

A DECOMMISSIONING PLAN FOR

# Bonacci 1 Solar Project

Champaign County, Illinois

MARCH 11, 2024

PREPARED FOR:



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CHAMPAIGN COUNTY  
PLANNING & ZONING

PREPARED BY:

**Westwood**

# Decommissioning Plan

**Bonacci 1 Solar Project**

**Champaign County, Illinois**

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Date: March 11, 2024

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Attachment A: Decommissioning Cost Estimate

## 1.0 Introduction / Project Description

This Decommissioning Plan (“Plan”) has been prepared for the Bonacci 1 Solar Project (Facility) in accordance with the Champaign County (County) Zoning Ordinance, Section 6.1.5 (Ordinance) and the Illinois Department of Agriculture (IDOA) Agricultural Impact Mitigation Agreement (AIMA). The purpose of the Plan is to describe the means and methods that can be used to remove all structures, foundations, underground cables, and equipment and to reclaim and restore the land altered during the construction and operation of the solar project to its predevelopment condition to the extent feasible.

The Facility is a 3.5-Megawatt (MW) alternating current (5.248-MW direct current) solar power generation project proposed by Forefront Power, LLC (Owner) in Champaign County, Illinois. Upon completion, the Facility will comprise a solar array consisting of ground-mounted photovoltaic panels and electrical support equipment, collection lines, access roads, and fencing. The Facility is located on approximately 22.49 acres and shares some Facility infrastructure with the adjacent Bonacci 2 Solar Facility.

The useful life of solar panels is generally considered to be 35 years. At that time, the project will either be decommissioned or repowered with newer technology. The Plan identifies components which may be removed and areas that may be restored once the Facility has not operated for six consecutive months, or when the Facility has surpassed the useful lifespan of the modules and facilities.

## 2.0 Proposed Future Land Use

Prior to the development of the Facility, the land use of the project area was primarily agricultural. After all equipment and infrastructure is removed during decommissioning, any holes or voids created by poles, concrete pads, and other equipment will be filled in with native soil to the surrounding grade, and the site will be restored to pre-construction conditions to the extent practicable. All access roads and other areas compacted by equipment will be decompacted to a depth necessary to ensure drainage of the soil and root penetration prior to fine grading and tilling to a farmable condition. Please refer to Section 3.2 for a detailed description of reclamation activities.

## 3.0 Decommissioning Activities

Decommissioning of the solar facility will include removing the solar panels, solar panel racking, steel foundation posts and beams, inverters, transformers, overhead and underground cables and lines, equipment pads and foundations, equipment cabinets, and ancillary equipment. The civil facilities, access roads, and security fence are included in the scope. Standard decommissioning practices will be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements.

During decommissioning, the landowners will be consulted to identify the extent and type of

work to be completed. Some Facility infrastructure, such as the access roads, may be left in place at the landowners' requests. In accordance with AIMA, underground utility lines, if deeper than five feet below ground surface elevation, will be left in place to minimize land disturbance and associated impacts to future land use.

Decommissioning will include the removal and transportation of all project components from the Facility site. All dismantling, removal, recycling, and disposal of materials generated during decommissioning will comply with rules, regulations, and prevailing Federal, State, and local laws at the time decommissioning is initiated and will use approved local or regional disposal or recycling sites as available. Recyclable materials will be recycled to the furthest extent practicable. Non-recyclable materials will be disposed of in accordance with State and Federal law.

### **3.1 Decommissioning of Project Components**

#### **3.1.1 Modules**

Modules will be inspected for physical damage, tested for functionality, and disconnected and removed from racking. Functioning modules will be packed, palletized, and shipped to an offsite facility for reuse or resale. Non-functioning modules will be shipped to the manufacturer or a third party for recycling or disposal.

#### **3.1.2 Racking**

Racking and racking components will be disassembled and removed from the steel foundation posts, processed to appropriate size, and sent to a metal recycling facility.

#### **3.1.3 Overhead and Underground Cables and Lines**

All underground cables and conduits will be removed if less than 5 feet below ground surface in accordance with AIMA requirements. It is assumed that the DC cables will be run on an aboveground CAB system, therefore removal of all DC cables has been included in the estimate. AIMA also requires that cables be installed 5 feet below ground surface in agricultural areas, therefore this cost estimate assumes that only underground AC cables running to surface equipment will require removal. Topsoil will be segregated and stockpiled for later use prior to any excavation and the subsurface soils will be staged next to the excavation. The subgrade will be compacted per standards. Topsoil will be redistributed across the disturbed area. Overhead lines will be removed from the project and taken to a recycling facility.

