

# HILLCREST SOLAR PROJECT

December 14, 2019

Ohio Power Siting Board  
Docketing Division  
180 East Broad Street, 11<sup>th</sup> Floor  
Columbus, Ohio 43215-3793  
Attn: Grant Zeto

RE: **Case Nos. 17-1152-EL-BGN - Hillcrest Solar I, LLC**

**Notice of Compliance with Certificate Condition #1 - The facility shall be installed at Hillcrest's proposed site as presented in the application and modified by supplemental filings.**

Dear Mr. Zeto;

Hillcrest Solar I, LLC ("Hillcrest Solar") is certified to construct a solar-powered electric generation facility in Brown County, Ohio in accordance with the orders issued by the Ohio Power Siting Board ("OPSB") in the above-referenced cases.

Attached please find a copy of the Hillcrest Solar Decommissioning Plan regarding compliance with Certificate Condition #1 of the Opinion, Order and Certificate issued on February 15, 2018 in Case No. 17-1152-EL-BGN and Amendment 18-1267-EL-BGA.

We are available, at your convenience, to answer any questions you may have.

Sincerely,

  
Julia Mancinelli, Senior Manager – Environment

Attachment: Hillcrest Solar Decommissioning Plan



CONSTRUCTION LEADERS

# DECOMMISSIONING PLAN

HILLCREST SOLAR PROJECT



## Revision Log

Date	Revised By	Section	Description
October 8, 2019	Chris Lupson		First Draft
Nov 22, 2019	Chris Lupson		Second Comments Revision



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## ABBREVIATIONS

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DPR	Decommissioning Plan Report
OPSB	Ohio Power Sitting Board
SWPPP	Storm Water Pollution Prevention Plan
HDD	Horizontal Directional Drilling
HSE	Health and Safety Environmental
kV	Kilovolt(s)
in	Inch(s)
ft	Feet(s)
OEPA	Ohio Environmental Protection Agency
OPSB	Ohio Power Siting Board
PV	Photovoltaic
SCADA	Supervisory control and data acquisition
the Project	Hillcrest Solar
LBS	Pounds
Owner	Hillcrest Solar I LLC



## 1. INTRODUCTION

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### 1.0 OVERVIEW

Hillcrest Solar (the Project), is a 200-megawatt (MW) alternating current/ 260 MWDC photovoltaic (PV) solar energy generating facility. The Project is in Brown County, Ohio, approximately 3½ miles north of the Village of Mount Orab, on land leased by Hillcrest Solar I LLC (the Owner) for 25 years.

Section 2.0 of this report describes the potential future use of the Project beyond its initial contract period. Section 3.0 describes the decommissioning activities, as well as the location and timing of any site rehabilitation and restoration for areas disturbed by the Project. It also describes the management of excess materials and waste during dismantling and decommissioning of the Project. Section 4.0 outlines details of the Emergency Response Plan. Section 5.0 outlines notification to inform the public of Project decommissioning. Section 6.0 and 7.0 outlines construction schedule and estimated cost.

### 1.1 APPLICATION REQUIREMENTS

Applicant will develop a comprehensive plan that will outline the responsible parties, schedules, and projected costs for decommissioning the Project and restoring the Project area to substantially its pre-construction condition (the Plan). The Plan will;

1. provide for the safe removal and sale, re-deployment, recycling or proper disposal of all components of the Project, including components containing rare or valuable materials.
2. prioritize reuse and recycling over land disposal as waste.
3. require that the contractor leading the decommissioning effort work closely with manufacturers, local subcontractors, and waste management firms to segregate - based on the prevailing standards and practices at the time - materials that can be reused and recycled from those that must be land-disposed as waste.
4. require that the Project area be restored to use for cultivation, unless circumstances prevailing shortly in advance of the start of decommissioning indicate that another use is more appropriate or explicitly desired by the land owner. Restoration will include a return to the same or functionally similar pre-construction drainage patterns, including farm drainage tiles, decompaction of soil,



and seeding with an appropriate, low-growing vegetative cover, such as clover, to stabilize soil, enhance soil structure, and increase soil fertility.

5. repair any damage to drain tile systems. Applicant will provide for financial security to ensure that funds are available for the removal of the Project and restoration of the Project area.

