as needed to aid construction traffic. All necessary permits will be obtained prior to bringing in heavy loads. The traffic management plan will also include protocols to ensure the local fire departments has immediate access to the roadway when needed.



Exhibit 1 Property Value Impact Studies – exhibits to SAR were uploaded as stand-alone documents under separate cover



Exhibit 2 Legal Property Descriptions of Site - exhibits to SAR were uploaded as stand-alone documents under separate cover



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Exhibit 7 April 2023 and February 2024 Phase I Environmental Site Assessments - exhibits to SAR were uploaded as standalone documents under separate cover



Exhibit 8 Decommissioning Plan - exhibits to SAR were uploaded as stand-alone documents under separate cover



# Weirs Creek Solar, LLC Case No. 2024-00099

Application – Exhibit 12 Attachment A Exhibit 1

> Property Value Impact Studies (182 Pages)

www.cohnreznick.com



### REAL ESTATE ADJACENT PROPERTY VALUE IMPACT REPORT:

Academic and Peer Authored Property Value Impact Studies, Research and Analysis of Existing Solar Facilities, and Market Participant and Assessor Interviews

### **Prepared For:**

NextEra Energy Resources 700 Universe Boulevard Juno Beach, FL 33408

### **Submitted By:**

CohnReznick LLP Valuation Advisory Services 1 S. Wacker Drive, Suite 3500 Chicago, Illinois 60606 (312) 508-5900

Andrew R. Lines, MAI, CRE Erin C. Bowen, MAI

February 9, 2024

### LETTER OF TRANSMITTAL

February 9, 2024

NextEra Energy Resources 700 Universe Boulevard Juno Beach, FL 33408

#### SUBJECT: Property Value Impact Report An Analysis of Existing Solar Farms

To Whom it May Concern:

CohnReznick is pleased to submit the accompanying property values impact report for proposed solar energy uses in Kentucky. Per the client's request, CohnReznick researched property transactions adjacent to existing solar farms, researched and analyzed articles and other published studies, and interviewed real estate professionals and Township/County Assessors active in the market where solar farms are located, to gain an understanding of actual market transactions in the presence of solar energy uses.

The purpose of this consulting assignment is to determine whether proximity to a renewable energy use (solar farm) has an impact adjacent property values. The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of solar project use applications. We have not been asked to value any specific property, and we have not done so.

The client and intended user for the assignment is NextEra Energy Resources. Additional intended users of our findings include the Kentucky State Electric Generation and Transmission Siting Board. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick LLP ("CohnReznick").

This consulting assignment is intended to conform to the Uniform Standards of Professional Appraisal Practice (USPAP), the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, as well as applicable state appraisal regulations.

Based on the analysis in the accompanying report, and subject to the definitions, assumptions, and limiting conditions expressed in the report, our findings are:



I. Academic Studies (pages 25-28): CohnReznick reviewed and analyzed published academic studies that specifically analyzed the impact of solar facilities on nearby property values. These studies include multiple regression analyses of hundreds and thousands of sales transactions, and opinion surveys, for both residential homes and farmland properties in rural communities, which concluded existing solar facilities have had no negative impact on adjacent property values.

Peer Authored Studies: CohnReznick also reviewed studies prepared by other real estate valuation experts that specifically analyzed the impact of solar facilities on nearby property values. These studies found little to no measurable or consistent difference in value between the Test Area Sales and the Control Area Sales attributed to the proximity to existing solar farms and noted that solar energy uses are generally considered a compatible use.

II. CohnReznick Studies (pages 29-122): Further, CohnReznick has performed 37 studies in over 21 states, of both residential and agricultural properties, in which we have determined that the existing solar facilities have not caused any consistent and measurable negative impact on property values.

CohnReznick - Existing Solar Farms Studied						
Solar Farm #	Solar Farm	County	State	MW AC	Acreage	
1	Assembly Solar	Shiawassee	MI	239.00	1,900	
2	Riverstart Solar	Randolph	IN	200.00	1,400	
3	Hillcrest Solar Farm	Brown	ОН	200.00	1,940	
4	Dougherty Solar	Dougherty	GA	120.00	1,037	
5	Wapello Solar Farm	Louisa	IA	100.00	±800	
6	Miami-Dade Solar Energy Center	Miami-Dade	FL	74.50	465	
7	Barefoot Bay Solar Energy Center	Brevard	FL	74.50	462	
8	Rutherford Farm Solar	Rutherford	NC	61.00	414	
9	Lapeer (Demille & Turrill) Solar	Lapeer	MI	48.00	270	
10	Elm City Solar	Wilson	NC	40.00	354	

For this Project, we have included 10 of these studies which are most similar to the subject in terms of general location and size, summarized as follows:

It is noted that proximity to the solar farms has not deterred sales of nearby agricultural land and residential single-family homes, nor has it deterred the development of new single-family homes on adjacent land.

This report also includes four "Before and After" analyses, in which sales that occurred prior to the announcement and construction of the solar farm project were compared with sales that occurred after completion of the solar farm project, for both adjoining and non-adjoining properties. No measurable impact on property values was demonstrated.



III. Market Participant Commentary (pages 123-125): Our conclusions also consider interviews with over 60 County and Township Assessors, who have at least one solar farm in their jurisdiction, and in which they have determined that solar farms have not negatively affected adjacent property values.

With regards to the Project, we specifically interviewed:

- A Clark County, Kentucky Property Valuation Administrator, Jason Neely, noted there have been no complaints regarding East Kentucky Power Cooperative, Inc.'s Cooperative Solar One project installed in November 2017 located in the county, which has a capacity to generate 8.5 MW of electricity. Additionally, Neely stated he has not seen any evidence of lowered property values in the area and no reduction in assessed property values has been made due to proximity to the solar farm.
- A Grant County, Kentucky Assessor stated that they have not seen a reduction in assessed • property values or market values for adjacency to solar farms.

To give us additional insight as to how the market evaluates farmland and single-family homes with views of solar farms, we interviewed numerous real estate brokers and other market participants who were party to actual sales of property adjacent to solar; these professionals also confirmed that solar farms did not diminish property values or marketability in the areas they conducted their business.

IV. Solar Farm Factors on Harmony of Use (pages 126-133): In the course of our research and studies, we have recorded information regarding the compatibility of these existing solar facilities and their adjoining uses, including the continuing development of land adjoining these facilities.

### CONCLUSION

Considering all of the preceding, the data indicates that solar facilities do not have a negative impact on adjacent property values.



If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Very truly yours,

### CohnReznick LLP

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Gin E

Andrew R. Lines, MAI, CRE Principal **Certified General Real Estate Appraiser** Kentucky License No. 5663 Expires 6/30/2024 Illinois License No. 553.001841 Expires 9/30/2025 Indiana License No. CG41500037 Expires 6/30/2024

\*

Erin C. Bowen, MAI Senior Manager Certified General Real Estate Appraiser Arizona License No. 32052 Expires 12/31/2024 Oregon License No. C001551 Expires 6/30/2024

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### SCOPE OF WORK

### CLIENT AND INTENDED USERS

The client and intended user of this report is NextEra Energy Resources; other intended users include the Kentucky State Electric Generation and Transmission Siting Board; other intended users may include the client's legal and site development professionals.

#### INTENDED USE

The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of solar project use applications. We have not been asked to value any specific property, and we have not done so. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick LLP ("CohnReznick").

#### **PURPOSE**

The purpose of this consulting assignment is to determine whether proximity to the proposed solar facility will result in an impact on adjacent property values.

### **DEFINITION OF VALUE**

This report utilizes Market Value as the appropriate premise of value. Market value is defined as:

"The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- 1. Buyer and seller are typically motivated;
- 2. Both parties are well informed or well advised, and acting in what they consider their own best interests;
- 3. A reasonable time is allowed for exposure in the open market.
- 4. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto: and
- 5. The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."1

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<sup>&</sup>lt;sup>1</sup> Code of Federal Regulations, Title 12, Chapter I, Part 34.42[h]

### **EFFECTIVE DATE & DATE OF REPORT**

February 9, 2024 (Paired sale analyses contained within each study are periodically updated.)

#### **PRIOR SERVICES**

USPAP requires appraisers to disclose to the client any services they have provided in connection with the subject property in the prior three years, including valuation, consulting, property management, brokerage, or any other services.

This report is a compilation of the existing solar farms which we have studied over the past year and is not evaluating a specific subject site. In this instance, there is no "subject property" to disclose.

#### **INSPECTION**

Andrew R. Lines, MAI, CRE, and Erin C. Bowen, MAI have viewed the exterior of all comparable data referenced in this report in person, via photographs, or aerial imagery.


### **OVERVIEW OF SOLAR DEVELOPMENT IN THE UNITED STATES**

Solar development increased almost exponentially over the past ten years in the United States as technology and the economic incentives (Solar Investment Tax Credits or ITC) made the installation of solar farms economically reasonable. The cost to install solar panels has dropped nationally by 70 percent since 2010, which has been one cause that led to the increase in installations. A majority of these solar farm installations are attributed to larger-scale solar farm developments for utility purposes. The chart below portrays the historical increase on an annual basis of solar installations in the US as a whole, courtesy of research by Solar Energy Industries Association (SEIA) and Wood Mackenzie, and projects solar photovoltaic (PV) deployment for the next five years through 2028, with the largest percentage of installations attributed to utility-scale projects.



#### U.S. solar PV installations and forecasts by segment, 2014-2028

The U.S. installed 6.5 gigawatts (GWdc) of solar PV capacity in Q3 2023 to reach 161 GWdc of total installed capacity, enough to power 26 million American homes. Solar has accounted for 48% of all new electricitygenerating capacity added in the U.S. in the third quarter of 2023. Residential solar had another record quarter with 1.8 GWdc installed, a 12% increase from 3Q 2022. Utility-scale solar installations reached 4.0 GWdc, a 58% increase from 3Q 2022 and 6% decrease from previous quarter. Supply chain constraints are still present, but many delayed projects came online in Q3 as module shipments make their way to project sites.



In response to the Inflation Reduction Act (IRA), there has been a considerable increase in newly announced module manufacturing facilities in the US. As of the end of Q1 2023, Wood Mackenzie is tracking 52 GW of new facilities scheduled to come online by 2026, at least 16 GW of which are under construction.

Over the course of our five-year outlook, the US solar industry is expected to nearly triple in size. Between 2023 and 2028, the industry will grow at an average annual rate of 14 percent, but growth is much stronger in the near-term before falling to lower-single digit growth in starting in 2026. Solar will be the leading technology of the clean energy transition, thanks to the long-term policy certainty provided by the IRA.

Wood Mackenzie expects the industry to remain supply-constrained through at least the second half of the year. Equipment importers are still contending with detainments as they seek to provide the documentation needed for compliance with the Uyghur Forced Labor Prevention Act (UFLPA).

Once supply chain relief arrives, the true impacts of the Inflation Reduction Act will manifest in rapid development. Beginning in 2024, annual installations of solar will consistently reach 30-40 GWdc.

On December 2nd, 2022, the Department of Commerce issued a preliminary affirmative ruling in the anticircumvention case initiated earlier this year. While the ruling was not issued in time to allow for incorporation into our forecasts, new tariffs present a downside risk to our outlook.

As of August 16, 2022, the Inflation Reduction Act was signed into law by President Biden after passing both chambers of Congress and comprises of long-term solar incentives and investment in domestic solar manufacturing. Included in the bill, a 10-year extension and expansion of the Investment Tax Credit (ITC) and Production Tax Credit (PTC) will provide tax credits for solar manufacturing and direct payment options for tax credits. While the uncertainty of the anti-circumvention investigation remains present, the passage of the Inflation Reduction Act gives the solar industry long-term market certainty.

Recent articles show that over the past decade, the solar industry has experienced unprecedented growth. Among the factors contributing to its growth were government incentives, significant capacity additions from existing and new entrants and continual innovation. Solar farms offer a wide array of economic and environmental benefits to surrounding properties. Unlike other energy sources, solar energy does not produce emissions that may cause negative health effects or environmental damage. Solar farms produce a lower electromagnetic field exposure than most household appliances, such as TV and refrigerators, and studies have confirmed there are no health issues related to solar farms.<sup>2</sup>

Solar farm construction in rural areas has also dramatically increased the tax value of the land on which they are built, which has provided a financial boost to some counties. CohnReznick has studied real estate tax increases due to the installation of solar, which can range up to 10-12 times the rate for farmland. Majority of tax revenue is funneled back into the local area, and as much as 50% of tax revenue can typically be allocated to the local school district. By converting farmland to a passive solar use for the duration of the system's life, the solar energy

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<sup>&</sup>lt;sup>2</sup> "Electromagnetic Field and Public Health." Media Centre (2013): 1-4. World Health Organization.

use would not burden school systems, utilities, traffic, nor infrastructure as it is a passive use that does not increase population as say a residential subdivision would.

Beyond creating jobs, solar farms are also benefiting the overall long-term agricultural health of the community. The unused land, and also all the land beneath the solar panels, will be left to repair naturally. In the long run this is a better use of land since the soil is allowed to recuperate instead of being ploughed and fertilized year in and year out. A solar farm can offer some financial security for the property owner over 20 to 25 years. Once solar panel racking systems are removed, the land can revert to its original use.<sup>3</sup>

## NATIONAL UTILITY-SCALE ENERGY PRODUCTION

As of November 2023, the U.S. produces over 1.272 million megawatts (MW) of power each year, according to the U.S. Energy Information Administration (EIA) in ±25,750 unique power generation facilities. Of that power produced, approximately six and a half percent is generated from solar facilities, or 83,780 MW AC, at 6,092 solar facilities across the country, reflecting an average facility size of 13.70 MW AC. For utility scale solar production, the number of facilities that generate over 5 MW of power accounts for 35.2 percent of all solar facilities, nationwide, whereas 91.1 percent of solar power generated in the country comes from utility scale facilities, overall.

According to the U.S. Energy Information Administration (EIA) through November 2023, ±220 solar facilities in operation that generate 100 MW AC or more of power. A map illustrating existing solar farms with capacities greater than 100 MW is presented on the following page (indicated by yellow suns), using data retrieved from the EIA.

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<sup>&</sup>lt;sup>3</sup> NC State Extension. (May 2016). Landowner Solar Leasing: Contract Terms Explained. Retrieved from: https://content.ces.ncsu.edu/landowner-solar-leasing-contract-terms-explained



To meet zoning and planning requirements, and/or to take advantage of certain incentive programs, several solar farms are built by the same developer around the same location, de facto functioning as one larger solar farm. Many of these solar facilities are located in California, with several located in Florida, Texas, Nevada, North Carolina, Arizona, Georgia and Utah. Additionally, these installations are typically located in outlying areas where site costs are lowest, and residential development and sales activity is minimal in these areas. While we reviewed each for surrounding uses, the majority are not good candidates for a paired sales analysis since they were either recently constructed or surrounding development/sales activity was minimal.

In the United States, there are ±64 operating solar farms with generating capacities above 200 MW AC, presented on the following pages. All of the existing solar farms in operation as of November 2023 that have a generating capacity of greater than 200 MW AC are located in the southwestern United States, with the exception of:

- The 200 MW Hillcrest Solar Project in Ohio (analysis included in this report);
- The 274 MW Yellowbud Solar Project in Ohio;
- The 200 MW Meadow Lake Solar Park in Indiana; •
- The 265 MW Dunns Bridge Solar Center in Indiana;
- The 200 MW Riverstart Solar Park Project in Indiana (analysis included in this report); ٠
- The 200 MW Prairie Wolf Solar Project in Illinois;
- The 239 MW Assembly Solar Project in Michigan (analysis included in this report);



- The 200 MW Calhoun Solar Project in Michigan;
- The 325 MW Neptune Energy Center in Colorado;
- The 248 MW Thunder Wolf Energy Center in Colorado; •
- The 240 MW Bighorn Solar in Colorado; ٠
- The 200 MW Sun Mountain Solar in Colorado; •
- The 204 MW Twiggs Solar Project in Georgia;
- The 213 MW Cool Springs Solar Project in Georgia;
- The 227 MW Muscle Shoals Solar Project in Alabama;
- and the 240 MW Pleinmont Project in Virginia.

The map developed by the National Renewable Energy Laboratory (NREL), presented next, shows the solar resources released by the sun daily throughout in the United States. Red indicates the areas with the most solar resources.



It should be noted that there are 161 solar projects currently planned across the United States over 200MW. These projects are located throughout the United States, not just in the areas with solar resources, the largest of which is a 2,250 MW facility in Nye County, Nevada, and is currently pending approval. The next largest is a 1,300 MW Mammoth solar facility in Pulaski County, Indiana, currently under construction.



The following map has operating solar installations larger than 200 MW (marked by green suns) and shows that the largest solar installations have been built in areas where there are the most solar resources.



Solar facilities larger than 200 MW, per EIA, as of November 2023



### **ENERGY PRODUCTION IN KENTUCKY**

As of the end of the third quarter of 2023, Kentucky has 172 MW of solar installed, ranking only 43rd in the US for the capacity of solar installed. There have been significantly more utility investments in clean energy with continued growth on the horizon, with 3,370 MW of solar proposed to be installed over the next five years.



Kentucky only has a few solar installations, and most of them are less than 10 MW of power. The largest solar facility in Kentucky is the SR Turkey Creek project located in Garrard County. The SR Turkey Creek project has a capacity to generate 50 MW of electricity and was completed in November 2022. Since the completion of the SR Turkey Creek project there has been just one adjacent property sale, 1439 Stanford Road, which sold in June 2023 for \$1,300,000 after 70 days on market. This adjacent property sale consists of a 3,400 square foot home built in the early 1800's on a 206-acre sized lot. The adjacent property sale is approximately 1,900 feet from the nearest solar panel on the SR Turkey Creek project. We searched for, but could not identify sales that are not adjacent and in close proximity to the SR Turkey Creek project with similar year of construction and lot size to that of 1439 Stanford Road. For these reasons, CohnReznick did not perform a full analysis of the SR Turkey Creek project.





SR Turkey Creek Solar Project

The second largest solar site in Kentucky is the Kentucky Utilities Company project located in Mercer County, Kentucky. This solar farm is part of the E.W. Brown Generating Station, consisting of 457 MW of coal-fired power generation, 895 MW of natural gas fired power generation, 10 MW of solar power generation, and 33 MW of hydroelectric power generation. The generating station was established in 1925 with the construction of the Dix Dam and Dix hydroelectric facility, representing Kentucky's first hydroelectric dam by the time it was completed in 1925. Herrington Lake was also formed as a result, which has numerous residential homes along the waterfront and is a popular fishing and recreation destination. The solar facility was added in 2016 and sits on fifty acres of the power plant property, providing electricity to power approximately 1,500 homes. We note there are some homes to the east of the solar arrays along Herrington Lake with boat docks that were built in the 1960s; well prior to when the solar panels were constructed. These homes are more expensive than the median home value in the county on a per square foot of gross living area basis given their waterfront location on Herrington Lake, although they are accessible only via a utility road on the power plant property. Homes on the other side of Herrington Lake are adjacent to a golf course and are generally larger in size. As identified in the Methodology section earlier in this report, credible results from paired sales analysis can be achieved when it is used to extract the effect of a single characteristic on value. We did not prepare an independent evaluation of the homes adjacent to the solar panels since it is difficult to extract any other possible external influence on



property values, including adjacency to the coal-fired and natural gas combustion generators at the E.W. Brown Generating Station or proximity to a golf course.

CohnReznick did not perform a full analysis of the solar project at the E.W. Brown Generating Station for the previously stated reasons, but reviewed the homes adjacent the solar project to determine if a sale-resale analysis was possible. There are 35 homes located along Hardin Heights Road in proximity to the solar project. The solar filed was complete in May 2016. A review of all 35 homes revealed six properties with available data for a sale-resale analysis. The six properties sale prices represented a median monthly appreciation of 0.62%, which is just slightly lower than the 403-Three Digit Zip Code median monthly appreciation of 0.69% per month, according to the FHFA Housing Price Index, indicating no negative impact from the completed solar project. A sale-resale analysis summary of these six properties is presented below:

Hardin Heights Road Properties									403 Three Digit Zip Code - FHFA Housing Price Index			
Address	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
611 Hardin Heights	2,264	3/21/2022	\$539,000	6/15/2020	\$288,000	87.15%	21	3.01%	258.59	209.01	23.72%	1.01%
653 Hardin Heights	840	7/20/2016	\$160,000	8/11/2009	\$146,000	9.59%	83	0.11%	177.73	168.61	5.41%	0.06%
683 Hardin Heights	1,200	10/25/2018	\$162,500	3/14/2014	\$130,000	25.00%	55	0.40%	195.79	163.80	19.53%	0.32%
695 Hardin Heights	1,025	7/6/2022	\$240,000	10/2/2018	\$164,200	46.16%	45	0.84%	285.95	195.79	46.05%	0.84%
699 Hardin Heights	1,296	10/19/2021	\$195,000	7/17/2019	\$179,900	8.39%	27	0.30%	251.19	203.38	23.51%	0.78%
861 Hardin Heights	2,468	3/11/2022	\$452,000	8/8/2017	\$200,000	126.00%	55	1.49%	258.59	187.03	38.26%	0.59%
Median	1,248							0.62%				0.69%





E.W. Brown Generating Station Solar Field

The third largest solar farm in Kentucky is East Kentucky Power Cooperative, Inc.'s Cooperative Solar One project that installed in November 2017, located in Clark County, KY with a capacity to generate 8.5 MW of electricity. A Clark County, Kentucky Property Valuation Administrator, Jason Neely, noted there have been no complaints regarding the Cooperative Solar One project. Additionally, Neely stated he has not seen any evidence of lowered property values in the area and no reduction in assessed property values has been made due to proximity to the solar farm.





East KY Power Coop Solar Field

Furthermore, Grant County, Kentucky Property Value Administrator, Elliott Anderson, stated that Duke Energy built a solar farm near Crittenden, adjacent to existing homes on Claiborne Drive in December 2017. At the time of the interview, there have been nine arm's length homes sales on that street since the solar farm commenced operations. Each of those nine homes sold higher than its assessed value, and one over 32 percent higher. At the time, Anderson noted that several more lots were for sale by the developer and four more homes were currently under construction. Anderson said that the solar farm had no impact either on adjoining home values or on marketability or desirability of those homes adjacent to the solar farm.





Crittenden, KY Solar Field

There are several solar projects that are planned in the state of Kentucky. These include Bluebird Solar, an 80 MW facility in Harrison County, currently under construction and is expected to be operational by February 2024. Additionally, the Glover Creek Solar project, a 55 MW facility in Metcalfe County, is also under construction and is expected to be operational by June 2024. There are multiple additional solar projects awaiting approval, including the 188.5 MW solar facility in Fleming County by Accionia Energy, which is planned for installation but is still awaiting regulatory approval and is expected to be operational by June 2026. A 100 MW solar facility in Madison County, also owned by Acciona Energy, is awaiting regulatory approvals and is projected to be operational in January 2025. The 173 MW SR Russellville Solar project in Logan County, the second largest planned solar facility in Kentucky, is also awaiting regulatory approvals and is expected to be operational by December 2024. A 111 MW solar facility in Martin County is currently awaiting regulatory approvals as well and is expected to be operational by December 2024. As these solar farms are not yet developed, they have not qualified for a study based on our standard methodology at this point.



According to Randall Bell, PhD, MAI, author of text Real Estate Damages, published by the Appraisal Institute in 2016, understanding the market's perceptions on all factors that may have an influence on a property's desirability (and therefore its value) is essential in determining if a diminution or enhancement of value has occurred.<sup>4</sup> According to Dr. Bell:

"There is often a predisposition to believe that detrimental conditions automatically have a negative impact on property values. However, it is important to keep in mind that if a property's value is to be affected by a negative condition, whether internal or external to the property, that condition must be given enough weight in the decision-making process of buyers and sellers to have a material effect on pricing relative to all the other positive and negative attributes that influence the value of that particular property."5

Market data and empirical research through the application of the three traditional approaches to value should be utilized to estimate the market value to determine if there is a material effect on pricing due, to the influence of a particular characteristic of or on a property.

A credible impact analysis is one that is logical, innate, testable and repeatable, prepared in conformity with approved valuation techniques. In order to produce credible assignment results, more than one valuation technique should be utilized for support for the primary method, or a check of reasonableness, such as utilization of more than one approach to value, conducting a literature review, or having discussions (testimony) with market participants.<sup>6</sup> CohnReznick implemented the scientific method<sup>7</sup> to determine if a detrimental condition of proximity to a solar farm exists, further described in the next section.

- 1. Identify the problem.
- 2. Collect relevant data.
- 3. Propose a hypothesis.
- 4. Test the hypothesis.
- Assess the validity of the hypothesis. 5.

Bell, Randall, PhD, MAI. Real Estate Damages. Third ed. Chicago, IL: Appraisal Institute, 2016. (Pages 314-316)



<sup>&</sup>lt;sup>4</sup> Bell, Randall, PhD, MAI. Real Estate Damages. Third ed. Chicago, IL: Appraisal Institute, 2016. (Pages 1-2)

<sup>&</sup>lt;sup>5</sup> Ibid, Page 314

<sup>&</sup>lt;sup>6</sup> Ibid, Pages 7-8

<sup>&</sup>lt;sup>7</sup> The scientific method is a process that involves observation, development of a theory, establishment of a hypothesis, and testing. The valuation process applies principles of the scientific method as a model, based upon economic principles (primarily substitution) as the hypothesis. The steps for the scientific method are outlined as follows:

The purpose of this report is to determine whether proximity to the solar facility resulted in any measurable and consistent impact on adjacent property values. To test this hypothesis, CohnReznick identified three relevant techniques to test if a detrimental condition exists.

- (1) A review of published studies;
- (2) Paired sale analysis of properties adjacent to existing solar generating facilities, which may include repeat sale analyses or "Before and After" analyses; and,
- (3) Interviews with real estate professionals and local real estate assessors.

The paired sales analysis is an effective method of determining if there is a detrimental impact on surrounding properties.

"One of the most useful applications of the sales comparison approach is paired sale analysis. This type of analysis may compare the subject property or similarly impacted properties called Test Areas (at Points B, C, D, E, or F) with unimpaired properties called Control Areas (Point A). A comparison may also be made between the unimpaired value of the subject property before and after the discovery of a detrimental condition. If a legitimate detrimental condition exists, there will likely be a *measurable and consistent difference* between the two sets of market data; if not, there will likely be no significant difference between the two sets of data. This process involves the study of a group of sales with a detrimental condition, which are then compared to a group of otherwise similar sales without the detrimental condition."8

As an approved method, paired sales analysis can be utilized to extract the effect of a single characteristic on value. By definition, paired data analysis is "a quantitative technique used to identify and measure adjustments to the sale prices or rents of comparable properties; to apply this technique, sales or rental data on nearly identical properties is analyzed to isolate a single characteristic's effect on value or rent."9 The text further describes that this method is theoretically sound when an abundance of market data, or sale transactions, is available for analysis.

Where data is available, CohnReznick has also prepared "Before and After" analyses or a Repeat Sale Analysis,<sup>10</sup> to determine if a detrimental impact has occurred.



<sup>&</sup>lt;sup>8</sup> Bell, Randall, PhD, MAI. Real Estate Damages. Third ed. Chicago, IL: Appraisal Institute, 2016. (Page 33)

<sup>&</sup>lt;sup>9</sup> The Appraisal of Real Estate 14<sup>th</sup> Edition. Chicago, IL: Appraisal Institute, 2013.

<sup>&</sup>lt;sup>10</sup> Another type of paired sales analysis involves studying the sale and subsequent resale of the same property. This method is used to determine the influence of time on market values or to determine the impact of a detrimental condition by comparing values before and after the discovery of the condition.

Bell, Randall, PhD, MAI. Real Estate Damages. Third ed. Chicago, IL: Appraisal Institute, 2016. (Page 35)

The scope of work utilized to test the hypothesis stated on the prior page is as follows:

- 1. Review published studies, assess credibility, and validity of conclusions;
- 2. Prepare paired sale analyses for existing solar farms as follows:
  - 2.1. Identify existing solar farms comparable to the proposed project to analyze;
  - 2.2. Define Test Area Sales and Control Areas Sales;
  - Collect market data (sale transactions) for both Test Area and Control Area Sales;
  - 2.4. Analyze and confirm sales, including omission of sales that are not reflective of market value;
  - 2.5. Prepare comparative analysis of Test Area and Control Area sales, adjusting for market conditions:
  - 2.6. Interpret calculations; and
- 3. Conduct interviews with real estate professionals and local real estate assessors who have evaluated real property adjacent to existing solar farms.

It should be noted that our impact report data and methodology have been previously reviewed by our peer in the field – Kirkland Appraisals, LLC – as well as by the Solar Energy Industries Association (SEIA).

The following bullet points summarize important elements to consider in our scope of work:

- Due to the limited number of existing larger utility scale projects in the state of Kentucky, we have . incorporated other utility scale projects in other states.
- Test Area Sales consists of sales that are adjacent to an existing solar facility. Ownership and sales • history for each adjoining property to an existing solar farm through the effective date of this report is maintained within our workfile. Adjoining properties with no sales data or that sold prior to the announcement of the solar farm were excluded from further analysis.
- Control Area Sales are generally located in the same market area, although varies based on the general location of the existing solar farm under analysis. In rural areas, sales are identified first within the township, and expands radially outward through the county until a reliable set of data points is obtained.
- Control Area Sales are generally between 12 and 18 months before or after the date of the Test Area Sale(s), and are comparable in physical characteristics such as age, condition, style, and size.
- Sales of properties that sold in a non-arm's length transaction (such as a transaction between related parties, bank-owned transaction, or between adjacent owners) were excluded from analysis as these are not considered to be reflective of market value, as defined earlier in this report. The sales that remained after exclusions were considered for a paired sale analysis.
- The methodology employed in this report for paired sale analysis does not rely on multiple subjective adjustments that are typical in many appraisals and single-paired sales analyses. Rather, the



methodology remains objective, and the only adjustment required is for market conditions;<sup>11</sup> the analysis relies upon market conditions trends tracked by credible agencies such as the Federal Housing Finance Agency ("FHFA"), who maintains a House Price Index ("HPI")<sup>12</sup> for macro and micro regions in the United States. A market conditions adjustment is a variable that affects all properties similarly and can be adjusted for in an objective manner.

- To make direct comparisons, the sale price of the Control Area Sales was adjusted for market conditions to a common date. In this analysis, the common date is the date of the Test Area Sale(s). After adjustment, any measurable difference between the sale prices would be indicative of a possible price impact by the solar facility.
- If there is more than one Test Area Sale to evaluate, the sales are grouped if they exhibit similar transactional and physical characteristics; otherwise, they are evaluated separately with their own respective Control Area Sale groups.



<sup>&</sup>lt;sup>11</sup> Adjusting for market conditions is necessary as described in The Appraisal of Real Estate 14th Edition as follows: "Comparable sales that occurred under market conditions different from those applicable to the subject on the effective date of appraisal require adjustment for any differences that affect their values. An adjustment for market conditions is made if general property values have increased or decreased since the transaction dates."

<sup>&</sup>lt;sup>12</sup> The FHFA HPI is a weighted, repeat-sales index, meaning that it measures average price changes in repeat sales or re-financings on the same properties. This information is obtained by reviewing repeat mortgage transactions on single-family properties whose mortgages have been purchased or securitized by Fannie Mae or Freddie Mac since January 1975. The FHFA HPI serves as a timely, accurate indicator of house price trends at various geographic levels. Because of the breadth of the sample, it provides more information than is available in other house price indexes.

# **TECHNIQUE 1: REVIEW OF PUBLISHED STUDIES**

The following is a discussion of various studies that consider the impact of solar farms on surrounding property values. The studies range from quantitative analysis to survey-based formal research to less-formal analyses.

### ACADEMIC REPORTS

There have been four academic reports that attempt to quantify the effect on property values due to proximity to solar.

i. The first report is a study completed by **The University of Texas at Austin**, published in May 2018.<sup>13</sup> The portion of the study focusing on property impact was an Opinion Survey of Assessors with no sales data or evidence included in the survey. The opinion survey was sent to 400 accessors nationwide and received only 37 responses. Of those 37 assessors, only 18 had assessed a home near a utility-scale solar installation, the remainder had not. Of the 18 assessors with experience in valuing homes near solar farms, 17 had not found any impact on home values near solar. Those are the actual facts in the study. A small number of those assessor respondents hypothetically surmised an impact, but none had evidence to support such statements.

The paper admits that there is no actual sales data analyzed, and further denotes its own areas of weakness, including "This study did not differentiate between ground-mounted and rooftop installations." The author states on the last line of page 22: "Finally, to shift from perceived to actual property value impacts, future research can conduct analyses on home sales data to collect empirical evidence of actual property value impacts."

The paper concludes with a suggestion that a statistic hedonic regression model may better identify impacts. It should be noted that the type of statistical analysis that the author states is required to determine "actual property value impacts' was completed two years later by the following Academic Studies.

The second report is a study prepared by a team at the University of Rhode Island, published in ii. September 2020, "Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and *Rhode Island.*<sup>114</sup> The study utilized a hedonic pricing model, or multiple regression analysis, to quantify the effect of proximity on property values due to solar by studying existing solar installations in Massachusetts and Rhode Island. The study evaluated 208 solar facilities, 71,373 housing sales occurring within one-mile of the solar facilities (Test Group), and 343,921 sales between one-to-three miles (Control Group). Because it is a hedonic regression model, it allowed them to isolate specific



<sup>&</sup>lt;sup>13</sup> Al-Hamoodah, Leila, et al. An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations. Policy Research Project (PRP), LBJ School of Public Affairs, The University of Texas at Austin, May 2018, emp.lbl.gov/sites/default/files/propertyvalue impacts near utility-scale solar installations.pdf.

<sup>&</sup>lt;sup>14</sup> Gaur, V. and C. Lang. (2020). Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island. Submitted to University of Rhode Island Cooperative Extension on September 29, 2020. Accessed at https://web.uri.edu/coopext/valuing-sitingoptions-for-commercial-scale-solar-energy-in-rhode-island/.

variables that could impact value, including isolating rural and non-rural locations. The study defines "Rural," as an area having a "population density of 850 people per square mile or fewer."

The study provides data which found no negative impact to residential homes near solar arrays in rural areas: "these results suggest that [the Test Area] in rural areas is effectively zero (a statistically insignificant 0.1%), and that the negative externalities of solar arrays are only occurring in non-rural areas."<sup>15</sup> Further, the study tested to determine if the size of the installation impacted values, and found no evidence of differential property values impacts by the solar installation's size.

Thus, not only are there no impacts to homes in similar areas as the proposed Project, but any differences in the size of a solar farm are similarly not demonstrating an impact.

- The third report is a published study prepared by Dr. Nino Abashidze, School of Economics, Georgia iii. Institute of Technology, dated October 20, 2020, entitled "Utility Scale Solar Farms and Agricultural Land Values." Abashidze examined 451 solar farms in North Carolina. "Across many samples and specifications, we find no direct negative or positive spillover effect of a solar farm construction on *nearby agricultural land values.* Although there are no direct effects of solar farms on nearby agricultural land values, we do find evidence that suggests construction of a solar farm may create a small, positive, option-value for landowners that is capitalized into land prices. Specifically, after construction of a nearby solar farm, we find that agricultural land that is also located near transmission infrastructure may increase modestly in value."
- On March 1, 2023, an article was prepared by the Energy Analysis and Environmental Impacts Division, iv. Lawrence Berkeley National Lab, Berkeley, CA ("BNL"), which measured 1.8 million residential transactions around solar facilities greater than 1 MW in the states of CA, CT, MA, MN, NC and NJ. We are still reviewing this article although it does note that for the overwhelmingly majority of the transactions (in the states of CA, CT and MA), no impact was measured near large-scale photo-voltaic facilities or LSPV's. The authors of the study similarly released a webinar discussing the study, as well as key limitations of the study, as follows:
  - The dataset is centered on relatively small projects in relatively urban areas... Our results should not be applied to larger projects, e.g., those >18 MW, and, of course projects built far from homes.
  - [The] study did not consider site design, setbacks or landscaping features... •
  - Across the full dataset (all 6 states) only larger projects (greater than 12 acres) are correlated with a loss in house prices within 0.5 miles (compared to 2-4 miles away); BUT this analysis only applies to relatively small projects (90% are less than 35 acres/8 MW), so "large" is relative to the median of 12 acres.
  - Only 6 states are included; therefore, the results would not necessarily apply outside the sample area. •

Disclaimer: This report is limited to the intended use, intended users (NextEra Energy Resources and the Kentucky State Electric Generation and Transmission Siting Board as it relates to the evaluation of the Project), and purpose stated within. No part of this report may otherwise be reproduced or modified in any form, or by any means, without the prior written CohnReznick permission of CohnReznick LLP.



<sup>&</sup>lt;sup>15</sup> The University of Rhode Island study's conclusion that there may be an impact to non-rural communities is surmised is that "land is abundant in rural areas, so the development of some land into solar does little to impact scarcity, whereas in non-rural areas it makes a noticeable impact."

Given these limitations, we do not believe the study is overwhelmingly conclusive, and, if any, only presents limited data showing a rather small impact in certain areas. The states showing no impact reflect 68.6% of all the transactions studied.

Our review of the study revealed key questions that we believe limit the applicability of the study as a whole:

- 1. The study does not show the data for the largest of the solar facilities mapped and whether those reveal transactions that are consistent with the study's results (i.e., solar facilities greater than 8 MW in all six states). We would hypothesize that the largest of the facilities would show the greatest amount of impact; this is not expressed (and so likely not true). Further, our own studies of the largest facilities in Minnesota (the 100 MW North Star Solar Farm) rebut the study's results.
- 2. There was no effort by the authors to interpret whether other adjacent property next to solar facilities might also impact local residential values. This could include large commercial buildings, office towers, industrial developments or highways. This might have swayed the results.
- Data results are somewhat contrary to common reason for example, their conclusions indicate a negative impact in rural areas, insignificant impact in urban areas, but overwhelmingly positive results for "urban cluster" areas. This diverges from the theory that density and impact correlate.
- 4. Data results using similar methodology in the URI study reveal contrary results: while the URI study found no impact in rural communities, the BNL study indicates some very small degree of impact, and while the BNL study showed no impact in suburban areas, the URI did show a rather small impact. The results, therefore, are mixed and do not indicate consistent and measurable evidence.
- 5. Whether the results of -1.5% is applicable in terms of its relative degree. This is a rather small percentage and most appraisers and valuation professionals would find it difficult to profess this is of a magnitude that would be recognized in the market.

The BNL study does represent the largest study to date on the topic of solar farms and property values. We find that the majority of the data indicates no impact. The authors themselves suggest additional focus as follows: "more research is needed to understand the heterogeneity that we observe with respect to larger, agricultural and rural LSPVs [in the MN, NJ and NC contexts]. Here, surveys, qualitative research, mixed-methods, and case study-based approaches may indicate how neighbors of LSPVS engage differently with their nearby solar installations based on its size, land use, or the urbanicity of their home." CohnReznick agrees with the BNL suggestion – and covers specifically this request in our own studies within Minnesota and North Carolina, as well as several other solar farms of various sizes in various locations.

## VALUATION EXPERT REPORTS

We have similarly considered property value impact studies prepared by other experts, which have also noted that the installation of utility-scale solar on a property has no measurable or consistent impact on adjoining property value. According to a report titled "Mapleton Solar Impact Study" from Kirkland Appraisals, LLC, conducted in Murfreesboro, North Carolina in September 2017, which studied 13 existing solar farms in the state,



found that the solar farms had no impact on adjacent vacant residential, agricultural land, or residential homes. The paired sales data analysis in the report primarily consisted of low density residential and agricultural land uses and included one case where the solar farm adjoined to two dense subdivisions of homes.

Donald Fisher, ARA, who has served six years as Chair of the American Society of Farm Managers and Rural Appraisers, and has prepared several market studies examining the impact of solar on residential values was quoted in a press release dated February 15, 2021 stating, "Most of the locations were in either suburban or rural areas, and all of these studies found either a neutral impact or, ironically, a positive impact, where values on properties after the installation of solar farms went up higher than time trends."

## REAL ESTATE ASSESSOR SOLAR IMPACT REPORTS

The Chisago County (Minnesota) Assessor's Office conducted their own study on property prices adjacent to and in the close vicinity of the North Star solar farm in Chisago County, Minnesota. At the November 2017 Chisago County Board meeting, John Keefe, the Chisago County Assessor, presented data from his study. He concluded that the North Star solar farm had, "no adverse impact" on property values. His study encompassed 15 parcels that sold and were adjacent or in the close vicinity to the solar farm between January 2016 and October 2017; the control group used for comparison comprised of over 700 sales within the county. Almost all of the [Test Area] properties sold were at a price above the assessed value. He further stated that, "It seems conclusive that valuation has not suffered."<sup>16</sup>

Furthermore, Grant County, Kentucky Property Value Administrator, Elliott Anderson, stated that Duke Energy built a solar farm near Crittenden, adjacent to existing homes on Claiborne Drive in December 2017. At the time of the interview, there have been nine arm's length homes sales on that street since the solar farm commenced operations. Each of those nine homes sold higher than its assessed value, and one over 32 percent higher. At the time, Anderson noted that several more lots were for sale by the developer and four more homes were currently under construction. Anderson said that the solar farm had no impact either on adjoining home values or on marketability or desirability of those homes adjacent to the solar farm.

### CONCLUSION

These published studies and other valuation expert opinions, conclude that there is no impact to property adjacent to established solar farms. These conclusions have been confirmed by academic studies utilizing large sales databases and regression analysis investigating this uses' potential impact on property values. Further, the conclusion has been confirmed by county assessors who have also investigated this adjacent land use' potential impact on property values.



<sup>&</sup>lt;sup>16</sup> Chisago County Press: County Board Real Estate Update Shows No "Solar Effects" (11/03/2017)

## **TECHNIQUE 2: PAIRED SALE ANALYSIS**

SOLAR FARM 1: ASSEMBLY SOLAR FARM, SHIAWASSEE COUNTY, MI

Coordinates: 43.042516, -83.936119

**PINs:** Multiple

Total Land Size: Approximately 1,900 acres

Population Density: 125 people per square mile (Shiawassee County)

Date Project Announced: January 2019

Date Project Completed: January 2022

Output: 239 MW AC



The Assembly Solar Farm is located in Shiawassee County, Michigan. The current owner of the solar farm is an affiliate of D.E. Shaw Renewable Investments (DESRI) and was developed in a partnership between DESRI and



Ranger Power. The solar farm went into operation in three phases, with the first phase becoming operational in December 2020, the second phase in December 2021 and the third phase in January 2022. The solar farm can generate power for approximately 45,000 homes. Nearly 800,000 bifacial solar modules comprise the farm.

The Surrounding Area: The Assembly Solar Farm solar installation is located in the Hazelton and Venice Townships in the Northeastern portion of Shiawassee County, Michigan, Shiawassee County is located in central Michigan. Assembly Solar Farms is the largest solar farm in Michigan, and nearly doubled the state's solar output by adding 239 MW AC. As of September 2022, there are 44 solar farms in Michigan totaling 478.4 MW, and only one other solar farm in Shiawassee County, the Lyons Road Farm which generates 20 MW AC.

The Immediate Area: Surrounding land uses consist of residential homes, vacant residential lots, and farmland to the north, west, south, and east. The project site was leased from eight landowners for between 20 and 40 years. The solar farm is surrounded by landscaped vegetation buffers.

## **Real Estate Tax Info:**

In 2019, prior to the property being assessed as a solar farm, the assessed value of the underlying land was \$4,742,200 and ownership paid \$63,311 in real estate taxes. However, as the Assembly Solar Farm Project has been completed in three phases from 2019 through 2022, the participating properties have not been assessed as a solar farm use for the most recent assessments and therefore have remained fairly stable or slightly declined since 2019. Additionally, the tax bills for the 2021-2022 tax year were not publicly available at the time of this study.





The following map displays the parcels located within the solar farm (outlined in red).

Aerial imagery retrieved from Google Earth, dated October 2022



The following maps display the parcels located within the solar farm (outlined in red). Properties adjoining the solar parcels (outlined in yellow) are numbered for subsequent analysis.



Assembly Solar Farm – Adjoining Properties





Assembly Solar Farm – Adjoining Properties





Assembly Solar Farm – Adjoining Properties





Assembly Solar Farm – Adjoining Properties

## PAIRED SALES ANALYSIS

In reviewing Adjoining Properties to study in a Paired Sale Analysis, several properties and sales were considered but eliminated from further consideration as discussed below.

We identified seventeen Adjoining Properties that sold since the solar farm started operation in December 2020: Eleven single-family residential properties have sold since the solar farm started operation, Adjoining Properties 1, 24, 28, 29, 69, 88, 98, 99 and 113. We have not included the sale of Adjoining Properties 1, 29, 69, and 88 in our analysis as they were off-market transactions. We have not included the sale of Adjoining Property 113 as its sale price was impacted by problems with the septic tank on the property, according to the listing agent, Ms. Jessica Scmidt. The sale of Adjoining Properties 15, 19, 31, 47, 61, 80 and 85, all of which are an agricultural use, have not been included in our analysis as they were all non-arm's length transactions, per the Shiawassee County public records.

Additionally, we have not included the sale of Adjoining Property 98 due to a lack of comparable transactions in the local market. Adjoining Property 98 is located along North Sheridan Road and is comprised of a single-family home with an unfinished basement, farm structure and an 8.72-acre lot. In our search of comparable improved residential sales, other properties that have sold in the area during the same time frame either have very different lot sizes or imcomparable improvements and therefore, there were insufficient comparable control transactions.



The sales of Adjoining Properties 24, 28, and 99 were considered to be arm's length transactions and were studied. Our analysis of these transactions is presented next.