#### **3.1.4 Inverters, Transformers, and Ancillary Equipment**

All electrical equipment will be disconnected and disassembled. All parts will be removed from the Facility and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards.

#### **3.1.5 Equipment Foundations and Ancillary Foundations**

The ancillary foundations are pile foundations for the equipment pads. As with the solar array steel foundation posts, the foundation piles will be pulled out completely. All unexcavated areas compacted by equipment used in decommissioning will be decompacted in a manner to adequately restore the topsoil and sub-grade material to a density similar to the surrounding soils. All materials will be removed from the site and reconditioned and reused, sold as scrap,

recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards.

### **3.1.6 Fence**

The fencing will be chain-link fence on the north, east, and west sides of the site and solid fence on the south side. For the purposes of this decommissioning cost estimate, it's assumed that the solid fence will be made of wood. All fence parts and foundations will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards. The surrounding areas will be restored to pre-solar farm conditions to the extent feasible.

### **3.1.7 Access Roads**

Facility access roads will be used for decommissioning purposes, after which removal of roads will be discussed with the Landowner and one of the following options will be pursued:

1. After final clean-up, roads may be left intact through mutual agreement of the landowner and the owner unless otherwise restricted by federal, state, or local regulations.
2. If a road is to be removed, aggregate will be removed and shipped from the site to be reused, sold, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards. Clean aggregate can often be used as "daily cover" at landfills for no disposal cost. All internal service roads are constructed with geotextile fabric and eight inches of aggregate over compacted subgrade. Any ditch crossing connecting access roads to public roads will be removed unless the landowner requests it remains. The subgrade will be decompacting using a chisel plow or other appropriate subsoiling equipment. All rocks larger than four inches will be removed. Topsoil that was stockpiled during the original construction will be distributed across the open area. The access roads and adjacent areas that are compacted by equipment will be decompacting.

### **3.1.8 Restoration of Public Roads**

As required by Section 6.1.5Q(2), this Plan includes provisions for repairs to public streets used during decommissioning and reclamation of the site. Public roads that will be used to haul materials and equipment during decommissioning efforts are generally multi-lane and paved. Prior to decommissioning, the Applicant, its successors in interest, and all parties to this Plan are required to enter into a Roadway Use and Repair Agreement with the relevant highway authority, per Section 6.1.5Q(3). The agreement will establish the protocol for documenting the condition of roadways before and after decommissioning, as well as any obligations to repair the roads from damages sustained.

## **3.2 Reclamation**

The Owner will restore and reclaim the site to the pre-solar farm condition consistent with the County Ordinance and AIMA. The Owner assumes that the site will be returned to farmland after decommissioning through implementation of appropriate measures to facilitate such uses. Soil testing will be performed to determine if any contaminants from equipment are present in the soil. In addition to the reclamation activities described above for each decommissioning activity, all unexcavated areas compacted by equipment and activity during the decommissioning will be decompacting in accordance with the AIMA Decompacting Guidance

Document to ensure proper density of topsoil consistent and compatible with the surrounding area and associated land use. All materials and debris associated with the Facility decommissioning will be removed and properly recycled or disposed of at off-site facilities.

### **3.2.1 Backfill of Excavations**

Per Section 6.1.5Q(3)k of the Ordinance, the excavation resulting from the removal of foundation concrete shall be backfilled with subsoil and topsoil in similar depths and similar types as existed at the time of the original Project construction. A lesser quality topsoil or a combination of a lesser quality topsoil and a subsoil that is similar to the native subsoil may be used at depths corresponding to the native subsoil but not less than 12 inches below grade. Native soils excavated during construction of the Project may be stockpiled and seeded throughout the operating lifetime of the Project. These native soils may then be used for backfill.

If the excavated native soils are not stored for use for backfilling the concrete foundation excavations, a qualified soil scientist or Illinois Licensed Professional Engineer shall certify that the actual soils used to backfill the concrete foundation excavations are of equal or greater quality than the native soils or that, in the case of subsoil, the backfill soil meets the requirements of this paragraph. The certification shall be submitted to the County Zoning Administrator.

An Illinois Licensed Professional Engineer shall certify in writing that the concrete foundation excavations have been backfilled with soil to such a depth and with a minimum of compaction that is consistent with the restoration of productive agricultural use such that the depth of soil is expected to be no less than 54 inches within one year after backfilling.