Prior to construction, an independent and registered professional engineer who is licensed to practice in Ohio and retained by Applicant will estimate the total cost of fully implementing the Plan, which will consist of;

1. an estimate of the total cost of implementing the Plan, without regard to the salvage value of the components of the Project, plus a 10% amount to cover contingencies; less
2. an estimate of the salvage value of the components of the Project, less a 10% amount to cover contingencies ("Net Decommissioning Cost"). The Professional Engineer (or an equally qualified one) will re-calculate the Net Decommissioning Costs approximately every five (5) years over the operating life of the project. If and when the Net Decommissioning Cost is a positive number, Applicant will post and maintain a surety bond or similar financial assurance instrument in the amount of the Net Decommissioning Cost that may be drawn upon to implement the Plan. If and when a subsequent estimate of the Net Decommissioning Cost increases the Net Decommissioning Cost, the financial assurance instrument will be increased to the higher amount. Except as it may be drawn upon to implement the Plan, the amount of the financial assurance will not be decreased.

## 2. PROBABLE FUTURE USE OF THE FACILITY

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The Project is anticipated to have an operational lifespan of 25+ years. At the end of the project lifespan, the Project components are expected to be decommissioned as described in Section 3.0. If Project economics and need remain viable at that time, the facility could be "repowered" with new technology and continue operating for an extended period. This process may include the replacement and/or upgrading of Project components. However, specific details are unknown at this time, as technological improvements over the next 25+ years are currently unknown. The public will be engaged by Hillcrest, as appropriate and as required, based on regulations and requirements in effect at the time of decommissioning, before incorporating substantial Project changes.



Although the future land use of the Project Location cannot be known, it is most probable that after decommissioning, the Project Location will be returned to its former agricultural land use. Therefore, this DPR has conservatively assumed that the future site uses will be agricultural. It should be noted that there is potential for the planned post-Project land use to change before actual decommissioning. The information in this report will be updated, if required, in advance of decommissioning to represent the applicable conditions and regulatory requirements in effect at that time.

### 3. DECOMMISSIONING

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At the end of the Project's useful life, the Project components are expected to be decommissioned as described below.

#### 3.0 RESPONSIBLE PARTIES

The Owner will ensure that the decommissioning activities lead by the contractor are fulfilled and in compliance with the conditions set forth in this document and any Agreement, law or regulation mentioned herein.

The general contractor will lead the decommissioning efforts by working closely with manufacturers, local subcontractors, and waste management firms to segregate – based on the prevailing standards and practices at the time – materials can be reused and recycled from those that must be land-disposed as waste. The general contractor will be responsible for preparing the construction (decommissioning) management plans, Rehabilitation Plan, obtaining construction permits/approvals, and executing the decommissioning plan and associated decommissioning works.

#### 3.1 DECOMMISSIONING DURING CONSTRUCTION (ABANDONMENT OF PROJECT)

In the unlikely event that construction cannot be completed and decommissioning of the Project is initiated during the construction phase, restoration of lands to pre-construction conditions will follow the same procedure as for the decommissioning at the end of Project life, as described in the sections below.

In the event that the site has been cleared and/or excavated in preparation for installation of Project infrastructure, appropriate environmental protection measures would be implemented to prevent topsoil erosion. The extent of environmental protection measures required would be dependent on the progress made at the time of Project abandonment and would be determined through site inspections by qualified specialists. Possible measures would include, as appropriate,



erosion and sediment control fencing, filling excavated areas, replacement of topsoil, and/or revegetation.

### 3.2 DECOMMISSIONING AFTER CEASING OPERATION

It is anticipated that the Project would have an operational lifespan of 25 years. The Project life could be further extended with proper maintenance, component replacement and repowering (see Section 2.0).

#### 3.2.1 *GENERAL ENVIRONMENTAL PROTECTION DURING DECOMMISSIONING*

During all decommissioning and restoration activities, general environmental protection and mitigation measures would be implemented. Many activities during decommissioning would be comparable to the construction phase. As such, general mitigation measures and management practices that would be used, as appropriate, including erosion and sediment control, Storm Wwater Pollution Prevention Plan (SWPPP), air quality and noise mitigation, and contingency plans for unexpected finds and spills, are provided in the construction management plans.

All decommissioning and restoration activities will be performed as per the requirements of relevant governing agencies and will be in accordance with all relevant statutes in effect at the time of decommissioning.

#### 3.2.2 *PRE-DISMANTLING ACTIVITIES*

At the end of the Project's useful life, it will first be de-energized and isolated from all external electrical lines.

Prior to any dismantling or removal of equipment, staging areas would be delineated at appropriate locations within the Project Location, including near the project substation and inverter locations.

Temporary erosion and sedimentation control measures and SWPPP controls will be implemented during the decommissioning phase of the Project. These measures will be enacted with consideration of industry-standard practices.