#### Group 1 – Improved Single-Family Residential Properties

Adjoining Property 24 to the Assembly Solar Farm was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1. The improvements on the property surrounded on four sides by the Assembly Solar Farm, Phase II and are located 120 feet to the nearest boundary of the Assembly Solar Farm, Phase II.

1				MMARY roup 1 - A						
Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
24	3496 N. Byron Road	\$321,999	3	2.0	1974	1,851	Single-Family Home with Finished Basement, Enclosed Porch, and Farm Structures	20.00	\$173.96	Sep-21

We analyzed seven Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 1. The Control Area Sales for Group 1 are single-family homes with three to four bedrooms and one and a half to two and a half baths, consist of between 1,700 square feet and 2,100 square feet of gross living area, a lot size between 10 and 40 acres (median lot size of 15.8-acres), and contain farm structures. Additionally, the Control Area Sales for Group 1 are all located within Shiawassee County.



Assembly Solar Farm – Test Area Sale Map, Group 1



The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Assembly Solar Project - Group 1 is presented below.

	CohnReznick Paired Sale Analysis Assembly Solar Farm - Group 1								
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF							
Test Area Sale (1)	Adjoining solar farm	\$173.96							
Control Area Sales (7)	No: Not adjoining solar farm	\$164.90							
Difference between Unit Pr Adjusted Median Unit Pric		5.49%							

The median days on market for the Control Area sales was 39 days (ranging from 30 to 174 days), while the median days on market for Adjoining Property 24 was 82 days. However, Adjoining Property 24 was listed for sale at \$319,900 and ultimately sold for \$321,999 or a 0.66% increase from the list price.

Noting no negative price differential, it does not appear that the Assembly Solar Farm use impacted the sale price of the Test Area Sale, Adjoining Property 24.

### Group 2a – Improved Single-Family Residential Properties

Adjoining Property 28 to the Assembly Solar Farm was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 2a. The improvements on the property are located 155 feet to the nearest boundary of the Assembly Solar Farm, Phase II.

	SUMMARY OF TEST AREA SALE Group 2 - Assembly Solar Farm										
Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date	
28	10385 E Cronk Road	\$215,000	3	2.0	1965	1,488	Single-Family Home with Attached Garage, Finished Basement, Patio, and Farm Structures	1.60	\$144.49	May-21	

We analyzed 18 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 2a. The Control Area Sales for Group 2a are single-family homes with three to four bedrooms and one and a half to three baths, consist of between 1,300 square feet and 1,750 square feet of



gross living area, a lot size between 1 and 5 acres, and contain farm structures. Additionally, the Control Area Sales for Group 2a are all located within Shiawassee County.



Aerial View, Adjoining Property 28, Test Area Sale Group 2a





Assembly Solar Farm – Test Area Sale Map, Group 2a

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Assembly Solar Project - Group 2a is presented below.

CohnReznick Paired Sale Analysis Assembly Solar Farm - Group 2a									
No. of Sales	Adjusted Median Price Per SF								
Test Area Sale (1)	Adjoining solar farm	\$144.49							
Control Area Sales (18)	No: Not adjoining solar farm	\$141.32							
	Price of Test Area Sale and ice of Control Area Sales	2.24%							



The days on market for the Test Area Sale was 20 days on market, while the median days on market for the Control Area sales was 41 days (ranging from 17 to 288 days), and we note no significant marketing time differential.

Noting no negative price differential, it does not appear that the Assembly Solar Farm use impacted the sale price of the Test Area Sale, Adjoining Property 28.

### Group 2b – Improved Single-Family Residential Properties

Adjoining Property 28 to the Assembly Solar Farm was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 2b. After selling in May 2021 for \$215,000, Adjoining Property 28 sold again in March 2023 for \$250,000, an overall 16.28% increase in sale price or an increase of 0.70% per month in sale price in between the two dates of sale. The appreciate rate between the two sale dates are analyzed further in a Repeat Sales Analysis later in this section. The improvements on the property are located 155 feet to the nearest boundary of the Assembly Solar Farm, Phase II.

SUMMARY OF TEST AREA SALE Group 2 - Assembly Solar Farm											
Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date	
28	10385 E Cronk Road	\$250,000	3	2.0	1965	1,488	Single-Family Home with Attached Garage, Finished Basement, Patio, and Farm Structures	1.60	\$168.01	Mar-23	

We analyzed 14 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 2b. The Control Area Sales for Group 2b are single-family homes with three to four bedrooms and one and a half to three baths, consist of between 1,300 square feet and 1,750 square feet of gross living area, a lot size between 1 and 5 acres, and contain farm structures. Additionally, the Control Area Sales for Group 2b are all located within Shiawassee County.



## Prepared for NextEra Energy Resources



Aerial View, Adjoining Property 28, Test Area Sale Group 2b





Assembly Solar Farm – Test Area Sale Map, Group 2b

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Assembly Solar Project - Group 2b is presented below.

CohnReznick Paired Sale Analysis Assembly Solar Farm - Group 2b									
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF							
Test Area Sale (1)	Adjoining solar farm	\$168.01							
Control Area Sales (14)	No: Not adjoining solar farm	\$165.07							
	Price of Test Area Sale and ice of Control Area Sales	1.78%							



The days on market for the Test Area Sale was 42 days on market, while the median days on market for the Control Area sales was 39 days (ranging from 17 to 153 days), and we note no significant marketing time differential.

Noting no negative price differential, it does not appear that the Assembly Solar Farm use impacted the sale price of the Test Area Sale, Adjoining Property 28.

### Group 3 – Improved Single-Family Residential Properties

Adjoining Property 99 to the Assembly Solar Farm was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 3. The property line is approximately 590 feet from the closest solar panel, and the improvements are approximately 780 feet from the closest solar panel of the Assembly Solar Farm, Phase III. The following table outlines the other important characteristics of Adjoining Property 99.

	SUMMARY OF TEST AREA SALE Group 3 - Assembly Solar Farm											
Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date		
99	2182 N. Sheridan Road	\$340,000	3	2.5	1996	1,930	Single-Family Home with Attached Garage, Partially Finished Basement, and Farm Structure	4.82	\$176.17	Jan-22		

We analyzed nine Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 3. The Control Area Sales for Group 3 are one-story single-family homes with three to four bedrooms, two to three baths, consist of between 1,576 square feet and 2,412 square feet of gross living area, a finished or partially finished basement, a lot size between 2 and 10 acres (median lot size of 4.5-acres), and contain farm structures. Additionally, the Control Area Sales for Group 3 are all located within Shiawassee County.





Aerial View, Adjoining Property 99, Test Area Sale Group 3



Assembly Solar Farm – Test Area Sale Map, Group 3


The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Assembly Solar Project - Group 3 is presented below.

	Reznick Paired Sale Analysis mbly Solar Farm - Group 3										
No. of Sales	No. of Sales Potentially Impacted by Solar Farm										
Test Area Sale (1)	Adjoining solar farm	\$176.17									
Control Area Sales (6)	No: Not adjoining solar farm	\$151.53									
	ifference between Unit Price of Test Area Sale and Adjuste Median Unit Price of Control Area Sales										

The days on market for the Test Area Sale was 54 days on market, while the median days on market for the Control Area sales was 38 days (ranging from 30 to 52 days), and we note no significant marketing time differential.

Noting no negative price differential, it does not appear that the Assembly Solar Farm use impacted the sale price of the Test Area Sale, Adjoining Property 99.



### Before & After Analysis – Assembly Solar Farm

We note the Test Area Sale in Groups 2a and 2b of the Assembly Solar Farm (Adjoining Property 28) and the Test Area Sale in Group 3 of the Assembly Solar Farm (Adjoining Property 99) have sold at least twice over the past 5 years. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Assembly Solar Farm, we prepared a Repeat-Sales Analysis on each identified adjoining property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for Michigan's 484 Three Digit Zip Code, where Adjoining Properties 28 and 99 are located, over the same period. The index for the zip code is measured on a quarterly basis and is presented below.

	uarter over	de - Housing P Quarter) Not S usted	
Three-Digit ZIP Code	Year	Quarter	Index (NSA)
484	2018	1	167.41
484	2018	2	170.53
484	2018	3	172.84
484	2018	4	172.52
484	2019	1	174.5
484	2019	2	180.37
484	2019	3	181.76
484	2019	4	183.73
484	2020	1	185.12
484	2020	2	186.3
484	2020	3	191.65
484	2020	4	195.16
484	2021	1	200.6
484	2021	2	210.78
484	2021	3	222.93
484	2021	4	227.74
484	2022	1	233.33
484	2022	2	246.08
484	2022	3	252.2
484	2022	4	245.91
484	2023	1	243.42
484	2023	2	259.91

We have presented the full repeat sales analysis on the following page.



				Repe	eat Sales Analys	is					484 Three Digit Zip Code - FHFA Housing Price Index Change					
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale		Total Appreciation	Monthly Appreciation Rate		
28	10385 E Cronk Road	1.60	1,488	5/27/2021	\$215,000	7/10/2018	\$155,000	38.71%	35	0.95%	210.78	172.84	21.95%	0.58%		
28	10385 E Cronk Road	1.60	1,488	3/13/2023	\$250,000	5/27/2021	\$215,000	16.28%	22	0.70%	243.42	210.78	15.49%	0.67%		
99	2182 N. Sheridan Road	4.82	1,930	1/4/2022	\$340,000	7/30/2021	\$330,000	3.03%	5	0.58%	233.33	222.93	4.67%	0.92%		
	Median - Test Area Sales	;								0.70%				0.67%		

#### Conclusion

When compared to the FHFA home price index for the 484-zip code, the median extraction rate for the resale of Adjoining Property 28, that sold three times in the previous five years, and Adjoining Property 99 that sold twice in the previous five years, exhibited a higher rate of appreciation than the Home Price Index for the 484-zip code. As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Assembly Solar Farm.

Adjoining Property 99 sold on July 30th, 2021 for \$330,000 and again five months later on January 4th, 2022 for \$340,000 representing an increase of 0.58% per month or \$10,000 overall. Given the short time difference between the two dates of sale we could not compare FHFA index levels for Shiawassee County as the index tracks annual change. We spoke with the selling agent for Adjoining Property 99, Ms. Linda Wells, who reported that the property owner who purchased and sold the property after five months had sold the property due to personal matters and not due to any issue with the house or surrounding area. Additionally, Ms. Wells indicated that both sales of Adjoining Property 99 were at market and that there was no impact from the solar farm on the sales price.

SOLAR FARM 2: RIVERSTART SOLAR FARM, RANDOLPH COUNTY, IN

Coordinates: Latitude 40.046244, Longitude -85.04509

**PINs:** Multiple

Total Land Size: Approximately 1,400 acres

Population Density: 53 people per square mile (Randolph County)

Date Project Announced: June 2020

Date Project Completed: December 2021

Output: 200 MW AC



Approximate Riverstart Solar boundaries outlined in yellow, aerial imagery provided by Bing Maps

The Riverstart Solar use is located in Randolph County, Indiana in between South Huntsville Road to the north, West 850 South to the south, South Indian Trail to the west, and 200 West to the east. The solar farm was developed by and is owned by EDP Renewables North America and Connor, Clark & Lunn Infrastructure while Indiana based Hoosier Energy, an electricity supply cooperative, has entered a 20-year power purchase agreement to purchase the solar farm's energy and will use the energy to power communities throughout central



and southern Indiana as well as southeastern Illinois. The solar farm went into operation in December 2021 and can generate power for approximately 36,000 homes. Nearly 670,000 panels comprise the farm.

The Surrounding Area: The Riverstart Solar installation is located in Randolph County, in between the towns of Modoc, to the west, and Lynn, to the east, in the south central portion of Randolph County, Indiana. Randolph County is located on the eastern side of Indiana, along the Indiana-Ohio border. The solar site is approximately 50 miles northwest of the City of Dayton, Ohio and 60 miles northeast of the City of Indianapolis, Indiana.

The Riverstart Solar project is one of the ninety-one solar farms in Indiana and the sole solar farm located within Randolph County, Indiana. The Riverstart Solar project is the largest solar farm in Indiana, followed by the Troy Solar project, which produces an output of 50.4 MW and is located in Spencer County.

The Immediate Area: The solar farm is located in between South Huntsville Road to the north, West 850 South to the south, South Indian Trail to the west, and 200 West to the east. The solar farm is immediately surrounded by primarily agricultural land as well a residential homestead properties and the Headwaters Wind Farm project, a 400 MW wind farm consisting of 130 turbines.

**Real Estate Tax Info:** Prior to the development of the solar farm, the assessed value of the underlying land was \$2,592,700 and participating land owners paid \$40,293 in real estate taxes. In 2022, after the completion of the solar farm, the assessed value of the participating parcels increased 428.33 percent to \$13,697,900 and real estate taxes increased 413.16 percent to an estimated \$206,771.

It is noted that the 2022 assessed values are not final and are subject to change and the 2022 real estate taxes have been estimated using the "Tax Bill Estimator" provided by the Indiana Gateway for Government Units.



#### Prepared for NextEra Energy Resources

		20	021 Taxes	2022 Taxes	Тах		2021 Assessed	2021 Assessed 2022 Assessed
Pin	Acres		Paid	Estimate*	Increase		 Value	
Randolph County, IN								
68-14-28-100-003.000-011	52.9		\$643	\$6,665	937.16%	ĺ	\$267,500	\$267,500 \$455,300
68-14-27-200-005.000-011	93.6		\$1,321	\$12,255	827.37%		\$78,600	
68-14-27-500-006.000-011	50.0		\$617	\$4,552	638.00%		\$35,700	
68-14-27-100-009.000-011	52.9		\$627		1090.23%		\$36,000	
68-14-27-100-010.000-011	80.0		\$1,454		226.91%		\$92,500	
68-14-26-200-001.000-011	78.7		\$916		897.32%		\$53,400	
68-14-26-200-002.000-011	40.0		\$547		857.22%		\$31,200	
68-14-23-300-012.000-011	40.0		\$866		245.77%		\$56,900	
68-14-26-300-006.000-011	39.7		\$532		881.97%		\$29,800	
68-14-26-300-007.000-011	40.0		\$486		771.04%		\$26,500	
68-14-26-100-004.001-011	66.9		\$858		993.45%		\$47,500	
68-14-26-100-004.000-011	93.1		\$3,110		120.97%		\$259,400	
68-14-25-200-002.002-016	117.4		\$3,699		214.58%		\$221,000	
68-14-25-200-004.000-016	40.0		\$984		217.01%		\$57,200	
68-14-25-300-005.000-016	60.0		\$1,276		293.90%		\$72,700	
68-14-25-100-003.000-016	130.0		\$6,028		268.69%		\$475,400	
68-14-25-100-012.000-016	30.0		\$658		625.76%		\$37,700	
68-14-25-400-006.001-016	31.7		\$284		1524.21%		\$26,100	
68-14-25-400-006.002-016	45.5		\$277		1733.98%		\$28,700	
68-14-25-400-009.000-016	69.2		\$1,543		214.25%		\$90,600	
68-14-26-300-012.000-011	39.0		\$356		1096.98%		\$19,300	
68-14-26-300-011.000-011	40.0		\$615		553.93%		\$35,600	
68-14-27-400-022.000-011	39.4		\$506	I I	938.97%		\$27,700	
68-14-27-400-026.000-011	40.0		\$500		1082.94%		\$26,500	
68-14-27-400-025.001-011	40.0 17.9		\$329		744.18%		\$20,500	
68-14-27-300-024.000-011	40.0		\$1,400		324.38%		\$92,400	
68-14-27-300-023.000-011	40.0		\$432	\$3,882	799.57%		\$24,200	
68-14-35-300-010.000-011	79.0		\$2,795		210.65%		\$59,600	
68-14-35-400-011.000-011	20.0		\$286		428.67%		\$16,300	
68-14-35-400-013.002-011	20.0 89.5		\$280		428.07%		\$49,100	
68-14-36-300-005.000-016	89.5 55.0		\$943 \$1,147	\$6,932	504.17%		\$65,200	
68-14-36-300-006.003-016	28.3		\$468		232.11%		\$03,200	
68-14-36-300-006.002-016	28.3 29.4		\$468 \$691		232.11% 517.77%		\$23,400	
68-14-36-400-008.000-016	29.4 17.9		\$691 \$416		160.26%		\$38,200	
68-17-02-100-004.000-011	40.0		\$416 \$2,530		205.39%		\$23,200	
68-17-02-100-004.000-011 68-17-02-200-003.000-011	40.0 120.0				205.39%		\$259,100 \$175,100	
	120.0 38.5		\$2,816 \$543	I I				
68-17-02-200-001.000-011			•	. ,	853.01%		\$30,800	
Total	2025.6		\$40,293	\$206,771	413.16%		\$2,592,700	\$2,592,700 \$13,697,900



The following maps display the parcels developed with the solar farm (outlined in yellow). Properties immediately adjoining the solar parcels (outlined in blue) are numbered for subsequent analysis. It is noted that the aerial imagery provided by Google Earth is dated April 2019, prior to the completion of the solar farm.



Riverstart Solar – Adjoining Properties



Riverstart Solar – Adjoining Properties



Riverstart Solar – Adjoining Properties



Riverstart Solar – Adjoining Properties



Riverstart Solar – Adjoining Properties



Riverstart Solar – Adjoining Properties







Riverstart Solar – Adjoining Properties



Riverstart Solar – Adjoining Properties

Riverstart Solar – Adjoining Properties



Riverstart Solar - Adjoining Properties



## PAIRED SALES ANALYSIS

We considered only one type of paired sales anaylsis, which was comparing sales of properties not proximate to the solar farm (Control Area Sales) to the sales of adjoining properties after the completion of the solar farm project (Test Area Sales). We analyzed sales of homes that occurred after the completion of the solar facility, starting in December 2021. Only one adjacent property sold since the completion of the Riverstart Solar project, Adjoining Property 27, which sold on February 17, 2022 for a consideration of \$250,000.

We identified Control Area Sale data through the RealQuest database which aggregates real estate sales from public record. We verified these sales through county records and conversations with brokers and sellers. We excluded sales that were not arm's length, such as REO sales or bank-owned properties, or those between related parties.

It is important to note the these Control Area Sales are not adjoining to any solar farm, nor do they have a view of one from the property. Therefore, the announcement nor the completion of the solar farm use could not have impacted the sales price of these properties. Additionally, these Control Area Sales are all located within a ten mile radius of the Riverstart Solar project.

### Group 1 – Improved Single-Family Residential Properties

Adjoining Property 27 to the Riverstart Solar project was considered for a paired sales analysis, which sold for \$250,000 after being on the market for 45 days. The property is a one and a half-story 2,457 square foot home with a partial unfinished basement, a detached garage, a barn and an outbuilding, located on a 3.00-acre lot and sold in February 2022. The improvements on this property are located approximately 700 feet to the nearest solar panel while the property line is approximately 225 feet to the nearest solar panel. Additionally, the improvements on this property are located approximately 1,400 feet to the nearest wind turbine. The table on the following page outlines the other important characteristics of Adjoining Property 27.





Adjoining Property 27, 3928 W. 600 S., Modoc IN, with Riverstart Solar and Headwater Wind Farm within viewshed

	SUMMARY OF TEST AREA SALE Group 1 - Riverstart Solar												
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date			
27	3928 W. 600 S., Modoc	\$250,000	5	2.0	1910	2,457	SFH with partial unfinished basement, detached garage, barn, and outbuilding	3.00	\$101.75	Feb-22			

We analyzed six Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm or any wind turbines, that sold within a reasonable time frame from the sale date of the Test Area Sale. The Control Area Sales for Group 1 are single-family homes with three to four bedrooms and 1 to 2.5 baths, consist of between 1,700 square feet and 2,500 square feet of gross living area, and built between 1890 and 1927. The Control Area Sales also have farm structures, have a partial unfinished basement or no basement, and are located on lots between 1.00 and 6.50-acres in size.

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Riverstart Solar Project – Group 1 is presented below.



	nick Paired Sale Analysis Riverstart Solar							
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF						
Test Area Sale (1)	Adjoining solar farm	\$101.75						
Control Area Sales (6)	No: Not adjoining solar farm	\$99.55						
	Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales							

The marketing time (from list date to closing date) for Control Area Sales ranged from 52 to 160 days on market, and the marketing time for Adjoining Property 27 was 45 days, which is below the range of the Control Area Sales, and we note no significant marketing time differential.

The small differential between the Test Area Sale and the Control Area Sales is within the range of normal market variance, and therefore it does not appear that the Riverstart Solar installation impacted the sale price of the Test Area Sale.

We contacted the selling broker of the Test Area Sale home, Gary Coats of Wagner Auction & Real Estate, who indicated that proximity to the solar farm and wind turbines did not concern prospective buyers and the property attracted multiple offers while listed for sale.

Additionally, we spoke with George Caster, Randolph County Assessor, who stated that there has been no impact on property values due to their proximity to the Riverstart Solar project.



### **BEFORE & AFTER ANALYSIS – RIVERSTART SOLAR PROJECT**

We note the Test Area Sale of the Riverstart Solar project (Adjoining Property 27) as well as three control sales (Control Sales 1, 2 and 5) have sold at least twice over the past 15 years. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Riverstart Solar project, we prepared a Repeat-Sales Analysis on each identified property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for Indiana's 473 three-digit zip code (where the identified homes are located) over the same period. The index for three-digit zip codes is measured on a quarterly basis and is presented below.

473 Three-Digit Zipe over C		ing Price Index easonally Adjus	
Three-Digit Zip Code	Year	Quarter	HPI
473	2017	1	152.38
473	2017	2	151.03
473	2017	3	156.31
473	2017	4	155.79
473	2018	1	157.53
473	2018	2	158.44
473	2018	3	160.89
473	2018	4	162.69
473	2019	1	165.10
473	2019	2	167.44
473	2019	3	168.49
473	2019	4	173.74
473	2020	1	173.68
473	2020	2	175.55
473	2020	3	173.68
473	2020	4	183.84
473	2021	1	188.41
473	2021	2	198.62
473	2021	3	205.71
473	2021	4	216.01
473	2022	1	217.68
473	2022	2	231.02
473	2022	3	236.76

We have presented the full repeat sales analysis on the following page.



# Prepared for NextEra Energy Resources

3928 W. 600 S., Modoc

Median - Test Area Sales

3.00

3.00

2,457

2.457

2/25/2021

				Repeat Sal	es Analysis						473 Three-Digit Zip Code - FHFA House Price Index Change				
Property ID	Address			Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate	
27	3928 W 600 S Modoc	3 00	2.457	2/17/2022	\$250,000	2/25/2021	\$219,000	14 16%	12	1.14%	217 68	188 41	15.54%	1 24%	

7/2/2020

\$180,000

21.67%

2.54%

1.84%

188.41

178.86

\$219,000

				Repeat Sal	es A nalysis						473 Three-Digit Zip Code - FHFA Housing Price Index Change					
Property ID	Address	Land Area (Acres)		Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	T otal Appreciation	Monthly Appreciation Rate		
1	757 W. 250 N., Winchester	4.55	2,066	5/24/2022	\$195,000	10/6/2018	\$135,000	44.44%	44	0.85%	231.02	162.69	42.00%	0.81%		
2	3611 N. US Highway 27, Winchester	2.44	1,756	8/26/2022	\$232,565	11/7/2017	\$155,000	50.04%	58	0.71%	236.76	155.79	51.97%	0.73%		
5	6290 N. US Highway 35, Williamsburg	6.47	2,024	8/16/2022	\$210,187	6/5/2018	\$134,000	56.86%	50	0.90%	236.76	160.89	47.16%	0.77%		
	Median - Control Area Sales	4.55	2,024							0.85%				0.77%		

#### Conclusion

In our analysis of the two resales of homes adjacent to the Riverstart Solar project and the three resales of homes in the surrounding area, when compared to the FHFA home price index for the local zip code, the median monthly appreciation rate of the Test Area Sales group outperformed the average for the zip code and outperformed the median monthly appreciation rate of the Control Area Sales, as depicted by the far-right column in the tables above. As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Riverstart Solar project.

We spoke with Gary Coats of Wagner Auction & Real Estate, who was the selling broker of the February 2022, 3928 W. 600 S. Modoc sale, and indicated that there were no major capital improvements made to the property prior to the February 2021 or February 2022 sale. Mr. Coats also noted that the frequency of transfers of the property was due to personal reasons by the sellers, who were clients of his.

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0.67%

0.95%

5.34%

SOLAR FARM 3: HILLCREST SOLAR FARM, BROWN COUNTY, OH

Coordinates: Latitude 39.076972, Longitude -83.90605

**PINs:** Multiple

Total Land Size: Approximately 1,940 acres

Population Density: 89 people per square mile (Brown County)

Date Project Announced: February 2018

Date Project Completed: May 2021

Output: 200 MW AC



Approximate Hillcrest Solar boundaries outlined in yellow, aerial imagery provided by Google Earth dated March 2021

The Hillcrest Solar use is located in Brown County, Ohio and in between Upper 5 Mile East Road to the north, Greenbush East Road to the south, U.S. Route 68 to the west and County Road 182 ("Beltz Road") to the east.



The current owner of the solar farm is Innergex Renewable Energy Incorporated while Open Road Renewables, LLC and Eolian began the initial development of the solar facility. Amazon.com, Incorporated has entered a power purchase agreement to purchase 100 percent of the solar farm's energy. The solar farm went into operation in May 2021 and can generate power for approximately 39,000 homes. Nearly 606,000 panels comprise the farm.

The Surrounding Area: The Hillcrest Solar installation is located in northern Brown County, Ohio, adjacent to U.S. Route 68 to the west and approximately 30 miles east of the Cincinnati, in the southern portion of Ohio. Brown County is located on the northern side of the Ohio River, along the Ohio-Kentucky border. The solar site is approximately 45 miles southeast of the City of Dayton, 75 miles southwest of the City of Columbus and 75 miles northeast of the City of Lexington, Kentucky.

The Hillcrest Solar project is one of the thirty-seven solar farms in Ohio and the sole solar farm located within Brown County, Ohio. The Hillcrest Solar project is the largest solar farm in Ohio with Hardin Energy Solar farm, which produces an output of 150 MW, is the second largest solar farm in the state and is located in Hardin County.

The Immediate Area: The solar farm spans over 1,900 acres in Brown County and is immediately surrounded by primarily agricultural land with residential homestead properties interspersed throughout the surrounding Project area. To the northeast lies more densely concentrated residential and commercial properties in the City of Hillsboro, approximately 15 miles from the Project site.

**Real Estate Tax Info:** In lieu of paying taxes for utility scale solar projects in Ohio, utility scale solar projects are allowed to utilize real and personal property tax abatement and instead make a payment based on the size of the solar farm, often referred to as the PILOT framework (payment in lieu of taxes). For utility scale solar projects in Ohio, the PILOT is \$7,000 per megawatt, however, it has been reported that Hillcrest Solar is paying approximately \$1.8 million annually to Brown County, Western Brown School District and Green Township.



The following maps display the parcels developed with the solar farm (outlined in yellow). Properties immediately adjoining the solar parcels (outlined in blue) are numbered for subsequent analysis. It is noted that the aerial imagery provided by Google Earth is dated March 2021.



Hillcrest Solar - Adjoining Properties



Hillcrest Solar – Adjoining Properties





Hillcrest Solar - Adjoining Properties



Hillcrest Solar - Adjoining Properties

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Hillcrest Solar - Adjoining Properties



Hillcrest Solar – Adjoining Properties





Hillcrest Solar – Adjoining Properties



Hillcrest Solar - Adjoining Properties

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Hillcrest Solar - Adjoining Properties



Hillcrest Solar - Adjoining Properties

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Hillcrest Solar - Adjoining Properties



Hillcrest Solar - Adjoining Properties

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### PAIRED SALES ANALYSIS

In reviewing Adjoining Properties to study in a Paired Sales Analysis, several properties and sales were considered but eliminated from further consideration as discussed below.

One adjoining residential property consisting of two adjoining parcels, Adjoining Properties 60 and 61, was sold on July 28, 2022 for \$167,500 or \$122.44 per square foot of living area, after being on the market for 44 days. Adjoining Properties 60 and 61 are comprised of a 1-Story single family home with an enclosed porch built in 1990 on a 20.77-acre lot. We have not included the sale of Adjoining Properties 60 and 61 due to a lack of comparable transactions of single-family homes on large lots without garage parking or any other improvements. However, we spoke to the selling broker, Ragan McKinney of Ragan McKinney Real Estate, who noted the property attracted multiple offers and that the presence of the solar farm did not impact the final sale price.

Additionally, we have not included the sale of Adjoining Property 63, which sold for \$125,000 or \$71.35 per square foot of living area, in our analysis due to a lack of comparable transaction in the local market. Adjoining Property 63 consists of a 1.5-story SFH constructed in the early 1900's with a small storage shed on a 1.55-acre lot. We have not included the sale of Adjoining Property 63 due to the lack of comparable transcations of singlefamily homes of similar age without garage parking on similarly sized lots. Ragan McKinney of Ragan McKinney Real Estate was also the selling broker of Adjoining Property 63 and she noted that after multiple viewings, Adjoining Property 63 received multiple offers, the buyers did not receive any concessions due to the presence of the solar farm and that other potential buyers were not concerned about the presence of the adjacent Hillcrest Solar Farm.

### Group 1 – Improved Single-Family Residential Properties

Adjoining Property 85 to the Hillcrest Solar Project was considered for a paired sales anaylsis, and we have anaylzed this property as a single-family home use in Group 1. The property is a single-story 1,758 sqaure foot home with a full unfinished basement, attached garage, workshop, pole barn and a carport, located on a 17.87acre lot that sold in June 2023. This property line is approximately 225 feet from the closest solar panel, and the improvements are approximately 330 feet from the closest solar panel. The following table outlines the other important characteristics of Adjoining Property 85.

	SUMMARY OF TEST AREA SALE Group 1 - Hillcrest Solar											
Adj .Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date		
85	16011 Moon Road	\$374,500	3	1.5	Early 1900's	1,758	1-Story SFH with Detached Garage, Full Basement, Workshop, Pole Barn and Carport	17.87	\$213.03	Jun-23		





Hillcrest Solar Farm – Test Area Sale Map, Group 1

We analyzed thirteen Control Area Sales of single-family homes with similar construction and use that were located within the Western Brown Local School District or in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 1. The Control Area Sales for Group 1 are single-family homes located on lots in between 10.00 and 28.36-acres in size with three to four bedrooms and one to four baths, consisting of between 1,260 square feet and 2,880 square feet of gross living area, and built between 1900 and 1999. The Control Area Sales also have additional improvements such as garage parking, pole barns, workshops or storage sheds.

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Hillcrest Solar Project – Group 1 is presented below.



	CohnReznick Paired Sale Analysis Hillcrest Solar Group 1 Adjusted										
No. of Sales	No. of Sales Potentially Impacted by Solar Farm										
Test Area Sale (1)	Adjoining solar farm	\$213.03									
Control Area Sales (13)	No: Not adjoining solar farm	\$199.41									
Difference between Unit Pr Adjusted Median Unit Price	6.83%										

Noting no negative marketing time differential, Adjoining Property 85 sold in 28 days, while the Control Area Sales sold between 36 and 291 days, with a median time on market of 60 days.

Noting no negative price differential, with Adjoining Property 85 having a higher unit sale price than the Control Area Sales, it does not appear that the Hillcrest Solar Farm had any negative impact on the sale of the Test Area Sale.

# Group 2 - Improved Single-Family Residential Properties

Adjoining Property 92 to the Hillcrest Solar project was considered for a paired sales analysis, and we have analyzed this property as a single-family home use in Group 2. The property is a single-story 1,776 square foot home in fair condition that sold in need of repairs with a detached pole barn/garage, located on a 4.45-acre lot and sold in December 2022. The improvements on this property is located approximately 265 feet to the nearest solar panel while the property line is approximately 105 feet to the nearest solar panel. The following table outlines the other important characteristics of Adjoining Property 92.

						AREA S st Solar	ALE			
Adj .Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
92	16103 Moon Road	\$168,900	3	1.0	1971	1,776	1-Story SFH with Detached Garage/Pole Barn	4.45	\$95.10	Dec-22





Hillcrest Solar Farm – Test Area Sale Map, Group 2

We analyzed six Control Area Sales of single-family homes with similar construction and use that were located within the Western Brown Local School District or in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 2. The Control Area Sales for Group 2 are single-family homes located on lots in between 2.00 and 7.58-acres in size with two to three bedrooms and two to three baths, consisting of between 1,080 square feet and 2,080 square feet of gross living area, and built between 1970 and 1986. The Control Area Sales also have additional improvements such as garage parking, pole barns or storage sheds. Additionally, all of the Control Area Sales were in poor to fair condition and in need of repairs at the time of sale.

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Hillcrest Solar Project - Group 2 is presented below.



CohnRez Hillo					
No. of Sales	No. of Sales Potentially Impacted by Solar Farm				
Test Area Sale (1)	Adjoining solar farm	\$95.10			
Control Area Sales (6)	No: Not adjoining solar farm	\$98.47			
Difference between Unit Pr Adjusted Median Unit Prie	-3.42%				

The marketing time (from list date to closing date) for Control Area Sales ranged from 41 to 306 days on market with a median of 79 days on market, and the marketing time for Adjoining Property 92 was 26 days, which is below the range of the Control Area Sales, and we note no significant marketing time differential.

Noting minimal negative price differential, it does not appear that the Hillcrest Solar Farm use impacted the sale of the Test Area Sale, Adjoining Property 92. This was confirmed by the listing agent who marketed and sold Adjoining Property 92, Pam Shipley of Wyndham-Lyons Realty Services, who stated, "The property received multiple offers and the solar farm had no impact on the value of the property."

We note that the control data had additional improvements including garage parking, pole barns or storage sheds, which likely explains the relative difference in adjusted median price per square foot.



# SOLAR FARM 4: DOUGHERTY SOLAR, DOUGHERTY COUNTY, GEORGIA

Coordinates: Latitude 31.305614, Longitude 84.022637

PIN: 00144/00001/03D, 00120/00001/007,00146/00001/01B

Population Density (2019) Dougherty County: 288 people per square mile (Largest City Albany)

Total Land Size: ±1,280.93 Acres

Date Project Announced: August 2018

Date Project Completed: November 2019

Output: 120 MW AC



Aerial imagery retrieved from Google Earth

The 120 MW AC capacity, Dougherty Solar project was developed by NextEra in 2019. This solar site is expected to generate \$10 million in tax revenue over its lifetime. The project sits on a ±1,037.42-acre site which was a



former agricultural land site. Georgia Power signed a 30-year Power Purchase Agreement with NextEra Energy to buy the solar generated power and NextEra Energy owns and maintains the installation. The solar facility consists of 5,232 rows of support beams for 440,535 solar panels.

The Surrounding Area: The Dougherty County Solar project is located in unincorporated Dougherty County, with a city of Albany mailing address, Georgia. Georgia Route 3 (Liberty Expressway) is approximately 4.5 mile west of the solar site, and connects the surrounding area to downtown Albany, which is approximately 8 miles northwest of the solar site. We note the nearest interstate, Interstate 75, is approximately 31 miles east of the solar site. The surrounding area is rural in nature with agricultural and low density residential uses surrounding the property.

The Immediate Area: Within a one-mile radius of the solar farm, surrounding uses mainly consist of agricultural land, with some single-family homes to the south and the northwest. Adjacent land parcels to the solar farm are mainly residential, with some agricultural uses. Additional surrounding land uses are an industrial use to the southeast of the southern-most panels. The majority of the residential housing is located to the south of the solar site, along Spring Flats Road, with some homes located along Gaissert Road to the northeast.

The solar site is built on a large, mostly flat agricultural site. The site is bounded by Spring Flats Road and Moultrie Road to the south with single family homes along these roads, agricultural land to the west, vacant land to the east, and agricultural land and more single family homes to the north. The adjoining homes sites are all buffered from the solar site by mature trees, bushes, and other shrubbery.

# Prior Use: Agricultural use

**Real Estate Tax Information:** The assessed value in Dougherty County has not changed for the solar parcel since decreased slightly from 2018, prior to the development of the solar farm, to 2020, after the development of the solar farm. We note \$61,000 of this decrease is due to the demolition of existing improvements (Parcel 00120/00001/007). Removing the improvements from the 2018 assessed value only accounts for a decrease of 0.32% from this parcel, although given the solar farm's recent construction it is possible the site would be reassessed during the next cycle. Historical real estate taxes are not available form Dougherty County public records.

PIN	Acres	20	18 Taxes Paid	20	20 Taxes Paid	Tax Increase	201	8 Assessed Value	202	20 Assessed Value	Value Increase
Dougherty County, GA	·	1									
00144/00001/03D	143.75	\$	9,435	\$	9,388	0%	\$	546,300	\$	546,300	0%
00120/00001/007	792.98	\$	38,909	\$	37,550	-3%	\$	2,253,000	\$	2,185,100	-3%
00146/00001/01B	100.69	\$	6,884	\$	6,850	0%	\$	398,600	\$	398,600	0%
00118/00001/07C (Post 2021 split)	125.47	Not	Released	No	t Released		N	lot Released	N	Not Released	
TOTAL	1,280.93	\$	55,228	\$	53,787	-3%	\$	3,197,900	\$	3,130,000	-2%

The maps below and following display the solar project (parcels outlined in red). Properties adjoining the solar site are outlined in yellow and numbered for subsequent analysis. We note the Dougherty County GIS has not updated its aerial imagery to include the solar panels on the solar site.





**Dougherty Solar - Adjoining Properties** 

Disclaimer: This report is limited to the intended use, intended users (NextEra Energy Resources and the Kentucky State Electric Generation and Transmission Siting Board as it relates to the evaluation of the Project), and purpose stated within. Lieuric Generation and Transmission Siting Board as it relates to the evaluation of the Project), and purpose stated within. No part of this report may otherwise be reproduced or modified in any form, or by any means, without the prior written permission of CohnReznick LLP.





**Dougherty Solar - Adjoining Properties** 

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**Dougherty Solar - Adjoining Properties** 





**Dougherty Solar - Adjoining Properties** 

Adjoining Properties 1-18, 20, 21, 24-31, 33-38 all sold between August 1973 and September 2019, prior to the date of completion of the subject solar site. These properties have been excluded from further analysis.

We do note Adjoining Property 27 was sold in July 2019, during the construction period of the solar farm. Since it was sold during the construction period, we have excluded it from being considered as a Test Area Sale since we cannot extract the external influence of construction on the sale price. We spoke to the selling broker for this transaction, Christy Wingate, with Parker Real Estate Group. She noted the future presence of the solar farm did not impact the sales price at all. Additionally, she noted in her experience, the presence of a solar farm is neither an attraction nor a deterrant for nearby home buyers. She noted a similar case with a new solar farm in Leesburg, Georgia, which is much smaller than the solar farm under analylsis, within a predominately residential area.

Adjoining Property 32 sold in December 2019 and we analyzed it for potential inclusion as a Test Area Sale; however, since the sale was a gift sale with no allocated sales price, we have not analyzed it further since the transaction was not a market transaction.

Adjoining Property 19 was sold in February 2020, however this sale was also a gift sale between family members with no allocated sales price. Therefore we did not analyze it.



Adjoining Property 22 sold in August 2020 for \$19,500, although according to public records does not note this sale was a "Fair Market Sale." Additionally, the county GIS marked this sale as unqualified for a market transactions. Therefore, we did not analyze this sale further.

### **Paired Sales Analysis:**

We have considered only one type of paired sales analysis, which compares sales of properties proximate to the solar farm (Control Area) to the sales of adjoining properties after the completion of the solar farm project (Test Area).

We found one adjoining property that qualified for a paired sales analysis. Adjoining Property 23 (Test Area Sale), circled in blue on the previous page, was considered for a paired sales analysis, and sold in June 2020, after the completion of the solar farm. This property was analyzed as single-family home use.

Adjoining Property 23 (Test Area Sale) was considered for a paired sales analysis, and we analyzed this property as a single-family home use, which is a 2,750 square foot home located on a 3.44- acre parcel that sold in June 2020. The property line of this parcel is approximately 202 feet from the closest solar panel, and the improvements are approximately 312 feet from the closest solar panel. The following table outlines the other important characteristics of Adjoining Property 23.

	Adjoining Property 23											
					Site							
					Size				Square			
Status	Address	City	County	Sale Price	(AC)	Beds	Baths	Year Built	Feet	Improvements	Sale Price/SF	Sale Date
Sold	2916 SPRING FLATS RD	Albany	Dougherty	\$205,000	3.44	4	2.5	1980	2,750	1-Story SFR	\$74.55	Jun-20

We note that Adjoining Property 23 has an in-ground pool. We have found Control Area Sale data through Zillow and verified these sales through county records, conversations with brokers, and the County Assessor's Office. We excluded sales that were not arm's length, such as REO sales or those transactions between related parties. We have included only sales with a similar number of bedrooms, bathrooms, and living area, as well as land area. Additionally, we only selected Control Area Sales of single-family homes also had an in-ground pool.

It is important to note that these Control Area Sales are not adjoining a solar farm, nor do they have a view of one from the property at the time of their sales. Therefore, the announcement nor the completion of the solar farm use could not have impacted the sales price of these properties. It is informative to note that the average and median marketing time (from list date to off market date) for Control Area Sales was 83 days and 119 days, respectively. The Test Area sale had a marketing time of 99 days. This is an indication that the marketability of the Test Area sale was not negatively influenced by proximity to the Dougherty Solar project. The Control Area Sales are comparable in most physical characteristics and bracket Adjoining Property 23 reasonably.



Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The results of the paired sales analysis for the Dougherty Solar project are presented below.

Doughe	nick Paired Sales Anaysis arty County Solar Facility Ijoining Property 23		
No. of Sales	Adjusted Mediar Price Per SF		
Test Area Sale (1)	Yes: Adjoining solar farm	\$74.55	
Control Area Sales (5)	No: Not adjoining solar farm	\$76.23	
Difference between Unit P Adjusted Median Unit Pri		-2.21%	

The difference between the unit price of the Test Area Sale and the Adjusted Median Unit Price of the Control Area Sales is considered within the range for a typical market area. One of the Control Area Sales was 20 years newer than the Test Area Sale. A secondary analysis excluding this sale indicated an adjusted median unit sale price of \$74.47 per square foot, which is in line with the Test Area Sale unit price of \$74.55 per square foot.

Noting no significant price differential, it does not appear that the Dougherty Solar project impacted the sales price of the Test Sale, Adjoining Property 23.



## SOLAR FARM 5: WAPELLO SOLAR FARM, LOUISA COUNTY, IA

Coordinates: Latitude 41.153697, Longitude -91.177100

**PINs:** Multiple

Total Land Size: Approximately 800 acres

Population Density (2021): 26 people per square mile (Largest City = Wapello)

Date Project Announced: March 2019

Date Project Completed: March 2021

Output: 100 MW AC







Approximate Wapello Solar boundaries outlined in yellow, aerial imagery provided by Google Earth dated October 2023

The Wapello Solar use is located in Wapello, Iowa and is adjacent to J Avenue and bisected by 65<sup>th</sup> Street, in between US Highway 61 to the west and 123<sup>rd</sup> Avenue to the east. The current owner of the solar farm is Clenera while Renewable Energy Systems (RES) developed the solar facility. Central Iowa Power Cooperative has entered a 25-year power purchase agreement to purchase the solar farm's energy. The solar farm went into operation in March 2021 and can generate power for approximately 21,000 homes. Nearly 318,000 panels comprise the farm.

The Surrounding Area: The Wapello Solar installation is located in Wapello, adjacent to the Iowa River to the east and approximately 5 miles west of the Mississippi River, in the south eastern portion of Louisa County, lowa. Louisa County is located on the western side of the Mississippi River, along the lowa-Illinois border. The solar site is approximately 38 miles southeast of Iowa City and 40 miles southwest of the City of Davenport.

The Wapello Solar project is one of the sixteen solar farms in Iowa and the sole solar farm located within Louisa County, Iowa. The Wapello Solar project is the second largest solar farm in Iowa behind the Holliday Creek Solar farm, which produces an output of 117.6 MW and is located in Webster County.


<u>The Immediate Area</u>: The solar farm is located along J Avenue, just east of U.S. Highway 61 and west of 123<sup>rd</sup> Avenue. The solar farm is immediately surrounded by primarily agricultural land with residential homestead properties interspersed to the east and west. To the northwest lies more densely concentrated residential and commercial properties in the City of Wapello.

<u>**Real Estate Tax Info:**</u> The Wapello Solar project has yet to be assessed as a solar farm use, and at this time Louisa County has not determined precisely how much property tax revenue Wapello Solar will generate. However, in the application to the Iowa Utilities Board by Wapello Solar, LLC, it was forecasted that Wapello Solar would roughly triple historical property taxes for the included parcels and property tax revenue would be expected to be in the range of \$120,000 to \$130,000 per year for the 25 years of planned operation.

The parcels included in the Wapello Solar project have been classified as commercial parcels and have assessed values of \$0 and \$0 in net taxes due since the 2021 tax year.

The following maps display the parcels developed with the solar farm (outlined in yellow). Properties immediately adjoining the solar parcels (outlined in blue) are numbered for subsequent analysis. It is noted that the aerial imagery provided by Google Earth is dated October 2020, prior to the completion of the solar farm.



Wapello Solar – Adjoining Properties





Wapello Solar - Adjoining Properties

# PAIRED SALES ANALYSIS

One adjoining residential property, Adjoining Property 10, was sold on July 9, 2021, which was after the solar farm was built and became operational. We spoke to the selling broker, Julie Rossiter of Julie Rossiter Realty, who noted the property sold very quickly after receiving multiple offers within the first day of being listed on the market. Additionally, Ms. Rossiter said that she did not have to make any adjustments to her standard marketing plan to attract potential buyers, who in Ms. Rossiter's opinion, did not mind the solar farm being located adjacent to the property.