## **4.0 Best Management Practices (BMPs)**

During decommissioning, erosion and sediment control BMPs will be implemented to minimize potential for erosion of site soils and sedimentation of surface waters and waters of the state. Because decommissioning will entail disturbance of more than one acre of soil, the Owner will prepare a Stormwater Pollution Prevention Plan (SWPPP) and obtain coverage under the state-specific National Pollutant Discharge Elimination System (NPDES) permit prior to initiating soil disturbing activities. Potential BMPs to be implemented during decommissioning activities are described below and will be subject to refinement in the SWPPP. The decommissioning team will review the permitting requirements at the time of decommissioning and obtain any other necessary permits, which may include a US Army Corps of Engineers Section 404 Permit to Discharge Dredged or Fill Material.

### **4.1 Erosion Control**

Erosion control measures will be refined based on the standard of practice current at the time the SWPPP is developed for decommissioning. All disturbed areas without permanent impermeable or gravel surfaces, or planned for use as crop land, will be vegetated for final stabilization. All slopes steeper than 4:1 should be protected with erosion control blankets. Restoration should include seed application prior to application of the blanket. All slopes 4:1 or flatter should be restored with seed and mulch, which will be disc anchored.

## 4.2 Sediment Control

Sediment controls, such as silt fence, fiber logs, dewatering practices, construction entrances, and sedimentation traps and/or basins will be implemented during construction to prevent the transport of sediment off-site during decommissioning activities. Street sweeping/scraping will also be implemented to mitigate potential tracking of sediment onto public roadways.

## 4.3 Controlling Stormwater Flowing onto and Through the Project

Given the low gradient of the slopes in the project area, controlling stormwater flow that enters the project area will likely require minimal effort during decommissioning activities. Only newly disturbed areas may require new, temporary stormwater control.

## 4.4 Permitting

All decommissioning and reclamation activities will comply with Federal and State permit requirements. Decommissioning activities that will disturb more than one acre of soil will require coverage under the state-specific NPDES permit for construction stormwater. The permits will be applied for and received prior to decommissioning construction activities commencing. A SWPPP will be developed prior to filing for construction stormwater permit coverage.

If necessary for decommissioning activities, wetlands and waters permits will be obtained from the US Army Corps of Engineers (USACE) or the Illinois Department of Natural Resources (IDNR). A Spill Prevention, Control, and Countermeasure (SPCC) Plan for decommissioning will likely also be required for decommissioning work.

Please see below for a table listing the potentially necessary permits for decommissioning the Facility.

### POTENTIALLY NECESSARY PERMITS FOR DECOMMISSIONING

ENTITY	Type of Permit	Description
US EPA/USACE	Wetland and water quality protection under Clean Water Act §§ 401 and 404	Section 401/404 permit or coverage under a nationwide permit if the decommissioning will impact wetlands or waters of the United States
ILLINOIS EPA	NPDES permit for construction activities, including Storm Water Pollution Prevention Plan (SWPPP)	Preparation and electronic submittal of SWPPP and Notice of Intent, as well as permit fee, to Illinois EPA for coverage under Illinois General Storm Water NPDES Permit for Construction Activities (ILR10).
ILL. DEPT. OF TRANSPORTATION (IDOT)	Size and weight limitations for vehicles on any Illinois roads.	Permits for over-size or over-weight vehicles.
IDOT	Permits required for driveway entrance.	Permits for work that may damage state roads or constructing/modifying entrances/exits to state roads.
IDOT	Permits required for road work	Permits for utility work in IDOT right-of-ways



## 4.5 Health and Safety Standards

Work will be conducted in strict accordance with the Owner's health and safety plan. The construction contractor hired to perform the decommissioning will also be required to prepare a site-specific health and safety plan. All site workers, including subcontractors, will be required to read, understand, and abide by the Plans. A site safety office will be designated by the construction contractor to ensure compliance. This official will have stop-work authority over all activities on the site should unsafe conditions or lapses in the safety plan be observed.

## 5.0 Timeline

Decommissioning of the solar farm will be initiated if the project has not produced electricity for a period of up to 12 months. It is anticipated that the decommissioning activities for the project can be completed in an 8-week period. The estimated costs for decommissioning are tied to assumptions about the amount of equipment mobilized, the crew sizes, weather and climate conditions, and the productivity of the equipment and crews.

## 6.0 Decommissioning Costs

### 6.1 Cost and Salvage Estimates

The decommissioning costs are calculated using current pricing. The purpose of updating the estimate is to recognize price trends for both decommissioning costs and the salvage and resale values of the components, as well as to reflect any current construction means and methods.

There are currently active markets for scrap steel, aluminum, and copper, used transformers and electrical equipment, and used solar panels. Scrap metal prices have been discounted from posted spot prices found on [www.scrapmonster.com](http://www.scrapmonster.com). Pricing for used panels has been discounted from prices received from We Recycle Solar for a similar project. The pricing of the used panels has incorporated the degradation from five years of use as warranted by the manufacturer (not more than 0.5% per year).