Review the surrounding area for local disposal company as described below;



- Steel <https://www.877ironmike.com/metal-prices>
- Clean aluminum <https://www.877ironmike.com/metal-prices>
- Dirty aluminum <https://www.877ironmike.com/metal-prices>
- Copper <https://www.877ironmike.com/metal-prices>
- Glass <https://www.recyclingtoday.com/article/rt1114-recycled-glass-commodity/>
- Electronic disposal waste <http://greencitizen.com/the-real-cost-of-electronics-recycling/>

### 3.2.3 *EQUIPMENT DISMANTLING AND REMOVAL*

The following sections describe the process that will be undertaken to remove the various components associated with the Project.

#### 3.2.3.1 *SOLAR PANELS*

The Project will include the installation of approximately 605,000 solar panels. The panels make and model will be First Solar Series 6. They have an average rated power of 428.85 watts per panel and measure 6 ft 7 in long by 4.5 ft wide. The solar panel makeup will consist of connectors, frame (anodized aluminum), glass, and junction boxes and weigh 77.16 lbs. First Solar Series 6 module comes with a “Best Environmental Profile” certification and will provide recycling services. If required, contact First Solar or a customer-selected third party.

Each solar panel will be mounted on a galvanized steel and aluminum rack system that is positioned approximately 1 to 4 ft above finished grade with a +/- 60-degree range of motion (single-axis tracking).

During decommissioning, each panel will be disconnected from the electrical system and unfastened from the mounting rack. After removal of the panel from the rack, it will be placed in a vehicle or container for transportation off-site for recycling or disposal.

The tracker that supports the solar panels will be disassembled and removed from the site. The metal racking components may be reused or recycled for future use.

All surface components and subsurface components, including those related to foundations will be removed off-site and properly recycled.



### **3.2.3.2** *ELECTRICAL EQUIPMENT AND COLLECTOR SYSTEM*

Inverters and inverter step-up transformer skids, including associated piling, will be removed and will be shipped off-site for eventual recycled or disposal. The piles and associated foundations will be removed from the site and disposed or recycled.

Underground collector cables will be removed, and all work to decommission underground connection lines would be conducted within the boundaries of the Project and municipal road allowance.

### **3.2.3.3** *SUBSTATION*

All the above-ground structures and electrical equipment, including circuit breakers, main transformer, chain link fencing, control building and grounding grid would be removed, and any concrete foundations would be removed. All granular and geotextile materials would be removed from the Project Location by a dump truck, or placed in a designated on-site area for use by the landowner. All electrical system components will be taken off-site for reuse or disposal.

### **3.2.3.4** *ACCESS ROADS*

All-access roads (constructed of aggregate material or covered in grass – not paved) will be removed; this includes any geotextile material beneath the roads and granular material. All granular and geotextile materials would be removed from the site by a dump truck.

Where any access roads will be removed within areas that were previously used for agricultural purposes, topsoil will be redistributed to provide similar ground cover as was present within the areas prior to site disturbance. The exception to removal of the access roads and associated culverts or their related material would be upon written request from the landowner to leave all or a portion of these facilities in place for future use by the landowner.



### 3.2.3.5 STORAGE INFRASTRUCTURE AND PERIMETER FENCE

Storage and operation infrastructure and any associated temporary decommissioning improvements (e.g., temporary construction trailer) used during the decommissioning phase will be removed from the site by truck. Any foundations associated with these facilities would be removed.

Perimeter fencing would be removed and recycled or re-used. Where the landowner prefers to retain the fencing, these portions of the fence would be left in place.

### 3.3 SITE REHABILITATION/RESTORATION

At the time of decommissioning a Rehabilitation Plan will be developed to restore agricultural lands and wildlife habitat in areas affected by the Project to the same or functionally similar pre-construction state, unless circumstances prevailing shortly in advance of the start of decommissioning indicate that another use is more appropriately or explicitly desired by the land owner.

The Rehabilitation Plan will include, but not be limited to the following:

- Agricultural areas, which comprise the pre-developed Project Location, will be restored by redistributing topsoil to provide substantially similar ground cover as was present within the areas prior to site disturbance to accommodate the return of active agricultural operation of the site. The agricultural areas will be revegetated using the same types of grasses or crops found on adjacent tracks if the landowner reasonably requests such reseedling.
- Natural areas will be revegetated using native plant material and seeds appropriate for the Project Location or allowed to revegetate naturally. In the event the land is intended to be placed in to agricultural production, the re-seeding of the land will be done using the same types of grasses or crops found on adjacent tracks if the landowner reasonably requests such reseedling.
- Access roads and other areas which may have become compacted during operation or decommissioning will be de-compacted to pre-existing conditions.
- Restoration of any drainage patterns, including farm drainage tiles that were impacted by the Project and existing within the Project Location at the initiation of Project construction to the same condition or better condition than it was before Project construction.