# Group 1 – Improved Single-Family Residential Properties

Adjoining Property 10 to the Wapello Solar project was considered for a paired sales analysis, and we have analyzed this property as single-family home use in Group 1. The property is a single-story 1,640 square foot home with a partially finished basement, and attached garage located on a 3.75-acre lot and sold in July 2021. The improvements on this property is located approximately 180 feet to the nearest solar panel while the property line is approximately 130 feet to the nearest solar panel and is surrounded on two sides by the Wapello Solar project. The following table outlines the other important characteristics of Adjoining Property 10.



# Prepared for NextEra Energy Resources

						TAREA S Solar Fa				
Adj .Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
10	6975 J Avenue	\$215,500	3	1.8	1963	1,640	1-story SFH, Partially Finished Basement, Attached Garage, Pole Building, Shed	3.75	\$131.40	Jul-21



Adjoining Property 10, Test Area Sale Group 1, Wapello Solar





Adjoining Property 10, Test Area Sale Group 1, Wapello Solar

We analyzed eight Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the median sale date of the Test Area Sales in Group 1. The Control Area Sales for Group 1 are single-family homes with three to four bedrooms and 1 to 2.5 baths, consist of between 1,350 square feet and 1,880 square feet of gross living area, and built between 1940 and 1981. The Control Area Sales also have partially finished basements and are located on lots inbetween 1.5 and 9.6-acres in size.

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Wapello Solar Project – Group 1 is presented below.



CohnRez	nick Paired Sale Analysis Wapello Solar							
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF						
Test Area Sale (1)	Adjoining solar farm	\$131.40						
Control Area Sales (8)	No: Not adjoining solar farm	\$133.02						
	Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales							

The marketing time (from list date to closing date) for Control Area Sales ranged from 35 to 76 days on market, and the marketing time for Adjoining Property 10 was 64 days, which is within the range of the Control Area Sales, and we note no significant marketing time differential.

The small differential between the Test Area Sale and the Control Area Sales is within the range of normal market variance, and therefore it does not appear that the Wapello Solar installation impacted the sale price of the Test Area Sale. We note that the control data had a larger median lot size and a higher median year built, representing more recently constructed residences, which likely explains the relative difference in adjusted median price per square foot.



SOLAR FARM 6: MIAMI-DADE SOLAR ENERGY CENTER, MIAMI DADE COUNTY, FL

Coordinates: Latitude 25°38'34.5"N, 80°29'16.5"W

PIN: 30-5813-000-0020

Population Density (2019): 1,000 people per square mile (Largest City = Miami)

Recorded Owner: Florida Power & Light Company

Total Land Size: 465 acres

Date Project Announced: October 2017

Date Project Completed: January 2019





2020 Aerial imagery retrieved from Google Earth



The Miami Dade Solar Energy Center is situated in unincorporated Miami-Dade County, just west of Florida State Road 997. The site comprises approximately 300,000 solar panels on a fixed-tilt system, generating enough energy to power around 15,000 homes.

It is surrounded to the north, west, and south by rural residences and agricultural uses. The Kendall Tamiami Executive Airport is located due east, along the flight path for one of the airport's runways. A canal runs along the west side of the property, and beyond that is 306 acres of federal government land and four agricultural use lots. The predominant lot size in the surrounding area is approximately five acres and uses vary from palm tree farms, equestrian centers, citrus groves, to rural residences. These lots are zoned GU – Interim District, which categorizes land not otherwise specified in the unincorporated areas of Miami Dade County. This designation allows for uses consistent with the surrounding character, or a density of one residence for every 5 acres.<sup>17</sup> As such, development is limited to rural residences or agricultural uses

# Prior Use: Agricultural use

Real Estate Tax Info: The chart below shows the increase from 2018 (before construction) to 2019 (after construction) in the assessed value of the parcels and the total real estate taxes.

PIN	Acres	20	18 Taxes Paid	20	19 Taxes Paid	Tax Increase	20	)18 Assessed Value	20 <sup>.</sup>	19 Assessed Value	Value Increase
Miami-Dade County 30-5813-000-0020	465.61	\$	40,777	\$	179,761	341%	\$	2,460,316	\$	10,575,924	330%
TOTAL	465.61	\$	40,777	\$	179,761	341%	\$	2,460,316	\$	10,575,924	330%

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<sup>&</sup>lt;sup>17</sup> http://www.miamidade.gov/zoning/districts.asp

## Paired Sale Analysis – Residential Land:

The following map numbers the adjoining parcels for subsequent analysis. The 39 adjoining parcels are a mix of single-family residences, agricultural land, and government land. We have identified five parcels that have transferred since the solar farm was completed, adjoining parcels 3, 13, 31, 33, and 35. Adjoining properties 3 and 33 transferred as deed corrections between related parties and are not considered market sales. Adjoining Property 35 was bought by the owner of the adjoining parcel for assemblage purposes and was also removed from the study. The remaining three parcels, adjoining properties 13, 31, and 33 were considered for a paired sales analysis. These three parcels have an interim agricultural use with residential development allowed under the GU zoning.





We identified six Control Area sales with similar location, square footages, lot sizes, and ages that sold from a reasonable sale time from the median sales date of the test sales. Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The result of our study is presented below.

No. Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per Acre
Test Area Sales (3)	Yes: Adjoining solar farm	\$82,491
Control Area Sales (6)	No: Not adjoining solar farm	\$81,866
	Price of Test Area Sales and	0.76%

Noting no negative price differential, it does not appear that the Miami Dade Solar Energy Center impacted the sales price of adjoining properties 13, 31, and 33.



# SOLAR FARM 7: BAREFOOT BAY SOLAR ENERGY CENTER, BREVARD COUNTY, FL

Coordinates: Latitude 27°52'15.5"N, Longitude 80°31'38.3"W

**PINs:** Several

Population Density (2020): 597 people per square mile (Largest City = Palm Bay)

Recorded Owner: Florida Power & Light Company

Total Land Size: 505 acres

Date Project Announced: January 2017

Date Project Completed: May 2018

Output: 74.5 MW AC



2020 Aerial imagery retrieved from Google Earth

# **Overview and Surrounding Area:**



The Barefoot Bay Solar Energy Center is located north of Sebastian, in the unincorporated community of Micco, in coastal Brevard County, Florida. The solar installation sits on a 462-acre site, on land that was formerly an orange grove. Florida Power & Light held an open house for the area residents in January of 2017. The construction started in June of 2017 and was completed in May of 2018. The solar energy center has a capacity of approximately 74.5 MW AC. The site comprises approximately 300,000 solar panels on a fixed-tilt system, generating enough energy to power around 15,000 homes.

The solar site is approximately 450 feet south of Micco Road, an east-west arterial, approximately 1.5 miles west of U.S. 1, which runs along the shores of the Indian River. The solar installation is surrounded by trees and vegetation, and is adjoined by residential development to the north and east. Along Micco Road, to the northwest of the solar farm are several mixed-use lots, with agricultural, rural residential, and industrial uses.

The solar site is surrounded to the north and northeast primarily by the Barefoot Bay manufactured home community. Barefoot Bay is the largest manufactured home community in Florida where homes are permanently built, bought, and sold as real property. The community has three pools, a bar and restaurant, a golf course and other recreational and entertainment activities.

The population is estimated to be over 12,000 persons and approximately 80 percent of residents are over 55 years old, however, there is no age restriction in the community. The entire community sits on approximately 1,000 acres originally purchased and developed starting in 1968, with almost total absorption of lots by 1996. A total of 5,000 lots were platted and lot sizes currently range from 50 feet wide by 80 feet deep (4,000 square feet) to 75 feet wide by 100 feet deep (7,500 square feet). Homes are close together and with the standard setbacks homes can be 15 feet apart from one another.

A longtime local real estate agent and community resident at Barefoot Bay Realty said that the homes that border the solar site to the northeast, along Papaya Circle, are considered perimeter lots and are more desirable due to the lack of backyard neighbors. There is a swale (a broad and shallow ditch with water) that separates the lots from the solar site and the agent noted that many people in the community are unaware that the solar site is even there. The prices and marketing times of homes adjoining the solar farm on Papaya Circle in Barefoot Bay are not impacted by their proximity to the installation, and in fact may benefit from the increased privacy provided by the solar site.

The Barefoot Bay agent reported that small homes on small lots may sell for \$70,000 and larger homes on larger and better located lots can sell for over \$200,000. In the experience of Barefoot Bay Realty agents, there are typically 80 to 100 homes on the market at any one time and the average marketing time is considered to be 60 days.

To the east of the solar farm are rural residential lots with extended driveways. Several of these parcels are flag lots with secluded residences set back. At the southeast corner of the solar site, are approximately 441 acres of land zoned agricultural-residential by Brevard County owned by a cattle ranch operation.

To the south of the solar site lies the Wheeler Stormwater Park which is a 300-acre stormwater management area. The site includes 163 acres of park land with dynamic walking and nature trails, which was opened to the public in 2017.



On the western boundary of the solar site is the Sottile Canal, a canal that flows into the north prong of the St. Sebastian River, a major tributary of the Indian River Lagoon. South of Micco Road west of the Canal is the new residential subdivision known as the Lakes at St. Sebastian Preserve, on land platted as Paladin Estates. The Lakes at St. Sebastian Preserve is located approximately 2.3 miles west of the Indian River. The single-family home community features new homes being built by two national homebuilders. The homes will have city water and septic, but the subdivision is outside the city limits of Sebastian in Brevard County. Several homes have been built in the community as of July 2020 but the street with lots that back onto the Sottile Canal (Lago Vista Drive) will be built in a later phase. Real estate salespeople for both builders noted that the view of the solar installation is primarily obstructed from the lots that will back to the Canal and there has been no impact on home sales or interest in the development due to its location proximate to the solar installation.

To the west of the solar site, south of Lakes at St. Sebastian Preserve, is state-owned land utilized for flood control.

# Prior Use: Agricultural use

Real Estate Tax Info: The chart below shows the increase from 2016 (before construction) to 2018 (after construction) in the assessed value of the parcels and the total real estate taxes.

PIN	Acres	6 Taxes Paid	20	18 Taxes Paid	Tax Increase	201	6 Assessed Value	201	8 Assessed Value	Valu Increa
Brevard County						1				
3006694	56.20	\$ 1,038	\$	9,426	808%	\$	67,440	\$	618,200	8
3007862	48.51	\$ 896	\$	10,859	1112%	\$	58,210	\$	727,650	115
3008628	320.14	\$ 6,077	\$	60,433	895%	\$	384,170	\$	4,001,750	94
3008630	1.00	\$ 23	\$	22	-4%	\$	600	\$	600	
3008632	9.00	\$ 162	\$	1,888	1069%	\$	10,500	\$	126,000	110
3010467	69.90	\$ 1,291	\$	13,685	960%	\$	83,880	\$	908,700	98
TOTAL	504.75	\$ 9,485	\$	96,313	915%	\$	604,800	\$	6,382,900	95

# Paired Sale Analysis:

The maps on the following pages number the adjacent parcels for subsequent analysis. We have identified thirteen sales that have transferred since the solar farm construction, adjacent parcels 6, 7, 13, 14, 18, 30, 37, 40, 47, 50, 51, 76, and 86. Adjoining property 14 was a liquidation sale and removed from consideration. Adjoining properties 37 and 50 transferred off the multiple listing service and are non-owner occupied. Adjoining property 30 has a large, converted patio and is atypical for Barefoot Bay: this sale was considered an outlier and removed from analysis. While adjoining properties 76 and 86 are technically adjacent, they are atypical flag lots with driveways that operate as de facto roads. The residence for property 76 is buffered from the solar farm by two other residences. Adjoining property 86 is atypically larger than other sales in the market area and is approximately forty percent wetland. Properties 76 and 86 were considered outliers and removed from the study.

The remaining seven parcels, adjoining properties 6, 7, 13, 18, 40, 47, and 51 were considered for a paired sales analysis. We have divided these properties into two groups as discussed further on the following pages.





Barefoot Bay Farm Adjoining Properties





Barefoot Bay Farm Adjoining Properties - Insert A





Barefoot Bay Farm Adjoining Properties - Insert B



Barefoot Bay Farm Adjoining Properties - Insert C



Adjoining properties 6 and 7 are residential lots. They were purchased by the same buyer from two different sellers on different sale dates. We identified seven Control Area Sales with similar location and lot sizes that sold from a reasonable sale time from the median sales date of the test sales. The test sales had a median marketing time of two to three months, as did the control sales. Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The result of our study is presented below.

	znick Paired Sales Analysis ot Bay Solar Energy Center GROUP 1	
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Mediar Price per Acre
Test Area Sales (2)	Yes: Adjoining Solar Farm	\$54,500
Control Area Sales (7)	No: Not Adjoining Solar Farm	\$51,000
	of Test Area Sales and Adjusted of Control Area Sales	6.86%

Adjoining properties 13, 18, 40, 47, and 51 are improved residential dwellings. Since Barefoot Bay is a homogenous subdivision with a large number of residences, we were able to identify 126 control sales located in the Barefoot Bay manufactured home community, all manufactured homes on residential lots, with gross living areas of 1,100 SF to 1,800 SF, that sold from a reasonable sale time from the median sales date of the test sales, excluding outliers and non-arm's length transactions. Barefoot Bay has typical marketing times of two months. The test sales had a median marketing time of approximately a month and a half. Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The result of our study is presented on the following page.



CohnReznick Paired Sales Analysis Barefoot Bay Solar Energy Center GROUP 2								
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price per SF						
Test Area Sales (5)	Yes: Adjoining Solar Farm	\$95.90						
Control Area Sales (126)	No: Not Adjoining Solar Farm	\$93.95						
Difference between Unit Price of Median Unit Price of	2.07%							

**Noting the relatively low price differential,** in which the Test Area Sales were higher than the median for the Control Areas Sales, it does not appear that the Barefoot Bay Solar Energy Center had any negative impact on adjoining property values or marketing times.



# Summary of Before and After Construction of the Solar Farm Analysis:

Due to the frequency of sales in the Barefoot Bay subdivision, we were able to conduct an analysis on the prices of manufactured homes before the solar farm announcement date in comparison to the prices of manufactured homes after the construction of the solar farm. We have provided our conclusions from the data below and the following page contains a chart with the data.

Nine Test Area sales and 903 Control Area Sales were identified from Q2 2015 to Q1 2020.

- > The Test area sales (ORANGE) are located adjoining to the Barefoot Bay Solar Energy Center.
- $\geq$ The Control area sales (BLUE) are located in the remainder of the Barefoot Bay subdivision.

The dotted lines are polynomial trend lines plotted by Microsoft Excel in order to illustrate and approximate the "average" trend of each set of data. After construction of the solar farm, in parallel with the improving economic climate, it appears that unit prices for both the test and control areas appreciated at a similar rate over the period from Q2 2015 to Q1 2020. A difference in appreciation rates does not appear to exist between homes in the Test Area versus homes in the Control Area.

Sale prices of manufactured homes after the construction of the solar farm exhibit a similar appreciation trend as sales prior to the solar farm announcement. Overall, our findings indicate that there is not a consistent and measurable difference that exists in association with proximity to a solar farm.



Prepared for NextEra Energy Resources



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# SOLAR FARM 8: RUTHERFORD FARM, RUTHERFORD COUNTY, NC

Coordinates: Latitude 35.257778, Longitude -81.830560

**PIN:** 1556-31-0185

Population Density (2018): 120 people per square mile (Largest City = Forest City)

Total Land Size: 489 acres

Date Project Announced: November 24, 2015

Date Project Completed: December 2016

Output: 61 MW AC



Aerial imagery retrieved from Google Earth

#### **Overview and Surrounding Area:**

The Rutherford Farm Solar use is located in unincorporated Rutherford County, North Carolina. The solar farm was developed by Cypress Creek Renewables and became operational in December 2016. Southern Power and Turner Renewable Energy purchased the solar facility on July 8, 2016. The solar farm has over 289,000 solar modules that can generate power for approximately 12,000 homes.



The Rutherford Farm solar use is approximately 7 miles southeast of Forest City, in Rutherford County, in southwestern North Carolina. The solar facility is situated approximately 3 miles northeast of the intersection of Chase High Road and US 221, a major thoroughfare that traverses the county.

## **The Immediate Area:**

Surrounding land uses consists of residential and forest land to the north, forest and commercial to the east, vacant and forest land to the south. All of the adjacent land parcels to the solar farm are used for agricultural or residential purposes.

The solar farm has a hedge buffer along portions of the farms where the residential development is closest. Along all solar panels areas adjacent to residential, a row of trees buffers the view of the panels.

#### Prior Use: Wooded

#### **Real Estate Tax Information:**

Prior to development of the solar farm, the assessed value of the property was \$466,200 and ownership paid \$3,156 in taxes. In 2018, after the completion of the solar farm, the assessed value of the solar farm property increased to \$1,075,800 and taxes increased to \$7,391, a 131 percent increase in tax revenue.

PIN	Acres	201	6 Taxes Paid	20	18 Taxes Paid	Tax Increase	2016	6 Assessed Value	201	8 Assessed Value	Value Increase
Rutherford County 1556-31-0185	488.84	\$	3,203	\$	7,391	131%	\$	466,200	\$	1,075,800	131%
TOTAL	488.84	\$	3,203	\$	7,391	131%	\$	466,200	\$	1,075,800	131%

#### Paired Sale Analysis:

In reviewing adjoining properties to study in a Paired Sale Analysis, seven properties and sales were considered in total but six were eliminated from further consideration as discussed below.

The map on the following page displays the Adjoining Properties (outlined in red) to the solar farm parcel (outlined in yellow). Properties adjoining this parcel are numbered for subsequent analysis.





Rutherford Farm Solar - Adjoining Properties



Five Adjoining Properties (21, 22, 36, 56, and 57) were eliminated from further consideration because they were sales with no recorded sales value or property transfers in off-market transactions. Adjoining Property 2 was a transfer between related parties. Adjoining Property 55 sold in October 2020; however, this property is a duplex with one two-bedroom unit rented. We were not able to locate sales of other duplex properties in the surrounding area that are comparable to the property. As additional duplex sales occur, we will monitor and generate a paired sale analysis for this property at a later date.

We found one Adjoining Property that qualified for a Paired Sale analysis. Adjoining Property 46, the Test Area Sale, was considered for a paired sales analysis. The property was analyzed as a single-family home use. It should be noted that this sale occurred after announcement but prior to construction of the solar farm. We spoke with the selling broker for this property, Brent Washburn, who confirmed that the solar farm had not been constructed at the time of sale, and said the announcement had no impact on the sale.

Adjoining Property 46 was considered for a paired sales analysis, and we analyzed this properties as singlefamily home use. The improvements on this property are located 139 feet to the nearest solar panel.

	Test Area Sale Rutherford Farm Solar								
Adj. Property #	Address	Median Sale Price	Median Site Size (AC)	Median Beds	Median Baths	Median Year Built	Median Square Feet	Median Sale Date	Median Price PSF
46	434 Ferry Rd	\$85,000	0.41	3	2.0	1977	1,590	Jan-16	\$53.46

We analyzed six Control Area Sales, single family homes with similar location, construction, square footages, lot sizes, and ages, use that were not located in close proximity to the solar farm, that also sold within a reasonable time frame from the median sale date of the Test Area Sale. The Control Area Sales are one-story homes with 3 bedrooms and one to two bathrooms. We excluded sales that were bank-owned, and those between related parties.

The Control Area Sales were adjusted for market conditions using a regression to identify the appropriate monthly market conditions adjustment. The results of our analysis for the Rutherford Farm solar facility are presented on the next page.



		ick Paired Sale Analysis herford Farm Solar	
	No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF
	Test Area Sales (1)	Adjoining solar farm	\$53.46
ſ	Control Area Sales (6)	No: Not adjoining solar farm	\$52.49
	Difference between Unit Pr Adjusted Median Unit Pri		1.85%

Noting no significant price differential, with the Control Area Sales having a slightly lower median unit sale price than the unit sale price of the Test Area Sale, it does not appear that the Rutherford Farm Solar energy use had any negative impact on adjacent property values.



SOLAR FARM 9: ELM CITY SOLAR FACILITY, WILSON COUNTY, NC

Coordinates: Latitude 35.781111, Longitude -77.846940

PINs: 3744-33-6758.01, 3744-11-9000.000

Population Density (2019): 221 people per square mile (Largest City = Wilson)

Total Land Size: 354 acres

Date Project Announced: September 2014

Date Project Completed: July 2012

Output: 40 MW AC



Aerial imagery retrieved from Google Earth



The Elm City Solar use is located in Elm City, North Carolina. Duke Energy owns the solar facility and selected HelioSage Energy to develop it. The solar farm went into operation in March 2016 and can generate power for approximately 7,000 homes. Nearly a half million solar panels comprise the farm.

Wilson County is located in central North Carolina. The county is primary rural in nature, with the city of Wilson being the county seat. Elm City is actually a town with a population of less than 1,200. The Elm City Solar Farm is located to the southeast of Elm City, approximately a third of a mile to the east of State Highway 301. Surrounding land uses consist of residential and forest land to the north; forest and agricultural land to the east; vacant, forest, and residential land to the south; and residential, industrial, vacant, and forest land to the west.

# The Immediate Area:

All of the adjacent land parcels to the solar farm are used for agricultural, residential, and/or industrial purposes.

Landscaping: The Elm City Solar Farm is buffered from the adjoining residential lots with a fence and tree plantings.

# Prior Use: Agricultural use

**Real Estate Tax Info:** In 2016, prior to the property being assessed as a solar farm, the assessed value of the property was \$206,220 and ownership paid \$2,805 in real estate taxes. In 2017, the assessed value increased to \$1,779,830 and the real estate tax increased to \$24,206.

PIN	Acres	6 Taxes Paid	20	17 Taxes Paid	Tax Increase	2016	6 Assessed Value	201	7 Assessed Value	Value Increase
Wilson County								-		
3744119000.000	249.00	\$ 2,805	\$	14,624	421%	\$	206,220	\$	1,075,330	421%
3744336758.01*	105.00	\$ 1,494	\$	9,581	541%	\$	117,881	\$	704,500	498%
TOTAL	354.00	\$ 4,298	\$	24,206	463%	\$	324,101	\$	1,779,830	449%

\* This parcel was split from it's parent prior to construction. The 2016 Assessed Value is based on the pro-rata amount for the entire 471.53 acre parent parcel.

# Paired Sale Analysis:

The map on the following page displays the parcels adjoining the solar farm (outlined in red). Properties adjoining the solar parcels are numbered for subsequent analysis.





Elm City Solar - Adjoining Properties





Elm City Solar - Adjoining Properties



Elm City Solar - Adjoining Properties

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Adjoining Property 23 (Test Area Sale) was considered for a paired sales analysis, which sold after development of the solar farm. The property was analyzed as a single-family home use. We discussed this sale with Selby Brewer with First Wilson Properties, Inc who sold the property. He said the buyers "did not even mention" the solar farm, and he saw no market difference.

For Adjoining Property 23, we analyzed eight Control Area Sales that sold within a reasonable time frame from the sale date of Adjoining Property 23. The Control Area Sales are ranch homes with three bedrooms and one and two bathrooms. We excluded sales that were bank-owned, and those between related parties.

The Control Area Sales were adjusted for market conditions using a regression analysis to identify the appropriate monthly market conditions adjustment. The result of our analysis for Elm City Solar is presented below.

CohnRez	nick Paired Sale Analysis Elm City Solar	
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF
Test Area Sales (1)	Adjoining solar farm	\$56.60
Control Area Sales (8)	No: Not adjoining solar farm	\$55.57
Difference between Unit Pr Adjusted Median Unit Pri		1.85%

Noting no negative marketing time differential, the days on market for the Test Area Sale was 38 days (0-1 month), while the Control Area Sales ranged from five to 204 days on market (0-8 months).

Noting no negative price differential, it does not appear that the Elm City Solar impacted the sales price of the Test Sale, Adjoining Property 23. This was confirmed by the real estate agent who marketed and sold this home.



SOLAR FARM 10: DTE'S LAPEER SOLAR PROJECT, LAPEER, MICHIGAN Coordinates: Latitude 43.0368219316, Longitude -83.3369986251 PINs: L20-95-705-050-00, L20-98-008-003-00 Population Density (2020): 137 people per square mile (Largest City = Lapeer) Owner of Record: DTE Electric Company & City of Lapeer Total Land Size: ±365 Acres Date Project Announced: 2016 Date Project Completed: May 2017 Output: 48.28 MW AC





# **Overview and Surrounding Area:**

The DTE Lapeer solar farm is located just south of the City of Lapeer, in Lapeer County, Michigan and is a joint project between the City of Lapeer and DTE Electric Company. The solar farm was developed with Inovateus Solar MI, LLC to meet Michigan renewable energy standards. The solar farm features over 200,000 panels, a power output of 48.28 MW AC, and produces enough energy to power 14,000 homes. The Lapeer solar project was developed in two phases: the Demille Solar installation and the Turrill Solar installation. For purposes of our study, taken together, both installations are considered one solar farm.



DTE's Lapeer Solar Projects Demille and Turrill Solar installations

Lapeer is considered to be in the Tri-Cities area of central Michigan and is approximately 21 miles east of the City of Flint. Interstate-69 serves Lapeer and runs east-west just south of the solar farm. The two phases of the solar installation are on the east and west sides of Michigan State Route 24 from each other.



#### The Immediate Area:

Land uses surrounding the Demille installation include a correctional facility and industrial uses to the west, buffered by a mature stand of trees, a retail center to the northeast, other commercial uses to the east along MI-24/South Lapeer Road, and residential homes to the southeast. Interstate-69 runs south of the Demille solar installation.

The Turrill installation is surrounded to the north by a residential subdivision, to the north and east by industrial uses, to the south by vacant land and residential homes, and to the west by light commercial and professional uses along MI-24/South Lapeer Road. Hunter's Creek divides two sets of solar arrays in the Turrill installation.

The Demille installation adjoins Interstate-69 to the South; while a residential subdivision adjoins the solar farm to the east. To the northeast corner of the solar panels is a senior living facility, Stonegate Health Campus, developed before the solar facility.

#### **Prior Use:** Agricultural use

#### **Real Estate Tax Information:**

Prior to the development of the solar farm, the land under the Demille and Turrill solar installations were municipal-owned and were not subject to property tax. After development, in 2017, the land became taxable and taxes were \$82,889 total, as shown below.

PIN	Acres	2016 Taxes Paid		2017 Taxes Paid		Tax Increase	2016 Assessed Value		2017 Assessed Value		Value Increase
Lapeer County, MI		6.00					( <b>1</b>				
L20-98-008-003-00*	110.84	\$	-	\$	34,294	N/A	\$	-	\$	726,700	N/A
L20-95-705-050-00*	254.84	\$	-	\$	48,595	N/A	\$	-	\$	1,029,750	N/A
TOTAL	365.68	\$	-	\$	82,889	N/A	\$	-	\$	1,756,450	N/A

\* Prior to development as a solar farm, the parcels were municipal property without a taxable value.



#### **Paired Sale Analysis:**

The maps, below, and on the following pages display properties adjoining the solar sites that are numbered in red for subsequent analysis.

# **Demille Solar Farm**

19 Demille Rd 18 14 17 15 See Detailed Map on the 16 **Following Page** 20

DTE's Lapeer Solar Projects - Demille Adjoining Properties





DTE's Lapeer Solar Projects - Demille Adjoining Properties

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**Turrill Solar Farm** 



DTE's Lapeer Solar Projects - Turrill Adjoining Properties

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DTE's Lapeer Solar Projects - Turrill Adjoining Properties

In reviewing Adjoining Properties to study in a Paired Sale Analysis, several properties and sales were considered but eliminated from further consideration as discussed below.


We identified eight Adjoining Properties that sold since the solar farm started operations in May of 2017: Adjoining Properties 3, 4, 7, 9, 10, and 16 for the Demille Solar Farm, and Adjoining Properties 3 and 4 for the Turrill Solar Farm. Of these properties, three were considered atypical for the area.

Adjoining Property 7 adjacent to the Demille Solar farm is a split-level home with a finished walk out basement with a pool. The typical home in the area has a traditional basement and pools are atypical. The unusual nature of this sale was confirmed with the selling broker, Renee Voss (see comments below). We note that this home sold twice after the construction of the solar farm, once in September 2018 and again in August 2019. The appreciate rate between the two sale dates are analyzed further later in this section.

Adjoining Property 16 just south of the Demille Solar Farm is a 10.1-acre lot that is buffered by trees. The home is atypical for the area, as most homes are situated on lots between 1-acre and 1.5-acres in size and were built before 1980; this home was built in 2008. We interviewed the broker Josh Holbrook (see comments below) who confirmed the atypical nature of this property.

Adjoining Property 3, just west of the Turrill Solar Farm, was a ranch home with 1,348 square feet on a lot that was just over one acre. Comparables for homes of this size, type, and lot size were not available in the immediate market area. It should be noted that the price per square foot for this home (\$108.01) is significantly higher than median price per square foot of either data set we studied.

As a part of our research, we interviewed three local real estate brokers that sold homes adjacent to the Lapeer Solar farm. According to the brokers, there was no impact on the home prices or marketability due to the homes' proximity to the solar arrays.

Renee Voss of Coldwell Banker, selling broker of the raised ranch at 1138 Don Wayne Drive (Adjoining Property 7), which is adjacent to the Demille solar farm at the southeast corner, noted that there was no impact on this sale from the solar farm located to the rear. The home, which has a pool in the backyard, sold quickly with multiple offers, Voss stated.

Josh Holbrook, the selling broker of 1408 Turrill Road (known as Adjoining Property 16), located just south of the Demille Solar Farm, said the solar farm had no impact on the sale and that the community takes pride in the solar farm.

Anne Pence of National Realty Centers, the selling broker for 1126 Don Wayne Drive, a single-family home adjacent to the Demille solar farm (known as Test Area Sale 9), reported that "the solar farm did not have any effect on the sale of this home. The buyers did not care one bit about the solar field in the back yard. The fact is that you know no one is going to be behind you when they develop a solar farm in your back yard. And [sometimes the developer] put up trees to block the view. My in-laws also actually live at end of that street, even though they haven't sold or put their house on market, they don't mind the solar panels either. It's not an eyesore. And another house sold on that block, a raised ranch home, and it sold with no problems."



#### Group 1 – Demille:

Adjoining Properties 3, 4, and 9 to the Demille Solar Farm were considered for a paired sales analysis, and we analyzed these properties as single-family home uses in Group 1. The improvements on these properties are located between 275 to 305 feet to the nearest solar panel.

Test Area Sales Group 1 - Demille Solar									
Adj. Property #	Address	Median Sale Price	Median Site Size (AC)	Median Beds	Median Baths	Median Year Built	Median Square Feet	Median Sale Date	Median Price PSF
3, 4,9	1174 Alice Dr, 1168 Alice Dr, 1126 Don Wayne Drive	\$165,000	0.50	3	2.0	1973	1,672	Jan-19	\$105.26

We analyzed six Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the median sale date of the Test Area Sales in Group 1. The Control Area Sales for Group 1 are ranch homes with three bedrooms and one and a half to two bathrooms. We excluded sales that were bank-owned, and those between related parties.

Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The result of our analysis for DTE's Lapeer Solar Project - Group 1 is presented below.

CohnRezn D Grou		
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF
Test Area Sales (3)	Adjoining solar farm	\$105.26
Control Area Sales (6)	No: Not adjoining solar farm	\$99.64
Difference between Unit Pri Adjusted Median Unit Pri	5.65%	

The days on market for the three Test Area Sales had a median of 29 days on market (ranging from 5 to 48 days), while the median days on market for the Control Area sales was 21 days (ranging from 5 to 224 days), and we note no significant marketing time differential.



#### Group 2 – Demille:

Adjoining Property 10 to the Demille Solar Farm was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 2. The improvements on this property is located approximately 315 to the nearest solar panel.

		-			Area Sale - Demille Sol	ar			_	. 1
Adj. Property #	Address	Sale Price	Median Site Size (AC)	Bedrooms	Bathrooms	Year Built/Renovated	Square Feet	Other Features	Sale Date	Price PSF
10	1120 Don Wayne Drive	\$194,000	0.47	3	2.5	1976/2006	1,700	Above Ground Pool, Two Car Garage	Nov-19	\$114.12

We analyzed five Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the median sale date of the Test Area Sales in Group 2. The Control Area Sales for Group 2 are similarly sized homes in Lapeer County with three to four bedrooms and two to three bathrooms, with a pool and an attached garage. We excluded sales that were bank-owned, and those between related parties.

Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The result of our analysis for DTE's Lapeer Solar Project - Group 2 is presented below.

CohnRezn D Grou		
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF
Test Area Sales (1)	Adjoining solar farm	\$114.12
Control Area Sales (5)	No: Not adjoining solar farm	\$113.01
Difference between Unit Pri Adjusted Median Unit Pric	0.98%	

The days on market for the Test Area Sales was 90 days on market, while the median days on market for the Control Area sales was 34 days (ranging from 3 to 73 days). We note the Test Area sale was initially listed above its market value, as there was a listing price decline after a month of marketing. We note since the final drop of the list price, there was only 51 days on market, which is within the range exhibited by the Control Area sales.



#### Group 3 – Turrill:

Adjoining Property 4 to the Turrill Solar Farm was analyzed separately since it is a two-story home on a larger lot as Group 2. The home on Adjoining Property 4 is 290 feet from the property line to the nearest solar panel.

Test Area Sale Group 3 - Turrill Solar									
Adj. Property #	Address	Median Sale Price	Median Site Size (AC)	Median Beds	Median Baths	Median Year Built	Median Square Feet	Median Sale Date	Median Price PSF
4	1060 Cliff Drive	\$200,500	1.30	4	2.5	1970	2,114	Sep-18	\$94.84

We analyzed four Control Area single-family homes sales with similar construction that were not located in close proximity to the solar farm, that sold within a reasonable time frame from the sale date of Adjoining Property 4.

The Control Area Sales for Group 3 are 2-story homes with between two and four bedrooms and 2.5 to 3.0 bathrooms. We excluded sales that were bank-owned, and those between related parties.

Control Area sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeat-sales index measuring average price changes in repeat sales or refinancing of the same properties. The result of our analysis for DTE's Lapeer Solar Project - Group 3 is presented below.

CohnRezn D Gro		
No. of Sales	Potentially Impacted by Solar Farm	Adjusted Median Price Per SF
Test Area Sale (1)	Adjoining solar farm	\$94.84
Control Area Sales (4)	No: Not adjoining solar farm	\$96.32
Difference between Unit Pr Adjusted Median Unit Price	-1.53%	

The days on market for the Test Area Sale was 2 days, while the median days on market for the Control Area sales was 35 days (ranging from 11 to 177 days), and we note no negative marketing time differential.

Noting no significant price differential, it does not appear that the DTE's Lapeer Solar had any negative impact on adjacent property values.



#### Before & After Analysis – Demille Solar Project:

We note two of the Test Area Sales in Group 1 of the Demille Solar project (Adjoining Properties 4 and 9), one sale in Group 2 of the Demille Solar Farm (Adjoining Property 10), as well as Adjoining Property 7 have sold at least twice over the past 15 years. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Demille Solar farm, we prepared a Repeat-Sales Analysis on each identified adjoining property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for Michigan's 48446 zip code (where the identified homes are located) over the same period. The index for zip codes is measured on a yearly basis and is presented below.

48446 Z	ip Code - Ho	using Price Index Change (`	Year over Yea	ar) Not Seasonally Adjus	sted
Five-Digit ZIP Code	Year	Annual Change (%)	HPI	HPI with 1990 base	HPI with 2000 base
48446	2004	2.02	438.38	206.29	111.35
48446	2005	3.68	454.53	213.89	115.45
48446	2006	-1.76	446.53	210.12	113.42
48446	2007	-6.35	418.17	196.78	106.22
48446	2008	-8.37	383.17	180.31	97.33
48446	2009	-10.62	342.49	161.16	86.99
48446	2010	-8.94	311.86	146.75	79.21
48446	2011	-6.89	290.37	136.64	73.75
48446	2012	0.29	291.22	137.04	73.97
48446	2013	7.27	312.39	147.00	79.35
48446	2014	7.10	334.56	157.43	84.98
48446	2015	5.10	351.63	165.47	89.32
48446	2016	6.10	373.08	175.56	94.76
48446	2017	6.74	398.23	187.39	101.15
48446	2018	5.96	421.96	198.56	107.18
48446	2019	5.74	446.17	209.95	113.33
48446	2020	4.99	468.43	220.43	118.98

We have presented the full repeat sales analysis on the following page.



	Repeat Sales Analysis											Code - FHFA	House Price In	dex Change
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Year of Most Recent Sale	Year Index	Total Appreciation	Monthly Appreciation Rate
4	1168 Alice Drive	0.46	1,672	10/9/2019	\$176,000	12/8/2017	\$144,000	22.22%	22	0.92%	446.17	398.23	12.04%	0.52%
4	1168 Alice Drive	0.46	1,672	12/8/2017	\$144,000	10/1/1993	\$100,000	44.00%	290	0.13%	398.23	238.05	67.29%	0.18%
9	1126 Don Wayne Drive	0.50	1,900	5/21/2018	\$160,000	12/21/2007	\$119,000	34.45%	125	0.24%	446.17	418.17	6.70%	0.05%
10	1120 Don Wayne Drive	0.47	1,700	11/8/2019	\$194,000	10/15/2014	\$173,200	12.01%	61	0.19%	446.17	334.56	33.36%	0.47%
7	1138 Don Wayne Drive	0.47	2,128	9/7/2018	\$179,900	8/22/2014	\$148,500	21.14%	49	0.40%	446.17	334.56	33.36%	0.60%
7	1138 Don Wayne Drive	0.47	2,128	8/28/2019	\$191,000	9/7/2018	\$179,900	6.17%	12	0.51%	446.17	446.17	0.00%	0.00%
	Median - Test Area Sales	0.47	1,800				All Comments			0.32%				0.33%
	Median - Before/After	0.49	2,019							0.21%				0.11%

#### Conclusion

When compared to the FHFA home price index for the local zip code, the median monthly appreciation rate of the sales of properties adjoining the Demille Solar Farm that sold before construction of the solar farm and again after construction of the solar farm outperformed the median for the zip code, as depicted in the far-right column in the table above (and highlighted in orange). Additionally, the extract appreciation rate for the resales of Adjoining Properties 4 and 7 that sold twice after the solar farm was constructed exhibited higher rates of appreciation than the Home Price Index for the zip code (highlighted in white). As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Demille Solar Farm.

#### **TECHNIQUE 3: MARKET COMMENTARY**

Additionally, we have contacted market participants such as appraisers, brokers, and developers familiar with property values around solar farms. Commentary from our conversations with these market participants is recorded below.

A Clark County, Kentucky Property Valuation Administrator, Jason Neely, noted there have been no complaints regarding East Kentucky Power Cooperative, Inc.'s Cooperative Solar One project installed in November 2017 located in the county, which has a capacity to generate 8.5 MW of electricity. Additionally, Neely stated he has not seen any evidence of lowered property values in the area and no reduction in assessed property values has been made due to proximity to the solar farm.

A Grant County, Kentucky Assessor stated that they have not seen a reduction in assessed property values or market values for adjacency to solar farms.

A McNairy County, Tennessee Assessor stated that they have not applied reductions to assessed value for adjacency to solar farms.

Christy Wingate, a real estate broker with Parker Real Estate Group, noted in her experience, the presence of a solar farm is neither an attraction nor a deterrant for nearby home buyers.

A Miami Dade County, Florida Assessor stated that they do not reduce assessed property values for adjacency to Solar Farms.

A Putnam County, Florida Assessor stated that they have not seen a reduction in assessed value for adjacency to Solar Farms.

Renee Davis, Tax Administrator for Bladen County, North Carolina, stated that she has not seen any effect on property values due to proximity to a solar farm.

We spoke with Jim Brown, an appraiser for Scotland County, North Carolina, who stated that he has seen no effect on property values due to proximity to a solar farm.

We spoke with Gary Rose, a tax assessor for Duplin County, North Carolina, who stated that he has seen no effect on property values in regards to proximity to a solar farm.

Kathy Renn, a property Valuation Manager for Vance County, North Carolina, stated that she has not noticed any effect on property values due to proximity to a solar farm.

Larry Newton, a Tax Assessor for Anson County, North Carolina, stated that there are six solar farms in the county ranging from 20 to 40 acres and he has not seen any evidence that solar farms have had any effect on property values due to proximity to a solar farm.

We spoke with Patrice Stewart, a Tax Administrator for Pasquotank County, North Carolina, and she has seen no effect on land or residential property values due to proximity to the solar farms in Pasquotank County.



We spoke with the selling broker of the Adjoining Property for Elm City Solar, in North Carolina, Selby Brewer, who said the solar farm *did not impact the buver's motivation*.

We spoke with Amy Carr, Commissioner of Revenue in Southampton County, Virginia, who stated that most of the solar farms are in rural areas, but she has not seen any effect or made any adjustments on property values. They have evaluated the solar farmland considering a more intense use, which increased the assessed value.

The Interim Assessor for the town of Whitestown in Oneida County, New York, Frank Donato, stated that he has seen no impact on property values of properties nearby solar farms.

Steve Lehr at the Department of Assessment for Tompkins County, New York, mentioned that the appraisal staff has made no adjustments regarding assessed values of properties surrounding solar farms. Marketing times for properties have also stayed consistent. Lehr noted that a few of the solar farms in Thompkins County are on land owned by colleges and universities and a few are in rural areas.

At this point in time, AI Fiorille, Senior Valuation Specialist in the Tompkins County Assessment department in New York, reported that he cannot measure any negativity from the solar farms and arrays that have been installed within the county.

Mason Hass, the Riverhead Assessor in Suffolk County, on Long Island, New York stated that the solar farms in his town are in industrial zoned areas, and he has not seen any impact on adjacent properties.

The Assessor for the town of Smithtown in Suffolk County, New York, Irene Rice, has not seen any impact on property values as a result of their location near the newly built solar farms in her town.

In the Assessor's office in the town of Seneca, Ontario County, New York, Shana Jo Hamilton stated that she has seen no impact on property values of properties adjacent to solar farms.

Michael Zazzara, Assessor of the City of Rochester in Monroe County, New York commented that the City has a couple of solar farms, and they have seen no impact on nearby property values and have received no complaints from property owners.

While there are one or two homes nearby to existing solar farms in the town of Lisbon in St. Lawrence County, New York, Assessor Stephen Teele has not seen any impact on property values in his town. The solar farms in the area are in rural or agricultural areas in and around Lisbon.

The Assessor for the Village of Whitehall in Washington County, New York, Bruce Caza, noted that there are solar farms located in both rural and residential areas in the village and he has seen no impact on adjacent properties, including any concerns related to glare form solar panels.

Laurie Lambertson, the Town Assessor for Bethlehem, in Albany County, New York noted that the solar farms in her area are tucked away in rural or industrial areas. Lambertson has seen no impact on property values in properties adjacent to solar farms.

We spoke with Ken Surface, a Senior Vice President of Nexus Group. Nexus Group is a large valuation group in Indiana and has been hired by 20 counties in Indiana regarding property assessments. Mr. Surface is familiar



with the solar farm sites in Harrison County (Lanesville Solar Farm) and Monroe County (Ellettsville Solar Farm) and stated he has noticed no impact on property values from proximity to these sites.

We interviewed Missy Tetrick, a Commercial Valuation Analyst for the Marion County Indiana Assessor. She mentioned the Indy Solar III sites and stated that she saw no impact on land or property prices from proximity to this solar farm.

We spoke with Dorene Greiwe, Decatur County Indiana Assessor, and she stated that solar farms have only been in the county a couple of years, but she has seen no impact on land or property prices due to proximity to this solar farm.

Connie Gardner, First Deputy Assessor for Madison County Indiana, stated that there are three solar farms in her county, and she has seen no impact on land or property prices due to proximity to these solar farms.

We spoke with Tara Shaver, Director of Administration for Marion County, Indiana Assessor/Certified Assessor, and she stated that she has seen no impact on land or property prices due to proximity to solar farms.

Candace Rindahl of ReMax Results, a real estate broker with 16 years of experience in the North Branch, Minnesota area, said that she has been in most of the homes surrounding the North Star Solar Farm and personally sold two of them. She reported that the neighboring homes sold at market rates comparable to other homes in the area not influenced by the solar farm, and they sold within 45 days of offering, at the end of 2017, which was in line with the market.

Dan Squires, Chisago County Tax Assessor, confirmed that the Chisago County Assessor's Office completed their own study on property values adjacent to and in close vicinity to the solar farm from January 2016 to October 2017. From the study, the assessor determined the residential homes adjacent to the North Star Solar Farm were in-line with the market and were appreciating at the same rate as the market.<sup>18</sup>

<sup>18</sup> Chisago County Press: County Board Real Estate Update Shows No "Solar Effects" (11/03/2017)



#### SOLAR FARM FACTORS ON HARMONY OF USE

#### Zoning changes and conditional use permits often require that the proposed use is compatible with surrounding uses.

The following section analyzes specific physical characteristics of solar farms and is based on research and CohnReznick's personal solar farm site visits and indicate that solar farms are generally harmonious with surrounding property and compliant with most zoning standards.

**Appearance:** Most solar panels have a similar appearance to a greenhouse or single-story residence can range from 8 to 20 feet but are usually not more than 15 feet high. As previously mentioned, developers generally surround a solar farm with a fence and often leave existing perimeter foliage, which minimizes the visibility of the solar farm. The physical characteristics of solar farms are compatible with adjoining agricultural and residential uses.

Sound: Solar panels in general are effectively silent and sound levels are minimal, like ambient sound. There are limited sound-emitting pieces of equipment on-site, which only produce a quiet hum (e.g., substation). However, these sources are not typically heard outside the solar farm perimeter fence.