Bonacci 1 Solar Project shall provide a detailed Decommissioning Cost Estimate, prepared by an Illinois Licensed Professional Engineer, prior to the issuance of building permits, which shall include the following:

- a) Three (3) individual, gross estimated costs to perform decommissioning for: aboveground restoration, belowground restoration, and environmental remediation as set forth in Section 2 above ("Gross Cost");
- b) An increase of the Gross Cost by 25% to eliminate any discrepancy in cost estimation techniques ("Contingency");
- c) The estimated resale and salvage values associated with the Project equipment ("Salvage Value");
- d) A reduction from the Salvage Value by 30%, such that only 70% of the Salvage Value can be used as a credit against the Gross Cost and Admin Factor. The Salvage Value multiplied by the 70% is the ("Salvage Credit").

Thus, the Decommissioning Cost Estimate formula is: Gross Cost + Contingency – Salvage Credit = the “**Decommissioning Cost Estimate**”. The Gross Cost + Contingency for the Bonacci 1 Solar Project is approximately \$571,774 with a Salvage Credit of \$392,776. Therefore, the Decommissioning Cost Estimate is **\$178,998**.

## 6.2 Financial Assurance Plan

Forefront Power, LLC shall provide an amount equal to the one hundred twenty-five percent (125%) the Decommissioning Cost Estimate (as determined by an Illinois-Licensed Professional Engineer), (“Decommissioning Security”). All financial assurances required by the Agricultural Impact Mitigation Agreement with the Illinois Department of Agriculture shall count towards the total financial assurance. Decommissioning Security shall be provided by the Owner prior to the Commercial Operation Date.

The Decommissioning Security will be in the form of an irrevocable letter of credit and an escrow account with the Champaign County Board as a beneficiary per Section 6.1.5 Q(4) of the Solar Ordinance. The County has the right to require multiple letters of credit based on the regulations governing federal insurance for deposits, and the Applicant, its successors in interests, and all parties to decommissioning shall adjust the amount of financial assurance in escrow to ensure that it reflects current and accurate information. Unless the County states otherwise, the Champaign County State’s Attorney’s Office shall review and approve every Letter of Credit prior to Zoning Administrator Acceptance. Decommissioning estimates will be updated once every three (3) years for the first twelve (12) years of operation, and every other year thereafter. Estimates will be created by an Independent Illinois Licensed Professional Engineer.

Per section 6.1.5 Q.(4)a.(a) of the Solar Ordinance, the Applicant proposes to provide financial assurance using the following phased approach:

1. 12.5% of the decommissioning cost estimate, above, prior to authorization of the Zoning Use Permit for construction of the solar farm;
2. 62.5% of the most recent decommissioning cost estimate on or before the sixth anniversary of the Commercial Operation Date; and
3. 125% of the most recent decommissioning cost estimate on or before the 11<sup>th</sup> anniversary of the Commercial Operation Date.

## 6.3 Use of Funds

Per Section 6.1.1A(9) of the Ordinance, the Zoning Administrator may draw on the funds for decommissioning of the solar facility when any of the following occur:

- a. No response is received from the landowner within thirty (30) days from initial notification by the Zoning Administrator;
- b. The landowner does not enter, or breaches any term of a written agreement with the County to remove the Project;
- c. Any breach or performance failure of any provision of this Plan;
- d. The owner of record has filed a bankruptcy petition, or compromised the County’s interest in the letter of credit in any way not specifically allowed by this Plan;
- e. A court of law has made a finding that the Project constitutes a public nuisance;
- f. The owner of record has failed to replace an expiring letter of credit within the deadlines

- set forth in Section 6.1.1A.6 of the Ordinance; or
- g. Any other conditions to which to the County and the landowner mutually agree;

Additionally, per Section 6.1.5Q(5) of the Ordinance, the Zoning Administrator may draw on the funds for decommissioning of the project when any of the following occur:

- a. In the event that the Project or component thereof ceases to be functional for more than six months after it starts producing electricity of the Owner is not diligently repairing the Project or component;
- b. In the event that the Owner declares the Project or any Project component to be functionally obsolete for tax purposes.
- c. There is a delay in the construction of the Project of more than 6 months after construction on that Project begins.
- d. The Project or any components thereof that appears in a state of disrepair or imminent collapse and/or creates an imminent threat to the health or safety of the public or any person.
- e. The Project or any components thereof that is otherwise derelict for a period of 6 months.
- f. The Project is in violation of the terms of the SUP for a period exceeding ninety (90) days.
- g. The Applicant, its successors in interest, and all parties to this Plan has failed to maintain financial assurance in the form and amount required by the SUP or compromised the County's interest in this Plan.
- h. The County discovers any material misstatement of fact of misleading omission of fact made by the Applicant in the course of the SUP Zoning Case.
- i. The Applicant has either failed to receive a copy of the certification of design compliance required by paragraph 6.1.5D. of the Ordinance or failed to submit it to the County within 12 consecutive months of receiving a Zoning Use Permit regardless of the efforts of the Applicant to obtain such certification.