Where Project infrastructure has been removed, disturbed areas will be seeded with quick-growing native species to prevent topsoil erosion, unless seeding is immediately applied by the landowner. The seed mixture will be determined at that time in consultation with the Brown County and OPSB. Erosion and sediment control measures and SWPPP protection will be installed at ditches and will be left in place until the ground cover is fully established.



### **3.3.1**    *WATERCOURSES*

Any proposed decommissioning works within or near watercourses would be discussed with the U.S. Army Corp. of Engineers, County, Ohio Department of Natural Resources, Ohio Environmental Protection Agency and OPSB, to determine any applicable guidelines, permitting, site-specific mitigation and/or remediation plans. Similar mitigation and monitoring measures implemented during construction will be used during the decommissioning of the Project. These mitigation measures are described in the Construction Management Plans, and site-specific requirements determined during the detailed design and permitting process. Measures are anticipated to include standard construction practices at the time of decommissioning, including erosion and sediment control during removal of the structures.

### **3.3.2**    *MUNICIPAL ROAD ALLOWANCES*

Existing hydro distribution circuit poles are located within the municipal road allowances. All road crossing horizontal directional drilling will be capped at the full extent of the road allowance, to avoid any disturbance. Should any of the municipal road allowances be disturbed during decommissioning activities, they will be returned to the condition they were in prior to the decommissioning activities. This will be determined in consultation with the County Engineers of Brown County, Ohio and any road user agreements, OPSB, as applicable.

### **3.3.3**    *AGRICULTURE LANDS*

Agricultural lands that have become compacted due to facility operation or decommissioning activities, such as access roads, would be de-compacted using chisel ploughing and/or subsoiling, as determined by an environmental advisor or landowner.

Any agricultural tile drains capped or modified during construction and/or damaged during installation, operation and/or decommissioning would be addressed by a drainage tile contractor and returned to the same condition or better condition than it was before Project construction.

Topsoil would be re-graded or added to a similar depth as the condition it was before construction. All areas would be graded to pre-construction conditions and restored appropriately, in consultation with the landowner.

### **3.3.4**    *SPILLS*

Although strict spill prevention and spill response procedures will be in place during operation, there is the potential for small spills to occur during routine operation, maintenance, and decommissioning. Mitigation measures for spills are described in the Health Safety and Environmental Plan (HSE).

It is not expected that the decommissioning of the Project will entail the need to conduct any soil or groundwater remediation. The operation of the Project will not produce any hazardous waste or wastewater. Provided the Project is operated and maintained in accordance with industry best practices there should be no significant environmental liabilities associated with cleanup or remediation.

### 3.4 MANAGING EXCESS MATERIALS & WASTE

Before decommissioning the Project, a complete waste audit and waste reduction work plan will be completed in accordance with any applicable guidance or requirements of the OPSB or relevant regulations in effect at the time of decommissioning.

Typical waste materials and modes of disposal, recycling or reuse are presented in **Table 3.1**.

**TABLE 3.1: TYPICAL FACILITY DECOMMISSIONING WASTE MATERIALS AND MODES OF DISPOSAL**

Component	Typical Mode of Disposal
Concrete foundations	Crush and recycle as granular material
Solar Panels	Reuse or recycle
Steel & aluminum racks and mounts	Salvage for reuse or recycle for scrap
Cabling	Recycle
Inverter step-up transformers, inverters and circuit breakers	Salvage for reuse or recycle for scrap
Granular material	Reuse or recycle as granular material
Oils/lubricants	Recycle
Geotextile material	Dispose in landfill
Miscellaneous non-recyclable materials	Dispose in landfill
Electrical major equipment. Main Transformer, Combiner box, Inverter Stations, Switch Gear, etc.	Salvage for reuse or recycle for scrap

Major pieces of equipment may be recyclable or reusable. The galvanized-steel and aluminum racks may be sold for scrap or recycled. Electrical equipment could either be salvaged for reuse or recycled. Components such as the cabling would have a high resale value due to copper and aluminum content. Concrete from footings could be crushed and recycled as granular fill material. Spent oils, if any, could be recovered for recycling through existing oil reprocessing companies.



As much of the facility would consist of reusable or recyclable materials, there would be a minimal residual waste for disposal as a result of decommissioning the facility. Small amounts of registerable waste materials would be managed in accordance with OPSB requirements or subsequent applicable legislation. Residual non-hazardous wastes would be disposed of at a licensed landfill in operation at the time of decommissioning.