**Odor:** Solar panels do not produce any byproduct or odor.

Greenhouse Gas (GHG) Emissions: Much of the GHG produced in the United States is linked to the combustion of fossil fuels, such as coal, natural gas, and petroleum, for energy use. Generating renewable energy from operating solar panels for energy use does not have significant GHG emissions, promoting cleaner air and reducing carbon dioxide  $(CO_2)$  emissions to fight climate change.

**Traffic:** The solar farm requires minimal daily onsite monitoring by operational employees and thus minimal operational traffic.

Hazardous Material: Modern solar panel arrays are constructed to U.S. government standards. Testing shows that modern solar modules are both safe to dispose of in landfills and are also safe in worst case conditions of abandonment or damage in a disaster.<sup>19</sup> Reuse or recycling of materials would be prioritized over disposal. Recycling is an area of significant focus in the solar industry, and programs for both batteries and solar panels are advancing every year. While the exact method of recycling may not be known yet as it is dependent on specific design and manufacturer protocol, the equipment is designed with recyclability of its components in mind, and it is likely that solar panel and battery energy storage recycling and reuse programs will only improve in 25 years' time.

Examples of homes built adjoining to solar farms are presented on the following pages.

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<sup>&</sup>lt;sup>19</sup> Virginia Solar Initiative - Weldon Cooper Center for Public Service – University of Virginia (https://solar.coopercenter.org/taxonomy/term/5311)

For the Dominion Indy III solar farm, the adjacent land to the west was acquired and subsequently developed with a large estate home – after the solar panels had been in operation for years.



Dominion Indy III Solar Farm September 2014



Dominion Indy III Solar Farm October 2016



Estate home adjacent to Dominion Indy III Solar Farm

In ground pool and attached garage (home cost estimated at \$450,000 - October 2015)





Innovative Solar 42 (2017) Cumberland County, NC



Innovative Solar 42 (2019) Cumberland County, NC





**Developer Built Home** Sold 6/18/19 for \$265,900 (\$110.75/sf) Cumberland County, NC (adjacent to Innovative 42 solar farm)





#### Portage Solar Farm located in Indiana

A new 175-home subdivision is currently under construction adjacent the 1.5 MW Portage Solar Farm in Porter County, Indiana. The solar facility was completed in November 2011, and Lennar began construction on the Brookside Subdivision in 2022, with the first homes selling in March 2023. The subdivision is 100 feet from the panels. As of August 2023, there have been 11 closed sales, ranging from \$349,000 to \$419,990, or \$152.41 to \$203.64 PSF, with a median of \$369,990, with a median of \$166.43 PSF. There are 12 pending sales and nine active listings, ranging from \$374,990 to \$436,840.

On the next page, we show the same Portage Solar Farm and a newly constructed home to the east of the solar facility, completed in 2016.





Portage Solar Farm, IN October 2015



Portage Solar Farm, IN October 2016



4,255 square foot estate home under construction, adjacent to Portage Solar Farm located in Indiana

On-site pond and attached garage (cost estimated at \$465,000) April 2018



### Prepared for NextEra Energy Resources

The Brighton PV Solar farm became operational in December 2012. Located in Adams County, north of Denver, CO, this solar farm has a capacity of 1.8 MW AC and is located on a triangular parcel of land east of an area of existing custom-built estate homes. A photo of one home (15880 Jackson Street) located directly north of the circled area below is presented to the right.

December 2012, the 2.55-acre lot In encircled in red below (15840 Jackson

Street) was purchased for future development of a single-family home. This home was built in 2017, and per the county assessor, the two-story home is 3,725 square feet above ground with 4 bedrooms and 3.5 bathrooms. According to the building permit issued in August 2016, the construction cost was budgeted at \$410,000.

> Brighton PV Solar, Adams County, CO June 2016

June 2017









#### SUMMARY OF ADJOINING USES

	Co	omposition of S	urrounding l	Jses (% of Su	rrounding A	creage)	
Solar Farm #	Solar Farm	Acreage % of Surrounding Agricultural Uses	Acreage % of Surrounding Residential Uses	Acreage % of Surrounding Industrial Uses	Acreage % of Surrounding Office Uses	Acreage % of Surrounding Other Uses	Avg. Distance from Panels to Improvements (Feet)
1	Assembly Solar	82.50%	8.20%	5.00%	0.00%	4.30%	233
2	Riverstart Solar	82.40%	14.80%	0.00%	0.00%	2.80%	588
3	Hillcrest Solar Farm	90.00%	8.50%	0.00%	0.00%	1.50%	765
4	Dougherty Solar	76.42%	22.46%	1.12%	0.00%	0.00%	350
5	Wapello Solar Farm	81.00%	17.00%	0.00%	0.00%	2.00%	328
6	Miami-Dade Solar	56.00%	10.00%	0.00%	0.00%	34.00%	915
7	Barefoot Bay Solar	0.00%	9.71%	88.08%	0.00%	2.20%	734
8	Rutherford Farm Solar	10.00%	40.00%	10.00%	0.00%	40.00%	180
9	DTE Lapeer	60.00%	35.00%	0.00%	0.00%	5.00%	260
10	Elm City Solar	20.00%	15.00%	10.00%	0.00%	55.00%	295

The table below summarizes each Existing Solar Farm's adjoining uses.

Overall, the vast majority of the surrounding acreage for each comparable solar farm is made up of agricultural land, some of which have homesteads. There are also smaller single-family home sites that adjoin the solar farms analyzed in this report. Generally, these solar farms are sound comparables to NextEra Energy Resources' proposed solar project in terms of adjoining uses, location, and size.



#### SUMMARY AND FINAL CONCLUSIONS

The purpose of this property value impact report is to determine whether the presence of a solar farm has caused a measurable and consistent impact on adjacent property values. Under the identified methodology and scope of work, CohnReznick reviewed published methodology for measuring impact on property values as well as published reports that analyzed the impact of solar farms on property values. These studies found little to no measurable and consistent difference between Test Area Sales and Control Area Sales attributed to the solar farms. A map of all states that CohnReznick has conducted a solar farm impact study and included in this report is presented below:



A summary of the chosen CohnReznick impact studies prepared is presented below.



Solar Farm No

> 2 3

> > 4

5

7

8

Single-Family R

	Co	hnReznick	Solar Analysis C	onclusions				
Solar Farm	Number of Test Area Sales	Number of Control Area Sales	Median Adjoining Property Sale Price per Unit (Test Area Sales)	Median Control Area Sales Price per Unit	Difference (%)	Avg. Feet from Panel to Lot	Avg. Feet from Panel to House	Impact Found
Residential								
Assembly Solar Group 1	1	7	\$173.96	\$164.90	+5.49%	120	175	No Impact
Assembly Solar Group 2a	1	18	\$144.49	\$141.32	+2.24%	155	345	No Impact
Assembly Solar Group 2b	1	14	\$168.01	\$165.07	+1.78%	155	345	No Impact
Assembly Solar Group 3	1	6	\$176.17	\$151.53	+16.26%	230	785	No Impact
Riverstart Solar	1	6	\$101.75	\$99.55	+2.21%	225	700	No Impact
Hillcrest Solar Group 1	1	13	\$213.03	\$199.41	+6.83%	225	330	No Impact
Hillcrest Solar Group 2	1	6	\$95.10	\$98.47	-3.42%	105	265	No Impact

\$76.23

\$133.02

\$93.95

\$52 49

-2.21%

-1.22%

+2 07%

202

130

675

135

255

205

225

165

312

180

750

180

295

285

315

250

Rutherford Farm Solar 6 +1.85% Elm City Solar 8 \$55.57 +1.85% 9 1 \$56.60 10 DTE Lapeer Solar Group 1 6 \$105.26 \$99.64 +5.65% 3 DTE Lapeer Solar Group 2 \$113.01 +0.98% 1 5 \$114.12 DTE Lapeer Solar Group 3 \$94.84 \$96.32 -1.53% Λ +1.85%

1

5

1

5

8

126

Median Variance in Sale Prices for Test Area Sales to Control Area Sales 21 Adjoining Test Area Sales studied and compared to 238 Control Area Sales

Dougherty County Solar

Wapello Solar

Barefoot Bay Solar Energy Center Group 2

\* Note, the paired sale analysis for this group is an outlier as determined earlier in this report and was excluded from this summary table

									2121222222212722002A
Land (	Agricultural/Single Family Lots)								
6	Miami-Dade Solar Energy Center	3	6	\$82,491	\$81,866	+0.76%	766	-	No Impact
7	Barefoot Bay Solar Energy Center Group 1	2	7	\$54,500	\$51,000	+6.86%	475	-	No Impact
Mediar	n Variance in Sale Prices for Test to Control Ar	eas				+0.76%			

\$74.55

\$131.40

\$95 90

\$53.46

3 Adjoining Test Area Sale studied and compared to 6 Control Area Sales

As summarized above, we evaluated 24 property sales adjoining existing solar facilities (Test Area Sales) and 244 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 1,360 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.

It can be concluded that since the Adjoining Property Sales (Test Area Sales) were not adversely affected by their proximity to the solar farm, that properties surrounding other proposed solar farms operating in compliance with all regulatory standards will similarly not be adversely affected, in either the short or long term periods.

Based upon the examination, research, and analyses of the existing solar farm uses, the surrounding areas, and an extensive market database, we have concluded that no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent solar farm, with regard to unit sale prices or other influential market indicators. Additionally, in our workfile we have retained analyses of additional existing solar farms, each with their own set of matched control sales, which had consistent results, indicating no consistent and measurable impact on adjacent property values. This conclusion has been confirmed by numerous county assessors who have also investigated this use's potential impact on property values.

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No Impact

If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick LLP

, 11th.

Andrew R. Lines, MAI, CRE Principal Certified General Real Estate Appraiser Kentucky License No. 5663 Expires 6/30/2024 Illinois License No. 553.001841 Expires 9/30/2025 Indiana License No. CG41500037 Expires 6/30/2024

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Erin C. Bowen, MAI Senior Manager Certified General Real Estate Appraiser Arizona License No. 32052 Expires 12/31/2024 Oregon License No. C001551 Expires 6/30/2024



#### CERTIFICATION

We certify that, to the best of our knowledge and belief:

- 1. The statements of fact and data reported are true and correct.
- 2. The reported analyses, findings, and conclusions in this consulting report are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, findings, and conclusions.
- 3. We have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
- 4. We have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
- 5. We have no bias with respect to the property that is the subject of this report or the parties involved with this assignment.
- 6. Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
- 7. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value finding, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this report.
- 8. Our analyses, findings, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, which includes the Uniform Standards of Professional Appraisal Practice (USPAP).
- The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
- 10. Andrew R. Lines, MAI, CRE, and Erin C. Bowen, MAI have viewed the exterior of all comparable data referenced in this report in person, via photographs, or aerial imagery.
- 11. We have not relied on unsupported conclusions relating to characteristics such as race, color, religion, national origin, gender, marital status, familial status, age, and receipt of public assistance income, handicap, or an unsupported conclusion that homogeneity of such characteristics is necessary to maximize value.
- 12. Joseph P.B. Ficenec provided significant appraisal consulting assistance to the persons signing this certification, including data verification, research, and administrative work all under the appropriate supervision.
- 13. We have experience in reviewing properties similar to the subject and are in compliance with the Competency Rule of USPAP.
- 14. As of the date of this report, Andrew R. Lines, MAI, CRE, and Erin Bowen, MAI have completed the continuing education program for Designated Members of the Appraisal Institute.

If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.



Respectfully submitted,

#### CohnReznick LLP

Unt.

Andrew R. Lines, MAI, CRE Principal Certified General Real Estate Appraiser Kentucky License No. 5663 Expires 6/30/2024 Illinois License No. 553.001841 Expires 9/30/2025 Indiana License No. CG41500037 Expires 6/30/2024

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Erin C. Bowen, MAI Senior Manager **Certified General Real Estate Appraiser** Arizona License No. 32052 Expires 12/31/2024 Oregon License No. C001551 Expires 6/30/2024

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#### ASSUMPTIONS AND LIMITING CONDITIONS

The fact witness services will be subject to the following assumptions and limiting conditions:

- 1. No responsibility is assumed for the legal description provided or for matter pertaining to legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated. The legal description used in this report is assumed to be correct.
- 2. The property is evaluated free and clear of any or all liens or encumbrances unless otherwise stated.
- 3. Responsible ownership and competent management are assumed.
- 4. Information furnished by others is believed to be true, correct and reliable, but no warranty is given for its accuracy.
- 5. All engineering studies are assumed to be correct. The plot plans and illustrative material in this report are included only to help the reader visualize the property.
- 6. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for obtaining the engineering studies that may be required to discover them.
- 7. It is assumed that the property is in full compliance with all applicable federal, state, and local and environmental regulations and laws unless the lack of compliance is stated, described, and considered in the evaluation report.
- 8. It is assumed that the property conforms to all applicable zoning and use regulations and restrictions unless nonconformity has been identified, described and considered in the evaluation report.
- It is assumed that all required licenses, certificates of occupancy, consents, and other legislative or 9. administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
- 10. It is assumed that the use of the land and improvements is confined within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in this report.
- 11. The date of value to which the findings are expressed in this report apply is set forth in the letter of transmittal. The appraisers assume no responsibility for economic or physical factors occurring at some later date which may affect the opinions herein stated.
- 12. Unless otherwise stated in this report, the existence of hazardous materials, which may or may not be present on the property, was not observed by the appraisers. The appraisers have no knowledge of the existence of such substances on or in the property. The appraisers, however, are not qualified to detect such substances. The presence of substances such as asbestos, urea-formaldehyde foam insulation, radon gas, lead or lead-based products, toxic waste contaminants, and other potentially hazardous materials may affect the value of the property. The value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value. No



responsibility is assumed for such conditions or for any expertise or engineering knowledge required to discover them. The client is urged to retain an expert in this field, if desired.

- 13. The forecasts, projections, or operating estimates included in this report were utilized to assist in the evaluation process and are based on reasonable estimates of market conditions, anticipated supply and demand, and the state of the economy. Therefore, the projections are subject to changes in future conditions that cannot be accurately predicted by the appraisers, and which could affect the future income or value projections.
- 14. Fundamental to the appraisal analysis is the assumption that no change in zoning is either proposed or imminent, unless otherwise stipulated. Should a change in zoning status occur from the property's present classification, the appraisers reserve the right to alter or amend the value accordingly.
- 15. It is assumed that the property does not contain within its confined any unmarked burial grounds which would prevent or hamper the development process.
- 16. The Americans with Disabilities Act (ADA) became effective on January 26, 1992. We have not made a specific compliance survey and analysis of the property to determine if it is in conformance with the various detailed requirements of the ADA. It is possible that a compliance survey of the property. together with a detailed analysis of the requirements of the ADA, could reveal that the property is not in compliance with one or more of the requirements of the Act. If so, this fact could have a negative effect on the value of the property. Unless otherwise noted in this report, we have not been provided with a compliance survey of the property. Any information regarding compliance surveys or estimates of costs to conform to the requirements of the ADA are provided for information purposes. No responsibility is assumed for the accuracy or completeness of the compliance survey cited in this report, or for the eventual cost to comply with the requirements of the ADA.
- 17. Any value estimates provided in this report apply to the entire property, and any proration or division of the total into fractional interests will invalidate the value estimate, unless such proration or division of interests has been set forth in this report.
- 18. Any proposed improvements are assumed to have been completed unless otherwise stipulated; any construction is assumed to conform with the building plans referenced in this report.
- 19. Unless otherwise noted in the body of this report, this evaluation assumes that the subject does not fall within the areas where mandatory flood insurance is effective.
- 20. Unless otherwise noted in the body of this report, we have not completed nor are we contracted to have completed an investigation to identify and/or quantify the presence of non-tidal wetland conditions on the subject property.
- 21. This report should not be used as a basis to determine the structural adequacy/inadequacy of the property described herein, but for evaluation purposes only.
- 22. It is assumed that the subject structure meets the applicable building codes for its respective We assume no responsibility/liability for the inclusion/exclusion of any structural jurisdiction. component item which may have an impact on value. It is further assumed that the subject property will meet code requirements as they relate to proper soil compaction, grading, and drainage.



23. The appraisers are not engineers, and any references to physical property characteristics in terms of quality, condition, cost, suitability, soil conditions, flood risk, obsolescence, etc., are strictly related to their economic impact on the property. No liability is assumed for any engineering-related issues.

#### The evaluation services will be subject to the following limiting conditions:

- 1. The findings reported herein are only applicable to the properties studied in conjunction with the Purpose of the Evaluation and the Function of the Evaluation as herein set forth; the evaluation is not to be used for any other purposes or functions.
- 2. Any allocation of the total value estimated in this report between the land and the improvements applies only to the stated program of utilization. The separate values allocated to the land and buildings must not be used in conjunction with any other appraisal and are not valid if so used.
- 3. No opinion is expressed as to the value of subsurface oil, gas or mineral rights, if any, and we have assumed that the property is not subject to surface entry for the exploration or removal of such materials, unless otherwise noted in the evaluation.
- 4. This report has been prepared by CohnReznick under the terms and conditions outlined by the enclosed engagement letter. Therefore, the contents of this report and the use of this report are governed by the client confidentiality rules of the Appraisal Institute. Specifically, this report is not for use by a third party and CohnReznick is not responsible or liable, legally or otherwise, to other parties using this report unless agreed to in writing, in advance, by both CohnReznick and/or the client or third party.
- 5. Disclosure of the contents of this evaluation report is governed by the by-laws and Regulations of the Appraisal Institute has been prepared to conform with the reporting standards of any concerned government agencies.
- 6. The forecasts, projections, and/or operating estimates contained herein are based on current market conditions, anticipated short-term supply and demand factors, and a continued stable economy. These forecasts are, therefore, subject to changes with future conditions. This evaluation is based on the condition of local and national economies, purchasing power of money, and financing rates prevailing at the effective date of value.
- 7. This evaluation shall be considered only in its entirety, and no part of this evaluation shall be utilized separately or out of context. Any separation of the signature pages from the balance of the evaluation report invalidates the conclusions established herein.
- 8. Possession of this report, or a copy thereof, does not carry with it the right of publication, nor may it be used for any purposes by anyone other than the client without the prior written consent of the appraisers, and in any event, only with property qualification.
- 9. The appraisers, by reason of this study, are not required to give further consultation or testimony or to be in attendance in court with reference to the property in question unless arrangements have been previously made.



- 10. Neither all nor any part of the contents of this report shall be conveyed to any person or entity, other than the appraiser's client, through advertising, solicitation materials, public relations, news, sales or other media, without the written consent and approval of the authors, particularly as to evaluation conclusions, the identity of the appraisers or CohnReznick, LLC, or any reference to the Appraisal Institute, or the MAI designation. Further, the appraisers and CohnReznick, LLC assume no obligation, liability, or accountability to any third party. If this report is placed in the hands of anyone but the client, client shall make such party aware of all the assumptions and limiting conditions of the assignment.
- 11. This evaluation is not intended to be used, and may not be used, on behalf of or in connection with a real estate syndicate or syndicates. A real estate syndicate means a general or limited partnership, joint venture, unincorporated association or similar organization formed for the purpose of, and engaged in, an investment or gain from an interest in real property, including, but not limited to a sale or exchange, trade or development of such real property, on behalf of others, or which is required to be registered with the United States Securities and Exchange commissions or any state regulatory agency which regulates investments made as a public offering. It is agreed that any user of this evaluation who uses it contrary to the prohibitions in this section indemnifies the appraisers and the appraisers' firm and holds them harmless from all claims, including attorney fees, arising from said use.



Prepared for NextEra Energy Resources	Page   143

**ADDENDUM A: APPRAISER QUALIFICATIONS** 





## Andrew R. Lines, MAI, CRE Principal - Real Estate Valuation **Valuation Advisory Services**

1 S. Wacker Drive, Suite 3550 Chicago, IL 60606 312-508-5892 (w) 917-696-9636 (m) andrew.lines@cohnreznick.com www.cohnreznick.com

Andrew R. Lines, MAI, CRE is a Principal for CohnReznick Advisory's Valuation Advisory Services practice who has been a CohnReznick employee for over twelve years. Andrew has been involved in the real estate business for more than 20 years and has performed valuations on all real estate classes (industrial, commercial, residential, development land). Special-use valuations include affordable housing (as well as market studies), student housing, senior housing, cannabis facilities (indoor/outdoor, processing and dispensaries), landfills, waste transfer stations, golf courses, marinas, hospitals, universities, telecommunications facilities, data centers, self- storage facilities, racetracks, and corridors. Impact Study Reports have also been generated for zoning hearings related to the development of solar facilities, wind powered facilities, landfills, big box retail, waste transfer stations, private mental health clinics, cannabis dispensaries, concert/stadium venues and day care centers. He is also experienced in the valuation of leasehold, leased fee, and partial interests, as well as purchase price allocations (GAAP, IFRS and IRC 1060) for financial reporting.

Valuations have been completed nationwide for a variety of assignments including mortgage financing, litigation, tax appeal, estate gifts, asset management, workouts, and restructuring, as well as valuation for financial reporting including purchase price allocations (ASC 805), impairment studies, and appraisals for investment company guidelines and REIS standards. Andrew has qualified as an expert witness, providing testimony for cases in the states of IL, DC, VA, NY and MD, and for zoning hearings in IL, IN, MI, NY, HI, OH, KY, CO, PA, WI and MO. Andrew has also performed appraisal review assignments for accounting purposes (audit support), asset management, litigation and as an evaluator for a large Midwest regional bank.

Andrew has earned the professional designation of Member of the Appraisal Institute (MAI). He has also qualified for certified general commercial real estate appraiser licenses in AZ, CA, IL, IN, WI, MD, OH, NY, NJ, FL,GA, KY and DC. Temporary licenses have been granted in CT, CO, PA, ID, MS, KS, MT and SC.

#### Education

- Syracuse University: Bachelor of Fine Arts •
- MAI Designation (Member of the Appraisal Institute)

#### **Professional Affiliations**

- Counselors of Real Estate (CRE)
- Chicago Chapter of the Appraisal Institute
- International Real Estate Management (IREM)
- National Council of Housing and Market Analysts (NCHMA) .



#### Community Involvement

- Syracuse University Regional Council •
- Chicago Friends School





## Erin C. Bowen, MAI Senior Manager, Valuation Advisory Services

404-847-7740 erin.bowen@cohnreznick.com www.cohnreznick.com

Erin Bowen, MAI is a Senior Manager with CohnReznick in Valuation Advisory Services. Ms. Bowen is based in Phoenix, Arizona, with presence covering the west coast. Ms. Bowen's work in Commercial Real Estate valuation spans over 12 years.

Ms. Bowen specializes in lodging, cannabis, seniors housing, large scale retail and multifamily conversion properties. Lodging work includes all hotel property types and brand segments including limited, full service and resort properties; additionally, Ms. Bowen has appraised numerous hotel to multifamily conversion properties including market rate and affordable housing. Cannabis work includes dispensaries, cultivation facilities including specialized indoor facilities and greenhouse properties, processing and manufacturing facilities. Senior's housing assignments include assisted living, skilled nursing facilities and rehabilitation centers. Retail work spans power centers, lifestyle centers, outlet centers and malls. She has appraised numerous additional properties including multifamily, office, medical office, industrial, churches, and vacant land.

Ms. Bowen has expertise in appraising properties at all stages of development, including existing as is, proposed, under construction, renovations and conversion to alternate use. Valuations have been completed nationwide for a variety of assignments including mortgage financing, litigation, eminent domain, tax appeal, estate gifts, asset management, as well as valuation for financial reporting including purchase price allocations (ASC 805). Impact Study Reports have also been generated for zoning hearings related to the development of solar facilities and wind powered facilities. Ms. Bowen has qualified as an expert witness and provided testimony for zoning and county commission hearings.

#### Education

University of California, San Diego: Bachelor of Arts in Psychology and Theater; College Honors

#### **Professional Affiliations**

Designated Member of the Appraisal Institute

#### Licenses

Certified General Real Estate Appraiser licensed in New Mexico, Arizona, California, Oregon and Nevada





## Joe Ficenec Consultant, Valuation Advisory Services

621 Capital Mall Sacramento, CA 95814 916-930-5237 joe.ficenec@cohnreznick.com www.cohnreznick.com

Joe Ficenec is a consultant in CohnReznick's Valuation Advisory Services practice and is based in the Sacramento office. Joe specializes in Impact Study Reports, which have been conducted for zoning hearings related to the development of solar facilities and wind powered facilities. He also has experience in assisting with the appraisal multifamily, office, industrial, retail, lodging and mixed-use properties for financing and purchase price allocation purposes.

Joe graduated with honors from the University of California, Davis in May 2017 with a major in managerial economics. Prior to joining CohnReznick, Joe worked as a Real Estate Assessor for a county government and as a consultant for a nationwide real estate firm in San Francisco.

#### Education

University of California, Davis - B.S. Managerial Economics



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# REAL ESTATE ADJACENT PROPERTY VALUE IMPACT REPORT:

Site Specific Analysis Addendum Report: For the Proposed 150 MW Weirs Creek Solar Project To Be Located in Hopkins and Webster Counties, Kentucky

### **Prepared For:**

Jason Andrews NextEra Energy Resources 700 Universe Boulevard Juno Beach, Florida 33408

#### Submitted By:

CohnReznick LLP Valuation Advisory Services 1 S. Wacker Drive, Suite 3500 Chicago, Illinois 60606 (312) 508-5900

Andrew R. Lines, MAI, CRE Erin C. Bowen, MAI

February 9, 2024

Prepared for Weirs Creek Solar, LLC

#### Page | 2 ............................ ...........

#### LETTER OF TRANSMITTAL

February 9, 2024

Mr. Jason Andrews NextEra Energy Resources 700 Universe Boulevard Juno Beach, Florida 33408

SUBJECT: Addendum - Property Value Impact Report Proposed 150 MW Weirs Creek Solar Project Hopkins and Webster Counties, Kentucky

Dear Mr. Andrews:

This letter and associated report are considered an Addendum to the previously prepared property value impact report with an effective date of February 9, 2024 ("Primary Report"). All facts and circumstances surrounding the property value impact report that analyzes existing solar farm and any effect on adjacent property values are contained within the cited Primary Report. This Addendum cannot be properly understood without the cited Primary Report and should be reviewed in unison.

Per the client's request, we have researched the proposed solar farm on land located in Hopkins and Webster Counties, Kentucky. The proposed solar use called Weirs Creek Solar will have a capacity of up to 150 MW AC (megawatts alternating current).

The purpose of this consulting assignment is to determine whether proximity to a renewable energy use (solar farm) has an impact adjacent property values. The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of solar project use applications. We have not been asked to value any specific property, and we have not done so.

The client and intended user for the assignment is Weirs Creek Solar, LLC, a project being developed by NextEra Energy Resources. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick LLP ("CohnReznick").

The assignment is intended to conform to the Uniform Standards of Professional Appraisal Practice (USPAP), the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, as well as applicable state appraisal regulations.



Prepared for Weirs Creek Solar, LLC	Page	3

Based on the analysis in the accompanying report, and subject to the definitions, assumptions, and limiting conditions expressed in the report, our findings are as follows.

#### FINDINGS

I. Academic Studies: CohnReznick reviewed and analyzed published academic studies that specifically analyzed the impact of solar facilities on nearby property values. These studies include multiple regression analyses of hundreds and thousands of sales transactions, and opinion surveys, for both residential homes and farmland properties in rural communities, the majority of the data used in various studies indicates that there is no consistent and measurable impact to surrounding property values. We note that some of these studies do show a very small impact to certain homes, in certain locations, at certain distances, but these conclusions are not necessarily indicative of future projects in other locations.

Peer Authored Studies: CohnReznick also reviewed studies prepared by other real estate valuation experts that specifically analyzed the impact of solar facilities on nearby property values. These studies found little to no measurable or consistent difference in value between the Test Area Sales and the Control Area Sales attributed to the proximity to existing solar farms and noted that solar energy uses are generally considered a compatible use.

II. CohnReznick Studies: Further, CohnReznick has performed 37 studies in 21 states, of both residential and agricultural properties, in which we have determined that the existing solar facilities have not caused any consistent and measurable negative impact on property values.

For this Project, we have included ten of these studies which are most similar to the subject in terms of general location and size, summarized as follows:

CohnReznick - Existing Solar Farms Studied								
Solar Farm #	Solar Farm	County	State	MW AC	Acreage			
1	Assembly Solar	Shiawassee	MI	239.00	1,900			
2	Riverstart Solar	Randolph	IN	200.00	1,400			
3	Hillcrest Solar Farm	Brown	ОН	200.00	1,940			
4	Dougherty Solar	Dougherty	GA	120.00	1,037			
5	Wapello Solar Farm	Louisa	IA	100.00	±800			
6	Miami-Dade Solar Energy Center	Miami-Dade	FL	74.50	465			
7	Barefoot Bay Solar Energy Center	Brevard	FL	74.50	462			
8	Rutherford Farm Solar	Rutherford	NC	61.00	414			
9	Lapeer (Demille & Turrill) Solar	Lapeer	MI	48.00	270			
10	Elm City Solar	Wilson	NC	40.00	354			

It is noted that proximity to the solar farms has not deterred sales of nearby agricultural land and residential single-family homes, nor has it deterred the development of new single-family homes on adjacent land.



## Prepared for Weirs Creek Solar, LLC

This report also includes four "Before and After" analyses, in which sales that occurred prior to the announcement and construction of the solar farm project were compared with sales that occurred after completion of the solar farm project, for both adjoining and non-adjoining properties. No measurable impact on property values was demonstrated.

III. Market Participant Interviews: Our conclusions also consider interviews with over 60 County and Township Assessors, who have at least one solar farm in their jurisdiction, and in which they have determined that solar farms have not negatively affected adjacent property values.

With regards to the Project, we specifically interviewed in Kentucky:

- A Clark County, Kentucky Property Valuation Administrator, Jason Neely, noted there have been no complaints regarding East Kentucky Power Cooperative, Inc.'s Cooperative Solar One project installed in November 2017 located in the county, which has a capacity to generate 8.5 MW of electricity. Additionally, Neely stated he has not seen any evidence of lowered property values in the area and <u>no reduction in assessed property values has been</u> <u>made due to proximity to the solar farm.</u>
- A Grant County, Kentucky Assessor stated that <u>they have not seen a reduction in assessed</u> property values or market values for adjacency to solar farms.

To give us additional insight as to how the market evaluates farmland and single-family homes with views of solar farms, we interviewed numerous real estate brokers and other market participants who were party to actual sales of property adjacent to solar; these professionals also confirmed that solar farms did not diminish property values or marketability in the areas they conducted their business.

IV. Solar Farm Factors on Harmony of Use: In the course of our research and studies, we have recorded information regarding the compatibility of these existing solar facilities and their adjoining uses, including the continuing development of land adjoining these facilities.

#### CONCLUSION

Considering all of the preceding, the data indicates that solar facilities do not have a negative impact on adjacent property values.



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Prepared for Weirs Creek Solar, LLC	Page	5

If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Very truly yours,

#### CohnReznick LLP

(11th

Andrew R. Lines, MAI, CRE Principal - Valuation Advisory Services Certified General Real Estate Appraiser

Illinois License No. 553.001841 Expires 9/30/2025 Indiana License No. CG41500037 Expires 6/30/2024 Kentucky License 5663 Expires 6/30/2024

Gin Bo

Erin C. Bowen, MAI Senior Manager Certified General Real Estate Appraiser

Arizona License No. 32052 Expires 12/31/2024 Oregon License No. C001551 Expires 6/30/2024


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# **SCOPE OF WORK**

# CLIENT

The client for this assignment is Weirs Creek Solar, LLC.

## **INTENDED USERS**

Weirs Creek Solar, LLC, NextEra Energy Resources, and the Kentucky State Electric Generation and Transmission Siting Board as it relates to the evaluation of the Project; other intended users may include the client's legal, public affairs, and site development professionals.

## INTENDED USE

The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of solar project use applications. We have not been asked to value any specific property, and we have not done so. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick LLP ("CohnReznick").

## PURPOSE

The purpose of this consulting assignment is to determine whether proximity to the proposed solar facility will result in an impact on adjacent property values.

## **DEFINITION OF VALUE**

This report utilizes Market Value as the appropriate premise of value. Market value is defined as:

"The most probable price which a property should bring in a competitive and open market under all conditions, requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- 1. Buyer and seller are typically motivated;
- 2. Both parties are well informed or well advised, and acting in what they consider their own best interests;
- 3. A reasonable time is allowed for exposure in the open market.
- 4. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and



# Prepared for Weirs Creek Solar, LLC Page | 8

The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."<sup>1</sup>

### **EFFECTIVE DATE & DATE OF REPORT**

February 9, 2024 (Paired sale analyses contained within each study in the Primary Report are periodically updated.)

#### **PRIOR SERVICES**

USPAP requires appraisers to disclose to the client any services they have provided in connection with the subject property in the prior three years, including valuation, consulting, property management, brokerage, or any other services.

We have not previously evaluated the Project site.

#### INSPECTION

Andrew R. Lines, MAI, CRE and Erin C. Bowen, MAI have viewed the exterior of all comparable data referenced in this report in person, via photographs, or aerial imagery.



<sup>&</sup>lt;sup>1</sup> Code of Federal Regulations, Title 12, Chapter I, Part 34.42[h]

# Prepared for Weirs Creek Solar, LLC Page | 9

# **IDENTIFICATION AND DESCRIPTION OF THE PROPOSED PROJECT**

The Weirs Creek Solar Project ("Weirs Creek Solar" or "the Project") is to be located on land generally northeast of the home-rule City of Providence, bisected by State Route 120 in Hopkins County and Webster County, Kentucky. Based on development plans for a typical solar farm, the proposed solar project will have a capacity of up to 150-megawatt and would generally consist of solar photovoltaic arrays, electrical inverters, underground and aboveground collection lines, security fencing, safety lighting, and other axillary infrastructure. The Project will be utilizing bifacial photovoltaic arrays mounted to single-axis trackers, which will be installed on approximately 1,000 acres of leased land. The Project will include landscaping that reflects typical mitigation requirements levied by the Kentucky State Siting Board, which consists of screening from non-participating parcels and viewshed from public roadways. Setbacks for the Project will be 150-feet from residences, 450-feet from any central inverter, 50-feet from roadways and 25-feet from non-adjoining parcels. The Weirs Creek Solar project will take approximately one and a half years to construct and is currently estimated to be complete by the end of 2026.

The Project will be located on approximately four leased parcels in Hopkins County and Webster County, in a rural environment. The Project will be situated on land parcels utilized for agricultural purposes and is illustrated by the yellow outlined polygons in the image on the following page. The Project parcels are bordered by agricultural farmland and rural homesteads.



Proposed Weirs Creek Solar Project layout as provided by Weirs Creek Solar, LLC



# **ZONING REGULATIONS**

The vast majority of the surrounding area, including the proposed subject site, is not currently encumbered with a local zoning ordinance by Hopkins County or Webster County. Hopkins County does have a joint planning commission, however, there is no zoning ordinance in place and therefore no applicable local zoning regulations. Additionally, Webster County does not have a planning and zoning commission, and there are therefore no applicable local zoning regulations in Webster County either.



# Prepared for Weirs Creek Solar, LLC

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# **OVERVIEW OF THE SURROUNDING AREA OF THE PROJECT**

The Project consists of a utility-scale, solar energy use in Hopkins County and Webster County, Kentucky known as the150 MW Weirs Creek Solar Project. A surrounding area map indicating the location of the Project (red arrow) is presented below.



Aerial imagery of site area provided by Google Earth, dated December 2020



# Prepared for Weirs Creek Solar, LLC Page | 12

# TRAFFIC PATTERNS AND CONNECTIVITY

The Weirs Creek Solar Project ("Weirs Creek Solar" or "the Project") is to be located on land generally northeast of the home-rule City of Providence, bisected by State Route 120 in Hopkins County and Webster County, Kentucky.

Local east-west roads include State Route 120, which bisects the Project area and State Highway 41 ("Nebo Road") which is adjacent to the south of the Project site and connects in the east with Interstate-69 in Madisonville, approximately 10 miles east of the Project, which provides north-south access throughout western Kentucky. Local north-south roads in the project area include Bernard Street, which runs close to the eastern boundary of the Project area and Greenwood Road which runs through the central portion of the Project site.

The nearest major cities to the Project are Owensboro, approximately 40 miles to the northeast, and Evansville, Indiana, approximately 40 miles to the north of the Project.

## **DEMOGRAPHIC FACTORS**

Demographic data is presented below, as compiled by ESRI, which indicates population has declined since 2010 within a 3-mile radius from the proposed project site, similar to Hopkins and Webster Counties. This trend is expected to continue for the next five years, although at a slower rate. The data also indicates that the area is predominantly owner-occupied. Median household income is slightly higher in the local area than in the larger counties.

DEMOGRAPHIC PROFILE						
	3 Mile Radius	Hopkins County	Webster County	Kentucky		
Population						
2028 Projection	902	44,272	12,471	4,576,418		
2023 Estimate	915	44,887	12,769	4,547,961		
2010 Census	1,027	46,920	13,621	4,339,367		
Growth 2023 - 2028	-1.42%	-1.37%	-2.33%	0.63%		
Growth 2010 - 2023	-10.91%	-4.33%	-6.26%	4.81%		
Total Land Area	28 sq. mi.	554 sq. mi.	336 sq. mi.	40,409 sq. mi.		
Population Density	32.25/sq. mi	81.02/sq. mi	38.00/sq. mi	112.55/sq. mi		
Households						
2028 Projection	375	18,413	4,846	1,842,428		
2023 Estimate	378	18,489	4,947	1,821,190		
2010 Census	402	18,980	5,272	1,719,965		
Growth 2023 - 2028	-0.79%	-0.41%	-2.04%	1.17%		
Growth 2010 - 2023	-5.97%	-2.59%	-6.16%	5.89%		
2023 Owner Occupied (%)	64.25%	62.28%	64.33%	61.13%		
2023 Renter Occupied (%)	35.75%	37.72%	35.67%	38.87%		
2023 Med. Household Income	\$69,995	\$51,656	\$52,644	\$57,015		
2023 Avg. Household Income	\$96,339	\$70,179	\$70,400	\$83,241		



Adjacent Property Value Impact Report Addendum: Proposed 150 MW Weirs Cree	k Solar Project
Prepared for Weirs Creek Solar, LLC	

## CONCLUSION

Land uses in the area surrounding the Project can be categorized as predominantly farmland and some residential homesteads. Population growth in the Project Area has been declining over the past 13 years, and is projected to slow down over the next five years. The factors presented previously indicate that the proposed Project would not be incompatible with surrounding uses and would not negatively impact surrounding properties.

<u>Disclaimer</u>: This report is limited to the intended use, intended users (Weirs Creek Solar, LLC, NextEra Energy Resources, and the Kentucky State Electric Generation and Transmission Siting Board as it relates to the evaluation of the Project) and purpose stated within. No part of this report may otherwise be reproduced or modified in any form, or by any means, without the prior written permission of CohnReznick LLP.



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# KENTUCKY SOIL PRODUCTIVITY AND VALUE TRENDS

## NCCPI PRODUCTIVITY INDEX

Crop yields have been the basis for establishing a soil productivity index, and are used by county assessors, farmers, and market participants in assessing agricultural land. While crop yields are an integral part in assessing soil qualities, it is not an appropriate metric to rely on because "yields fluctuate from year to year, and absolute yields mean little when comparing different crops. Productivity indices provide a single scale on which soils may be rated according to their suitability for several major crops under specified levels of management, such as an optimum level."<sup>2</sup> The productivity index, therefore, not crop yields, is best suited for applications in land appraisal and land-use planning.

The United States Department of Agriculture's (USDA) National Resources Conservation Services (NRCS) developed and utilizes the National Commodity Crop Productivity Index (NCCPI) as a national soil interpreter and is used in the National Soil Information System (NASIS), but it is not intended to replace other crop production models developed by individual states.<sup>3</sup> The focus of the model is on identifying the best soils for the growth of commodity crops, as the best soils for the growth of other crops.<sup>4</sup> The NCCPI model describes relative productivity ranking over a period of years and not for a single year where external influences such as extreme weather or change in management practices may have affected production. At the moment the index only describes non-irrigated crops, and will later be expanded to include irrigated crops, rangeland, and forestland productivity.<sup>5</sup>

Yields are influenced by a variety of different factors including environmental traits and management inputs. Tracked climate and soil qualities have been proven by researchers to directly explain fluctuations in crop yields, especially those qualities that relate to moisture-holding capacity. Some states such as Illinois have developed a soil productivity model that considers these factors to describe "optimal" productivity of farmed land. Except for these factors, "inherent soil quality or inherent soil productivity varies little over time or from place to place for a specific soil (map unit component) identified by the National Cooperative Soil Survey (NCSS)."<sup>6</sup> The NRCS Web Soil Survey website has additional information on how the ratings are determined. The state of Kentucky does not have its own crop production model and utilizes the NCCPI.

The proposed solar farm will be located in unincorporated Hopkins County and Webster County, in the western portion of the state. An excerpt of a soil productivity map is presented on the following page as retrieved from the USDA Web Soil Survey, which provides an illustration of the variation in soil productivity across the local

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<sup>&</sup>lt;sup>2</sup> Bulletin 811: Optimum Crop Productivity of Illinois Soils. University of Illinois, College of Agricultural, Consumer and Environmental Sciences, Office of Research. August 200.

<sup>&</sup>lt;sup>3</sup> Agricultural land rental payments are typically tied to crop production of the leased agricultural land and is one of the primary reasons the NCCPI was developed, especially since the model needed to be consistent across political boundaries.

 <sup>&</sup>lt;sup>4</sup> Per the User Guide for the National Commodity Crop Productivity Index, the NCCPI uses natural relationships of soil, landscape and climate factors to model the response of commodity crops in soil map units. The present use of the land is not considered in the ratings.
 <sup>5</sup> AgriData Inc. Docs: http://support.agridatainc.com/NationalCommodityCropProductivityIndex(NCCPI).ashx
 <sup>6</sup> USDA NRCS's User Guide National Commodity Crop Productivity Index (NCCPI)

# Prepared for Weirs Creek Solar, LLC Page | 15

area that is based on the NCCPI. The approximate site area for the Project is within boundary delineated below. Note, numerical labels correspond to soil type, not productivity index.





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#### Prepared for Weirs Creek Solar, LLC .......................... ....

MAP LEGEND

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Area of Inf	t <b>erest (AOI)</b> Area of Interest (AOI)		Moderately low inherent productivity	The soil surveys that comprise your AOI were mapped a 1:20,000.
Solls			Moderate inherent productivity	Please rely on the bar scale on each map sheet for map measurements.
Soil Rati	ing Polygons Low inherent productivity		Moderately high inherent productivity	Source of Map: Natural Resources Conservation Serv
	Moderately low inherent productivity		High inherent productivity	Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)
	Moderate inherent productivity	U Water Fea	Not rated or not available atures	Maps from the Web Soil Survey are based on the Web projection, which preserves direction and shape but dis
	Moderately high inherent productivity	~	Streams and Canals	distance and area. A projection that preserves area, su Albers equal-area conic projection, should be used if m
	High inherent productivity	Transport	ation Rails	accurate calculations of distance or area are required.
	Not rated or not available	~	Interstate Highways	This product is generated from the USDA-NRCS certifie of the version date(s) listed below.
	ing Lines Low inherent productivity	~	US Routes Major Roads	Soil Survey Area: Hardin and Larue Counties, Kentuc Survey Area Data: Version 19, Sep 8, 2021
~	Moderately low inherent productivity		Local Roads	Soil map units are labeled (as space allows) for map sc
	Moderate inherent productivity	Backgrou		1:50,000 or larger.
~	Moderately high inherent productivity	Pine	Aerial Photography	Date(s) aerial images were photographed: Oct 23, 20 24, 2019
~	High inherent productivity			The orthophoto or other base map on which the soil line compiled and digitized probably differs from the backgro
# # Soil Pati	Not rated or not available ing Points			imagery displayed on these maps. As a result, some mi shifting of map unit boundaries may be evident.
	Low inherent productivity			

#### **MAP INFORMATION**

....

Resources Conservation Service b Mercator (EPSG:3857)

Survey are based on the Web Mercator es direction and shape but distorts ection that preserves area, such as the rojection, should be used if more

from the USDA-NRCS certified data as d below.

(as space allows) for map scales

e photographed: Oct 23, 2019-Oct

ase map on which the soil lines were bably differs from the background se maps. As a result, some minor laries may be evident.



Prepared for Weirs Creek Solar, LLC

Per the NCCPI, soil productivity is measured on both a numerical scale from 0 to 100, with 0 being the worst and 100 being the best,<sup>7</sup> and by qualitative ratings. The qualitative rating classifications below are determined by the USDA NRCS and provide general comments on the productivity of the soil.

**High inherent productivity** indicates that the soil, site, and climate have features that are very favorable for crop production. High yields and low risk of crop failure can be expected if a high level of management is employed.

**Moderately high inherent productivity** indicates that the soil has features that are generally quite favorable for crop production. Good yields and moderately low risk of crop failure can be expected.

**Moderate inherent productivity** indicates that the soil has features that are generally favorable for crop production. Good yields and moderate risk of crop failure can be expected.

**Moderately low inherent productivity** indicates that the soil has features that are generally not favorable for crop production. Low yields and moderately high risk of crop failure can be expected.

**Low inherent productivity** indicates that the soil has one or more features that are unfavorable for crop production. Low yields and high risk of crop failure can be expected.

The weighted average soil productivity for the general area was determined to be approximately 62.28. A numerical scale that corresponds to the indicated qualitative ratings above was not available for the NCCPI; however, the soil productivity for this area is above the middle of the range, aligning with the "moderate inherent productivity" category. According to the qualitative scale above, land with the moderate inherent productivity classification is generally favorable for crop production

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<sup>&</sup>lt;sup>7</sup> Quantitative ratings are also show in ranges of 0.00 to 1.00. AgriData Inc. presents the NCCPI index rating multiplied by 100 in a range of 0.00 to 100.00 to show up to four significant figures.