Per Section 6.1.5Q.(6), the Zoning Administrator may, but is not required to, deem the Project abandoned, or the standards set forth in Section 6.1.5Q.5. met, with respect to some, but not all, of the Project. In that event, the Zoning Administrator may draw upon the financial assurance to perform the reclamation work as to that portion of the Project only. Upon completion of that reclamation work, the salvage value and reclamation costs shall be recalculated as to the remaining Project.

#### **6.4 Standard Conditions for Decommissioning**

The following conditions shall apply, per Section 6.1.5Q(3) of the Ordinance:

- a. The applicant or successor shall notify the County by certified mail of the commencement of voluntary or involuntary bankruptcy proceeding, naming the applicant as debtor, within ten days of commencement of proceeding.
- b. The applicant shall agree that the sale, assignment in fact or law, or such other transfer of applicant's financial interest in the Project shall in no way affect or change the applicant's obligation to continue to comply with the terms of this plan. Any successor in interest, assignee, and all parties to this Plan shall assume the terms, covenants, and obligations of this plan and agrees to assume all reclamation liability and responsibility for the Project.

- c. The County and its authorized representatives are authorized for right of entry onto the Project premises for the purpose of inspecting the methods of reclamation or for performing actual reclamation if necessary.
- d. At such time as decommissioning takes place, the Applicant, its successors in interest, and all parties to this Plan are required to enter into a Roadway Use and Repair Agreement with the relevant highway authority.
- e. The Applicant, its successors in interest, and all parties to this Plan shall provide evidence of any new, additional, or substitute financing or security agreement to the Zoning Administrator throughout the operating lifetime of the project.
- f. The Applicant, its successors in interest, and all parties to this Plan shall be obliged to perform the work in this Plan before abandoning the Project or prior to ceasing production of electricity from the Project, after it has begun, other than in the ordinary course of business. This obligation shall be independent of the obligation to pay financial assurance and shall not be limited by the amount of financial assurance. The obligation to perform the reclamation work shall constitute a covenant running with the land.
- g. This plan shall provide for payment of any associated costs that Champaign County may incur in the event that decommissioning is actually required. Associated costs include all administrative and ancillary costs associated with drawing upon the financial assurance and performing the reclamation work and shall include but not be limited to: attorney's fees; construction management and other professional fees; and, the costs of preparing requests for proposals and bidding documents required to comply with State law or Champaign County purchasing policies.
- h. The depth of removal of foundation concrete below ground shall be a minimum of 54 inches. The depth of removal of foundation concrete shall be certified in writing by an Illinois Licensed Professional Engineer and the certification shall be submitted to the Zoning Administrator (see Section 2.3 of this Plan.)
- i. Underground electrical cables of a depth of 5 feet or greater may be left in place (see Section 2.5 of this Plan).
- j. The hole resulting from the removal of foundation concrete during decommissioning shall be backfilled as follows. Please see Section 2.8.2 of this Plan for this information as it pertains to site restoration:
  - a. The excavation resulting from the removal of foundation concrete shall only be backfilled with subsoil and topsoil in similar depths and similar types as existed at the time of the original Project construction except that a lesser quality topsoil or a combination of a lesser quality topsoil and a subsoil that is similar to the native subsoil may be used at depths corresponding to the native subsoil but not less than 12 inches below grade.
  - b. The native soils excavated at the time of the original Project construction may be used to backfill the concrete foundation excavations at the time of decommissioning provided that the soils are adequately stored throughout the operating lifetime of the Project. The methods for storing the excavated native soils during the operating lifetime of the Project shall be included in the decommissioning and site reclamation plan.
  - c. If the excavated native soils are not stored for use for backfilling the concrete foundation excavations, a qualified soil scientist of Illinois Licensed Professional Engineer shall certify that the actual soils used to backfill the concrete foundation excavations are of equal or greater quality than the native soils or that, in the case

of subsoil, the backfill soil meets the requirements of this paragraph. The certification shall be submitted to the Zoning Administrator.