#### 4. EMERGENCY RESPONSE AND COMMUNICATIONS PLANS

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The following programs, plans, and procedures will be carried forward during the decommissioning of the Project.

##### 4.0 ENVIRONMENTAL PROCEDURES

- Spills and releases: identify the procedures for the prevention, response, and notification of spills. In addition, establish the general procedures for spill clean-up, personnel training, and material handling and storage to prevent spills.
- Non-hazardous waste management: establish alternative procedures for the management and disposal of used lubricants, used drums, and general waste.

##### 4.1 OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

The general contractor retained to undertake decommissioning will be responsible for employee health and safety and will implement the following safety procedures and protocols, as appropriate, to maintain employee safety throughout decommissioning activities:

- personal protective equipment (PPE), including non-slip footwear, eye protection, clothing, and hardhats, will be worn by personnel when on duty
- elevated platforms, walkways, and ladders will be equipped with handrails, toeboards, and non-slip surfaces
- electrical equipment will be insulated and grounded in compliance with the appropriate electrical code.

As appropriate, the general contractor retained to undertake decommissioning will develop or have an existing training program that can be implemented to appropriately train personnel on decommissioning programs, environmental, health, and safety procedures, and the Emergency Response Plan.



### 4.2 HEALTH AND SAFETY PLAN

The general contractor will prepare a Health and Safety Plan considering both public and occupational health and safety issues. This may include protecting the public from equipment and construction areas by posting warning signs, use of PPE, accident reporting, equipment operation

### 4.3 EMERGENCY RESPONSE AND COMMUNICATIONS PLAN

The Emergency Response and Communications Plan will be developed and utilized during the decommissioning of the Project, along with the Complaint Response Protocol. This includes informing the public about activities occurring at the Project site (including emergencies), means for contacting the Owner or the general contractor responsible for decommissioning, recording follow up on complaints expressed during the decommissioning phase, and reporting spills to the Owner and OEPA, as required.

## 5. DECOMMISSIONING NOTIFICATION

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Advance notification of decommissioning will be provided to the stakeholders and other interested agencies prior to decommissioning works commencing. Notification may be in the form of letters, newspaper notices, and updates on the Project or Owner website or direct communications.

## 6. SCHEDULE DECOMMISSION

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The decommissioning and restoration of the project, following the project termination, is expected to be from six (6) to nine (9) months. A phasing plan (order of construction activities) will be developed and will include phasing, material staging locations, truck routes, and information regarding recycling and disposal activities. Before any construction activities can begin a pre-construction management plan must be developed and submitted thirty to sixty day(s) before decommissioning for County approval.





## 7. PROJECT DECOMMISSIONING AND SITE RESTORATION COST ESTIMATE.

Owner will provide for financial security to ensure that funds are available for the removal of the Project and restoration of the Project Area

If and when the Net Decommissioning Cost is a positive number, Owner will post and maintain a surety bond or similar financial assurance instrument in the amount of the Net Decommissioning Cost that may be drawn upon to implement the Decommissioning Plan. If and when a subsequent estimate of the Net Decommissioning Cost increases the New Decommissioning Cost, the financial assurance instrument will be increased to the higher amount. Except as it may be drawn upon to implement the Decommissioning Plan, the amount of the financial assurance will not be decreased.

The below table demonstrates an estimate of the total decommissioning and site restoration costs to be confirmed by the independent engineer:

TABLE 3.2: COST ESTIMATE

Description	Duration (Weeks)	Labor/Equip/Mat	Recycling Cost	Total Cost
SWPPP and Dust Control	28	\$239,863	\$0	\$239,863
Removal of Equipment	13.4	\$9,074,695	(\$12,089,872)	(\$3,015,177)
Site Demolition	5.4	\$333,206	(\$183,263)	\$149,943
Site Reclamation	5.4	\$2,193,219	\$0	\$2,193,219
General construction Fees		\$8,351,411	(\$1,846,057)	\$6,505,354
Gross Decommissioning Cost		\$20,192,394	(\$14,119,192)	\$6,073,202
10% contingency				\$607,320
Net Decommissioning Cost				\$5,465,882

The above est was interpolated using calculations from a 500 MW farm established in 2018.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**12/17/2019 6:51:43 AM**

**in**

**Case No(s). 17-1152-EL-BGN**

Summary: Report Notice of Compliance with Certificate Condition 1 - Decommissioning Plan electronically filed by Ms. Julia M Mancinelli on behalf of Hillcrest Solar I, LLC