# Adjacent Property Value Impact Report Addendum: Proposed 150 MW Weirs Creek Solar Project Prepared for Weirs Creek Solar, LLC Page | 18

## **AREA VALUE TRENDS - CROPLAND**

Agricultural land values are heavily influenced by relative crop production yields. The following exhibit compiled by the USDA National Agricultural Statistics Service (NASS) provides an illustration of how regional conditions such as weather conditions, geographies, and soil conditions can affect crop land real estate values.



Per the NASS report, the average value of cropland in Kentucky for 2023 is \$5,450 per acre, which is an increase of 9.0 percent from 2022. In addition, the report indicated that the average annual growth rate for farmland values in Kentucky from 2019 to 2023 was 5.36 percent.<sup>8</sup>



<sup>&</sup>lt;sup>8</sup> https://downloads.usda.library.cornell.edu/usda-esmis/files/pn89d6567/9w033j15z/mp48tw728/land0823.pdf

# Prepared for Weirs Creek Solar, LLC Page | 19

## **AREA VALUE TRENDS – RESIDENTIAL HOMES**

The proposed Project is to be located in unincorporated Hopkins County and Webster County, Kentucky, in the western portion of Kentucky. There are a mix of single-family home types in this area, manufactured homes and homes with one- and two-stories. Based on our research, homes in the area that have recently sold were constructed as early as 1921 and as recently as 2021.

We researched sales in the surrounding area, from January 2023 through December 2023, and identified 17 market transactions of single-family homes that are more similar to the rural residential homesteads that surround the proposed Project Area. The sale price per square foot ranges from \$67 per square foot to \$195 per square foot of gross living area. The home sales were on the market for between 12 and 365 days.

### Home Sales Surrounding Proposed Project Area (January 2023 through December 2023)

Single Family Homes	Median Lot Size (Acres)	Median Living Area (SF)	Min. Sale Price		Median Sale Price	Median Sale Price PSF
Hopkins & Webster Counties	1.06	1,624	\$92,500	\$320,000	\$200,000	\$117.66

We surveyed the surrounding area of the proposed site to identify any transaction of homes adjacent the site that occurred within the past year. We identified two sales of single-family residences that sold near or adjacent the project's proposed location, with a median sale price per square foot of \$114.02, generally in line with the median sale price per square foot of the surrounding area does not appear to be impacted by the proposed solar project. Additionally, the two sales were on the market for 48 days and 49 days, within the range of marketing time for home sales in the surrounding area.

Please see the table below:

#### Home Sales Adjacent to Proposed Project Area (January 2023 through December 2023)

	Building Size	e		-	,		Lot Size	Year
Address	(SF)	Sale Date	DOM	List Price	Sale Price	\$ PSF	(AC)	Built
11265 Nebo Road	1,768	5/15/2023	48	\$154,900	\$151,000	\$85.41	0.91	2021
11295 Nebo Road	1,332	10/26/2023	49	\$199,900	\$190,000	\$142.64	0.69	1986

We note that 11295 Nebo Road previously sold in May 2023 for \$99,900 or \$75 per square foot of living area. However, the home was in need of repair at the time and was renovated and sold again in October 2023 for \$190,000 or \$142.64 per square foot of living area.



# Prepared for Weirs Creek Solar, LLC Page | 20

The following tables illustrate residential home value trends for the proposed Project's Hopkins County and Webster County location. The source is the Federal Housing Finance Agency's (FHFA) House Price Index (HPI), which is a weighted, repeat-sales index measuring changes in single-family house prices.

	House Price Inde s County, Kentuc			House Price Inde r County, Kentuc	
Year	Annual Change (%)	HPI	Year	Annual Change (%)	HPI
2002	-	130.12	2002	-	111.04
2003	2.07	132.81	2003	6.03	117.74
2004	5.78	140.50	2004	2.55	120.75
2005	5.52	148.25	2005	9.28	131.95
2006	7.52	159.40	2006	7.00	141.19
2007	4.28	166.23	2007	-1.72	138.77
2008	0.31	166.75	2008	1.65	141.05
2009	-0.56	165.81	2009	-1.65	138.72
2010	1.02	167.50	2010	-1.82	136.20
2011	-3.15	162.22	2011	2.01	138.94
2012	3.44	167.79	2012	6.83	148.43
2013	2.07	171.27	2013	-0.33	147.94
2014	2.60	175.72	2014	1.16	149.65
2015	1.05	177.56	2015	11.76	167.25
2016	2.14	181.37	2016	1.44	169.66
2017	0.69	182.62	2017	1.07	171.47
2018	5.18	192.09	2018	2.98	176.58
2019	3.23	198.30	2019	-0.72	175.31
2020	1.58	201.43	2020	9.96	192.77
2021	9.85	221.26	2021	4.98	202.36
2022	11.60	246.92	2022	26.47	255.93
Annual Average			Annual Average		
Compounded % Change	3.25%		Compounded % Change	4.26%	

Based on the data shown above, the trend in residential home values in Hopkins County and Mason County have increased at average annual rates of 3.25 percent and 4.26 percent, over the past twenty years. The housing values in the counties grew at a strong rate in 2022; however, recent macroeconomic conditions indicate that a market correction may occur in the near future based in increases to federal lending rates and general inflation.



# Adjacent Property Value Impact Report Addendum: Proposed 150 MW Weirs Creek Solar Project Prepared for Weirs Creek Solar, LLC Page | 21

# LOCAL LAND DEVELOPMENT TRENDS

Land values can be driven by a site's proximity to the path of development. The closer a property is to the path of development, and without natural barriers to development, the more value a property may have in the future; however, the little development in the local area has been toward the Cities of Providence to west of the Project site and Madisonville to the southeast of the Project site. The Project area has been agricultural land for over 15 years.



Aerial Imagery dated December 2005



Aerial Imagery dated December 2020



Prepared for Weirs Creek Solar, LLC Page | 22 ........................... .... . ...

According to the images presented on the previous page, there has been limited new development in the local area over the past 15 years. Generally, any undeveloped agricultural land is considered to be an interim use as the intensity of uses grows in step with macroeconomic factors.



# Prepared for Weirs Creek Solar, LLC

# SUMMARY AND FINAL CONCLUSIONS

The Project is located in a stable area that is predominantly agricultural in nature with some residential homesteads. The population quotient (persons per square mile) for the three-mile radius is 32.25, which reflects a rural environment. Local development has been relatively stagnant over the past 15 years, and the immediate land parcels have a future land use designation of agricultural. Based on our analysis of real estate taxes in the Primary Report, solar farm uses incur anywhere from 131% to  $\pm 1,000\%$  increase in real estate tax revenue for the local area, feeding back into essential services, including public roads and schools. Local land and residential home prices have remained stable over the past five years and are anticipated to align in the future with macroeconomic changes. Overall, the proposed Project is considered a locally compatible use.

The purpose of the Primary Report and this addendum is to determine whether the presence of a solar farm has caused a measurable and consistent impact on adjacent property values. Under the identified methodology and scope of work, CohnReznick reviewed published methodology for measuring impact on property values as well as published reports that analyzed the impact of solar farms on property values. These studies found little to no measurable and consistent difference between Test Area Sales and Control Area Sales attributed to the solar farms.

The chosen existing solar farms analyzed in the Primary Report 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.

It can be concluded that since the Adjoining Property Sales (Test Area Sales) were not adversely affected by their proximity to the solar farm, that properties surrounding other proposed solar farms operating in compliance with all regulatory standards will similarly not be adversely affected, in either the short or long term periods.

Based upon the examination, research, and analyses of the existing solar farm uses, the surrounding areas, and an extensive market database, we have concluded that <u>no consistent negative impact has occurred to</u> <u>adjacent property values that could be attributed to proximity to the adjacent solar farm</u>, with regard to unit sale prices or other influential market indicators. Additionally, in our workfile we have retained analyses of additional existing solar farms, each with their own set of matched control sales, which had consistent results, indicating no consistent and measurable impact on adjacent property values. This conclusion has been confirmed by numerous county assessors who have also investigated this use's potential impact on property values.

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If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick LLP

ant.

Andrew R. Lines, MAI, CRE Principal - Valuation Advisory Services Certified General Real Estate Appraiser

Illinois License No. 553.001841 Expires 9/30/2025 Indiana License No. CG41500037 Expires 6/30/2024 Kentucky License 5663 Expires 6/30/2024

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Erin C. Bowen, MAI Senior Manager Certified General Real Estate Appraiser

Arizona License No. 32052 Expires 12/31/2024 Oregon License No. C001551 Expires 6/30/2024



Prepared for Weirs Creek Solar, LLC

# **CERTIFICATION**

We certify that, to the best of our knowledge and belief:

- 1. The statements of fact and data reported are true and correct.
- 2. The reported analyses, findings, and conclusions in this consulting report are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, findings, and conclusions.
- 3. We have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
- 4. We have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
- 5. We have no bias with respect to the property that is the subject of this report or the parties involved with this assignment.
- 6. Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
- 7. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value finding, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this report.
- 8. Our analyses, findings, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, which includes the Uniform Standards of Professional Appraisal Practice (USPAP).
- 9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
- 10. Andrew R. Lines, MAI, CRE and Erin C. Bowen, MAI have viewed the exterior of the Project and of all comparable data referenced in this report in person, via photographs, or aerial imagery.
- 11. We have not relied on unsupported conclusions relating to characteristics such as race, color, religion, national origin, gender, marital status, familial status, age, and receipt of public assistance income, handicap, or an unsupported conclusion that homogeneity of such characteristics is necessary to maximize value.
- 12. Joe Ficenec provided consulting assistance to the persons signing this certification.
- 13. We have experience in reviewing properties similar to the subject and are in compliance with the Competency Rule of USPAP.
- 14. As of the date of this report, Andrew R. Lines, MAI, CRE, and Erin C. Bowen, MAI have completed the continuing education program for Designated Members of the Appraisal Institute.



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If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick LLP

MIL.

Andrew R. Lines, MAI, CRE Principal - Valuation Advisory Services Certified General Real Estate Appraiser

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Erin C. Bowen, MAI Senior Manager Certified General Real Estate Appraiser

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# ASSUMPTIONS AND LIMITING CONDITIONS

The fact witness services will be subject to the following assumptions and limiting conditions:

1. No responsibility is assumed for the legal description provided or for matter pertaining to legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated. The legal description used in this report is assumed to be correct.

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- 2. The property is evaluated free and clear of any or all liens or encumbrances unless otherwise stated.
- 3. Responsible ownership and competent management are assumed.
- 4. Information furnished by others is believed to be true, correct and reliable, but no warranty is given for its accuracy.
- 5. All engineering studies are assumed to be correct. The plot plans and illustrative material in this report are included only to help the reader visualize the property.
- 6. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for obtaining the engineering studies that may be required to discover them.
- 7. It is assumed that the property is in full compliance with all applicable federal, state, and local and environmental regulations and laws unless the lack of compliance is stated, described, and considered in the evaluation report.
- 8. It is assumed that the property conforms to all applicable zoning and use regulations and restrictions unless nonconformity has been identified, described and considered in the evaluation report.
- 9. It is assumed that all required licenses, certificates of occupancy, consents, and other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
- 10. It is assumed that the use of the land and improvements is confined within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in this report.
- 11. The date of value to which the findings are expressed in this report apply is set forth in the letter of transmittal. The appraisers assume no responsibility for economic or physical factors occurring at some later date which may affect the opinions herein stated.
- 12. Unless otherwise stated in this report, the existence of hazardous materials, which may or may not be present on the property, was not observed by the appraisers. The appraisers have no knowledge of the existence of such substances on or in the property. The appraisers, however, are not qualified to detect such substances. The presence of substances such as asbestos, urea-formaldehyde foam insulation, radon gas, lead or lead-based products, toxic waste contaminants, and other potentially hazardous materials may affect the value of the property. The value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value. No



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responsibility is assumed for such conditions or for any expertise or engineering knowledge required to discover them. The client is urged to retain an expert in this field, if desired.

- 13. The forecasts, projections, or operating estimates included in this report were utilized to assist in the evaluation process and are based on reasonable estimates of market conditions, anticipated supply and demand, and the state of the economy. Therefore, the projections are subject to changes in future conditions that cannot be accurately predicted by the appraisers, and which could affect the future income or value projections.
- 14. Fundamental to the appraisal analysis is the assumption that no change in zoning is either proposed or imminent, unless otherwise stipulated. Should a change in zoning status occur from the property's present classification, the appraisers reserve the right to alter or amend the value accordingly.
- 15. It is assumed that the property does not contain within its confined any unmarked burial grounds which would prevent or hamper the development process.
- 16. The Americans with Disabilities Act (ADA) became effective on January 26, 1992. We have not made a specific compliance survey and analysis of the property to determine if it is in conformance with the various detailed requirements of the ADA. It is possible that a compliance survey of the property, together with a detailed analysis of the requirements of the ADA, could reveal that the property is not in compliance with one or more of the requirements of the Act. If so, this fact could have a negative effect on the value of the property. Unless otherwise noted in this report, we have not been provided with a compliance survey of the property. Any information regarding compliance surveys or estimates of costs to conform to the requirements of the ADA are provided for information purposes. No responsibility is assumed for the accuracy or completeness of the compliance survey cited in this report, or for the eventual cost to comply with the requirements of the ADA.
- 17. Any value estimates provided in this report apply to the entire property, and any proration or division of the total into fractional interests will invalidate the value estimate, unless such proration or division of interests has been set forth in this report.
- 18. Any proposed improvements are assumed to have been completed unless otherwise stipulated; any construction is assumed to conform with the building plans referenced in this report.
- 19. Unless otherwise noted in the body of this report, this evaluation assumes that the subject does not fall within the areas where mandatory flood insurance is effective.
- 20. Unless otherwise noted in the body of this report, we have not completed nor are we contracted to have completed an investigation to identify and/or quantify the presence of non-tidal wetland conditions on the subject property.
- 21. This report should not be used as a basis to determine the structural adequacy/inadequacy of the property described herein, but for evaluation purposes only.
- 22. It is assumed that the subject structure meets the applicable building codes for its respective jurisdiction. We assume no responsibility/liability for the inclusion/exclusion of any structural component item which may have an impact on value. It is further assumed that the subject property will meet code requirements as they relate to proper soil compaction, grading, and drainage.



# Prepared for Weirs Creek Solar, LLC Page | 29

23. The appraisers are not engineers, and any references to physical property characteristics in terms of quality, condition, cost, suitability, soil conditions, flood risk, obsolescence, etc., are strictly related to their economic impact on the property. No liability is assumed for any engineering-related issues.

The evaluation services will be subject to the following limiting conditions:

- 1. The findings reported herein are only applicable to the properties studied in conjunction with the Purpose of the Evaluation and the Function of the Evaluation as herein set forth; the evaluation is not to be used for any other purposes or functions.
- 2. Any allocation of the total value estimated in this report between the land and the improvements applies only to the stated program of utilization. The separate values allocated to the land and buildings must not be used in conjunction with any other appraisal and are not valid if so used.
- 3. No opinion is expressed as to the value of subsurface oil, gas or mineral rights, if any, and we have assumed that the property is not subject to surface entry for the exploration or removal of such materials, unless otherwise noted in the evaluation.
- 4. This report has been prepared by CohnReznick under the terms and conditions outlined by the enclosed engagement letter. Therefore, the contents of this report and the use of this report are governed by the client confidentiality rules of the Appraisal Institute. Specifically, this report is not for use by a third party and CohnReznick is not responsible or liable, legally or otherwise, to other parties using this report unless agreed to in writing, in advance, by both CohnReznick and/or the client or third party.
- 5. Disclosure of the contents of this evaluation report is governed by the by-laws and Regulations of the Appraisal Institute has been prepared to conform with the reporting standards of any concerned government agencies.
- 6. The forecasts, projections, and/or operating estimates contained herein are based on current market conditions, anticipated short-term supply and demand factors, and a continued stable economy. These forecasts are, therefore, subject to changes with future conditions. This evaluation is based on the condition of local and national economies, purchasing power of money, and financing rates prevailing at the effective date of value.
- 7. This evaluation shall be considered only in its entirety, and no part of this evaluation shall be utilized separately or out of context. Any separation of the signature pages from the balance of the evaluation report invalidates the conclusions established herein.
- 8. Possession of this report, or a copy thereof, does not carry with it the right of publication, nor may it be used for any purposes by anyone other than the client without the prior written consent of the appraisers, and in any event, only with property qualification.
- 9. The appraisers, by reason of this study, are not required to give further consultation or testimony or to be in attendance in court with reference to the property in question unless arrangements have been previously made.



# Prepared for Weirs Creek Solar, LLC Page | 30

- 10. Neither all nor any part of the contents of this report shall be conveyed to any person or entity, other than the appraiser's client, through advertising, solicitation materials, public relations, news, sales or other media, without the written consent and approval of the authors, particularly as to evaluation conclusions, the identity of the appraisers or CohnReznick, LLC, or any reference to the Appraisal Institute, or the MAI designation. Further, the appraisers and CohnReznick, LLC assume no obligation, liability, or accountability to any third party. If this report is placed in the hands of anyone but the client, client shall make such party aware of all the assumptions and limiting conditions of the assignment.
- 11. This evaluation is not intended to be used, and may not be used, on behalf of or in connection with a real estate syndicate or syndicates. A real estate syndicate means a general or limited partnership, joint venture, unincorporated association or similar organization formed for the purpose of, and engaged in, an investment or gain from an interest in real property, including, but not limited to a sale or exchange, trade or development of such real property, on behalf of others, or which is required to be registered with the United States Securities and Exchange commissions or any state regulatory agency which regulates investments made as a public offering. It is agreed that any user of this evaluation who uses it contrary to the prohibitions in this section indemnifies the appraisers and the appraisers' firm and holds them harmless from all claims, including attorney fees, arising from said use.



Adjacent Property Value Impact R	eport Addendum: Proposed 1	50 MW Weirs Creek Solar Project
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ADDENDUM A: APPRAISER QUALIFICATIONS

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# Prepared for Weirs Creek Solar, LLC

# Andrew R. Lines, MAI, CRE Principal – Real Estate Valuation Valuation Advisory Services

1 S. Wacker Drive, Suite 3550 Chicago, IL 60606 312-508-5892 (w) 917-696-9636 (m) andrew.lines@cohnreznick.com www.cohnreznick.com

Andrew R. Lines, MAI, CRE is a Principal for CohnReznick Advisory's Valuation Advisory Services practice who has been a CohnReznick employee for over twelve years. Andrew has been involved in the real estate business for more than 20 years and has performed valuations on all real estate classes (industrial, commercial, residential, development land). Special-use valuations include affordable housing (as well as market studies), student housing, senior housing, cannabis facilities (indoor/outdoor, processing and dispensaries), landfills, waste transfer stations, golf courses, marinas, hospitals, universities, telecommunications facilities, data centers, self- storage facilities, racetracks, and corridors. Impact Study Reports have also been generated for zoning hearings related to the development of solar facilities, wind powered facilities, landfills, big box retail, waste transfer stations, private mental health clinics, cannabis dispensaries, concert/stadium venues and day care centers. He is also experienced in the valuation of leasehold, leased fee, and partial interests, as well as purchase price allocations (GAAP, IFRS and IRC 1060) for financial reporting.

Valuations have been completed nationwide for a variety of assignments including mortgage financing, litigation, tax appeal, estate gifts, asset management, workouts, and restructuring, as well as valuation for financial reporting including purchase price allocations (ASC 805), impairment studies, and appraisals for investment company guidelines and REIS standards. Andrew has qualified as an expert witness, providing testimony for cases in the states of IL, DC, VA, NY and MD, and for zoning hearings in IL, IN, MI, NY, HI, OH, KY, CO, PA, WI and MO. Andrew has also performed appraisal review assignments for accounting purposes (audit support), asset management, litigation and as an evaluator for a large Midwest regional bank.

Andrew has earned the professional designation of Member of the Appraisal Institute (MAI). He has also qualified for certified general commercial real estate appraiser licenses in AZ, CA, IL, IN, WI, MD, OH, NY, NJ, FL,GA, KY and DC. Temporary licenses have been granted in CT, CO, PA, ID, MS, KS, MT and SC.

## Education

- Syracuse University: Bachelor of Fine Arts
- MAI Designation (Member of the Appraisal Institute)

#### Professional Affiliations

- Counselors of Real Estate (CRE)
- Chicago Chapter of the Appraisal Institute
- International Real Estate Management (IREM)
- National Council of Housing and Market Analysts (NCHMA)

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**Community Involvement** 

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- Syracuse University Regional Council
- Chicago Friends School



# Prepared for Weirs Creek Solar, LLC



# **Erin C. Bowen, MAI** Senior Manager – Real Estate Valuation Valuation Advisory Services

404-847-7740 erin.bowen@cohnreznick.com www.cohnreznick.com

Erin Bowen, MAI is a Senior Manager with CohnReznick in Valuation Advisory Services. Ms. Bowen is based in Phoenix, Arizona, with presence covering the west coast. Ms. Bowen's work in Commercial Real Estate valuation spans over 12 years.

Ms. Bowen specializes in lodging, cannabis, seniors housing, large scale retail and multifamily conversion properties. Lodging work includes all hotel property types and brand segments including limited, full service and resort properties; additionally, Ms. Bowen has appraised numerous hotel to multifamily conversion properties including market rate and affordable housing. Cannabis work includes dispensaries, cultivation facilities including specialized indoor facilities and greenhouse properties, processing and manufacturing facilities. Senior's housing assignments include assisted living, skilled nursing facilities and rehabilitation centers. Retail work spans power centers, lifestyle centers, outlet centers and malls. She has appraised numerous additional properties including multifamily, office, medical office, industrial, churches, and vacant land.

Ms. Bowen has expertise in appraising properties at all stages of development, including existing as is, proposed, under construction, renovations and conversion to alternate use. Valuations have been completed nationwide for a variety of assignments including mortgage financing, litigation, eminent domain, tax appeal, estate gifts, asset management, as well as valuation for financial reporting including purchase price allocations (ASC 805). Impact Study Reports have also been generated for zoning hearings related to the development of solar facilities and wind powered facilities. Ms. Bowen has qualified as an expert witness and provided testimony for zoning and county commission hearings.

## Education

• University of California, San Diego: Bachelor of Arts in Psychology and Theater; College Honors

## **Professional Affiliations**

Designated Member of the Appraisal Institute

#### Licenses

• Certified General Real Estate Appraiser licensed in New Mexico, Arizona, California, Oregon and Nevada

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# Joe Ficenec Consultant, Valuation Advisory Services

621 Capital Mall Sacramento, CA 95814 916-930-5237 joe.ficenec@cohnreznick.com www.cohnreznick.com

Joe Ficenec is a consultant in CohnReznick's Valuation Advisory Services practice and is based in the Sacramento office. Joe specializes in Impact Study Reports, which have been conducted for zoning hearings related to the development of solar facilities and wind powered facilities. He also has experience in assisting with the appraisal multifamily, office, industrial, retail, lodging and mixed-use properties for financing and purchase price allocation purposes.

Joe graduated with honors from the University of California, Davis in May 2017 with a major in managerial economics. Prior to joining CohnReznick, Joe worked as a Real Estate Assessor for a county government and as a consultant for a nationwide real estate firm in San Francisco.

## **Education**

University of California, Davis – B.S. Managerial Economics

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# Weirs Creek Solar, LLC

# Case No. 2024-00099

# Application – Exhibit 12 Attachment A Exhibit 2

# Legal Property Descriptions (11 Pages)

#### EXHIBIT A

#### Legal Description of Owner's Property

#### PARCEL I: HOPKINS COUNTY

A certain tract of ground located in Hopkins County on the north side of U.S. Hwy. 41A, approximately 2375 feet west of Hayes Road and the west side of Donaldson Road, approximately 3600 feet north of U.S. Hwy 41A, said tract containing 646.827 acres, more or less, being the Donaldson Farms, Inc., and the Townsend Farms, Inc., property, as set forth on the survey plat of the The Donaldson Farms, Inc. & The Townsend Farms Inc., U.S. Hwy. 41A & Donaldson Road, Hopkins Co., KY, of record in Cabinet 3, Slide 132, in the Hopkins County Clerk's Office, and to which plat reference is hereby made for a more particular description of the property.

Being the same property conveyed to Donaldson Farms, Incorporated, a Kentucky corporation, by deed from Townsend Farms, Incorporated, a Kentucky Corporation and Donaldson Farms, Incorporated, a Kentucky corporation, dated the 1st day of January, 2013, and of record in Deed Book 718, Page 54, Office of the Hopkins County Court Clerk.

#### PARCEL II: WEBSTER COUNTY

A certain tract of ground located in Webster County on the northeast side of Corinth Church Road, approximately 2500 feet southeast of Ky. Hwy. 120, said tract being the Townsend Farms, Inc. property (Db.230 Pg.596), and described by metes and bounds as follows:

Beginning at a spike set in the center of Corinth Church Road, approximately 2500 feet southeast of the intersection of Corinth Church Road and Ky. Hwy. 120, a corner to Webster County Coal Corp. (Db 185 Pg.468, Webster Co.), said point being the POINT OF BEGINNING; thence with Webster County Coal Corp., N 53° 56' 39" E, a distance of 2631.00 feet to an iron pin set on the southwest side of a curve in the Hoket-Nebo Road, approximately 2480 feet southeast of the intersection of Hoket-Nebo Road and Ky. Hwy. 120, a corner to Anna Russell (Db.245 Pg.534, Webster Co.); thence with Russell, S 36° 41' 19" E, a distance of 2028.00 feet to an iron pin found a corner to SAMI LLC (Db.689 Pg.51 Hopkins Co. Db.281 Pg. 726 Webster Co.) and another tract of Anna Russell (Db.408 Pg.539 Hopkins Co.); thence with Russell, S 53° 13' 25" W, a distance of 2566.00 feet to a spike set in the center of Corinth Church Road; thence with Corinth Church Road, N 38° 29' 26" W, a distance of 2062.00 feet to the POINT OF BEGINNING; said described tract containing 121.948 acres, more or less, subject to any legal right-of-ways, easements, or restrictions of record. Description prepared from a physical survey performed by Keith Whitledge P.L.S. #3399 on December 4, 2012.

Being the same property conveyed to Donaldson Farms, Incorporated a Kentucky corporation, by deed from Townsend Farms, Incorporated, a Kentucky Corporation, dated January 1, 2013, of record in Deed Book 285, page 516, of record in the Webster County Clerk's Office.

Containing 121.0948 acres more or less

## <u>EXHIBIT A</u>

#### Legal Description of Property

# A 15 acre tract lying within the property described below

A certain tract of land located in Webster County at the Intersection of Ky. Hwy. 120 and Old Slanhope Road, said tract being the Thurman Wayne Alsbrooks property (Db.279 Pg.695, Tracts 7, 9 & 11), and described by metes and bounds as follows:

Beginning at a mag spike set in the center of Old Stanhope Road at its intersection with the north side of Ky. Hwy, 120 (No Record), 30 feet from the center, said point being the Point of Beginning; thence generally with Old Stanhope Road, N 42" 57' 38" W, a distance of 2354.18 feet to a mag spike set in the center of Old Stanhope Road, a corner to Anna Dean Tudor Est, and Creda Hoffelfinger (Db.218 Pg.69); thence with Tudor and Heffellinger, N 51\* 13' 55" E, a distance of 2651.65 feet to an iron pin set, a corner to James and Lucinda Ramsey (Db.306 Po.315); thence with Ramsey the following three courses and distances, \$ 36° 41' 40° E, a distance of 1510.75 feet to an iron pin set at a corner post; thence N 51° 42' 16" E, a distance of 156.95 feet to an iron pin set at a corner stone; thence S 36° 55' 35" E, a distance of 969.35 feet to an iron pin set on the north side of Ky. Hwy. 120, 30 feet from the center; thence with the north side of Ky. Hwy. 120, S 54" 12' 01" W. a distance of 191.99 feet to an iron pin found (#3399) on the north side of Ky. Hwy. 120, 30 feet from the center, and the west side of J H Weldon Road, a corner to Alan and Tabatha Peters (Db.265 Pg.726); thence with Poters the following nine courses and distances, along the west side of J H Weldon Road, N 42° 35' 58" W. a distance of 370.19 feet to the point of curvature of a non-tangent curve, concave to the Northeast, having a radius of 237.77 feet, a central angle of 22° 22' 34", and a chord of 92.27 feet bearing N 26° 03' 41" W: thence Northwesterly along said curve, a distance of 92.86 feet; thence N 16° 23' 54" W, a distance of 45.34 feet to the point of curvature of a non-tangent curve, concave to the Southwest, having a radius of 104.88 feet, a central angle of 25° 21' 10", and a chord of 48.03 feet bearing N 29" 41' 44" W; thence Northwesterly along seld curve, a distance of 48.41 feet to the terminus of J H Weldon Road; thence N 32° 46' 15" W, a distance of 166.98 feet to an Iron pin found (#3399); thence S 56° 24' 42" W, a distance of 130.00 feet to an iron pin found (#3399); thence S 35" 01' 30" E, a distance of 200.83 feet to an iron pin found (#3399); thence S 69° 15' 52" E, a distance of 104.95 feet to an iron pin found (#3399); thence S 41° 07' 42" E, a distance of 432.57 feet to an iron pin found (#3399) on the north side of Ky. Hwy. 120, 30 feet from the center; thence with the north side of Ky. Hwy. 120, S 54° 12' 01" W, a distance of 2328.08 feet to the POINT OF BEGINNING; said described tract containing 141.897 acres, more or less, subject to any legal right-of-ways, easements, or restrictions of record. Description prepared from a physical survey performed by Keith Whitledge PLS #3399 on October 7, 2020.

(See plat recorded in Plat Cabinet 5, page 159B, Webster County Clerk's Office.)

Being the same real property conveyed to Tony J. Asher Revocable Trust, dated May 31, 2001, by and through its co-trustees, Tony J. Asher and Betty Turner Asher, by deed from Mitchell Boys Farms, a Kenlucky General Partnership, dated June 7, 2021, recorded in Deed Book 312, page 438, in the Webster County Clerk's Office.

Approximately 142 acres PIN: 054-004-003

#### EXHIBIT A TO EASEMENT

## Legal Description of Property

Parcel #054-004-003

A certain tract of land located in Webster County at the intersection of Ky. Hwy. 120 and Old Stenhope Road, seld tract being the Thurman Wayne Alsbrooks property (Db.279 Pg.695, Tracts 7, 9 & 11), and described by metes and bounds as follows:

Beginning at a mag spike set in the center of Old Stanhope Road at its intersection with the north side of Ky. Hwy. 120 (No Record), 30 feet from the center, said point being the Point of Beginning; thence generally with Old Stanhope Road, N 42\* 57' 38" W, a distance of 2354.10 feet to a mag spike set in the center of Old Stanhope Road, a corner to Anna Dean Tudor Est. and Creda Hoffelfinger (Ub.218 Pg.69); thence with Tudor and Heffellinger, N 51\* 13' 55" E, a distance of 2651.65 feet to an Iron pin set, a corner to James and Lucinda Ramsey (Db.308 Pg.315); thence with Ramsey the following three courses and distances, S 36° 41' 40° E, a distance of 1510.75 feet to an Iron pin set at a corner post; thence N 51° 42' 10" E, a distance of 156.95 feet to an iron pln set at a corner stone; thence S 36° 55' 35° E, a distance of 969.35 feet to an iron pin set on the north side of Ky. Hwy, 120, 30 feet from the center; thence with the north side of Ky. Hwy. 120, S 64" 12' 01" W, a distance of 101.99 feet to an iron pin found (#3399) on the north side of Ky. Hwy. 120, 30 feet from the center, and the west side of J H Waldon Road, a corner to Alan and Tabatha Peters (Db.205 Pg.726); thence with Peters the following alne courses and distances, along the west side of J H Weldon Road, N 42° 35' 58" W, a distance of 370.19 leet to the point of curvature of a non-tangent curve, concave to the Northeast, having a radius of 237.77 feet, a central angle of 22\* 22' 34\*, and a chord of 92.27 feet bearing N 26° 03' 41" W; thence Northwesterly along said curve, a distance of 92.86 feet; thence N 16° 23' 54" W, a distance of 45.34 feet to the point of curvature of a non-tangent curve, concave to the Southwest, having a radius of 104.88 feet, a central angle of 26° 21' 10", and a chord of 48.03 feet bearing N 29" 41' 44" W; thence Northwesterly along said curve, a distance of 46.41 feet to the terminus of J H Weldon Road; thence N 32° 46' 15" W, a distance of 166,98 feet to an iron pin found (#3399); thence S 56° 24' 42" W, a distance of 130.00 feet to an iron pin found (#3399); thence S 56° 1' 30" E, a distance of 200.83 feet to an iron pin found (#3399); thence S 69° 15' 52" E, a distance of 104.95 feel to an Iron pin found (#3399); thence S 41\* 07' 42" E, a distance of 432.67 feet to an iron pin found (#3390) on the north side of Ky. Hwy. 120, 30 feet from the center; thence with the north side of Ky. Hwy. 120, S 54° 12' 01" W, a distance of 2328.08 feet to the POINT OF BEGINNING; said described tract containing 141,897 acres, more or less, subject to any legal right-of-ways, easements, or restrictions of record. Description prepared from a physical survey performed by Kellh Whitledge PLS #3399 on October 7, 2020.

(See plat recorded in Plat Cabinat 5, page 159B, Webster County Clerk's Office.)

Being the same real property conveyed to Tony J. Asher Revocable Trust, dated May 31, 2001, by and through its co-trustees, Tony J. Asher and Betty Turner Asher, by deed from Mitchell Boys Farms, a Kentucky General Partnership, dated June 7, 2021, recorded in Deed Book 312, page 438, in the Webster County Clerk's Office.

Approximately 142 acres

QLA: 15330

# EXHIBIT A TO EASEMENT

### Legal Description of Property

Beginning at a stone on the Providence and Ashbyburg Road, Northwest corner of this tract, and running thence with a line thereof South 48<sup>1</sup>/<sub>4</sub> West 100 poles to a stake; thence South 43 East 80 poles to a stake; thence North 48<sup>1</sup>/<sub>4</sub> East 100 poles to a stake in the original line; thence with said line North 43 West 80 poles to the beginning.

#### ALSO INCLUDING THEREFROM:

Beginning at an elm, black oak and maple, the Southeast corner of the original survey; running thence with a line thereof North 43 West 99<sup>1</sup>/<sub>3</sub> poles to a stake, corner to lot #4; thence with a line of lot #4 North 48<sup>1</sup>/<sub>4</sub> East 30<sup>3</sup>/<sub>3</sub> poles to a stake; corner to lot #3; thence with a line thereof South 43 East 99<sup>1</sup>/<sub>3</sub> poles to the original line; thence with said line South 48<sup>1</sup>/<sub>4</sub> West 30<sup>2</sup>/<sub>3</sub> poles to the beginning.

#### ALSO INCLUDING THEREFROM:

Beginning at a stake, corner to lot #1 in line of tract no. 1 described above; running thence with a line thereof South 43 East 39 poles and I2 links to a stake; thence South 48<sup>1</sup>/<sub>4</sub> West 29<sup>1</sup>/<sub>3</sub> poles to a stake in the line of the 19 acre tract thence with a line thereof North 43 West 21 poles and 20 links to a stake, corner thereof, thence with another line thereof South 48<sup>1</sup>/<sub>4</sub> West 30<sup>3</sup>/<sub>3</sub> poles to another corner thereof in the original line; thence with said line North 43 West 18<sup>2</sup>/<sub>3</sub> poles to a stake, corner to lot #1; thence with a line thereof North 48<sup>1</sup>/<sub>4</sub> East 60 poles to the beginning.

#### LESS AND EXCEPT THEREFROM:

A certain tract or parcel of land on State Route 120 East, formerly Providence and Ashbyburg Road, near the city of Providence, Webster County, Kentucky, more particularly described as follows:

Unless otherwise stated, any monument referred to herein as an "iron pin with cap set" consists of a set ½ inch diameter by 18 inch long steel rod with an attached yellow plastic cap inscribed "SKAGGS-PLS2668". All bearings stated herein are referenced to magnetic meridian as observed on June 17, 2002 along the Northwest line of the tract described herein.

Beginning at iron pin with cap set in the east right of way of State Route 120 East, formerly Providence and Ashbyburg Road, said point lying N52-45-50E 2297.41 feet more or less from the intersection of State Highway 120 East and Corinth Church Road, said point also being in the West line of Parcel No. II, Tract No. 1, as recorded in Deed Book 185, Page 468, Webster County Court Clerk's Office; thence with a line 30 feet perpendicular to and perpendicular to and parallel with the centerline of said road N52-11-09E 197.05 feet to an iron pin with cap set in said right of way; thence with a division line severing the parent tract of which this is a part S31-40-22E 288.31 feet to an iron pin with cap set with an iron T-post; thence continuing with another division line N39-11-58W 260.63 feet to the Point of Beginning.

#### ALSO LESS AND EXCEPT THEREFROM:

A certain tract of land in Webster County, Kentucky, located along Highway 120, and further described as follows:

Beginning at a point in the center line intersection of Highway 120 and Corinth Church road, thence North 55°33'35" East a distance of 674.18 feet to the POINT OF BEGINNING, said point being in the South right-of-way line of Highway 120; thence leaving said highway the following courses: South 36°09'25" East a distance of 517.76 feet, South 08°05'33" East a distance of 248.62 feet, South 51°06'46" West a distance of 173.96 feet, South 40°37'14" East a distance of 887.24 feet, North 52°10'00" East a distance of 501.80 feet North 00°30'14" East a distance of 497.36 feet, North 40°49'01" West a distance of 519.08 feet, South 53°07'34" West a distance of 353.00 feet, North 59°28'58" West a distance of 263.03 feet and North 35°43'56" West a distance of 461.42 feet to a point in the south right-of-way line of Highway 120; thence with the said right-of-way line South 54°09'21" West a distance of 80.99 feet to the POINT OF BEGINNING.

Approximately 86 acres

THE ABOVE PROPERTY BEING the same property acquired by Grantor, by Deed dated February 4, 2016, of record in Deed Book 295, Page 133-147, in the Webster County Clerk's office.

QLA ID: 22296
### EXHIBIT A Legal Description of Owner's Property

#### Parcel 1:

A certain tract of land located on Corinth Church Road, approximately 2480 feet south of its intersection of KY Highway 120, east of Providence, Webster and Hopkins County, Kentucky and being more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an "iron pin set" is a 5/8-inch steel reinforcement bar eighteen (18) inches in length, with an orange plastic cap stamped "Cody W. Henderson, PLS 3771".

Beginning at an iron pin set in the west right-of-way line of Corinth Church Road, said point lying 15 from centerline, said point being a corner to Corinth Baptist Church (D.B. 28, Pg. 72); thence with the west right-of-way line of Corinth Church Road, and 15 feet from centerline of the same as follows: South 38 degrees 59 minutes 20 seconds East, 2,094.84 feet to a point; thence with a curve to the left, having a radius of 1,015.84 feet, a chord bearing of South 44 degrees 33 minutes 06 seconds East, a chord distance of 196.94 feet, with an arc distance of 197.25 feet to a point; thence South 50 degrees 06 minutes 52 seconds East, 1,636.18 feet to a point, corner to Walter Enright (D.B. 659, Pg. 697); thence with Enright South 09 degrees 19 minutes 25 seconds West, passing an iron pin set on line at 1.66 feet, and passing a 1.25 inch steel pipe found at 2.51 feet, a total of 729.80 feet to an iron pin set, corner to Carol Watkins (D.8. 558, Pg. 310); thence with Watkins North 80 degrees 43 minutes 37 seconds West, 594.00 feet to an iron pin set; thence with Watkins, and continuing with Townsend Farms, LLC. (D.B. 308, Pg. 413) South 51 degrees 31 minutes 23 seconds West, passing a 48 inch white oak at 1665.79 feet, a total of 2983.20 feet to a point; thence with Townsend Farms, and continuing with Robin Rhea, Jr. (D.B. 358, Pg. 521, Hopkins County, D.B. 160, Pg. 223, Webster County) North 39 degrees 15 minutes 29 seconds West, passing an iron pin set on line at the base of a 22 inch Hickory at 17.16 feet, and passing an iron pin set on line at 2,332.08 feet, a total of 2988.51 feet to a 6 Inch iron pipe found, corner to Cole Family Farm, LLC (D.B. 243, Pg. 724); thence with Cole Family Farm, LLC. as follows: North 43 degrees 28 minutes 06 seconds East, passing an iron pin set on line at 688.11 feet, a total of 1453.43 feet to an iron pin set; thence South 87 degrees 43 minutes 08 seconds East, 117.23 feet to an iron pin set at the base of a King post; thence with said Cole Family, and continuing with Thurman Alsbrooks (D.B. 279, Pg. 695) North 19 degrees 03 minutes 31 seconds East, passing a 6 inch iron pipe found on line at 492.89 feet, a total of 1828.81 feet to a 6 inch pipe found, corner to said Corinth Baptist Church; thence with Corinth Baptist Church North 67 degrees 50 minutes 59 seconds East, 545.45 feet to the point of beginning. containing 296,123 acres, as per survey by Cody W. Henderson, P.L.S. No. 3771 of Henderson Land Surveying, LLC, on May 17, 2019. The property described herein above is subject to all legal easements and rights-of-way of record.

Approximately 296 acres

### Parcel 2:

A certain tract of land located on Hoket-Nebo Road, approximately 2490 feet south east of its intersection with KY Highway 120, east of Providence, Webster County, Kentucky and being more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an "iron pin set" is a 5/8-inch steel reinforcement bar eighteen (18) inches in length, with an orange plastic cap stamped "Cody W. Henderson, PLS 3771".

Beginning at a 1/2 inch iron pin found with cap stamped 3399 in the southwest right-of-way line of Hoket-Nebo Road, said point lying 15 feet from centerline, said point being a corner to Peyton-Melton Farms, LLC. (D.B. 295, Pg. 133), said point also being a corner to Donaldson Farms, LLC. (D.B. 285, Pg. 16); thence with the southwest right-of-way line of Hoket-Nebo Road, and 15 feet from centerline of the same as follows: with a curve to the left, having a radius of 138.64 feet, a chord bearing of South 78 degrees 28 minutes 41 seconds East, a chord distance of 67.47 feet, with an arc distance of 68.15 feet to a to a point; thence North 88 degrees 05 minutes 36 seconds East, 1,376.88 feet to a point; thence North 89 degrees 29 minutes 18 seconds East, 491.86 feet to an iron pin set, corner to Townsend Farms, LLC. (D.B. 589, Pg. 86, Hopkins County, D.B. 232, Pg. 363, Webster County); thence with Townsend Farms as follows: South 02 degrees 26 minutes 00 seconds East, passing an iron pin set on line at 647.71 feet, a total of 657.55 feet to a point; thence South 49 degrees 36 minutes 15 seconds East, 342.28 feet to an iron pin set, corner to Sami, LLC. (D.B. 689, Pg. 51, Hopkins County, D.B. 281, Pg. 726, Webster County); thence with Sami South 52 degrees 11 minutes 14 seconds West, 1,263.20 feet to a 1/2 inch iron pin found with cap stamped 3399, corner to said Donaldson Farms, LLC., also being the north east corner to Tract 2 of this survey; thence with Donaldson Farms North 37 degrees 08 minutes 56 seconds West, passing a wood post on line at 1,406.13 feet, a total of 2028.05 feet to the point of beginning, containing 46.998 acres, as per survey by Cody W. Henderson, P.L.S. No. 3771 of Henderson Land Surveying, LLC, on May 17, 2019. The property described herein above is subject to all legal easements and rights-of-way of record.

Approximately 47 acres

## Parcel 3:

A certain tract of land located on Donaldson Road, also known as Corinth Church Road, approximately 1.26 miles south of its intersection of KY Highway 120, east of Providence, Webster and Hopkins County, Kentucky and being more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an "iron pin set" is a 5/8-inch steel reinforcement bar eighteen (18) inches in length, with an orange plastic cap stamped "Cody W. Henderson, PLS 3771".

Beginning at an iron pin set in the east right-of-way of Donaldson Road, said point lying 15 feet from centerline, said point being a corner to Townsend Farms, LLC. (D.B. 589, Pg. 86, Hopkins County, D.B. 232, Pg. 363, Webster County), thence with the east right-of-way line of Donaldson Road, and 15 feet from centerline of the same as follows: North 47 degrees 53 minutes 56 seconds West, 261.94 feet to a point; thence North 50 degrees 06 minutes 52 seconds West, 1,639.40 feet to a point; thence with a curve to the right, having a radius of 985.84 feet, a chord bearing of North 44 degrees 49 minutes 27 seconds West, a chord distance of 181.80 feet, with an arc distance of 182.05 feet to an iron pin set, corner to Donaldson Farms, LLC. (D.B. 285, Pg. 16); thence with Donaldson Farms North 52 degrees 45 minutes 59 seconds East, passing an iron pin set on line at 516.31 feet, also passing a King post found on line at 1306.64 feet, a total of 2550.97 feet to a 1/2 inch iron pin found with cap stamped 3399, corner to Sami, LLC. (D.B. 689, Pg. 51, Hopkins County, D.B. 281, Pg. 726, Webster County); thence with Sami South 30 degrees 43 minutes 11 seconds East, passing an iron pin set on line at 436.56 feet, a total of 1002.73 feet to an iron pin set, comer to said Townsend Farms, LLC. (D.B. 589, Pg. 86, Hopkins County, D.B. 232, Pg. 363, Webster County); thence with Townsend Farms as follows: South 31 degrees 05 minutes 54 seconds East, 1,016.93 feet to a 6 inch iron pipe found; thence South 51 degrees 54 minutes 21 seconds West, passing a King post found on line at 822.80 feet, a total of 1890.78 feet to the point of beginning, containing 103.187 acres, as per survey by Cody W. Henderson, P.L.S. No. 3771 of Henderson Land Surveying, LLC, on May 17, 2019. The property described herein above is subject to all legal easements and rights-of-way of record.