- d. An Illinois Licensed Professional Engineer shall certify in writing that the concrete foundation excavations have been backfilled with soil to such a depth and with a minimum of compaction that is consistent with the restoration of productive agricultural use such that the depth of soil is expected to be no less than 54 inches within one year after backfilling.
- k. Should this Plan be deemed invalid by a court of competent jurisdiction, the Project's SUP shall be deemed void.
- l. The Applicant's obligation to complete this Plan and to pay all associated costs shall be independent of the Applicant's obligation to provide financial assurance.
- m. The liability of the Applicant's failure to complete the decommissioning and site reclamation plan or any breach of this Plan's requirements shall not be capped by the amount of financial assurance.
- n. If the Applicant desires to remove equipment or property credited to the estimated salvage value without the concurrent replacement of the property with property of equal or greater salvage value, or if the Applicant installs equipment or property increasing the cost of decommissioning after the Project begins to produce electricity, at any point, the Applicant shall first obtain the consent of the Zoning Administrator. If the Applicant's lien holders remove equipment or property credited to the salvage value, the Applicant shall promptly notify the Zoning Administrator. In either of these events, the total financial assurance shall be adjusted to reflect any change in total salvage value and total decommissioning costs resulting from any such removal or installation.



# **Attachment A**

## **Decommissioning Cost Estimate**

## Bonacci 1 Solar Project

	Quantity	Unit	Unit Cost	Total Cost
<b>Mobilization/Demobilization</b>	1	Lump Sum	\$21,500.00	\$21,500

*Mobilization was estimated to be approximately 7% of total cost of other items.*

### Permitting

County Permits	1	Lump Sum	\$10,000.00	\$10,000
State Permits	1	Lump Sum	\$20,000.00	\$20,000

**Subtotal Permitting** **\$30,000**

*Decommissioning will require SWPPP and SPCC Plans. Cost is an estimate of the permit preparation cost.*

### Civil Infrastructure

Remove Gravel Surfacing from Road	571	Cubic Yards (BV)	\$2.69	\$1,537
Haul Gravel Removed from Road to Landfill (Clinton, IL)	714	Cubic Yards (LV)	\$6.61	\$4,718
Dispose of Gravel Removed from Road (Landfill uses as Daily Cover)	925	Tons	\$0.00	\$0
Remove Geotextile Fabric from Beneath Access Roads	2,981	Square Yards	\$1.40	\$4,173
Haul Geotech Fabric to Landfill (Clinton, IL)	0.8	Tons	\$18.21	\$15
Dispose of Geotech Fabric	0.8	Tons	\$81.00	\$66
Remove and Load Culvert from Beneath Access Roads	1	Each	\$420.00	\$420
Haul Culvert Removed from Access Roads to Landfill (Clinton, IL)	0.3	Tons	\$18.21	\$5
Dispose of Culvert	0.3	Tons	\$81.00	\$24
Grade Road Corridor (Re-spread Topsoil)	925	Linear Feet	\$2.22	\$2,057
Decompact Road Area	0.6	Acres	\$89.03	\$55
Remove Chainlink Fence	3,279	Linear Feet	\$7.22	\$23,671
Haul Chainlink Fence to Metal Recycling (Urbana, IL)	17	Tons	\$5.46	\$95
Remove Solid Fence	752	Linear Feet	\$22.33	\$16,777
Haul Solid Fence to Landfill (Clinton, IL)	15	Tons	\$18.21	\$274

**Subtotal Civil Infrastructure** **\$53,887**

*Civil removal costs are a combination of StDOT unit costs where applicable, RSMMeans cost for Champaign, IL, and industry standards provided to Westwood.*

### Structural Infrastructure

Remove Steel Foundation Posts (Arrays, Equipment)	1,743	Each	\$15.31	\$26,687
Haul Array Steel Post to Metal Recycling (Urbana, IL)	125	Tons	\$4.68	\$587
Remove Tracker Racking per String	734	Each	\$92.77	\$68,096
Haul Tracker Racking to Metal Recycling (Urbana, IL)	275	Tons	\$4.68	\$1,287
Remove Drive Motor Posts	267	Each	\$15.31	\$4,088
Haul Drive Motor Posts to Metal Recycling (Urbana, IL)	19	Tons	\$4.68	\$90

**Subtotal Structural Infrastructure** **\$100,835**

*Steel removal costs were calculated by using RSMMeans information for demolition of steel members.*