Approximately 103 acres

The above parcels being the same property acquired by Russell Family Farms, LLC, a Kentucky limited liability company by Deed dated October 28, 2022 of record in Deed Book 809, Page 13-20, in the Hopkins County Clerk's office.

QLA ID: 18545

## EXHIBIT A

### Legal Description of Owner's Property

#### Parcel 1

The following property located in Hopkins and Webster Counties, Kentucky more particularly bounded and described as follows:

A certain tract of land located on the Hopkins - Webster County line, approximately 3.25 miles east of Providence and 3.25 miles northwest of Nebo, approximately 900 feet south of Hoket Nebo Road and 2500 feet northeast of Corinth Church Road, said tract being the Harold Simms property as described in Db.483 Pg.230 in the Hopkins County Clerks Office and Db.220 Pg.590 in the Webster County Clerk's Office, and described by metes and bounds as follows.

Beginning at an iron pin set (Ky. State Plane Coordinates South Zone N2041354.72 El081507.08), a corner to Townsend Farms Inc (Db.569 Pg.86 Hopkins Co. Db.232 Pg.363 Webster Co.) in the line of Anna Russell (Db.408 Pg.539 Hopkins Co.), said point being the POINT OF BEGINNING; thence with Russell, N 36° 00' 00" W, a distance of 1002.73 feet to an iron pin set, a corner to another tract of Townsend Farms Inc. (Db.230 Pg.596 Webster Co.) and another tract of Anna Russell (Db.245 Pg.534 Webster County); thence with Russell, N 46° 54' 25" E, a distance of 1280.04 feet to an iron pin set, a corner to Townsend Farms Inc. (Db.569 Pg.86 Hopkins Co. Db.232 Pg.363 Webster Co.); thence with Townsend Farms Inc. (Db.569 Pg.86 Hopkins Co. Db.232 Pg.363 Webster Co.); thence with Townsend Farms Inc. the following two courses and distances, S 45° 30' 08" E, a distance of 1056.00 feet to an iron pin set; thence S 49° 16' 47" W, a distance of 1449.49 feet to the POINT OF BEGINNING; said described tract containing 32.129 acres more or less, subject to any legal right-of-ways, easements, or restrictions of record. Description prepared from a physical survey performed by Keith Whitledge P.L.S. #3399 on October 15, 2009.

### Parcel 2

The following described property in Hopkins County, Kentucky, to-wit:

BEGINNING at a 12 inch tree at a fence corner, said corner being the most Southernly corner of the Wilbur Ray heirs tract; thence with the fence and their line, North 44-42 West 662.47 feet to a stake in the fence line, corner to Mary Bell Justice; thence with her lines South 46-42 West 1191.60 feet to a stake about two feet South of a fence line; thence South 62-06 West 688.15 feet to a fence post; thence with the fence North 61-17 West 74.58 feet to a gate post; thence south 31-19 West 2164.33 feet to the intersection of the center line of U.S. Highway #41-A and the center line of a drive; thence with the highway South 83-18 East 749.04 feet; thence South 80-33 East 210.77 feet to Smith Brothers corner; thence with their lines North 46-34 East 456.56 feet with a fence to a gate post at fence intersection; thence with the other fence South 80-25 East 737.33 feet to a 16 inch fence post, corner to Shirley Gibson and Clyde Parrish tract; thence with their line North 45-40 East 1676.76 feet to a decayed stump; thence South 41-23 East 164.64 feet to another stump; thence North 74-32 East 1659.17 feet to a stake in the center line of a ditch, corner to C. B. Gooch; thence with his lines North 15-30 East 69.00 feet; North 1-08 West 108.65 feet; North 3-12 West 639-50 feet; North 26-35 west 138.50 feet; North 45-56, West 505.00 feet; North 46-12 West 597.50 feet to a corner to another Mary Bell Justice tract; thence with her line North 42-34 west 184.04 feet to a point in the Wilbur Ray heirs line; thence with their line South 45-40 West 1372.16 feet to the beginning, containing 191.32 acres.

LESS the following described property conveyed by Johnnie Ray Vincent, et al, to Champie W. Gardner and Anna Lou Gardner by Deed dated 7-21-00, and recorded in Deed Book 591 at Page 37 in the Office of the Hopkins County Court Clerk, to-wit:

Two tracts of land being a portion of the Jimmy and Johnnie Vincent farm located on the northeast side of U.S. 41"A" just south of Providence, in Hopkins County, and further described by metes and bounds as follows:

#### <u>Lot #1</u>

Beginning at an iron pin 30 feet from the center of U.S. Highway #41"A" and a corner to Vincents remainder farm; thence with the remainder farm N 60°11'02" E, 315.11 feet to an iron pin at a post and a corner to the 17.26 acre tract S 44° 06' 55" E, 155.25 feet to an iron pin a fence in Champie Gardeners line; thence with Gardner S 53° 42' 02" W, 195.39 feet to an iron pin 30 feet from the center of U.S. Highway #41"A"; thence with the line of the Highway, and 30 feet parallel to the center N 76° 55' 31" W, 128.76 feet to a point; N 68° 59' 20" W, 136.63 feet to the point of beginning, containing 1.14 acres subject to any legal right-of-way's or easements. Said lot has a 20 foot wide ingress-egress easement along the south side of lot.

### 17.26 Acre Tract

Beginning at an iron pin in the line of the Vincent remainder tract; thence with the remainder tract N 60° 11' 02" E, 1718.35 feet to an iron pin at a post; S 39° 44' 55" E, 516.25 feet to an iron pin at a stump & a corner to Frank Baker thence with Baker S 52° 34' 44" W, 1049.16 feet to an iron pin at a post, and a corner to Champie Gardner; thence with Gardner N 73°37'26" W, 724.84 feet to an iron pin at a post; S 53° 42' 02" W, 228.63 feet to an iron pin, and a corner to the 1.14 acre lot; thence with the lot; thence with the lot N 44° 06' 55". 155.25 feet to the point of beginning. Containing 17.26 acres, subject to any legal R/W's or easements.

# EXHIBIT A

### Legal Description of Owner's Property

The following described real property located in Hopkins County, Kentucky, to wit: A certain tract of ground located in Hopkins County on the north, south, and east side of Donaldson Road and the west side of Greenwood Road, containing 1015.206 acres, more or less, said tract being the Donaldson Farms Inc., Townsend Farm Inc., and the Sandra Donaldson property, as set forth on the survey plat of The Donaldson Farms Inc., Townsend Farms Inc., Townsend Farms Inc. & Sandra Donaldson Property, Donaldson Road & Greenwood Road, Hopkins Co., KY, of record in Cabinet 3, Slide 132, in the Hopkins County Clerk's Office, and to which plat reference is hereby made for a more particular description of the property.

Being a portion of the same property conveyed to Donaldson Farms, Incorporated, a Kentucky corporation, by deeds of record in Deed Book 377, page 690, Deed Book 377, page 697, Deed Book 384, page 118, Deed Book 644, page 428, and Deed Book 708, page 452, all of record in the Hopkins County Clerk's Office.

Also being a portion of the same property conveyed to Townsend Farms, Incorporated, a Kentucky corporation, by deeds of record in Deed Book 308, page 413, Deed Book 496, page 60, and Deed Book 569, page 86, all of record in the Hopkins County Clerk's Office.

Containing 1015.20 acres more or less

# Weirs Creek Solar, LLC

# Case No. 2024-00099

# Application – Exhibit 12 Attachment A Exhibit 3

# Preliminary Site Layout (13 Pages)

# SITE LAYOUT PLAN WEIRS CREEK SOLAR



GPS COORDINATES	37.422°N, -87.686°W (SUBSTATION)
SITE ELEVATION	400-450' A.M.S.L.
DEVELOPER NAME	WEIRS CREEK SOLAR, LLC
DEVELOPER ADDRESS	700 UNIVERSE BLVD., JUNO BEACH, FI
DEVELOPER CONTACT	LESTER MORALES
APPLICABLE BUILDING PERMIT AUTHORITY	KY SITING BOARD, WEBSTER COUNTY HOPKINS COUNTY
SYSTEM AC SIZE (MW AT POI)	150
SYSTEM DC SIZE (MW)	207.05
MODULE COUNT	384,154
CENTRAL INVERTER COUNT	41
TRANSFORMER COUNT	1
PROJECT ZONING	AGRICULTURAL
NON PARTICIPATING PARCEL SETBACK	25 FEET
OCCUPIED STRUCTURE SETBACK	100 FEET
INVERTER SETBACK FROM OCCUPIED STRUCTURE (KENTUCKY SITING BOARD)	450 FEET
EDGE OF ROAD PAVEMENT SETBACK	50 FEET
SURFACE WATER SETBACK	25 FEET
WETLAND SETBACK	25 FEET
STREAM SETBACK	25 FEET
FENCED AREA	806 ACRES
ROAD LENGTH	40,945 FEET
LANDSCAPE LENGTH	11,023 FEET

PREPARED FOR



# WEIRS CREEK SOLAR, LLC 700 UNIVERSE BLVD JUNO BEACH, FL 33408

**Contact: Lester Morales** Weirs Creek Solar, LLC (561) - 329 - 8620

**CITY OF PROVIDENCE HOPKINS AND WEBSTER** COUNTIES, KENTUCKY, 42450

ΒY



1408 N. Westshore Blvd., Ste 115 Tampa, Florida 33607 Tel: (813) 289-9338 Agent's E-mail: bwilburn@ectinc.com Agent's Tel: (513) 313-0179 http://www.ectinc.com

ECT PROJECT NUMBER 21-0152

MAY 2024 **KENTUCKY SITING BOARD** SITE LAYOUT PLAN



_	IN
	.00
C1	.01 .02 .01 -
C2	.09



























# Weirs Creek Solar, LLC

# Case No. 2024-00099

# Application – Exhibit 12 Attachment A Exhibit 4

Noise Impact Assessment (13 Pages)



# weirs creek project Sound Assessment

Environmental Consulting & Technology, Inc.

Document No.: 10504931-HOU-R-01-A Issue: A, Status: FINAL Date: 15 May 2024





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Project name:	Weirs Creek Project
Report title:	Sound Assessment
Customer:	Environmental Consulting & Technology, Inc.
	3125 Sovereign Drive, #9c
	Lansing, MI 48911
Contact person:	Beth Wilburn
Date of issue:	15 May 2024
Project No.:	10504931
Proposal Reference:	345780-HOU-P-01-A
Document No.:	10504931-HOU-R-01-A
Issue/Status:	A/FINAL

DNV Energy USA Inc. 9665 Chesapeake Dr., Suite 435 San Diego, CA 92123 USA Tel: +1 619 340 1800 Enterprise No.: 23-2625724

#### Task and objective:

This report presents the results of a sound assessment conducted by DNV on behalf of Environmental Consulting & Technology, Inc..

Prepared by:	Verified by:	Approved by:
Kristofer Tassis	Aren Nercessian	Dan Belin
Siting and Acoustics Engineer,	Project Siting Engineer, Environment	Team Leader, Environment and
Environment and Permitting Services	and Permitting Services	Permitting Services

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Keywords:

Sound, Weirs, Creek, Kentucky, Solar

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Issue	Date	Reason for Issue	Prepared by	Verified by	Approved by
А	15 May 2024	FINAL	K. Tassis	A. Nercessian	D. Belin



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# **EXECUTIVE SUMMARY**

DNV Energy USA Inc. ("DNV") has conducted a sound impact assessment for the construction and operation of the Weirs Creek Solar Project (the "Project") located approximately five miles east of the City of Providence, south of Kentucky Route 120 ("KY-120"), and north of U.S. Route 41 ("US-41") in Hopkins and Webster Counties. The focus of this assessment is referenced as the Weirs Creek Solar Project or "Project" as previously stated. The Project's primary operational sound sources consist of a total of 41 solar inverters and one substation transformer.

The acoustic impact of construction activities were calculated for the Project by logarithmically adding the sound pressure level (SPL) of the construction equipment and using the geometric divergence equation to calculate the sound level at each receptor. The closest non-participating receptor is anticipated to be at a distance of 297 ft and the closest participating receptor is anticipated to be at a distance of 133 ft from the Project construction activities. As a result, sound pressure levels at nearby receptors are expected to be less than 79 dBA in the A-weighting scale and 86 dB unweighted at all non-participating residences.

Typical farming equipment such as a tractor can emit sound levels at approximately 80 dBA at 50 ft. The calculated construction sound pressure levels are expected to be similar or lower than typical farming equipment at all receptors. Sound emitted from construction equipment is expected to be comparable in character to internal combustion engine sound associated with farming equipment. Considering farming activity occurs during the day when construction is scheduled, sound emitted by construction equipment should be familiar to what the community currently experiences in the existing sound environment.

DNV has included a total of 214 total receptors (including 4 participants) within 1 mile of the project boundary in this analysis. The SPLs at each receptor resulting from the operation of the Weirs Creek Solar Project for the aggregate of all solar inverters and the transformer were calculated based on the ISO 9613-2 method. Modeled cumulative SPLs range from 24 dBA to 52 dBA at the receptors calculated in the A-weighting scale and from 58 dB to 83 dB unweighted.



# **1 INTRODUCTION**

Environmental Consulting & Technology, Inc. ("ECT" or the "Customer") requested that DNV Energy USA Inc. ("DNV") perform a sound assessment for construction and operation of the Weirs Creek Project (the "Project") located approximately five miles east of the City of Providence, south of Kentucky Route 120 ("KY-120"), and north of U.S. Route 41 ("US-41") in Hopkins and Webster Counties. The total nameplate capacity of the Project is 150 MW.

The duration of the construction period is scheduled to last for at least 1.5 years and includes pile driving for the solar array foundations.

The objective of this assessment is twofold:

- 1. to calculate the expected sound levels generated by machinery during the construction of the Project and
- 2. to predict the sound levels from the Project's solar inverters and substation transformer during operation.

The construction sound levels were calculated at specified distances using the geometrical divergence equation.

The sound levels during operation of the Project were calculated at all receptors within 1 mile of the Project boundary using the ISO 9613-2 sound propagation model [1]. The layout considered for the operational noise impact assessment consists of 41 solar inverters and one transformer at the Project substation.

# 2 ENVIRONMENTAL SOUND BACKGROUND

Sound levels are expressed in the decibel unit and are quantified on a logarithmic scale to account for the large range of acoustic pressures to which the human ear is exposed. A decibel (dB) is used to quantify sound levels relative to a 0 dB reference. The reference level of 0 dB is defined as a sound pressure level of 20 micropascals ( $\mu$ Pa), which is the typical lower threshold of hearing for humans.

Sound levels can be presented both in broadband (sound energy summed across the entire audible frequency spectrum) and in octave band spectra (audible frequency spectrum divided into bands). Frequency is expressed in the Hertz unit (Hz), measuring the cycles per second of the sound pressure waves. The audible range of humans spans from 20 to 20,000 Hz. Since the human ear does not perceive every frequency with equal loudness, spectrally varying sounds are often adjusted with a weighting filter. The A-weighting filter is applied to closely approximate the human ear's response to sound. This scale is commonly used in environmental and industrial sound. Sound expressed in the A-weighted scale is denoted dBA. Comparative sound pressure levels are shown in Table 2-1 [2] and are based on comparable examples rather than specific measurements or calculations.



Sound Pressure Level [dBA]	Sound Source Example
0-10	Threshold of hearing
10-20	Recording studio background sound
20-40	Quiet bedroom background sound
40-50	Quiet rural
50-60	Quiet urban
60-70	Commercial area, normal conversation at 3 ft
70-80	Tractor at 50 ft
80-90	Diesel truck at 150 ft
90-100	Gas lawn mower at 3 ft
100-110	Car horn at 3 ft

#### Table 2-1 Examples of Common A-weighted Sound Levels

A sound source has a certain sound power level rating which describes the amount of sound energy per unit of time. This is a basic measure of how much acoustical energy it can produce and is independent of its surroundings. Sound pressure is created as sound energy flows away from the source. The measured sound pressure level (SPL) at a given point depends not only on the power rating of the source and the distance between the source and the measurement point (geometric divergence), but also on the amount of sound energy absorbed by environmental elements between the source and the measurement point (attenuation). Sound attenuation factors include meteorological conditions such as wind direction, temperature, and humidity, sound interaction with the ground, atmospheric absorption, terrain effects, diffraction of sound around objects and topographical features, and foliage.

# **3 APPLICABLE REGULATIONS**

The Project is located in Hopkins and Webster Counties, Kentucky. No applicable sound regulations relating to solar energy projects were found for these counties or in the state of Kentucky. Although there are no specific noise regulations, some nearby projects have been subject to unweighted decibels limits [3], as requested by the Kentucky Electric Generation and Transmission Siting Board (KYSB). Therefore, the results of this assessment are presented in both the more commonly used A-weighting scale (dBA) as well as unweighted decibels (dB).

# 4 DESCRIPTION OF THE PROJECT SITE

# 4.1 Site description

The Project is to be located on a site encompassing approximately 2,260 acres located in Hopkins and Webster Counties, Kentucky, located approximately five miles east of the City of Providence, south of Kentucky Route 120 ("KY-120"), and north of U.S. Route 41 ("US-41").

The Project is situated in relatively simple terrain, consisting of flat and occasionally elevated farmland, with project equipment base elevations ranging from approximately 380 feet to 420 feet above sea level. The ground cover on and near the site is primarily composed of farmland or open fields. Dwellings are interspersed throughout the Project site and surrounding area.

A map of the approximate Project area is shown in Figure 4-1.





Figure 4-1 Approximate Project area

# 4.2 Project layout

The Project layout used in this analysis consists of 41 solar inverters located throughout the Project site, as well as one 170 MVA - 165 kV step-up transformer at the substation. These will be the primary sound sources during operation.

The coordinates of the Project equipment are presented in Appendix A. The solar inverter locations and substation transformer location were provided by the Customer [4].

# 4.3 Receptor locations

A list of 214 receptors located within 1 mile of the Project boundary was provided by the Customer [5]. Coordinates of each receptor point are presented in Appendix B.

All receptors have been modeled at a height of 5 ft (1.5 m) above ground level and represent one story residential structures.



# 5 SOUND ASSESSMENT OF PROJECT CONSTRUCTION

# 5.1 Description of the sound sources

The sources of sound considered in this analysis include the construction equipment. The construction equipment list was provided and confirmed by the Customer [6] and source noise levels were referenced from the Federal Highway Administration Construction Noise Handbook [7].

The source noise levels were specified as maximum sound pressure levels at 50 feet. A usage factor has been applied to calculate the equivalent energy average sound levels ( $L_{eq}$ ) using the maximum sound pressure levels ( $L_{max}$ ). The  $L_{eq}$  is a commonly used metric to specify energy averaged sound levels over time whereas the  $L_{max}$  is an instantaneous sound level. Usage factor is defined as the time-averaging equipment usage factor, expressed in percent [7]. It is intended to reflect the percentage of time during a construction activity where the specified equipment is operating at full capacity. The frequency spectra assumed for the equipment were referenced from the U.K. Department for Environment construction noise prediction document [8] and are shown in Appendix C. A summary of the source levels of the construction equipment for the loudest identified construction phases are shown in Table 5-1.

					-	-	
Dhasa	<b>F</b> aulian aut	Quantitu	Lmax at 50	ft [dBA]	Usage	Calculated	L <sub>eq</sub> at 50 ft
Phase	Equipment	Quantity	Individual	Total	Factor [%]	dBA	dB
	Grader	2	85	88	40	84	90
	Dump Truck	4	84	90	40	86	94
Demolition/Site	Water Truck	1	85	85	50	82	87
Preparation	Generator	4	82	88	50	85	90
	Semi-trailer	1	84	84	40	80	84
	TOTAL						97
	Pile Driver	4	95	101	20	94	101
	Water Truck	1	85	85	50	82	87
Pile Driving	Generator	4	82	88	50	85	90
	Semi-trailer	1	84	84	40	80	84
	TOTAL					95	102
	Concrete Truck	2	85	88	40	84	89
	Water Truck	1	85	85	50	82	87
Foundation	Generator	4	82	88	50	85	90
Installation	Semi-trailer	1	84	84	40	80	84
	TOTAL					89	94

Table 5-1 Construction equipment sound sources



# 5.2 Assessment methodology

Sound pressure levels were calculated using the source sound levels and usage factors in Table 5-1 for varying distances using the geometrical divergence equation below.

$$SPL_{d1} = SPL_{ref} - 20\log_{10}\frac{d_1}{d_{ref}}$$

Where:

 $SPL_{equip}$  is the equipment sound pressure level at the distance  $d_1$ 

 $SPL_{ref}$  is the reference sound pressure level at the reference distance,  $d_{ref}$  equal to 50 feet

The resulting sound levels were calculated at each receptor based on the distance to the loudest applicable construction activity, which was pile driving. The distance was assumed to be the distance from the nearest equipment structurally supported by foundations requiring pile driving provided by the Customer [9].

This approach is conservative in nature as it assumes all equipment is operating at the same time and from the same source location. Practically, construction equipment will be spread out around the Project site and not likely to be operating simultaneously. As a result, on-site measurements are expected to be lower than the calculation results presented in Section 5.3.

Sound pressure levels were calculated in decibels using the A-weighting scale (dBA) as this scale is commonly utilized to represent the frequency sensitivities of a healthy human ear. The A-weighting scale discounts low and high frequencies and results in lower broadband sound levels than the unweighted scale during measurement of construction noise sources. In addition to the A-weighting scale, sound pressure levels were calculated in the unweighted decibel scale (dB) to allow for comparison of any sound levels presented in this weighting scale.

# 5.3 Results

The resulting sound pressure levels at each receptor based on distances from the Project equipment are shown in Appendix B.

The loudest construction sound level calculated at a participating receptor for the pile driving phase is 86 dBA and 93 dB at receptor 76 located 133 ft from the nearest PV panel. The loudest construction sound level calculated at a non-participating receptor for the pile driving phase is 76 dBA and 86 dB at receptor 99 located 297 ft from the nearest PV panel. It is important to note that this analysis assumes the construction equipment associated with the project is operating simultaneously. This assumption is conservative as the equipment will likely be more spread out around the site and not likely to be operating at the same time. Other noise attenuation effects such as atmospheric absorption, ground effect, reflection and shielding by topographical features or objects were not considered in the analysis. Measured sound pressure levels during construction activities are therefore expected to be lower than shown in Appendix B.

Typical farming equipment such as a tractor can emit sound levels at approximately 80 dBA at 50 ft as shown in Table 2-1. The calculated construction sound pressure levels are expected to be similar or lower than typical farming equipment at most receptors. Sound emitted from construction equipment is expected to be comparable in character to internal combustion engine sound associated with farming equipment. Considering farming activity occurs during the day when construction is scheduled, sound emitted by construction equipment should be familiar to what the community currently experiences in the existing sound environment. Due to the conservative nature of the assessment, it is expected that sound levels may be less than the referenced tractor sound level at 50 ft for most of the day during a given day of construction.



# 5.4 Additional recommendations

To ensure that the noise impact during construction activities is minimized, the following best practice recommendations may be followed to the extent practicable:

- 1. Keep all equipment in good repair with all worn, loose and unbalanced machine parts to be replaced. Machine parts should be kept well lubricated to reduce friction.
- 2. Unnecessary idling of internal combustion engines should be avoided when practicable.
- 3. Utilize newer models of construction equipment where possible to provide the quietest performance.
- 4. Internal combustion engines are to be fitted with a suitable muffler in good repair.
- 5. Locate stationary noise-generating equipment such as air compressors or portable power generators as far as practicable from neighboring houses.
- 6. Develop a construction and traffic management plan which includes informing the local community of the construction schedule and activities to minimize impacts.
- 7. Construction to be scheduled during daytime hours as defined by local regulations.
- 8. Provide and make available contact information for concerns regarding construction activities prior to and during construction.
- 9. All vehicular movements to and from the site must only be made during the scheduled normal working hours. This includes off-site noise that is associated with a specific project such as staging of concrete trucks.
- 10. Implementation of white noise backup alarms on trucks maneuvering at the project site.
- 11. Vehicle speeds on access roads should be limited to 25 mph (40 km/hr).



# 6 SOUND ASSESSMENT OF PROJECT OPERATION

# 6.1 Description of the sound sources

The sources of sound considered for the operation of the Project are the solar inverters and substation transformer. Sound associated with other sources in the vicinity of the Project, such as construction activities, have not been considered in this section. The smaller transformers associated with each inverter were not included in the analysis as the sound source data showed their contribution to have a negligible impact on overall sound pressure levels.

# 6.1.1 Solar Inverters

The solar inverter for the Project is a Power Electronics HEM FS4105M with a maximum permissible voltage of 1500 Vdc. Sound power levels were calculated according to ISO standard 3744:2010 [10], based on a rated sound pressure level of 82.5 dBA at 1 meter [11]. The spectrum used for the solar inverter was based on octave band sound levels of similar equipment from DNV's internal database. The octave band sound power levels used for the solar inverter are shown in Table 6-1.

Equipment				Fre	quency [	Hz]				Total
Equipment	31.5	63	125	250	500	1000	2000	4000	8000	Total
Power Electronics HEM FS4105M	89.4	89.4	90.8	98.7	98.6	93.2	88.8	76.0	76.0	103.1

# 6.1.2 Substation transformer

There is one transformer planned at the Project substation. While the final equipment has not been procured for the Project, the Customer has provided transformer ratings for use in this report. The proposed transformer is:

• One 170 MVA - 165 kV for Weirs Creek Solar Project

A total broadband sound power level of 102.0 dBA was estimated for the 170 MVA transformer, according to IEEE standard C57.12.90-2021[12], and representative assumed dimensions. A tonality penalty of 5 dB is included in this estimate in accordance with ISO-1996-2 [13]. The Customer provided transformer specifications indicate a max total sound level of 75dBA.

A typical transformer octave band distribution [14] was used. The octave band sound power levels of the Project transformer are shown in Table 6-2.

Equipment	Frequency [Hz]									Total
	31.5	63	125	250	500	1000	2000	4000	8000	Total
170 MVA transf.	21.9	54.3	76.5	86.5	97.3	97.7	95.1	89.7	78.5	102.0

# 6.2 Assessment methodology

The sound pressure level at each receptor for the aggregate of all solar inverters and the main transformers associated with the Project were calculated using CadnaA acoustic modeling software based on the ISO 9613-2 method [1]. The simulation was performed using the maximum sound power level of the solar inverters and transformers. Based on the physical



dimensions provided, the solar inverters were modeled at a height of 2.2 m (7.2 ft) above ground level (agl) and the substation transformers were modeled at a height of 5.5 m (18.0 ft) agl.

The receptors were modeled at a height of 1.5 m (5 ft) agl.

The ISO 9613-2 standard provides a prediction of the equivalent continuous SPL at a distance from one or more point sources. The method consists of octave-band algorithms (i.e., with nominal mid band frequencies from 31.5 Hz to 8 kHz) for calculating the attenuation of the emitted sound. The algorithm takes into account the following physical effects:

- Geometrical divergence attenuation due to spherical spreading from the sound source
- Atmospheric absorption attenuation due to absorption by the atmosphere
- Ground absorption attenuation due to the acoustical properties of the ground

The ISO 9613-2 standard calculates attenuation "under meteorological conditions favorable to propagation from sources of sound emission." These meteorological conditions are for "downwind propagation or, equivalently, propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night". In other words, though a physical impracticality, the ISO 9613-2 standard treats every receptor as being downwind from every source of sound emission (in this case, inverters and the transformer).

The ISO 9613-2 standard accounts for ground absorption by assigning a numerical coefficient (G) with a value ranging from 0 to 1. A value of G = 0 represents hard ground (paving, water, ice, concrete, tamped ground, and other ground surfaces with a low porosity), while a G = 1 value represents porous ground (ground covered by grass, trees, or other vegetation, and other ground surfaces suitable for the growth of vegetation such as farming land). Though the ground use on and around the site is farming, a mixed (semi-reflective) global ground factor of G = 0.5 was used in this assessment.

Additionally, temperature, barometric pressure, and humidity parameters were selected to represent typical local annual averages, and topographical information to accurately represent terrain in three-dimensions was included in this assessment.

Specifically, the ISO 9613-2 parameters were set as follows:

- Ambient air temperature: 50° F (10° C)<sup>1</sup>
- Ambient barometric pressure: 101.32 kPa
- Humidity: 70%
- Overall ground factor: 0.5
- Topography included (10 m elevation intervals)

Additional attenuation from foliage was not considered in this assessment, implying that lower sound levels are expected in areas where there is foliage present in the line of sight between the project facilities and a sound receptor. Similarly, because the model assumes every receptor is downwind of every sound source at all times, lower sound levels are expected at times when a receptor is upwind of any sound source.

# 6.3 Results

Detailed maps illustrating predicted sound pressure levels at receptors located in the vicinity of the Project are presented in Figure 6-1 to Figure 6-3.

The predicted sound levels at each of the receptors are presented in Appendix B.

<sup>&</sup>lt;sup>1</sup> Average temperatures are expected to be higher than 50° F however, this temperature was used conservatively to represent the project area.



For each receptor, the following information is provided:

- ID
- Coordinates in Kentucky state plane projection and NAD 1983 Datum
- Closest noise generating equipment
- Distance to the closest noise generating equipment
- Sound pressure levels (SPL) in dBA and dB at the receptor location

The highest modelled results throughout the Project area for A-weighted sound pressure levels and unweighted sound pressure levels respectively are 52 dBA and 83 dB at receptor 76 (participant). The A-weighted (dBA) sound level can be considered similar to sound levels in a quiet urban environment (see Table 2-1).


Figure 6-1 Modeled sound pressure levels within the Project area



#### 7 CONCLUSION

DNV has conducted a sound assessment to determine the maximum predicted sound levels at receptors in the vicinity of Weirs Creek Solar Project located in Hopkins and Webster Counties, Kentucky. The Project equipment considered in the analysis of the operational phase were 41 solar inverters and one step-up transformer within the Project substation. For the construction phase, typical construction equipment including graders, dump trucks, water trucks, generators, semi-trailers, pile drivers and concrete trucks were considered in the analysis.

As a result of construction activities, sound pressure levels at non-participating receptors are expected to be less than 86 dBA in the A-weighting scale and 93 dB unweighted.

Typical farming equipment such as a tractor can emit sound levels at approximately 80 dBA at 50 ft as shown in Table 2-1. The calculated construction sound pressure levels are expected to be similar or less than typical farming equipment at most receptors. Sound emitted from construction equipment is expected to be comparable in character to internal combustion engine sound associated with farming equipment. Considering farming activity occurs during the day when construction is scheduled, sound emitted by construction equipment should be familiar to what the community currently experiences in the existing sound environment.

Modeled cumulative SPLs for the operational phase range from 24 dBA to 52 dBA at the receptors calculated in the Aweighting scale and from 58 dB to 83 dB unweighted. The A-weighted (dBA) sound level can be considered similar to sound levels in a quiet urban environment (see Table 2-1).

The assumptions made in both the construction and operation assessment methodology can be considered conservative as actual measured sound levels from the Project's activities are expected to be generally lower.



#### 8 **REFERENCES**

- [1] International Organization for Standardization. *ISO 9613-2: Acoustics Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation*. 2024-01
- [2] Federal Aviation Administration. *Fundamentals of Noise and Sound*. 13 July 2020. https://www.faa.gov/regulations\_policies/policy\_guidance/noise/basics/
- [3] Information regarding regulations for similar projects sent by email, by ECT to DNV on 23 December 2020.
- [4] Site layout sent via email, by ECT to DNV on 17 April 2024, "Inverter\_20240329.shp"
- [5] Receptor locations sent via email, by ECT to DNV on 17 April 2024, "Receptors\_With\_Attributes\_1milebuffer.shp"
- [6] Construction equipment sent by email, by ECT to DNV on 23 April 2024.
- [7] U.S. Department of Transportation Federal Highway Administration. Construction Noise Handbook. August 2006.
- [8] U.K. Department for Environment, Food and Rural Affairs. *Update of Noise Database for Prediction of Noise on Construction and Open Sites. 2005.*
- [9] Distances from receptors to Project construction sent via email, by ECT to DNV on 17 April 2024, "Weirs Creek\_Receptor Tables for Noise Impact Analysis\_20240417.xls"
- [10] International Organization for Standardization. *ISO* 3744:2010: Acoustics Determination of sound power levels and sound energy levels of noise sources using sound pressure Engineering methods for an essentially free field over a reflecting plane. October 2010.
- [11] Inverter sound pressure level sent via email, by ECT to DNV on 15 September 2022, "*TMEIC Noise Measuremnet ECS-RH-D626.pdf*"
- [12] C57.12.90-2021 IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers. 11 March 2016.
- [13] International Organization for Standardization. ISO 1996-2: Acoustics Description, measurement and assessment of environmental noise -Part 2: Determination of sound pressure levels. July 2017
- [14] Handbook of Acoustics. Edited by Malcolm J. Crocker. John Wiley & Sons. 1998.



#### **APPENDIX A – WEIRS CREEK SOLAR SOUND SOURCE LOCATIONS**

	NAD 1983 Sta South FIPS	
ID	Easting	Northing
INV01	1080382	2040380
INV02	1077972	2040493
INV03	1078513	2040493
INV04	1085221	2033630
INV05	1079859	2041373
INV06	1080345	2041373
INV07	1081002	2041373
INV08	1081634	2041373
INV09	1080830	2042367
INV10	1081372	2042367
INV11	1081914	2042367
INV12	1082568	2042367
INV13	1078878	2041870
INV14	1081560	2043436
INV15	1082920	2041271
INV16	1086028	2033635
INV17	1085206	2032373
INV18	1086030	2032373
INV19	1084315	2032373
INV20	1085268	2034809
INV21	1080230	2043431

	NAD 1983 Sta South FIPS	
ID	Easting	Northing
INV22	1083152	2039325
INV23	1083694	2039325
INV24	1084235	2039325
INV25	1084235	2040318
INV26	1083152	2038331
INV27	1083694	2038331
INV28	1080246	2036819
INV29	1080657	2035826
INV30	1080788	2036819
INV31	1081329	2036819
INV32	1081553	2035826
INV33	1081871	2036819
INV34	1082095	2035826
INV35	1082413	2036819
INV36	1082637	2035826
INV37	1083533	2036819
INV38	1077281	2039186
INV39	1077822	2039186
INV40	1078364	2039186
INV41	1078906	2039186
Sub	1078149	2042120



# APPENDIX B – WEIRS CREEK SOLAR SOUND RECEPTOR LOCATIONS AND SOUND LEVELS

	COORDINATE	S OF RECEPTOR	PARCEL INFORMATION						
Receptor ID	Easting <sup>1</sup> of centroid of building	Northing <sup>1</sup> of centroid of building	Parcel Number	Property Address	Solar Panel (feet) from edge of	0	Level from Pile	Level from	Sound Pressure Level from Operations (dB)
76	1083323	2037310	MAP-28-18	755 GREENWOOD RD	133	86.4	93.2	51.6	83.1
164	1082890	2037515	MAP-28-18	2195 DONALDSON RD	156	85.1	91.8	51.2	82.9
140	1077448	2040204	054-015-000	369 RUSSELL FARMS RD	224	81.9	88.7	50.7	82.1
8	1084193	2041691	MAP-28-18	2105 DONALDSON RD	409	76.7	83.4	46.1	78.5

<sup>1</sup>Calculated using NAD\_1983\_StatePlane\_Kentucky\_South\_FIPS\_1602\_Feet

	COORDINAT	ES OF RECEPTOR	PARCE	EL INFORMATION					
Receptor ID	Easting <sup>1</sup> of centroid of building	Northing <sup>1</sup> of centroid of building	Parcel Number	Property Address	Distance to Closest Solar Panel (feet) from edge of building	Sound Pressure Level from Pile Driving (dBA)	Sound Pressure Level from Pile Driving (dB)	Sound Pressure Level from Operations (dBA)	Sound Pressure Level from Operations (dB)
213	1082085	2039101	MAP-28-11	4520 DONALDSON RD	680	72.3	79.0	49.2	81.4
141	1077253	2042286	054-013-000	434 CORINTH CHURCH RD	913	69.7	76.5	46.6	77.7
160	1085034	2040725	MAP-28-7	640 GREENWOOD RD	385	77.2	84.0	46.6	78.5
67	1085135	2040528	MAP-28-8	670 GREENWOOD RD	483	75.2	82.0	46.6	78.6
99	1084915	2040892	MAP-28-8	670 GREENWOOD RD	297	79.4	86.2	46.6	78.6
94	1085508	2036435	MAP-38-29C	1610 DONALDSON RD	1,240	67.0	73.8	45.3	78.0
208	1085717	2036379	MAP-38-29A	1590 DONALDSON RD	1,175	67.5	74.3	45.0	77.7
16	1085133	2040813	MAP-28-8	600 GREENWOOD RD	491	75.1	81.8	45.9	77.9
148	1086283	2030862	MAP-28-23A	625 DONALDSON RD	602	73.3	80.1	43.2	75.8
41	1075697	2041837	054-004-001	372 WELDON RD	2,031	62.7	69.5	42.5	75.3
123	1086829	2036458	MAP-38-29A-1	1600 DONALDSON RD	1,634	64.6	71.4	42.9	76.0
73	1084930	2041141	MAP-28-6	690 GREENWOOD RD	327	78.6	85.4	45.6	77.8
58	1086251	2030452	MAP-29-12A	535 DONALDSON RD	1,009	68.8	75.6	41.9	74.8
90	1087070	2033401	MAP-28-21A	1080 DONALDSON RD	604	73.3	80.0	44.3	76.4
116	1074713	2043775	054-003-000	2245 STATE ROUTE 120	3,766	57.4	64.2	39.1	72.6
146	1074189	2043212	054-012-001	2106 STATE ROUTE 120	3,930	57.0	63.8	38.8	72.4
127	1086431	2029138	MAP-29-14A	300 DONALDSON RD	2,309	61.6	68.4	38.6	72.2
72	1080674	2029259	MAP-29-9B	10840 NEBO RD	4,185	56.5	63.2	37.4	71.5
25	1072666	2042985	054-010-000	1835 STATE ROUTE 120	5,277	54.5	61.2	36.9	70.9
110	1077560	2030967	MAP-29-1C	11490 NEBO RD	5,313	54.4	61.2	37.3	71.5
52	1081472	2028338	MAP-29-20A	10595 NEBO RD	4,397	56.0	62.8	36.7	70.9
135	1081194	2028381	MAP-29-20	10685 NEBO RD	4,505	55.8	62.6	36.7	70.9
98	1086372	2027986	MAP-29-14	9580A NEBO RD	3,471	58.1	64.9	36.7	70.7
157	1085423	2027840	MAP-29-13	9850 NEBO RD	3,668	57.6	64.4	36.8	70.8
171	1080791	2028510	MAP-29-21	10775 NEBO RD	4,652	55.5	62.3	36.6	70.8
122	1077715	2030626	MAP-29-1B	11480 NEBO RD	5,564	54.0	60.8	37.1	71.3
14	1079590	2029128	MAP-29-7	10910 NEBO RD	5,114	54.7	61.5	36.7	70.9
133	1084505	2027523	MAP-29-17	10025 NEBO RD	4,208	56.4	63.2	36.4	70.5
204	1072136	2042874	054-011-002	QUAIL RUN	5,733	53.7	60.5	36.2	70.4
22	1073440	2033653	MAP-18-10B	99 FERRELL LOOP	5,765	53.7	60.5	36.1	70.5
2	1071994	2042475	054-011-001-001	21 QUAIL RUN DR	5,771	53.7	60.4	36.2	70.4
152	1078093	2045536	054-008-001	2994 STATE ROUTE 120	2,390	61.3	68.1	41.0	74.2
78	1073244	2033677	MAP-18-10A	115 FERRELL LOOP	5,879	53.5	60.3	35.9	70.3
85	1072079	2043097	054-011-002-004	100 QUAIL RUN DR	5,852	53.6	60.3	36.1	70.3
26	1085830	2043505	MAP-27-6	1220 GREENWOOD RD	2,376	61.4	68.2	37.7	70.4
187	1078537	2029306	MAP-29-6A-17	11245 NEBO RD	5,935	53.4	60.2	36.3	70.6
61	1078464	2029350	MAP-29-6A-18	11255 NEBO RD	5,970	53.4	60.2	36.3	70.6
17	1078378	2029414	MAP-29-6A-19	11265 NEBO RD	6,012	53.3	60.1	36.3	70.6
88	1078276	2029470	MAP-29-6A-20	11295 NEBO RD	6,083	53.2	60.0	36.3	70.6
65	1085687	2043805	MAP-27-3A	1270 SHADE TREE RD	2,365	61.4	68.2	37.6	70.3
147	1079539	2028858	MAP-29-6	10905 NEBO RD	5,309	54.4	61.2	36.4	70.7
120	1086802	2043448	MAP-27-5-5	1060 SHADE TREE RD	3,256	58.6	65.4	37.0	70.2
203	1071901	2043209	054-011-002-003	QUAIL RUN	6,052	53.3	60.0	35.8	70.0

	COORDINAT	ES OF RECEPTOR	PARCE	EL INFORMATION					
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105	1071730	2042866	054-011-001-003	211 QUAIL RUN DR	6,104	53.2	60.0	35.8	70.0
35	1086343	2043820	MAP-27-5C	50 FREEDOM RD	2,987	59.4	66.2	36.8	69.7
125	1087099	2043533	MAP-27-5	SHADE TREE RD	3,540	57.9	64.7	37.4	70.8
212	1074462	2032084	MAP-18-20-1	12111 NEBO RD	6,492	52.7	59.4	35.9	70.3
205	1071634	2043009	054-011-001	219 QUAIL RUN DR	6,237	53.0	59.8	35.6	69.8
179	1071706	2043341	054-011-002-002	190 QUAIL RUN DR	6,285	52.9	59.7	35.5	69.8
209	1087790	2043554	MAP-27-5-4	940 SHADE TREE RD	4,046	56.8	63.5	36.7	70.3
36	1073681	2032747	MAP-18-20	12325 NEBO RD	6,304	52.9	59.7	35.7	70.2
93	1086110	2043922	MAP-27-3B	1270 SHADE TREE RD	2,798	60.0	66.7	36.9	69.7
202	1071518	2043164	054-011-001-005	223 QUAIL RUN DR	6,400	52.8	59.5	35.4	69.7
29	1071581	2043492	054-011-002-001	230 QUAIL RUN DR	6,455	52.7	59.5	35.3	69.6
134	1085810	2044279	MAP-27-3C	FREEDOM RD	2,724	60.2	67.0	36.6	69.2
66	1087800	2043420	MAP-27-5-4-1	930 SHADE TREE RD	3,980	56.9	63.7	36.8	70.4
46	1071380	2043325	054-011-001-006	225 QUAIL RUN DR	6,581	52.5	59.3	35.2	69.5
83	1078826	2029105	MAP-29-6A-14	11225 NEBO RD	5,777	53.7	60.4	36.1	70.4
13	1077274	2028954	MAP-18-21-2	219 HART LN	7,216	51.7	58.5	35.3	69.8
6	1077981	2028192	MAP-29-6B	207 HART LN	6,961	52.0	58.8	35.0	69.6
113	1087351	2027175	MAP-29-15-1	9505 NEBO RD	4,393	56.0	62.8	34.9	69.2
145	1078034	2028743	MAP-29-6A-25	220 HART LN	6,640	52.5	59.2	35.4	69.9
102	1070308	2040220	054-011-004	135 PIN OAK LN	6,821	52.2	59.0	34.7	69.2
20	1077602	2046090	054-004-002	113 H WELDON RD	3,125	59.0	65.8	38.7	72.1
21	1089732	2042697	MAP-38-11G	422 SHADE TREE RD	5,389	54.3	61.0	35.3	69.3
45	1078641	2028653	MAP-29-6A-29	67 FAWN LN	6,185	53.1	59.8	35.1	69.4
62	1086137	2044594	MAP-27-3	165 FREEDOM RD	3,162	58.9	65.7	35.8	68.5
200	1083969	2027391	MAP-29-17	10109 NEBO RD	4,533	55.8	62.5	36.1	70.3
153	1078598	2028574	MAP-29-6A-29	67 FAWN LN	6,260	53.0	59.7	35.0	69.4
51	1078088	2028409	MAP-29-6A-2	204 HART LN	6,759	52.3	59.1	35.0	69.5
106	1078325	2028006	MAP-29-6F	105 HART LN	6,798	52.3	59.0	34.5	69.1
131	1078260	2028396	MAP-29-6A-3	144 HART LN	6,622	52.5	59.3	34.9	69.3
144	1077955	2028540	MAP-29-6A-1	HART LN	6,813	52.2	59.0	35.1	69.6
55	1078487	2028375	MAP-29-6A-5	96 HART LN	6,456	52.7	59.5	34.7	69.2
44	1078455	2028132	MAP-29-6C	95 HART LN	6,630	52.5	59.2	34.5	69.0
109	1087565	2043092	MAP-27-5B	890 SHADE TREE RD	3,600	57.8	64.5	36.1	69.2
159	1086732	2044461	MAP-27-4-1	182 FREEDOM LN	3,598	57.8	64.6	35.2	68.1
54	1087756	2042968	MAP-27-5A	840 SHADE TREE RD	3,687	57.6	64.3	36.1	69.4
189	1078606	2028365	MAP-29-6A-6	70 HART LN	6,362	52.8	59.6	34.8	69.2
142	1085599	2045772	063-011-000	1070 PICAS AUSTIN RD	3,642	57.7	64.4	35.0	67.9
11	1083587	2027543	MAP-29-18	10155 NEBO RD	4,438	56.0	62.7	36.4	70.6
87	1078767	2028520	MAP-29-6A-27	44 FAWN LN	6,146	53.1	59.9	34.9	69.3
43	1070233	2045355	044-028-000	7112 US HIGHWAY 41A	8,439	50.4	57.1	33.2	67.9
63	1079039	2029053	MAP-29-6A-13	11145 NEBO RD	5,616	53.9	60.7	35.6	69.9
192	1088854	2042019	MAP-38-1A	560 SHADE TREE RD	4,345	56.1	62.9	36.3	70.0
69	1088961	2041689	MAP-38-13	515 SHADE TREE RD	4,387	56.1	62.8	36.9	70.7

	COORDINAT	ES OF RECEPTOR	PARC	EL INFORMATION					
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194	1088565	2027914	NEBO-2-1	9255 NEBO RD	4,172	56.5	63.3	33.6	67.6
201	1074399	2046254	053-021-001	921 OLD STANHOPE RD	5,652	53.9	60.6	35.8	69.7
151	1078976	2028699	MAP-29-6A-10	75 SCHMETZER CROSSING	5,865	53.5	60.3	34.4	68.6
32	1078601	2028045	MAP-29-23A-1	73 HART LN	6,547	52.6	59.4	34.1	68.6
121	1089051	2042119	MAP-38-11E	530 SHADE TREE RD	4,558	55.7	62.5	35.7	69.4
186	1078788	2028348	MAP-29-6A-7	42 HART LN	6,219	53.0	59.8	34.3	68.7
118	1078968	2028533	MAP-29-6A-9	105 SCHMETZER CROSSING	5,977	53.4	60.1	34.0	68.2
193	1088709	2027976	NEBO-2-2	9125 NEBO RD	4,193	56.5	63.2	33.5	67.5
89	1089545	2041798	MAP-38-11G-1	420 SHADE TREE RD	4,976	55.0	61.7	35.0	68.7
177	1078926	2028042	MAP-29-23	225 SCHMETZER CROSSING	6,312	52.9	59.7	33.5	67.8
71	1089517	2041961	MAP-38-11G	422 SHADE TREE RD	4,993	54.9	61.7	34.9	68.6
115	1070849	2047310	044-024-003	6732 US HIGHWAY 41A	8,999	49.8	56.6	32.5	67.3
126	1089485	2042271	MAP-38-11	450 SHADE TREE RD	5,029	54.9	61.6	34.1	67.6
79	1077768	2028164	MAP-29-24	241 HART LN	7,163	51.8	58.6	34.7	69.2
188	1090007	2042014	MAP-38-11C	340 SHADE TREE RD	5,472	54.1	60.9	33.4	66.8
50	1077241	2030556	MAP-29-2	11560 NEBO RD	5,835	53.6	60.4	32.8	66.2
206	1090280	2041974	MAP-38-11B	290 SHADE TREE RD	5,720	53.8	60.5	33.1	66.5
214	1077575	2030021	MAP-29-3	11455 NEBO RD	6,170	53.1	59.9	32.6	66.0
190	1091537	2033730	MAP-39-2-1	1025 BALLSHILL RD	5,025	54.9	61.6	32.2	65.6
143	1072623	2033752	MAP-18-11A	12640 NEBO RD	6,273	53.0	59.7	35.4	69.9
183	1090770	2030885	MAP-39-29-1	445 BALLSHILL RD	4,396	56.0	62.8	32.0	65.4
28	1091457	2032816	MAP-39-3	865 BALLSHILL RD	4,899	55.1	61.9	32.2	65.7
184	1071177	2048338	044-024-001	6522 US HWY 41A	9,466	49.4	56.1	31.5	66.2
64	1079239	2028279	MAP-29-6-1	150 SCHMETZER CROSSING	5,904	53.5	60.2	34.2	68.5
182	1078116	2049313	053-009-001	561 CLAYTON RD	5,803	53.6	60.4	31.7	65.1
210	1072576	2048219	054-001-001	400 OLD STANHOPE RD	8,248	50.6	57.3	31.6	65.9
7	1091696	2032803	MAP-39-5B	860 BALLSHILL RD	5,144	54.7	61.4	31.8	65.2
197	1091803	2033338	MAP-39-5	970 BALLSHILL RD	5,265	54.5	61.2	31.8	65.3
15	1067505	2035786	045-057-001-001	230 GREG HUDSON DR	9,932	49.0	55.7	30.2	65.0
167	1091058	2030876	NEBO-3-4-7	518 BALLSHILL RD	4,685	55.5	62.3	31.6	65.1
108	1091267	2031346	MAP-39-24	595 BALLSHILL RD	4,832	55.2	62.0	31.7	65.1
37	1091378	2031555	MAP-39-25	625 BALLSHILL RD	4,930	55.0	61.8	31.7	65.1
180	1078861	2027814	MAP-29-23A-2	255 SCHMETZER CROSSING	6,508	52.6	59.4	33.2	67.6
124	1077579	2029110	MAP-29-5	219B HART LN	6,876	52.2	58.9	35.6	70.1
136	1091014	2030661	NEBO-3-4	480 BALLSHILL RD	4,683	55.5	62.3	31.5	64.9
23	1090639	2029854	NEBO-1-2	275 BALLSHILL RD	4,517	55.8	62.6	31.4	64.8
82	1090908	2030288	NEBO-3-15	370 BALLSHILL RD	4,661	55.5	62.3	31.4	64.8
154	1091008	2030453	NEBO-3-15A	400 BALLSHILL RD	4,710	55.4	62.2	31.4	64.8
130	1072129	2033334	MAP-18-18	12675 NEBO RD	6,935	52.1	58.9	32.4	66.6
5	1078711	2026973	MAP-29-25B	385 SCHMETZER CROSSING	7,187	51.8	58.5	31.6	65.9
117	1072345	2033684	MAP-18-11	12650 NEBO RD	6,530	52.6	59.4	35.1	69.7
211	1072217	2033815	MAP-18-6-1	12670 NEBO RD	6,535	52.6	59.4	35.1	69.6
9	1090894	2029992	NEBO-3-4B	320 BALLSHILL RD	4,722	55.4	62.2	31.1	64.6

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168	1091448	2030965	MAP-39-19	515 N HOFFMAN ST	5,066	54.8	61.6	31.2	64.7
10	1091636	2031323	MAP-39-15	15 COATS LN	5,194	54.6	61.4	31.2	64.7
86	1071922	2033422	MAP-18-18-1	12695 NEBO RD	7,034	52.0	58.7	34.5	69.2
195	1078786	2027019	MAP-29-25B	385 SCHMETZER CROSSING	7,098	51.9	58.6	31.2	65.3
163	1091419	2030777	NEBO-3-2	465 N HOFFMAN ST	5,053	54.8	61.6	31.1	64.6
33	1078784	2026744	MAP-29-25	465 SCHMETZER CROSSING	7,304	51.6	58.4	30.9	65.0
185	1089425	2028211	NEBO-2-3A	9075 NEBO RD	4,432	56.0	62.7	31.4	65.0
175	1090816	2029707	NEBO-3-13	250 BALLSHILL RD	4,736	55.4	62.2	31.0	64.5
42	1090854	2029797	NEBO-3-13	250 BALLSHILL RD	4,750	55.4	62.1	31.0	64.5
178	1091161	2030191	NEBO-3-4-5	335 N HOFFMAN ST	4,923	55.1	61.8	31.0	64.5
199	1091398	2030632	NEBO-3-3	445 N HOFFMAN ST	5,056	54.8	61.6	31.0	64.5
172	1091551	2030924	MAP-39-18	500 N HOFFMAN ST	5,163	54.6	61.4	31.0	64.5
198	1091767	2031274	MAP-39-14A	45 COATS LN	5,319	54.4	61.2	31.0	64.5
96	1078303	2027768	MAP-29-6A-26	285 SCHMETZER CROSSING	6,964	52.0	58.8	33.9	68.4
95	1078785	2026847	MAP-29-25-3	435 SCHMETZER CROSSING	7,231	51.7	58.5	31.0	65.2
56	1078783	2026607	MAP-29-25	465 SCHMETZER CROSSING	7,409	51.5	58.3	30.7	64.9
119	1090784	2029493	NEBO-3-12	210 N BERNARD ST	4,809	55.3	62.0	30.8	64.3
103	1072012	2033685	MAP-18-6-1-1	12690 NEBO RD	6,800	52.3	59.0	34.9	69.4
30	1091515	2030510	NEBO-7-3A	10 CHURCH ST	5,175	54.6	61.4	30.8	64.4
91	1091582	2030643	NEBO-7-1	440 N HOFFMAN RD	5,223	54.5	61.3	30.8	64.4
49	1090091	2028580	NEBO-1-12	8950 NEBO RD	4,661	55.5	62.3	30.7	64.2
132	1090758	2029314	NEBO-4-1	180 N BERNARD ST	4,847	55.2	62.0	30.7	64.2
174	1090745	2029248	NEBO-4-11A	170 N BERNARD ST	4,871	55.1	61.9	30.6	64.1
47	1090755	2029186	NEBO-4-10	150 N BERNARD ST	4,894	55.1	61.9	30.6	64.1
181	1091302	2029968	NEBO-3-4D	315 N HOFFMAN ST	5,117	54.7	61.5	30.6	64.2
196	1077986	2027697	MAP-29-6A-28	165 HART LN	7,248	51.7	58.5	30.7	64.5
207	1090016	2028345	NEBO-2-4	8915 & 8955 NEBO RD	4,766	55.3	62.1	30.5	63.9
149	1090537	2028865	NEBO-1-4	85 N BERNARD ST	4,868	55.2	61.9	30.5	64.0
128	1090491	2028781	NEBO-1-5	75 N BERNARD ST	4,888	55.1	61.9	30.5	64.0
155	1090728	2029068	NEBO-4-8	120 N BERNARD ST	4,931	55.0	61.8	30.5	64.0
68	1091322	2029841	NEBO-3-5	295 HOFFMAN ST	5,177	54.6	61.4	30.5	64.0
34	1091512	2030133	NEBO-7-5A	350 N HOFFMAN ST	5,270	54.5	61.2	30.5	64.0
176	1071752	2033446	MAP-18-16	12715 NEBO RD	7,137	51.8	58.6	34.3	69.0
101	1090244	2028525	NEBO-1-11	8920 NEBO RD	4,819	55.2	62.0	30.4	63.9
27	1090717	2028948	NEBO-4-7	100 N BERNARD ST	4,982	55.0	61.7	30.3	63.9
114	1091242	2029604	NEBO-3-8	225 HOFFMAN ST	5,151	54.7	61.4	30.4	63.9
48	1074251	2048563	053-020-000	499 OLD STANHOPE RD	7,193	51.8	58.5	33.4	67.8
18	1078327	2027377	MAP-29-25A	325 SCHMETZER CROSSING	7,193	51.8	58.5	30.6	64.5
53	1090206	2028343	NEBO-2-4	8915 NEBO RD	4,910	55.1	61.8	30.3	63.8
84	1091023	2029245	NEBO-4-2	65 GREEN ST	5,106	54.7	61.5	30.3	63.8
40	1090413	2028504	NEBO-1-10	8880 NEBO RD	4,980	55.0	61.7	30.2	63.7
38	1090716	2028802	NEBO-5-1	N BERNARD ST	5,037	54.9	61.6	30.2	63.7
92	1090953	2029062	NEBO-4-6	60 ELM ST	5,127	54.7	61.5	30.2	63.8

	COORDINAT	ES OF RECEPTOR	PARCI	EL INFORMATION					
Receptor ID	Easting <sup>1</sup> of centroid of building	Northing <sup>1</sup> of centroid of building	Parcel Number	Property Address	Distance to Closest Solar Panel (feet) from edge of building	Sound Pressure Level from Pile Driving (dBA)	Sound Pressure Level from Pile Driving (dB)	Sound Pressure Level from Operations (dBA)	Sound Pressure Level from Operations (dB)
70	1091269	2029493	NEBO-3-9	217 LIBERTY RD	5,246	54.5	61.3	30.2	63.8
39	1090372	2028328	NEBO-2-5	8885 NEBO RD	5,051	54.8	61.6	30.0	63.6
19	1090824	2028822	NEBO-5-1	80 N BERNARD ST	5,129	54.7	61.5	30.1	63.6
97	1091402	2029473	NEBO-7-8	220 N HOFFMAN RD	5,377	54.3	61.1	30.1	63.7
1	1090664	2028594	NEBO-5-16	40 N BERNARD ST	5,135	54.7	61.5	30.0	63.6
165	1090614	2028434	NEBO-5-14	NEBO RD	5,192	54.6	61.4	29.9	63.4
169	1091228	2029116	NEBO-4-4	155 N HOFFMAN ST	5,363	54.3	61.1	29.9	63.5
162	1071035	2033595	MAP-18-15-1	12875 NEBO RD	7,626	51.3	58.0	33.6	68.4
170	1070823	2033712	MAP-18-13	12965 NEBO RD	7,738	51.1	57.9	33.5	68.3
112	1071216	2032952	MAP-18-17	12705 NEBO RD	7,865	51.0	57.8	30.4	64.6
59	1090427	2028001	NEBO-2-7	65 S BERNARD ST	5,301	54.4	61.2	29.6	63.2
158	1091133	2028766	NEBO-5-4	85 N HOFFMAN ST	5,441	54.2	61.0	29.6	63.2
100	1082544	2025492	MAP-29-32	322 HAYES RD	6,676	52.4	59.2	29.7	63.5
31	1090631	2028116	NEBO-6-16	40 S BERNARD ST	5,374	54.3	61.1	29.6	63.1
107	1090927	2028402	NEBO-5-8	8790 NEBO RD	5,460	54.2	60.9	29.5	63.1
60	1070488	2033748	MAP-18-14A	13125 NEBO RD	8,006	50.8	57.6	29.7	63.7
173	1090387	2027839	NEBO-2-8	105 S BERNARD ST	5,381	54.3	61.1	29.4	63.0
137	1090601	2027990	NEBO-6-15	60 S BERNARD ST	5,438	54.2	61.0	29.4	62.9
156	1070416	2033787	MAP-18-14	13135 NEBO RD	8,049	50.8	57.6	29.6	63.6
161	1090365	2027754	NEBO-2-9	125 S BERNARD ST	5,412	54.2	61.0	29.4	62.9
74	1090328	2027604	NEBO-2-9A	140 S BERNARD ST	5,493	54.1	60.9	29.3	62.8
166	1081914	2025267	MAP-29-31	535 HAYES RD	7,049	51.9	58.7	29.4	63.2
81	1069821	2034350	MAP-18-2A	13140 NEBO RD	8,263	50.6	57.3	29.4	63.4
3	1069764	2033857	MAP-18-12	13195 NEBO RD	8,569	50.2	57.0	29.2	63.3
4	1069525	2034277	MAP-18-2B	13200 NEBO RD	8,563	50.2	57.0	29.0	63.1
104	1069444	2033977	MAP-18-12H	13305 NEBO RD	8,790	50.0	56.8	28.8	63.0
191	1071466	2050098	053-018-001	6184 US HIGHWAY 41A	10,292	48.7	55.4	28.4	63.0
12	1068775	2033715	MAP-18-1C	13375 NEBO RD	9,494	49.4	56.1	27.9	62.1
24	1068476	2034306	045-058-000	HWY 41A	9,513	49.3	56.1	27.8	62.1
75	1068374	2034326	045-059-000	1100 US HIGHWAY 41A	9,590	49.3	56.0	27.8	62.0
138	1071252	2049690	053-018-000	HWY 41A	10,200	48.7	55.5	28.8	63.4
57	1067090	2034953	045-057-002	901 US HIGHWAY 41A	10,564	48.4	55.2	26.5	60.9
80	1067092	2034398	045-060-004	900 US HIGHWAY 41A	10,734	48.3	55.1	25.9	60.2
77	1066298	2034577	045-067-000	104 EDGEWOOD DR	11,434	47.7	54.5	25.1	59.6
139	1066323	2034430	045-067-000	104 EDGEWOOD DR	11,449	47.7	54.5	25.1	59.6
150	1066290	2033336	045-061-000	210 EDGEWOOD DR	11,902	47.4	54.2	23.9	58.4
111	1066139	2033155	045-062-000	216 EDGEWOOD DR	12,099	47.2	54.0	23.6	58.0
129	1066108	2032951	045-063-000	224 EDGEWOOD DR	12,240	47.1	53.9	23.9	58.4

	COORDINATE	ES OF RECEPTOR	PARCEI	INFORMATION						
Receptor ID	Easting <sup>1</sup> of centroid of building	Northing <sup>1</sup> of centroid of building	Parcel Number	Property Address	Inverter (teet) from	Closest Inverter ID	Sound Pressure Level from Pile Driving (dBA)	Level from Pile		Sound Pressure Level from Operations (dB)
8	1084193	2041691	MAP-28-18	2105 DONALDSON RD	1,271	15	66.8	73.6	46.1	78.5
76	1083323	2037310	MAP-28-18	755 GREENWOOD RD	475	37	75.4	82.1	51.6	83.1
140	1077448	2040204	054-015-000	369 RUSSELL FARMS RD	534	2	74.4	81.1	50.7	82.1
164	1082890	2037515	MAP-28-18	2195 DONALDSON RD	779	35	71.1	77.8	51.2	82.9

<sup>1</sup>Calculated using NAD\_1983\_StatePlane\_Kentucky\_South\_FIPS\_1602\_Feet

	COORDINATES	S OF RECEPTOR	PARC	EL INFORMATION	1					
Receptor ID	Easting <sup>1</sup> of centroid of building	Northing <sup>1</sup> of centroid of building	Parcel Number	Property Address	Distance to Closest Inverter (feet) from edge of building	Closest Inverter ID	Sound Pressure Level from Pile Driving (dBA)	Sound Pressure Level from Pile Driving (dB)	Sound Pressure Level from Operations (dBA)	Sound Pressure Level from Operations (dB)
213	1082085	2039101	MAP-28-11	4520 DONALDSON RD	1,053	22	68.5	75.2	49.2	81.4
141	1077253	2042286	054-013-000	434 CORINTH CHURCH RD	1,631	13	64.6	71.4	46.6	77.7
160	1085034	2040725	MAP-28-7	640 GREENWOOD RD	856	25	70.3	77.0	46.6	78.5
67	1085135	2040528	MAP-28-8	670 GREENWOOD RD	886	25	69.9	76.7	46.6	78.6
99	1084915	2040892	MAP-28-8	670 GREENWOOD RD	836	25	70.5	77.2	46.6	78.6
94	1085508	2036435	MAP-38-29C	1610 DONALDSON RD	1,604	20	64.8	71.6	45.3	78.0
208	1085717	2036379	MAP-38-29A	1590 DONALDSON RD	1,575	20	65.0	71.7	45.0	77.7
16	1085133	2040813	MAP-28-8	600 GREENWOOD RD	976	25	69.1	75.9	45.9	77.9
148	1086283	2030862	MAP-28-23A	625 DONALDSON RD	1,482	18	65.5	72.3	43.2	75.8
41	1075697	2041837	054-004-001	372 WELDON RD	2,596	2	60.6	67.4	42.5	75.3
123	1086829	2036458	MAP-38-29A-1	1600 DONALDSON RD	2,231	20	61.9	68.7	42.9	76.0
73	1084930	2041141	MAP-28-6	690 GREENWOOD RD	1,029	25	68.7	75.4	45.6	77.8
58	1086251	2030452	MAP-29-12A	535 DONALDSON RD	1,882	18	63.4	70.2	41.9	74.8
90	1087070	2033401	MAP-28-21A	1080 DONALDSON RD	1,017	16	68.8	75.5	44.3	76.4
116	1074713	2043775	054-003-000	2245 STATE ROUTE 120	4,527	13	55.8	62.6	39.1	72.6
146	1074189	2043212	054-012-001	2106 STATE ROUTE 120	4,615	2	55.6	62.4	38.8	72.4
127	1086431	2029138	MAP-29-14A	300 DONALDSON RD	3,194	18	58.8	65.6	38.6	72.2
72	1080674	2029259	MAP-29-9B	10840 NEBO RD	4,737	19	55.4	62.2	37.4	71.5
110	1077560	2030967	MAP-29-1C	11490 NEBO RD	5,705	29	53.8	60.5	37.3	71.5
25	1072666	2042985	054-010-000	1835 STATE ROUTE 120	5,822	2	53.6	60.4	36.9	70.9
52	1081472	2028338	MAP-29-20A	10595 NEBO RD	4,893	19	55.1	61.9	36.7	70.9
135	1081194	2028381	MAP-29-20	10685 NEBO RD	5,016	19	54.9	61.7	36.7	70.9
98	1086372	2027986	MAP-29-14	9580A NEBO RD	4,347	18	56.1	62.9	36.7	70.7
157	1085423	2027840	MAP-29-13	9850 NEBO RD	4,489	17	55.9	62.6	36.8	70.8
171	1080791	2028510	MAP-29-21	10775 NEBO RD	5,182	19	54.6	61.4	36.6	70.8
122	1077715	2030626	MAP-29-1B	11480 NEBO RD	5,939	29	53.4	60.2	37.1	71.3
14	1079590	2029128	MAP-29-7	10910 NEBO RD	5,678	19	53.8	60.6	36.7	70.9
133	1084505	2027523	MAP-29-17	10025 NEBO RD	4,790	19	55.3	62.1	36.4	70.5
2	1071994	2042475	054-011-001-001	21 QUAIL RUN DR	6,178	38	53.1	59.9	36.2	70.4
204	1072136	2042874	054-011-002	QUAIL RUN	6,251	2	53.0	59.8	36.2	70.4
22	1073440	2033653	MAP-18-10B	99 FERRELL LOOP	6,686	38	52.4	59.2	36.1	70.5
152	1078093	2045536	054-008-001	2994 STATE ROUTE 120	2,946	21	59.5	66.3	41.0	74.2
78	1073244	2033677	MAP-18-10A	115 FERRELL LOOP	6,779	38	52.3	59.0	35.9	70.3
85	1072079	2043097	054-011-002-004	100 QUAIL RUN DR	6,385	2	52.8	59.6	36.1	70.3
26	1085830	2043505	MAP-27-6	1220 GREENWOOD RD	3,404	12	58.3	65.0	37.7	70.4
187	1078537	2029306	MAP-29-6A-17	11245 NEBO RD	6,504	19	52.6	59.4	36.3	70.6
61	1078464	2029350	MAP-29-6A-18	11255 NEBO RD	6,539	19	52.6	59.4	36.3	70.6
17	1078378	2029414	MAP-29-6A-19	11265 NEBO RD	6,581	19	52.5	59.3	36.3	70.6
88	1078276	2029470	MAP-29-6A-20	11295 NEBO RD	6,652	19	52.4	59.2	36.3	70.6
65	1085687	2043805	MAP-27-3A	1270 SHADE TREE RD	3,388	12	58.3	65.1	37.6	70.3
147	1079539	2028858	MAP-29-6	10905 NEBO RD	5,870	19	53.5	60.3	36.4	70.7
120	1086802	2043448	MAP-27-5-5	1060 SHADE TREE RD	3,987	25	56.9	63.7	37.0	70.2
203	1071901	2043209	054-011-002-003	QUAIL RUN	6,587	2	52.5	59.3	35.8	70.0
105	1071730	2042866	054-011-001-003	211 QUAIL RUN DR	6,592	38	52.5	59.3	35.8	70.0
35	1086343	2043820	MAP-27-5C	50 FREEDOM RD	4,015	12	56.8	63.6	36.8	69.7
125	1087099	2043533	MAP-27-5	SHADE TREE RD	4,263	25	56.3	63.1	37.4	70.8

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212	1074462	2032084	MAP-18-20-1	12111 NEBO RD	7,183	29	51.8	58.5	35.9	70.3
205	1071634	2043009	054-011-001	219 QUAIL RUN DR	6,748	38	52.3	59.1	35.6	69.8
179	1071706	2043341	054-011-002-002	190 QUAIL RUN DR	6,825	2	52.2	59.0	35.5	69.8
209	1087790	2043554	MAP-27-5-4	940 SHADE TREE RD	4,744	25	55.4	62.1	36.7	70.3
36	1073681	2032747	MAP-18-20	12325 NEBO RD	7,312	38	51.6	58.4	35.7	70.2
93	1086110	2043922	MAP-27-3B	1270 SHADE TREE RD	3,822	12	57.3	64.0	36.9	69.7
202	1071518	2043164	054-011-001-005	223 QUAIL RUN DR	6,923	2	52.1	58.9	35.4	69.7
29	1071581	2043492	054-011-002-001	230 QUAIL RUN DR	7,008	2	52.0	58.8	35.3	69.6
134	1085810	2044279	MAP-27-3C	FREEDOM RD	3,727	12	57.5	64.2	36.6	69.2
66	1087800	2043420	MAP-27-5-4-1	930 SHADE TREE RD	4,669	25	55.5	62.3	36.8	70.4
46	1071380	2043325	054-011-001-006	225 QUAIL RUN DR	7,111	2	51.9	58.6	35.2	69.5
83	1078826	2029105	MAP-29-6A-14	11225 NEBO RD	6,344	19	52.9	59.6	36.1	70.4
13	1077274	2028954	MAP-18-21-2	219 HART LN	7,616	29	51.3	58.0	35.3	69.8
6	1077981	2028192	MAP-29-6B	207 HART LN	7,526	19	51.4	58.1	35.0	69.6
113	1087351	2027175	MAP-29-15-1	9505 NEBO RD	5,314	18	54.4	61.2	34.9	69.2
102	1070308	2040220	054-011-004	135 PIN OAK LN	7,007	38	52.0	58.8	34.7	69.2
145	1078034	2028743	MAP-29-6A-25	220 HART LN	7,208	19	51.7	58.5	35.4	69.9
20	1077602	2046090	054-004-002	113 H WELDON RD	3,680	21	57.6	64.4	38.7	72.1
21	1089732	2042697	MAP-38-11G	422 SHADE TREE RD	5,953	25	53.4	60.2	35.3	69.3
45	1078641	2028653	MAP-29-6A-29	67 FAWN LN	6,751	19	52.3	59.1	35.1	69.4
62	1086137	2044594	MAP-27-3	165 FREEDOM RD	4,160	12	56.5	63.3	35.8	68.5
200	1083969	2027391	MAP-29-17	10109 NEBO RD	4,963	19	55.0	61.8	36.1	70.3
153	1078598	2028574	MAP-29-6A-29	67 FAWN LN	6,826	19	52.2	59.0	35.0	69.4
51	1078088	2028409	MAP-29-6A-2	204 HART LN	7,326	19	51.6	58.4	35.0	69.5
106	1078325	2028006	MAP-29-6F	105 HART LN	7,360	19	51.6	58.3	34.5	69.1
131	1078260	2028396	MAP-29-6A-3	144 HART LN	7,188	19	51.8	58.5	34.9	69.3
144	1077955	2028540	MAP-29-6A-1	HART LN	7,381	19	51.5	58.3	35.1	69.6
55	1078487	2028375	MAP-29-6A-5	96 HART LN	7,020	19	52.0	58.7	34.7	69.2
44	1078455	2028132	MAP-29-6C	95 HART LN	7,192	19	51.8	58.5	34.5	69.0
109	1087565	2043092	MAP-27-5B	890 SHADE TREE RD	4,282	25	56.3	63.0	36.1	69.2
54	1087756	2042968	MAP-27-5A	840 SHADE TREE RD	4,352	25	56.1	62.9	36.1	69.4
159	1086732	2044461	MAP-27-4-1	182 FREEDOM LN	4,617	12	55.6	62.4	35.2	68.1
189	1078606	2028365	MAP-29-6A-6	70 HART LN	6,925	19	52.1	58.9	34.8	69.2
142	1085599	2045772	063-011-000	1070 PICAS AUSTIN RD	4,516	12	55.8	62.6	35.0	67.9
11	1083587	2027543	MAP-29-18	10155 NEBO RD	4,842	19	55.2	62.0	36.4	70.6
87	1078767	2028520	MAP-29-6A-27	44 FAWN LN	6,710	19	52.4	59.1	34.9	69.3
43	1070233	2045355	044-028-000	7112 US HIGHWAY 41A	9,104	2	49.7	56.5	33.2	67.9
63	1079039	2029053	MAP-29-6A-13	11145 NEBO RD	6,182	19	53.1	59.8	35.6	69.9
192	1088854	2042019	MAP-38-1A	560 SHADE TREE RD	4,873	25	55.1	61.9	36.3	70.0
69	1088961	2041689	MAP-38-13	515 SHADE TREE RD	4,876	25	55.1	61.9	36.9	70.7
194	1088565	2027914	NEBO-2-1	9255 NEBO RD	5,098	18	54.8	61.5	33.6	67.6
201	1074399	2046254	053-021-001	921 OLD STANHOPE RD	6,206	13	53.0	59.8	35.8	69.7
151	1078976	2028699	MAP-29-6A-10	75 SCHMETZER CROSSING	6,429	19	52.7	59.5	34.4	68.6
32	1078601	2028045	MAP-29-23A-1	73 HART LN	7,107	19	51.9	58.6	34.1	68.6
121	1089051	2042119	MAP-38-11E	530 SHADE TREE RD	5,088	25	54.8	61.5	35.7	69.4
186	1078788	2028348	MAP-29-6A-7	42 HART LN	6,781	19	52.3	59.0	34.3	68.7

	COORDINATES	OF RECEPTOR	PARC	EL INFORMATION	1					
Receptor ID	Easting <sup>1</sup> of centroid of building	Northing <sup>1</sup> of centroid of building	Parcel Number	Property Address	Distance to Closest Inverter (feet) from edge of building	Closest Inverter ID	Sound Pressure Level from Pile Driving (dBA)	Sound Pressure Level from Pile Driving (dB)	Sound Pressure Level from Operations (dBA)	Sound Pressure Level from Operations (dB)
118	1078968	2028533	MAP-29-6A-9	105 SCHMETZER CROSSING	6,540	19	52.6	59.4	34.0	68.2
193	1088709	2027976	NEBO-2-2	9125 NEBO RD	5,114	18	54.7	61.5	33.5	67.5
89	1089545	2041798	MAP-38-11G-1	420 SHADE TREE RD	5,461	25	54.2	60.9	35.0	68.7
177	1078926	2028042	MAP-29-23	225 SCHMETZER CROSSING	6,869	19	52.2	58.9	33.5	67.8
71	1089517	2041961	MAP-38-11G	422 SHADE TREE RD	5,494	25	54.1	60.9	34.9	68.6
115	1070849	2047310	044-024-003	6732 US HIGHWAY 41A	9,653	13	49.2	56.0	32.5	67.3
126	1089485	2042271	MAP-38-11	450 SHADE TREE RD	5,561	25	54.0	60.8	34.1	67.6
79	1077768	2028164	MAP-29-24	241 HART LN	7,729	19	51.1	57.9	34.7	69.2
188	1090007	2042014	MAP-38-11C	340 SHADE TREE RD	5,966	25	53.4	60.2	33.4	66.8
50	1077241	2030556	MAP-29-2	11560 NEBO RD	6,231	29	53.0	59.8	32.8	66.2
206	1090280	2041974	MAP-38-11B	290 SHADE TREE RD	6,205	25	53.0	59.8	33.1	66.5
214	1077575	2030021	MAP-29-3	11455 NEBO RD	6,537	29	52.6	59.4	32.6	66.0
190	1091537	2033730	MAP-39-2-1	1025 BALLSHILL RD	5,474	16	54.1	60.9	32.2	65.6
143	1072623	2033752	MAP-18-11A	12640 NEBO RD	7,106	38	51.9	58.6	35.4	69.9
183	1090770	2030885	MAP-39-29-1	445 BALLSHILL RD	4,929	18	55.0	61.8	32.0	65.4
28	1091457	2032816	MAP-39-3	865 BALLSHILL RD	5,401	18	54.3	61.0	32.2	65.7
184	1071177	2048338	044-024-001	6522 US HWY 41A	10,017	13	48.9	55.7	31.5	66.2
64	1079239	2028279	MAP-29-6-1	150 SCHMETZER CROSSING	6,461	19	52.7	59.5	34.2	68.5
182	1078116	2049313	053-009-001	561 CLAYTON RD	6,193	21	53.1	59.8	31.7	65.1
210	1072576	2048219	054-001-001	400 OLD STANHOPE RD	8,889	13	49.9	56.7	31.6	65.9
7	1091696	2032803	MAP-39-5B	860 BALLSHILL RD	5,644	18	53.9	60.6	31.8	65.2
197	1091803	2033338	MAP-39-5	970 BALLSHILL RD	5,756	16	53.7	60.5	31.8	65.3
15	1067505	2035786	045-057-001-001	230 GREG HUDSON DR	10,303	38	48.6	55.4	30.2	65.0
167	1091058	2030876	NEBO-3-4-7	518 BALLSHILL RD	5,216	18	54.6	61.3	31.6	65.1
108	1091267	2031346	MAP-39-24	595 BALLSHILL RD	5,300	18	54.4	61.2	31.7	65.1
37	1091378	2031555	MAP-39-25	625 BALLSHILL RD	5,372	18	54.3	61.1	31.7	65.1
180	1078861	2027814	MAP-29-23A-2	255 SCHMETZER CROSSING	7,063	19	51.9	58.7	33.2	67.6
124	1077579	2029110	MAP-29-5	219B HART LN	7,337	29	51.6	58.4	35.6	70.1
136	1091014	2030661	NEBO-3-4	480 BALLSHILL RD	5,241	18	54.5	61.3	31.5	64.9
23	1090639	2029854	NEBO-1-2	275 BALLSHILL RD	5,203	18	54.6	61.3	31.4	64.8
82	1090908	2030288	NEBO-3-15	370 BALLSHILL RD	5,276	18	54.5	61.2	31.4	64.8
154	1091008	2030453	NEBO-3-15A	400 BALLSHILL RD	5,301	18	54.4	61.2	31.4	64.8
5	1078711	2026973	MAP-29-25B	385 SCHMETZER CROSSING	7,731	19	51.1	57.9	31.6	65.9
130	1072129	2033334	MAP-18-18	12675 NEBO RD	7,758	38	51.1	57.9	32.4	66.6
211	1072217	2033815	MAP-18-6-1	12670 NEBO RD	7,317	38	51.6	58.4	35.1	69.6
117	1072345	2033684	MAP-18-11	12650 NEBO RD	7,336	38	51.6	58.4	35.1	69.7
9	1090894	2029992	NEBO-3-4B	320 BALLSHILL RD	5,379	18	54.3	61.1	31.1	64.6
168	1091448	2030965	MAP-39-19	515 N HOFFMAN ST	5,569	18	54.0	60.8	31.2	64.7
10	1091636	2031323	MAP-39-15	15 COATS LN	5,656	18	53.8	60.6	31.2	64.7
195	1078786	2027019	MAP-29-25B	385 SCHMETZER CROSSING	7,642	19	51.2	58.0	31.2	65.3
86	1071922	2033422	MAP-18-18-1	12695 NEBO RD	7,825	38	51.0	57.8	34.5	69.2
163	1091419	2030777	NEBO-3-2	465 N HOFFMAN ST	5,585	18	54.0	60.7	31.1	64.6
33	1078784	2026744	MAP-29-25	465 SCHMETZER CROSSING	7,843	19	51.0	57.8	30.9	65.0
185	1089425	2028211	NEBO-2-3A	9075 NEBO RD	5,318	18	54.4	61.2	31.4	65.0
175	1090816	2029707	NEBO-3-13	250 BALLSHILL RD	5,430	18	54.2	61.0	31.0	64.5
42	1090854	2029797	NEBO-3-13	250 BALLSHILL RD	5,431	18	54.2	61.0	31.0	64.5

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178	1091161	2030191	NEBO-3-4-5	335 N HOFFMAN ST	5,544	18	54.0	60.8	31.0	64.5
199	1091398	2030632	NEBO-3-3	445 N HOFFMAN ST	5,609	18	53.9	60.7	31.0	64.5
172	1091551	2030924	MAP-39-18	500 N HOFFMAN ST	5,670	18	53.8	60.6	31.0	64.5
198	1091767	2031274	MAP-39-14A	45 COATS LN	5,783	18	53.7	60.4	31.0	64.5
96	1078303	2027768	MAP-29-6A-26	285 SCHMETZER CROSSING	7,524	19	51.4	58.1	33.9	68.4
95	1078785	2026847	MAP-29-25-3	435 SCHMETZER CROSSING	7,772	19	51.1	57.9	31.0	65.2
56	1078783	2026607	MAP-29-25	465 SCHMETZER CROSSING	7,946	19	50.9	57.7	30.7	64.9
119	1090784	2029493	NEBO-3-12	210 N BERNARD ST	5,525	18	54.1	60.8	30.8	64.3
103	1072012	2033685	MAP-18-6-1-1	12690 NEBO RD	7,581	38	51.3	58.1	34.9	69.4
30	1091515	2030510	NEBO-7-3A	10 CHURCH ST	5,740	18	53.7	60.5	30.8	64.4
91	1091582	2030643	NEBO-7-1	440 N HOFFMAN RD	5,769	18	53.7	60.4	30.8	64.4
49	1090091	2028580	NEBO-1-12	8950 NEBO RD	5,493	18	54.1	60.9	30.7	64.2
132	1090758	2029314	NEBO-4-1	180 N BERNARD ST	5,585	18	54.0	60.7	30.7	64.2
174	1090745	2029248	NEBO-4-11A	170 N BERNARD ST	5,616	18	53.9	60.7	30.6	64.1
47	1090755	2029186	NEBO-4-10	150 N BERNARD ST	5,646	18	53.9	60.6	30.6	64.1
181	1091302	2029968	NEBO-3-4D	315 N HOFFMAN ST	5,760	18	53.7	60.5	30.6	64.2
196	1077986	2027697	MAP-29-6A-28	165 HART LN	7,809	19	51.0	57.8	30.7	64.5
207	1090016	2028345	NEBO-2-4	8915 & 8955 NEBO RD	5,619	18	53.9	60.7	30.5	63.9
149	1090537	2028865	NEBO-1-4	85 N BERNARD ST	5,658	18	53.8	60.6	30.5	64.0
128	1090491	2028781	NEBO-1-5	75 N BERNARD ST	5,686	18	53.8	60.6	30.5	64.0
155	1090728	2029068	NEBO-4-8	120 N BERNARD ST	5,694	18	53.8	60.6	30.5	64.0
68	1091322	2029841	NEBO-3-5	295 HOFFMAN ST	5,832	18	53.6	60.4	30.5	64.0
34	1091512	2030133	NEBO-7-5A	350 N HOFFMAN ST	5,881	18	53.5	60.3	30.5	64.0
176	1071752	2033446	MAP-18-16	12715 NEBO RD	7,918	38	50.9	57.7	34.3	69.0
101	1090244	2028525	NEBO-1-11	8920 NEBO RD	5,649	18	53.9	60.6	30.4	63.9
27	1090717	2028948	NEBO-4-7	100 N BERNARD ST	5,755	18	53.7	60.5	30.3	63.9
114	1091242	2029604	NEBO-3-8	225 HOFFMAN ST	5,835	18	53.6	60.4	30.4	63.9
18	1078327	2027377	MAP-29-25A	325 SCHMETZER CROSSING	7,748	19	51.1	57.9	30.6	64.5
48	1074251	2048563	053-020-000	499 OLD STANHOPE RD	7,829	21	51.0	57.8	33.4	67.8
53	1090206	2028343	NEBO-2-4	8915 NEBO RD	5,751	18	53.7	60.5	30.3	63.8
84	1091023	2029245	NEBO-4-2	65 GREEN ST	5,838	18	53.6	60.3	30.3	63.8
40	1090413	2028504	NEBO-1-10	8880 NEBO RD	5,801	18	53.6	60.4	30.2	63.7
38	1090716	2028802	NEBO-5-1	N BERNARD ST	5,822	18	53.6	60.4	30.2	63.7
92	1090953	2029062	NEBO-4-6	60 ELM ST	5,879	18	53.5	60.3	30.2	63.8
70	1091269	2029493	NEBO-3-9	217 LIBERTY RD	5,940	18	53.4	60.2	30.2	63.8
39	1090372	2028328	NEBO-2-5	8885 NEBO RD	5,885	18	53.5	60.3	30.0	63.6
19	1090824	2028822	NEBO-5-1	80 N BERNARD ST	5,907	18	53.5	60.2	30.1	63.6
97	1091402	2029473	NEBO-7-8	220 N HOFFMAN RD	6,067	18	53.2	60.0	30.1	63.7
1	1090664	2028594	NEBO-5-16	40 N BERNARD ST	5,938	18	53.4	60.2	30.0	63.6
165	1090614	2028434	NEBO-5-14	NEBO RD	6,007	18	53.3	60.1	29.9	63.4
169	1091228	2029116	NEBO-4-4	155 N HOFFMAN ST	6,095	18	53.2	60.0	29.9	63.5
162	1071035	2033595	MAP-18-15-1	12875 NEBO RD	8,333	38	50.5	57.3	33.6	68.4
170	1070823	2033712	MAP-18-13	12965 NEBO RD	8,413	38	50.5	57.2	33.5	68.3
112	1071216	2032952	MAP-18-17	12705 NEBO RD	8,643	38	50.2	56.9	30.4	64.6
59	1090427	2028001	NEBO-2-7	65 S BERNARD ST	6,150	18	53.1	59.9	29.6	63.2
158	1091133	2028766	NEBO-5-4	85 N HOFFMAN ST	6,206	18	53.0	59.8	29.6	63.2

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100	1082544	2025492	MAP-29-32	322 HAYES RD	7,049	19	51.9	58.7	29.7	63.5
31	1090631	2028116	NEBO-6-16	40 S BERNARD ST	6,207	18	53.0	59.8	29.6	63.1
107	1090927	2028402	NEBO-5-8	8790 NEBO RD	6,261	18	53.0	59.7	29.5	63.1
60	1070488	2033748	MAP-18-14A	13125 NEBO RD	8,655	38	50.2	56.9	29.7	63.7
173	1090387	2027839	NEBO-2-8	105 S BERNARD ST	6,239	18	53.0	59.8	29.4	63.0
137	1090601	2027990	NEBO-6-15	60 S BERNARD ST	6,279	18	52.9	59.7	29.4	62.9
156	1070416	2033787	MAP-18-14	13135 NEBO RD	8,687	38	50.1	56.9	29.6	63.6
161	1090365	2027754	NEBO-2-9	125 S BERNARD ST	6,274	18	52.9	59.7	29.4	62.9
74	1090328	2027604	NEBO-2-9A	140 S BERNARD ST	6,364	18	52.8	59.6	29.3	62.8
166	1081914	2025267	MAP-29-31	535 HAYES RD	7,448	19	51.5	58.2	29.4	63.2
81	1069821	2034350	MAP-18-2A	13140 NEBO RD	8,822	38	50.0	56.8	29.4	63.4
3	1069764	2033857	MAP-18-12	13195 NEBO RD	9,163	38	49.7	56.4	29.2	63.3
4	1069525	2034277	MAP-18-2B	13200 NEBO RD	9,119	38	49.7	56.5	29.0	63.1
104	1069444	2033977	MAP-18-12H	13305 NEBO RD	9,364	38	49.5	56.2	28.8	63.0
191	1071466	2050098	053-018-001	6184 US HIGHWAY 41A	10,970	21	48.1	54.9	28.4	63.0
24	1068476	2034306	045-058-000	HWY 41A	10,025	38	48.9	55.7	27.8	62.1
12	1068775	2033715	MAP-18-1C	13375 NEBO RD	10,057	38	48.9	55.6	27.9	62.1
75	1068374	2034326	045-059-000	1100 US HIGHWAY 41A	10,097	38	48.8	55.6	27.8	62.0
138	1071252	2049690	053-018-000	HWY 41A	10,875	13	48.2	54.9	28.8	63.4
57	1067090	2034953	045-057-002	901 US HIGHWAY 41A	10,985	38	48.1	54.9	26.5	60.9
80	1067092	2034398	045-060-004	900 US HIGHWAY 41A	11,196	38	47.9	54.7	25.9	60.2
77	1066298	2034577	045-067-000	104 EDGEWOOD DR	11,860	38	47.4	54.2	25.1	59.6
139	1066323	2034430	045-067-000	104 EDGEWOOD DR	11,887	38	47.4	54.2	25.1	59.6
150	1066290	2033336	045-061-000	210 EDGEWOOD DR	12,408	38	47.0	53.8	23.9	58.4
111	1066139	2033155	045-062-000	216 EDGEWOOD DR	12,610	38	46.9	53.7	23.6	58.0
129	1066108	2032951	045-063-000	224 EDGEWOOD DR	12,762	38	46.8	53.6	23.9	58.4

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76	1083323	2037310	MAP-28-18	755 GREENWOOD RD	7,014	52.0	58.8	51.6	83.1
164	1082890	2037515	MAP-28-18	2195 DONALDSON RD	6,570	52.5	59.3	51.2	82.9
140	1077448	2040204	054-015-000	369 RUSSELL FARMS RD	2,015	62.8	69.6	50.7	82.1
8	1084193	2041691	MAP-28-18	2105 DONALDSON RD	5,995	53.3	60.1	46.1	78.5

<sup>1</sup>Calculated using NAD\_1983\_StatePlane\_Kentucky\_South\_FIPS\_1602\_Feet