*Hauling calculations are based on the locations of metals recyclers.*

### Electrical Collection System

Remove PV Panels	9,542	Each	\$9.60	\$91,603
Haul PV 95% of Panels to Reseller (Louisville, KY)	323	Tons	\$48.99	\$15,811
Haul 5% of PV Panels to Landfill (Clinton, IL)	17	Tons	\$18.21	\$309
Dispose of PV Panels	17	Tons	\$81.00	\$1,376
Remove Combiner Boxes	14	Each	\$60.00	\$840
Remove Equipment Skids	1	Each	\$1,107.22	\$1,107
Remove Equipment Pad Frames and Foundations	1	Each	\$3,256.96	\$3,257
Haul Concrete Foundations	39	Tons	\$9.37	\$368
Dispose of Concrete from Foundations	39	Tons	\$81.00	\$3,179
Haul Equipment to Transformer Disposal (Tinely Park, IL)	1	Each	\$601.23	\$601
Remove SCADA Equipment	1	Each	\$2,000.00	\$2,000
Remove DC Collector System Cables (copper)	5.25	Per MW	\$2,000.00	\$10,496
Remove Underground (AC) Collector System Stub-Ups	1	Locations	\$400.00	\$400
Load and Haul Cables for Recycling	47.2	Tons	\$4.68	\$221

**Subtotal Electrical Collection** **\$131,568**

*Electrical removal costs of PV Panels and Combiner Boxes were based industry standard installation rates. Equipment pads, MV Equipment, and SCADA Equipment removal cost are based on removal of equipment, concrete pads, and conduits using a truck mounted crane and RSMMeans information on crew production rates.*

**Gen-Tie System**

Remove Overhead Cables	315	Feet	\$7.90	\$2,489
Loadout Overhead Cables	0.6	Tons	\$37.00	\$23
Haul Overhead Cables	0.6	Tons	\$4.68	\$3
Remove and Load Timber Transmission Poles	5	Each	\$417.97	\$2,090
Haul Timber Poles to Landfill (Clinton, IL)	16	Tons	\$18.21	\$296
Haul Hardware, Bracing, and Attachments to Landfill (Clinton, IL)	3	Cubic Yards	\$24.83	\$68
Dispose of Transmission Pole Components	5	Each	\$81.00	\$405
Topsoil and Revegetation at Removed Poles	5	Each	\$3.05	\$15
<b>Subtotal Transmission System</b>				<b>\$5,388</b>

**Site Restoration**

Stabilized Construction Entrance	1	Each	\$2,000.00	\$2,000
Perimeter Controls (Erosion and Sediment Control)	1,639	Linear Feet	\$3.77	\$6,180
Permanent Seeding on Roadway Areas	0.6	Acres	\$5,307.87	\$3,269
Till to Farmable Condition on Array Areas	22	Acres	\$158.78	\$3,571
<b>Subtotal Site Restoration</b>				<b>\$15,020</b>

**Project Management**

Project Manager	12	Weeks	\$3,749.00	\$44,988
Superintendent (half-time)	12	Weeks	\$1,762.50	\$21,150
Field Engineer (half-time)	12	Weeks	\$1,634.50	\$19,614
Clerk (half-time)	12	Weeks	\$375.00	\$4,500
<b>Subtotal Project Management</b>				<b>\$90,252</b>

*Standard industry weekly rates from RSMeans.*

Subtotal Demolitions/Removals				\$448,450
Contingency (25%)				\$112,113
County Administration (2.5%)				\$11,211

<b>Subtotal Demolition and Administration Costs</b>				<b>\$571,774</b>
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**Salvage**

Fencing (Chain Link)	17	Tons	\$207.52	\$3,623
Steel Posts	125	Tons	\$207.52	\$26,043
Module Racking	275	Tons	\$207.52	\$57,120
PV Modules	9,065	Each	\$42.08	\$381,406
Transformers and Inverters	1,873	Pounds	\$0.27	\$506
Transformers (Oil)	1,520	Gallons	\$0.70	\$1,064
DC Collection Lines (Copper)	91,750	Pounds	\$0.97	\$88,768
AC Collection Line Stub-Ups (Aluminum)	2,625	Pounds	\$0.74	\$1,929
Transmission Lines (Steel)	0.2	Tons	\$306.18	\$73
Transmission Lines (Aluminum)	786	Pounds	\$0.74	\$578

<b>Subtotal Salvage</b>				<b>\$561,109</b>
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<b>Salvage Credit</b>				<b>\$392,776</b>
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*Salvage values are a combination of the following factors; current market metal salvage prices, current secondary market for solar panel module recycling, discussions with national companies that specialize in recycling and reselling electrical transformers and inverters, and the assumption that care is taken to prevent any damage or breakage of equipment.*

<b>Decommissioning Cost Estimate (Gross Cost + Contingency – Salvage Credit)</b>				<b>\$178,998</b>
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<b>Minimum Financial Assurance</b>	22 Acres		\$1,000	<b>\$22,490</b>
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## Notes:

1. Prices used in analysis are estimated based on research of current average costs and salvage values.
2. Prices provided are estimates and may fluctuate over the life of the project.
3. Contractor means and methods may vary and price will be affected by these.