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213	1082085	2039101	MAP-28-11	4520 DONALDSON RD	4,923	55.1	61.8	49.2	81.4
141	1077253	2042286	054-013-000	434 CORINTH CHURCH RD	876	70.0	76.8	46.6	77.7
67	1085135	2040528	MAP-28-8	670 GREENWOOD RD	7,148	51.8	58.6	46.6	78.6
160	1085034	2040725	MAP-28-7	640 GREENWOOD RD	7,005	52.0	58.8	46.6	78.5
99	1084915	2040892	MAP-28-8	670 GREENWOOD RD	6,853	52.2	59.0	46.6	78.6
94	1085508	2036435	MAP-38-29C	1610 DONALDSON RD	9,261	49.6	56.3	45.3	78.0
208	1085717	2036379	MAP-38-29A	1590 DONALDSON RD	9,460	49.4	56.2	45.0	77.7
16	1085133	2040813	MAP-28-8	600 GREENWOOD RD	7,093	51.9	58.7	45.9	77.9
148	1086283	2030862	MAP-28-23A	625 DONALDSON RD	13,855	46.1	52.8	43.2	75.8
41	1075697	2041837	054-004-001	372 WELDON RD	2,434	61.2	67.9	42.5	75.3
123	1086829	2036458	MAP-38-29A-1	1600 DONALDSON RD	10,330	48.6	55.4	42.9	76.0
73	1084930	2041141	MAP-28-6	690 GREENWOOD RD	6,811	52.2	59.0	45.6	77.8
58	1086251	2030452	MAP-29-12A	535 DONALDSON RD	14,169	45.9	52.6	41.9	74.8
90	1087070	2033401	MAP-28-21A	1080 DONALDSON RD	12,428	47.0	53.8	44.3	76.4
116	1074713	2043775	054-003-000	2245 STATE ROUTE 120	3,775	57.4	64.1	39.1	72.6
146	1074189	2043212	054-012-001	2106 STATE ROUTE 120	4,073	56.7	63.5	38.8	72.4
127	1086431	2029138	MAP-29-14A	300 DONALDSON RD	15,348	45.2	52.0	38.6	72.2
72	1080674	2029259	MAP-29-9B	10840 NEBO RD	13,075	46.6	53.3	37.4	71.5
110	1077560	2030967	MAP-29-1C	11490 NEBO RD	11,134	48.0	54.7	37.3	71.5
25	1072666	2042985	054-010-000	1835 STATE ROUTE 120	5,521	54.1	60.8	36.9	70.9
52	1081472	2028338	MAP-29-20A	10595 NEBO RD	14,152	45.9	52.7	36.7	70.9
135	1081194	2028381	MAP-29-20	10685 NEBO RD	14,041	46.0	52.7	36.7	70.9
171	1080791	2028510	MAP-29-21	10775 NEBO RD	13,841	46.1	52.8	36.6	70.8
122	1077715	2030626	MAP-29-1B	11480 NEBO RD	11,478	47.7	54.5	37.1	71.3
157	1085423	2027840	MAP-29-13	9850 NEBO RD	15,992	44.8	51.6	36.8	70.8
98 14	1086372	2027986	MAP-29-14	9580A NEBO RD	16,314	44.6 46.6	51.4	36.7 36.7	70.7
22	1079590 1073440	2029128 2033653	MAP-29-7 MAP-18-10B	10910 NEBO RD 99 FERRELL LOOP	13,043 9,657	40.0	53.4	36.1	70.9
133	1073440	2033633	MAP-18-10B MAP-29-17	10025 NEBO RD	15,877	49.2	56.0	36.4	70.5
204	1072136	2027323	054-011-002	QUAIL RUN	6,021	53.3	60.1	36.2	70.3
204	1072130	2042475	054-011-002	21 QUAIL RUN DR	6,131	53.1	59.9	36.2	70.4
78	1073244	2033677	MAP-18-10A	115 FERRELL LOOP	9,733	49.1	55.9	35.9	70.3
152	1078093	2045536	054-008-001	2994 STATE ROUTE 120	3,386	58.3	65.1	41.0	76.5
85	1072079	2043097	054-011-002-004	100 QUAIL RUN DR	6,107	53.2	60.0	36.1	70.3
88	1078276	2029470	MAP-29-6A-20	11295 NEBO RD	12,617	46.9	53.7	36.3	70.6
17	1078378	2029414	MAP-29-6A-19	11265 NEBO RD	12,676	46.8	53.6	36.3	70.6
61	1078464	2029350	MAP-29-6A-18	11255 NEBO RD	12,742	46.8	53.6	36.3	70.6
187	1078537	2029306	MAP-29-6A-17	11245 NEBO RD	12,785	46.8	53.5	36.3	70.6
26	1085830	2043505	MAP-27-6	1220 GREENWOOD RD	7,767	51.1	57.9	37.7	70.4
147	1079539	2028858	MAP-29-6	10905 NEBO RD	13,302	46.4	53.2	36.4	70.7
65	1085687	2043805	MAP-27-3A	1270 SHADE TREE RD	7,693	51.2	58.0	37.6	70.3
203	1071901	2043209	054-011-002-003	QUAIL RUN	6,296	52.9	59.7	35.8	70.0

	COORDINATE	S OF RECEPTOR	PARCEL INFORMATION						
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105	1071730	2042866	054-011-001-003	211 QUAIL RUN DR	6,409	52.8	59.5	35.8	70.0
120	1086802	2043448	MAP-27-5-5	1060 SHADE TREE RD	8,709	50.1	56.9	37.0	70.2
35	1086343	2043820	MAP-27-5C	50 FREEDOM RD	8,358	50.5	57.2	36.8	69.7
212	1074462	2032084	MAP-18-20-1	12111 NEBO RD	10,663	48.3	55.1	35.9	70.3
125	1087099	2043533	MAP-27-5	SHADE TREE RD	9,034	49.8	56.6	37.4	70.8
179	1071706	2043341	054-011-002-002	190 QUAIL RUN DR	6,515	52.6	59.4	35.5	69.8
205	1071634	2043009	054-011-001	219 QUAIL RUN DR	6,524	52.6	59.4	35.6	69.8
36	1073681	2032747	MAP-18-20	12325 NEBO RD	10,337	48.6	55.4	35.7	70.2
209	1087790	2043554	MAP-27-5-4	940 SHADE TREE RD	9,698	49.2	55.9	36.7	70.3
202	1071518	2043164	054-011-001-005	223 QUAIL RUN DR	6,664	52.4	59.2	35.4	69.7
29	1071581	2043492	054-011-002-001	230 QUAIL RUN DR	6,669	52.4	59.2	35.3	69.6
93	1086110	2043922	MAP-27-3B	1270 SHADE TREE RD	8,131	50.7	57.5	36.9	69.7
46	1071380	2043325	054-011-001-006	225 QUAIL RUN DR	6,827	52.2	59.0	35.2	69.5
66	1087800	2043420	MAP-27-5-4-1	930 SHADE TREE RD	9,707	49.2	55.9	36.8	70.4
134	1085810	2044279	MAP-27-3C	FREEDOM RD	7,937	50.9	57.7	36.6	69.2
13	1077274	2028954	MAP-18-21-2	219 HART LN	13,166	46.5	53.3	35.3	69.8
83	1078826	2029105	MAP-29-6A-14	11225 NEBO RD	13,003	46.6	53.4	36.1	70.4
6	1077981	2028192	MAP-29-6B	207 HART LN	13,905	46.0	52.8	35.0	69.6
102	1070308	2040220	054-011-004	135 PIN OAK LN	8,035	50.8	57.6	34.7	69.2
145	1078034	2028743	MAP-29-6A-25	220 HART LN	13,353	46.4	53.2	35.4	69.9
113	1087351	2027175	MAP-29-15-1	9505 NEBO RD	17,510	44.0	50.8	34.9	69.2
20	1077602	2046090	054-004-002	113 H WELDON RD	3,964	56.9	63.7	38.7	72.1
45	1078641	2028653	MAP-29-6A-29	67 FAWN LN	13,460	46.3	53.1	35.1	69.4
21	1089732	2042697	MAP-38-11G	422 SHADE TREE RD	11,572	47.6	54.4	35.3	69.3
106	1078325	2028006	MAP-29-6F	105 HART LN	14,105	45.9	52.7	34.5	69.1
51	1078088	2028409	MAP-29-6A-2	204 HART LN	13,691	46.2	52.9	35.0	69.5
153	1078598	2028574	MAP-29-6A-29	67 FAWN LN	13,529	46.3	53.0	35.0	69.4
200	1083969	2027391	MAP-29-17	10109 NEBO RD	15,807	44.9	51.7	36.1	70.3
62	1086137	2044594	MAP-27-3	165 FREEDOM RD	8,332	50.5	57.3	35.8	68.5
144	1077955	2028540	MAP-29-6A-1	HART LN	13,561	46.3	53.0	35.1	69.6
131	1078260	2028396	MAP-29-6A-3	144 HART LN	13,708	46.2	52.9	34.9	69.3
55	1078487	2028375	MAP-29-6A-5	96 HART LN	13,733	46.1	52.9	34.7	69.2
44	1078455	2028132	MAP-29-6C	95 HART LN	13,971	46.0	52.8	34.5	69.0
109	1087565	2043092	MAP-27-5B	890 SHADE TREE RD	9,425	49.4	56.2	36.1	69.2
189	1078606	2028365	MAP-29-6A-6	70 HART LN	13,744	46.1	52.9	34.8	69.2
159	1086732	2044461	MAP-27-4-1	182 FREEDOM LN	8,871	49.9	56.7	35.2	68.1
54	1087756	2042968	MAP-27-5A	840 SHADE TREE RD	9,603	49.3	56.0	36.1	69.4
142	1085599	2045772	063-011-000	1070 PICAS AUSTIN RD	8,283	50.5	57.3	35.0	67.9
87	1078767	2028520	MAP-29-6A-27	44 FAWN LN	13,572	46.2	53.0	34.9	69.3
11	1083587	2027543	MAP-29-18	10155 NEBO RD	15,526	45.1	51.9	36.4	70.6
43	1070233	2045355	044-028-000	7112 US HIGHWAY 41A	8,534	50.3	57.0	33.2	67.9
63	1079039	2029053	MAP-29-6A-13	11145 NEBO RD	13,077	46.6	53.3	35.6	69.9

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192	1088854	2042019	MAP-38-1A	560 SHADE TREE RD	10,671	48.3	55.1	36.3	70.0
69	1088961	2041689	MAP-38-13	515 SHADE TREE RD	10,784	48.2	55.0	36.9	70.7
151	1078976	2028699	MAP-29-6A-10	75 SCHMETZER CROSSING	13,414	46.3	53.1	34.4	68.6
194	1088565	2027914	NEBO-2-1	9255 NEBO RD	17,600	44.0	50.8	33.6	67.6
201	1074399	2046254	053-021-001	921 OLD STANHOPE RD	5,537	54.0	60.8	35.8	69.7
32	1078601	2028045	MAP-29-23A-1	73 HART LN	14,054	45.9	52.7	34.1	68.6
186	1078788	2028348	MAP-29-6A-7	42 HART LN	13,762	46.1	52.9	34.3	68.7
121	1089051	2042119	MAP-38-11E	530 SHADE TREE RD	10,869	48.2	54.9	35.7	69.4
118	1078968	2028533	MAP-29-6A-9	105 SCHMETZER CROSSING	13,583	46.2	53.0	34.0	68.2
193	1088709	2027976	NEBO-2-2	9125 NEBO RD	17,632	44.0	50.7	33.5	67.5
177	1078926	2028042	MAP-29-23	225 SCHMETZER CROSSING	14,079	45.9	52.7	33.5	67.8
89	1089545	2041798	MAP-38-11G-1	420 SHADE TREE RD	11,363	47.8	54.6	35.0	68.7
115	1070849	2047310	044-024-003	6732 US HIGHWAY 41A	8,927	49.9	56.7	32.5	67.3
71	1089517	2041961	MAP-38-11G	422 SHADE TREE RD	11,349	47.8	54.6	34.9	68.6
126	1089485	2042271	MAP-38-11	450 SHADE TREE RD	11,316	47.8	54.6	34.1	67.6
79	1077768	2028164	MAP-29-24	241 HART LN	13,939	46.0	52.8	34.7	69.2
188	1090007	2042014	MAP-38-11C	340 SHADE TREE RD	11,827	47.4	54.2	33.4	66.8
50	1077241	2030556	MAP-29-2	11560 NEBO RD	11,560	47.6	54.4	32.8	66.2
206	1090280	2041974	MAP-38-11B	290 SHADE TREE RD	12,086	47.3	54.0	33.1	66.5
214	1077575	2030021	MAP-29-3	11455 NEBO RD	12,090	47.3	54.0	32.6	66.0
190	1091537	2033730	MAP-39-2-1	1025 BALLSHILL RD	15,763	44.9	51.7	32.2	65.6
143	1072623	2033752	MAP-18-11A	12640 NEBO RD	9,998	48.9	55.7	35.4	69.9
184	1071177	2048338	044-024-001	6522 US HWY 41A	9,317	49.5	56.3	31.5	66.2
28	1091457	2032816	MAP-39-3	865 BALLSHILL RD	16,207	44.7	51.5	32.2	65.7
183	1090770	2030885	MAP-39-29-1	445 BALLSHILL RD	16,859	44.4	51.1	32.0	65.4
64	1079239	2028279	MAP-29-6-1	150 SCHMETZER CROSSING	13,855	46.1	52.8	34.2	68.5
210	1072576	2048219	054-001-001	400 OLD STANHOPE RD	8,222	50.6	57.4	31.6	65.9
182	1078116	2049313	053-009-001	561 CLAYTON RD	7,160	51.8	58.6	31.7	65.1
15	1067505	2035786	045-057-001-001	230 GREG HUDSON DR	12,355	47.1	53.8	30.2	65.0
197	1091803	2033338	MAP-39-5	970 BALLSHILL RD	16,214	44.7	51.5	31.8	65.3
7	1091696	2032803	MAP-39-5B	860 BALLSHILL RD	16,407	44.6	51.4	31.8	65.2
124	1077579	2029110	MAP-29-5	219B HART LN	12,993	46.6	53.4	35.6	70.1
37	1091378	2031555	MAP-39-25	625 BALLSHILL RD	16,899	44.3	51.1	31.7	65.1
108	1091267	2031346	MAP-39-24	595 BALLSHILL RD	16,961	44.3	51.1	31.7	65.1
167	1091058	2030876	NEBO-3-4-7	518 BALLSHILL RD	17,098	44.2	51.0	31.6	65.1
180	1078861	2027814	MAP-29-23A-2	255 SCHMETZER CROSSING	14,305	45.8	52.6	33.2	67.6
136	1091014	2030661	NEBO-3-4	480 BALLSHILL RD	17,200	44.2	51.0	31.5	64.9
5	1078711	2026973	MAP-29-25B	385 SCHMETZER CROSSING	15,125	45.3	52.1	31.6	65.9
130	1072129	2033334	MAP-18-18	12675 NEBO RD	10,631	48.4	55.1	32.4	66.6
154	1091008	2030453	NEBO-3-15A	400 BALLSHILL RD	17,338	44.1	50.9	31.4	64.8
82	1090908	2030288	NEBO-3-15	370 BALLSHILL RD	17,374	44.1	50.9	31.4	64.8
23	1090639	2029854	NEBO-1-2	275 BALLSHILL RD	17,467	44.1	50.8	31.4	64.8

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117	1072345	2033684	MAP-18-11	12650 NEBO RD	10,200	48.7	55.5	35.1	69.7
211	1072217	2033815	MAP-18-6-1	12670 NEBO RD	10,157	48.8	55.5	35.1	69.6
195	1078786	2027019	MAP-29-25B	385 SCHMETZER CROSSING	15,072	45.3	52.1	31.2	65.3
86	1071922	2033422	MAP-18-18-1	12695 NEBO RD	10,665	48.3	55.1	34.5	69.2
10	1091636	2031323	MAP-39-15	15 COATS LN	17,242	44.2	50.9	31.2	64.7
168	1091448	2030965	MAP-39-19	515 N HOFFMAN ST	17,334	44.1	50.9	31.2	64.7
9	1090894	2029992	NEBO-3-4B	320 BALLSHILL RD	17,568	44.0	50.8	31.1	64.6
33	1078784	2026744	MAP-29-25	465 SCHMETZER CROSSING	15,354	45.2	51.9	30.9	65.0
163	1091419	2030777	NEBO-3-2	465 N HOFFMAN ST	17,432	44.1	50.8	31.1	64.6
56	1078783	2026607	MAP-29-25	465 SCHMETZER CROSSING	15,499	45.1	51.9	30.7	64.9
95	1078785	2026847	MAP-29-25-3	435 SCHMETZER CROSSING	15,259	45.2	52.0	31.0	65.2
96	1078303	2027768	MAP-29-6A-26	285 SCHMETZER CROSSING	14,327	45.8	52.5	33.9	68.4
172	1091551	2030924	MAP-39-18	500 N HOFFMAN ST	17,436	44.1	50.8	31.0	64.5
199	1091398	2030632	NEBO-3-3	445 N HOFFMAN ST	17,513	44.0	50.8	31.0	64.5
198	1091767	2031274	MAP-39-14A	45 COATS LN	17,362	44.1	50.9	31.0	64.5
178	1091161	2030191	NEBO-3-4-5	335 N HOFFMAN ST	17,626	44.0	50.7	31.0	64.5
42	1090854	2029797	NEBO-3-13	250 BALLSHILL RD	17,675	44.0	50.7	31.0	64.5
175	1090816	2029707	NEBO-3-13	250 BALLSHILL RD	17,701	43.9	50.7	31.0	64.5
185	1089425	2028211	NEBO-2-3A	9075 NEBO RD	17,870	43.9	50.6	31.4	65.0
103	1072012	2033685	MAP-18-6-1-1	12690 NEBO RD	10,414	48.5	55.3	34.9	69.4
119	1090784	2029493	NEBO-3-12	210 N BERNARD ST	17,838	43.9	50.6	30.8	64.3
91	1091582	2030643	NEBO-7-1	440 N HOFFMAN RD	17,636	44.0	50.7	30.8	64.4
30	1091515	2030510	NEBO-7-3A	10 CHURCH ST	17,666	44.0	50.7	30.8	64.4
132	1090758	2029314	NEBO-4-1	180 N BERNARD ST	17,941	43.8	50.6	30.7	64.2
174	1090745	2029248	NEBO-4-11A	170 N BERNARD ST	17,985	43.8	50.6	30.6	64.1
49	1090091	2028580	NEBO-1-12	8950 NEBO RD	18,006	43.8	50.6	30.7	64.2
196	1077986	2027697	MAP-29-6A-28	165 HART LN	14,388	45.7	52.5	30.7	64.5
181	1091302	2029968	NEBO-3-4D	315 N HOFFMAN ST	17,888	43.8	50.6	30.6	64.2
47	1090755	2029186	NEBO-4-10	150 N BERNARD ST	18,027	43.8	50.6	30.6	64.1
176	1071752	2033446	MAP-18-16	12715 NEBO RD	10,746	48.3	55.0	34.3	69.0
34	1091512	2030133	NEBO-7-5A	350 N HOFFMAN ST	17,918	43.8	50.6	30.5	64.0
68	1091322	2029841	NEBO-3-5	295 HOFFMAN ST	17,989	43.8	50.6	30.5	64.0
155	1090728	2029068	NEBO-4-8	120 N BERNARD ST	18,094	43.7	50.5	30.5	64.0
149	1090537	2028865	NEBO-1-4	85 N BERNARD ST	18,106	43.7	50.5	30.5	64.0
128	1090491	2028781	NEBO-1-5	75 N BERNARD ST	18,148	43.7	50.5	30.5	64.0
207	1090016	2028345	NEBO-2-4	8915 & 8955 NEBO RD	18,152	43.7	50.5	30.5	63.9
18	1078327	2027377	MAP-29-25A	325 SCHMETZER CROSSING	14,713	45.5	52.3	30.6	64.5
48	1074251	2048563	053-020-000	499 OLD STANHOPE RD	7,500	51.4	58.2	33.4	67.8
114	1091242	2029604	NEBO-3-8	225 HOFFMAN ST	18,061	43.8	50.5	30.4	63.9
101	1090244	2028525	NEBO-1-11	8920 NEBO RD	18,156	43.7	50.5	30.4	63.9
27	1090717	2028948	NEBO-4-7	100 N BERNARD ST	18,172	43.7	50.5	30.3	63.9
84	1091023	2029245	NEBO-4-2	65 GREEN ST	18,171	43.7	50.5	30.3	63.8

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53	1090206	2028343	NEBO-2-4	8915 NEBO RD	18,271	43.7	50.4	30.3	63.8
70	1091269	2029493	NEBO-3-9	217 LIBERTY RD	18,184	43.7	50.5	30.2	63.8
92	1090953	2029062	NEBO-4-6	60 ELM ST	18,254	43.7	50.4	30.2	63.8
38	1090716	2028802	NEBO-5-1	N BERNARD ST	18,260	43.7	50.4	30.2	63.7
40	1090413	2028504	NEBO-1-10	8880 NEBO RD	18,296	43.7	50.4	30.2	63.7
97	1091402	2029473	NEBO-7-8	220 N HOFFMAN RD	18,294	43.7	50.4	30.1	63.7
19	1090824	2028822	NEBO-5-1	80 N BERNARD ST	18,330	43.6	50.4	30.1	63.6
39	1090372	2028328	NEBO-2-5	8885 NEBO RD	18,396	43.6	50.4	30.0	63.6
1	1090664	2028594	NEBO-5-16	40 N BERNARD ST	18,403	43.6	50.4	30.0	63.6
162	1071035	2033595	MAP-18-15-1	12875 NEBO RD	11,072	48.0	54.8	33.6	68.4
169	1091228	2029116	NEBO-4-4	155 N HOFFMAN ST	18,420	43.6	50.4	29.9	63.5
165	1090614	2028434	NEBO-5-14	NEBO RD	18,490	43.6	50.3	29.9	63.4
170	1070823	2033712	MAP-18-13	12965 NEBO RD	11,116	48.0	54.8	33.5	68.3
112	1071216	2032952	MAP-18-17	12705 NEBO RD	11,457	47.7	54.5	30.4	64.6
100	1082544	2025492	MAP-29-32	322 HAYES RD	17,178	44.2	51.0	29.7	63.5
158	1091133	2028766	NEBO-5-4	85 N HOFFMAN ST	18,597	43.5	50.3	29.6	63.2
59	1090427	2028001	NEBO-2-7	65 S BERNARD ST	18,678	43.5	50.2	29.6	63.2
60	1070488	2033748	MAP-18-14A	13125 NEBO RD	11,320	47.8	54.6	29.7	63.7
31	1090631	2028116	NEBO-6-16	40 S BERNARD ST	18,714	43.5	50.2	29.6	63.1
107	1090927	2028402	NEBO-5-8	8790 NEBO RD	18,719	43.5	50.2	29.5	63.1
156	1070416	2033787	MAP-18-14	13135 NEBO RD	11,337	47.8	54.6	29.6	63.6
173	1090387	2027839	NEBO-2-8	105 S BERNARD ST	18,775	43.4	50.2	29.4	63.0
137	1090601	2027990	NEBO-6-15	60 S BERNARD ST	18,797	43.4	50.2	29.4	62.9
161	1090365	2027754	NEBO-2-9	125 S BERNARD ST	18,814	43.4	50.2	29.4	62.9
166	1081914	2025267	MAP-29-31	535 HAYES RD	17,229	44.2	50.9	29.4	63.2
74	1090328	2027604	NEBO-2-9A	140 S BERNARD ST	18,911	43.4	50.1	29.3	62.8
81	1069821	2034350	MAP-18-2A	13140 NEBO RD	11,334	47.8	54.6	29.4	63.4
3	1069764	2033857	MAP-18-12	13195 NEBO RD	11,737	47.5	54.3	29.2	63.3
4	1069525	2034277	MAP-18-2B	13200 NEBO RD	11,617	47.6	54.4	29.0	63.1
104	1069444	2033977	MAP-18-12H	13305 NEBO RD	11,892	47.4	54.2	28.8	63.0
191	1071466	2050098	053-018-001	6184 US HIGHWAY 41A	10,380	48.6	55.3	28.4	63.0
24	1068476	2034306	045-058-000	HWY 41A	12,409	47.0	53.8	27.8	62.1
12	1068775	2033715	MAP-18-1C	13375 NEBO RD	12,549	46.9	53.7	27.9	62.1
75	1068374	2034326	045-059-000	1100 US HIGHWAY 41A	12,468	47.0	53.8	27.8	62.0
138	1071252	2049690	053-018-000	HWY 41A	10,210	48.7	55.5	28.8	63.4
57	1067090	2034953	045-057-002	901 US HIGHWAY 41A	13,140	46.5	53.3	26.5	60.9
80	1067092	2034398	045-060-004	900 US HIGHWAY 41A	13,440	46.3	53.1	25.9	60.2
77	1066298	2034577	045-067-000	104 EDGEWOOD DR	14,008	46.0	52.7	25.1	59.6
139	1066323	2034430	045-067-000	104 EDGEWOOD DR	14,061	45.9	52.7	25.1	59.6
150	1066290	2033336	045-061-000	210 EDGEWOOD DR	14,732	45.5	52.3	23.9	58.4
111	1066139	2033155	045-062-000	216 EDGEWOOD DR	14,943	45.4	52.2	23.6	58.0
129	1066108	2032951	045-063-000	224 EDGEWOOD DR	15,117	45.3	52.1	23.9	58.4



Familyment		Frequency [Hz]										
Equipment	63	125	250	500	1000	2000	4000	8000	[dB]	[dBA]		
Grader	88	87	83	79	84	78	74	65	92	87		
Dump Truck	85	74	78	73	73	74	67	63	87	79		
Water Truck	70	65	66	64	64	63	56	46	74	69		
Generator	75	72	67	68	70	66	62	60	79	73		
Flat Bed Truck	73	78	78	78	74	73	68	66	84	80		
Impact Pile Driver	87	93	85	87	83	80	75	72	96	89		

#### **APPENDIX C – SOUND SPECTRA OF CONSTRUCTION EQUIPMENT**

Sound Spectra referenced from DEFRA [8] and adjusted to match overall FHWA [7] construction sound levels at 50 ft. Octave band spectra are shown in dB.



### APPENDIX D – DNV QUALIFICATIONS

Name and Title	Brief Biography
Siting and Acoustics Engineer Kristofer Tassis	Mr. Kristofer Tassis brings a wealth of expertise cultivated over 6 years in the field of acoustic engineering, complemented by his status as a licensed professional engineer. With a comprehensive background, he is experienced with the preparation of environmental noise and vibration reports and environmental compliance approvals encompassing energy developments, industrial/commercial/institutional developments and multi-use residential developments. He has been exposed to a wide variety of noise and vibration sources including but not limited to roads, rail, aircraft, and many stationary noise sources associated with renewable energy projects. Mr. Tassis has honed his skills through a spectrum of onsite acoustic measurements, spanning from short and long-term noise monitoring, ground-borne vibration assessments, acoustic inspections, noise transmission measurements, and meticulous investigations of noise complaints. Furthermore, his proficiency extends to architectural acoustic design, encompassing the interior design of theaters, offices, public spaces, and beyond. Mr. Tassis has a bachelor's degree in civil engineering from the University of Toronto in Toronto, Canada.
<b>Project Siting Engineer</b> Aren Nercessian	Mr. Nercessian has over 15 years of experience as a consultant in the renewables industry. He has worked on over 100 pre-construction acoustic modeling analyses or reports in North America and worldwide, including more recent solar and battery storage and data center projects, and analyzed pre and post construction acoustic measurement data for over 15 projects. He has well over a decade of experience with sound regulations in several jurisdictions, including Alberta, Ontario, Quebec, in Canada, and Illinois, Minnesota, Michigan and a number of other US States. He is an expert in noise and siting regulations and has participated in public hearings for wind and solar development projects. Mr. Nercessian has a bachelor's degree in mechanical engineering from McGill University in Montreal, Canada.
Director of Environmental and Permitting Services Gabriel Constantin	Gabriel Constantin is the Head of Section at DNV's Environmental and Permitting Services for the North America business group. He leads a group of professionals from various disciplines (biologists, engineers, regulatory specialists) with a focus on siting, environmental permits and inclusive stakeholder engagement. Mr. Constantin has focused his field of expertise around the environmental and permitting aspects of renewable energy projects as well as the relevant regulations and energy policies in different jurisdictions. Mr. Constantin has led the procurement of renewable energy approvals for multiple wind, solar and battery energy storage projects across North America (more than a 2,000 MW) by coordinating with stakeholders and government agencies at all levels, participating in public open houses, managing subcontractors, and writing the mandatory ESIA reports. Moreover, he has significantly contributed to the environmental and social due diligence of various wind, solar and battery energy storage projects in the U.S., Canada, Mexico, and other international mandates and completed several project conformance reviews against the Equator Principles, IFC Performance Standards and World Bank Group/IFC EHS Guidelines. Mr. Constantin holds an M. Sc. in Geographical Sciences applied to the Environment.



#### **About DNV**

We are the independent expert in assurance and risk management. Driven by our purpose, to safeguard life, property and the environment, we empower our customers and their stakeholders with facts and reliable insights so that critical decisions can be made with confidence. As a trusted voice for many of the world's most successful organizations, we use our knowledge to advance safety and performance, set industry benchmarks, and inspire and invent solutions to tackle global transformations.

# Weirs Creek Solar, LLC Case No. 2024-00099

# Application – Exhibit 12 Attachment A Exhibit 5

Visual Representation of Proposed Vegetative Screening (14 Pages)



PHOTO 1 EXISTING CONDITIONS







PHOTO 1 SIMULATED CONDITIONS







**PHOTO 1** SIMULATED CONDITIONS WITH LANDSCAPE MITIGATION - YEAR 1 GROWTH







# **PHOTO 1** SIMULATED CONDITIONS WITH LANDSCAPE MITIGATION - YEAR 5 GROWTH







PHOTO 2 EXISTING CONDITIONS







PHOTO 2 SIMULATED CONDITIONS







# **PHOTO 2** SIMULATED CONDITIONS WITH LANDSCAPE MITIGATION - YEAR 1 GROWTH







# **PHOTO 2** SIMULATED CONDITIONS WITH LANDSCAPE MITIGATION - YEAR 5 GROWTH







PHOTO 3 EXISTING CONDITIONS



Aller

100 K / 10 K




PHOTO 3 SIMULATED CONDITIONS







PHOTO 4 EXISTING CONDITIONS







PHOTO 4 SIMULATED CONDITIONS







### **PHOTO 4** SIMULATED CONDITIONS WITH LANDSCAPE MITIGATION - YEAR 1 GROWTH







### **PHOTO 4** SIMULATED CONDITIONS WITH LANDSCAPE MITIGATION - YEAR 5 GROWTH





# Weirs Creek Solar, LLC Case No. 2024-00099

# Application – Exhibit 12 Attachment A Exhibit 6

# Traffic and Dust Study (13 Pages)

## Traffic Study and Dust Study for the Weirs Creek Solar, LLC Electric Generation Facility

May 15, 2024

Prepared for:

Kentucky State Board on Electric Generation and Transmission Siting

#### Kentucky Public Service Commission

Prepared by:

#### PRIME AE Group, Inc.

651 Perimeter Drive, Suite 300 Lexington, KY 40517

On Behalf of:

Environmental Consulting

and

Weirs Creek Solar, LLC 700 Universe Blvd Juno Beach, FL 33408

& Technology, Inc. 3125 Sovereign Drive, #9C Lansing, MI 48911

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#### Attachments

Site Exhibit – 1

Site Exhibit – 2A

Site Exhibit – 2B

Site Exhibit – 2C

#### 1.0 Introduction

The proposed Weirs Creek Project (Project) will be capable of generating 150 megawatts alternating current (MWac). The power generated by the Project will be transported from the collector substation along an approximately 0.9-mile gen-tie transmission line to the point of interconnect (POI), mapped on the north side of US-41A (Stanhope Road). The Project is to be located on a site encompassing a total project acreage of 2,260 acres and total LOD of approximately 810 acres being anticipated. The Project is located in Hopkins County and Webster County, Kentucky, approximately ten miles west of the city of Madisonville and approximately five miles northwest of the Town of Providence. The Project components will include photovoltaic ("PV") solar panels mounted on a fixed angle racking system. Additional infrastructure for the Project will include central electric inverters and transformers, underground electrical collection systems (distribution equipment), power control equipment, two solar meteorological stations, and SCADA hardware. A control house for protective relay panels and site controllers will also be constructed. Permanent private gravel and/or earthen access roads with gated ingress/egress points and security fencing will be constructed to access and maintain the facilities. Collectively, the components listed in this paragraph comprise the "Project Facilities". Of the total 2,260 overall acreage, the final design of the Project will encompass approximately 810 acres of land where the Project Facilities will be constructed.

A Site Assessment report must be prepared for the Weirs Creek Project as part of an application for a construction certificate from the Kentucky State Board on Electric Generation and Transmission Siting (Siting Board). The Site Assessment Report requires a traffic study and a dust study for the proposed facility. PRIME AE was hired to perform the studies and evaluate multiple private access roads that will be necessary for construction and operations for the solar farm. This site assessment includes a comprehensive traffic study evaluating the existing roadway network and traffic conditions, traffic safety, dust study, and railroad assessment.

2.0 Weirs Creek Project Traffic Study

#### 2.1 Existing Roadway Network and Traffic Conditions

Three major roadways are present in the Weirs Creek Project's vicinity. Kentucky Highway 1089 (Donaldson Road) originates from US 41A (Nebo Road), runs southeast-northwest through the project site and transitions into Corinth Church Road at the Hopkins County/Webster County line, and connects to KY 120. Kentucky Highway 120 (KY 120) runs southwest-northeast on the northwestern periphery of the project site connecting US 41A within the city limits of Providence to the northeast to KY 630. US 41A runs east-west on the southern periphery of the project site connecting the cities/towns of Madisonville, Nebo, and Providence.

Proposed site entrances #1, #2, and #3 are located on Donaldson Road (KY 1089) south of the intersection of Greenwood Road. Proposed site entrances #4 and #5 are located on Donaldson Road north of the intersection of Greenwood Road. Site entrances #6 and #7 are located on Corinth Church Road, which transitions from Donaldson Road at the county line between Hopkins County and Webster County. Site entrance #8 is located on Hoket Nebo Road in Webster County. Hoket Nebo is a gravel road that connects from KY 120 over to Greenwood Road. Site entrance #9 is on local road Greenwood Road which connects south to Donaldson Road. An exhibit showing the proposed sites and entrances is attached to this report as Exhibit 1. The summary of the entrance roadways can be found in the following table:

Weirs Creek Site Entrance #	Adjoining Road Name	Highway Functional Classification	Lane Width (Feet)	Paved	Shoulder
1, 2, 3, 4, 5	Donaldson Road	Local	10	Yes	No
9	Greenwood Road	Local	8	Yes	No
6, 7	Corinth Church Road	Local	10	Yes	No
8	Hoket Nebo Road	Local	6	No	No

The Kentucky Transportation Cabinet (KYTC) collects traffic information and publishes various roadways' annual average daily traffic (AADT). For a given roadway location, AADT shows the mean traffic volume across all days for a year. Located in the project vicinity, and listed below, are two KYTC AADT monitoring stations:

- Station ID 758 located on KY 1089
- Station ID A14 located on KY 120

Proposed Weirs Creek Site Entrance	Site Entrance's Adjoining Roadway	Nearest AADT Monitoring Station ID	Distance (feet) from Monitoring Station to Proposed Site	Annual Average Daily Traffic (AADT)	Year Assessed
Entrance #1	Donaldson Rd	758	358	130	2021
Entrance #2	Donaldson Rd	758	980	130	2021
Entrance #3	Donaldson Rd	758	2266	130	2021
Entrance #4	Donaldson Rd	758	7442	130	2021
Entrance #5	Donaldson Rd	A14	6934	501	2020
Entrance #6	Corinth Church Rd	A14	5804	501	2020
Entrance #7	Corinth Church Rd	A14	4428	501	2020
Entrance #8	Hoket Nebo Rd	A14	6724	501	2020
Entrance #9	Greenwood Rd	758	8204	130	2021

A summary of the AADT in the project vicinity is given below:

Traffic collision data in the project area has been collected from the Kentucky State Police website. Between May 1, 2021, to May 1, 2024, there have been two non-injury accidents on KY 1089 (Donaldson Rd). In one incident, the vehicle ran off the roadway in clear, dry conditions. In the other, the vehicle had a minor collision with an object on the shoulder. During this same period, two accidents were reported on KY 120 near the project area. These involved a single car accident during daylight hours and a collision with an animal during overnight hours. There were no reported accidents on Hoket Nebo Road or Greenwood Road during this time. The collision locations are shown in the attached Exhibit 1 though some may not be visible as they lie beyond the project vicinity.

The expected crash frequency for the segment of KY 120 in the project vicinity is slightly lower than predicted for roads with similar characteristics. The expected crash frequency for the segment of KY 1089 (Donaldson Road) in the project vicinity is generally what would be predicted for roads with similar characteristics. To address any traffic safety concerns during the construction of the proposed sites, Weirs Creek Solar, LLC will ensure that a traffic management plan will be developed by the contractor. Several of the traffic safety techniques to be used are described below.

#### 2.2 Weirs Creek Project Construction Traffic

#### 2.2.1. Traffic During Construction of Proposed Sites and Transmission Line

The Weirs Creek Project site entrances will provide ingress and egress during construction for each solar site. Access to place the transmission-line utility poles will be gained through land contracts with property owners or permitted through State and local road authorities. The construction activities are expected to take eighteen months. During this time, a temporary increase in traffic is anticipated near the proposed sites. The increased traffic is associated with travel of construction workers, deliveries of construction equipment and material, and delivery of solar panel components and equipment. The construction workers will take trips along the roadways in the morning and evening as they come and go from work. During the construction phase up to 150-200 workers will be employed for the project. At the beginning of construction, heavy machinery will be delivered to the sites. Throughout the construction process, deliveries of equipment and materials will occur on trailers, flatbeds, or other large vehicles at various times of day. Weirs Creek, LLC will inform and obtain permits from State and local road authorities as needed for Class 21 vehicle transport to the sites. Road officials will help identify any special transportation requirements for heavy trucks during construction (e.g., the need to avoid existing bridges, the need to reinforce or ramp over existing bridges for which there is no detour, detours of highway traffic, or temporary closures). Weirs Creek Solar, LLC will comply with all permit requirements and will coordinate with proper road officials as needed.

#### 2.2.2. Traffic Safety Precautions during Site Construction

Appropriate signage and traffic guidance will be utilized to increase driver safety and reduce the risk of any vehicle accidents. Long term lane closures are not anticipated during the construction of the solar facilities. However, when construction work nears the roadways or when the larger deliveries arrive, temporary lane or shoulder closures may be used for the safety of the traveling public and the construction workers. For example, flaggers may temporarily stop highway traffic to allow a delivery truck and trailer to safely turn into the site. Another instance might be the use of a shoulder closure as workers place transmission-line utility poles near a roadway. *Construction Work* signs will be placed along the roadside to alert motorists that construction traffic may be present on the highway.

#### 2.2.3. Physical Impact on Existing Road Infrastructure

The construction traffic needed for the proposed project should not significantly degrade the existing roadways. The increase in localized traffic and use of heavy trucks may wear the existing roadway around the project sites but significant damage is not expected. Weirs Creek, LLC will

adhere to all local and state requirements related to repair of road infrastructures following construction.

Access drives and internal roads will be constructed or improved as needed to accommodate vehicles and equipment. Internal roads will be compacted gravel, which may result in an increase in airborne dust particles. During construction, water may be applied to the internal road system to reduce dust generation.

Intersection sight distances were considered at the proposed project entrances. The sites were generally free of sight obstructions that might limit a driver's visibility. Additionally, the land topography in the project area is flat to gently rolling. Therefore, the length of roadway visible to drivers is adequate for safe turning movements. Please take note that Site Entrance 4 has a minor limitation in intersection sight distance looking east on KY 1089. Regular vehicle operations at Site Entrance 4 should function appropriately; however, because construction vehicles require additional time to enter and exit the entrance, it is advisable to utilize flaggers. The Contractor will temporarily stop mainline traffic when large construction vehicles and equipment are maneuvering at Entrance 4.

#### 2.3. Facility Operation and Maintenance Traffic

The operation of the Weirs Creek facility will mostly be self-operating with 1-2 employees making site visits a few times a week to inspect the site, ensure proper equipment operation, and note any maintenance needs. Vehicular traffic on the project site will be limited to typical weekday work hours. Employees will drive mid or full-sized trucks and will contribute less to existing traffic than a typical single-family home; operation of this solar facility will not significantly increase traffic in the project vicinity.

#### 2.4. Traffic Summary and Conclusion

Traffic operation on two-lane rural highways is unique based upon the geometric and traffic characteristics of each road. Therefore, roadway level of service is derived through investigating travel speed, delay (vehicles following slower vehicles), and capacity utilization. However, the primary roadways in the Weirs Creek project area – KY 1089, KY 120, Corinth Church Road, and Greenwood Road – have very low daily traffic numbers. In fact, the capacity for a two-lane rural highway will be around 2,800 passenger cars per hour, both directions, under ideal conditions<sup>1</sup>. The existing average daily traffic on these roads is far less than capacity. Even though the traffic in the project vicinity is predicted to increase during the construction phase of the project, there is enough excess capacity to ensure this roadway system will continue to perform at a very high

<sup>&</sup>lt;sup>1</sup> NCHRP 825 method for highway capacity

level of service. This includes morning and evening peaks as construction workers enter and exit the project site and periodic delivery of construction materials and equipment. Also, Weirs Creek Solar, LLC will ensure that a traffic management plan will be developed by the contractor. This plan will describe measures to address highway traffic impacts due to construction activities.

Hoket Nebo Road, the location of Entrance 8, is designated as a county road. This roadway is surfaced with gravel and is approximately 11 to 12 feet wide, essentially operating as a one lane road. The presence of drainage ditches lining both sides of the road, situated near the road's edge, restricts the ability of vehicles to maneuver around each other. Despite the low traffic volume on this road, precautionary measures should be taken during construction to mitigate the risk of vehicles traveling in opposite directions encountering each other.

During construction, appropriate signage and traffic guidance will be used as necessary to improve driver safety. Significant damage to existing roadway infrastructure is not expected.

Solar farms are not highway-traffic generators. Therefore, during the operational phase of this solar facility, there will be no significant increase in traffic and there will be very little, if any, impact on the existing road system.

#### **3.0 Fugitive Dust Impacts**

Land disturbing activities associated with the proposed project may temporarily contribute to airborne materials. To reduce wind erosion of disturbed areas, appropriate revegetation measures, application of water, or covering of spoil piles may occur. In addition, any open-bodied truck transporting dirt will be covered when the vehicle is in motion. The size of the project site, distance to nearby structures and roadways, combined with vegetative buffers along the property boundaries and fencerows will aid in managing off sites dust impacts. Internal roads will be compacted gravel, which may result in an increase in airborne dust particles during dry conditions and when internal road traffic is heavy. During construction activities, water may be applied to the internal road system to reduce dust generation. Water used for dust control is authorized under the Kentucky Pollutant Discharge Elimination System (KPDES) as a non-stormwater discharge activity, which will be required for the proposed project.

#### 4.0 Impacts on Existing Railways

There are no rail lines located within the project corridor.

#### **Signatures of Professionals**



Jonathan McCracken, P.E.

Associate Director, Water/Wastewater

PRIME AE Group, Inc.



Jeff Jasper, P.E.

**Engineer Director** 

Professional Engineer License Kentucky PE#20181

JK4 Consulting, LLC



	22515 Date: May 2024	SOLAR SITE ASSESSMENT WEBSTER & HOPKINS COUNTIES, KY KENTUCKY		
Εχηιβιτ 1	DRAWN BY: BL	<u>ECT, INC.</u> 3399 Veterans Drive	651 Perimeter Drive, Suite 300	
	CHECKED BY: JM	Traverse City, MI 49684	Lexington, Kentucky 40517 859.368.0145	SEAL

SITE ENTRANCE # 3 Southeastbound view Donaldson Road



Southbound view **Donaldson Road** SITE ENTRANCE # N





















SITE ENTRANCE Southbound view **Donaldson Road** # 1

**Donaldson Road** 

**Donaldson Road** 

West view



SITE ENTRANCE # 3 **Donaldson Road** Northwestbound view



SITE ENTRANCE # 4 South view **Donaldson Road** 

**SITE ENTRANCE Eastbound view** 

# 4

Donaldson Road





**PRIME**<sup>#</sup> NA SHEET NO. EXHIBIT 2 DRAWN BY: ECT, INC. 3399 Veterans Drive ΒL 651 Perimeter Drive, Suite 300 Lexington, Kentucky 40517 859.368.0145 CHECKED BY: TRAVERSE CITY, MI 49684 JM SEAL SITE ENTRANCE # 7 Southeastbound view Corinth Church Road



Southeastbound view **Corinth Church Road** SITE ENTRANCE # 6







Southwest view Corinth Church Road





**Donaldson Road** Northeast view SITE ENTRANCE #

SITE ENTRANCE # 5









SITE ENTRANCE # 7 Northwestbound view







Southeastbound view **Donaldson Road** SITE ENTRANCE # 5







SITE ENTRANCE # 9 Westbound view Greenwood Road



**SITE ENTRANCE #9 Southbound view Greenwood Road** 

N SHEET NO.	Ехнівіт 2	DESCRIPTION OF REVISION	PROJECT NO.: 22515 DATE: MAY 2024 DRAWN BY: BL CHECKED BY: IM	PROJECT WEIRS CREEK SOLAR SITE ASSESSMENT WEBSTER & HOPKINS COUNTIES, KY KENTUCKY <u>ECT, INC.</u> 3399 VETERANS DRIVE TRAVERSE CITY, MI 49684	<b>PRIME</b> 651 Perimeter Drive, Suite 300 Lexington, Kentucky 40517 859 368 0145	
			ML		859.368.0145	SEAL