## Cost Estimate Assumptions

To develop a cost estimate for the decommissioning of the Bonacci 1 Solar Facility, Westwood engineers made the following assumptions and used the following pricing references. Costs were estimated based on current pricing, technology, and regulatory requirements. The assumptions are listed in order from top to bottom of the estimate spreadsheet. When publicly available bid prices or State Department of Transportation (DOT) bid summaries were not available for particular work items, we developed time- and material-based estimates considering composition of work crews and equipment and material required. While materials may have a salvage value at the end of the Facility life, the construction activity costs and the hauling/freight costs are separated from the disposal costs or salvage value to make revisions to salvage values more transparent.

1. This cost estimate has been prepared based on the preliminary site layout provided by Forefront Energy, LLC and update February 28, 2024. Quantities that were not available when this Decommissioning Plan was prepared were estimated based on projects of similar size and design.
2. A facility of this size and complexity requires a full-time project manager with half-time support staff.
3. Common labor will be used for the majority of tasks, supplemented by electricians, steel workers, and equipment operators where labor rules may require. Since State DOT unit prices are used, where possible, and the other costs are based on RSMeans Construction Costs, the labor rates will reflect union labor rates.
4. Mobilization was estimated at approximately 7% of total cost of other items.
5. Permit applications will require the preparation of a SWPPP and SPCC Plan. The cost for these documents was split between the two phases.
6. Road gravel removal was estimated on a time and material basis. Since the material will not remain on site, a hauling cost is added to the removal cost. Clean aggregate can typically be used as “daily cover” at landfills without incurring a disposal cost. The road gravel may also be used to fortify local driveways and roads, lowering hauling costs but incurring placing and compaction costs. The hauling costs to a landfill represents an upper limit to costs for disposal of the road gravel.
7. The selected disposal facility (Clinton Landfill Inc) is located in Clinton, IL, approximately 50 miles from the project site. Hauling costs to the landfill are estimated to be \$18.21 per ton.
8. Grade Road Corridor reflects the cost of mobilizing and operating light equipment to spread and smooth the topsoil stockpiled on site during construction to replace the aggregate removed from the road.
9. Erosion and sediment control along road reflects the cost of silt fence on the downhill side of the road adjacent to wetlands and drainage swales.
10. Topsoil is required to be stockpiled on site during construction, so no topsoil replacement is expected to replace the road aggregate. Subsoiling cost to decompact roadway areas is estimated as \$89.03 per acre, and tilling to an agriculture-ready condition is estimated as \$158.78 per acre.
11. Tracker array posts are lightweight “I” beam sections installed with a specialized piece of equipment and can be removed with a standard backhoe with an attachment for gripping the piles. We estimate crew productivity at 240 posts per day, resulting in a per post cost of approximately \$15.31.

12. The selected metal recycling facility (Mack's Twin City Recycling) is located in Urbana, IL, approximately 8 miles from the project site. Hauling costs to the recycling facility are approximately \$0.58 per ton mile, or \$4.68 per ton.
13. It is assumed that the racking structures weigh approximately 15 pounds per linear foot of array. Each solar panel has a width of 44.61 inches. The facility has 9,542 modules, 35,467 feet of array, weighing 266 tons. The arrays are made of steel pipes; a crew with hand tools can disassemble and cut the pieces to sizes for recycling at a rate of about 1800 pounds per person per hour, or about \$247 per ton.
14. The solar panels for this project measure approximately 3.72 feet by 7.40 feet and weigh 72 pounds. They can easily be disconnected, removed, and packed by a three-person crew at a rate we estimate at 36 panels per hour.
15. One equipment skid, consisting of string inverters, a transformer, and a panel on a metal frame, is assumed to be used for the project. The skids weigh approximately 13,000 pounds and can be disconnected by a crew of electricians. The inverters contain copper or aluminum windings.
16. Medium voltage (MV) equipment and SCADA equipment are mounted on the same equipment skids as the inverters and transformers, and they are enclosed in weatherproof cabinets. Their size requires light equipment to remove them.
17. The underground collector system cables are placed in trenches with a minimum of 5 feet of cover in agricultural areas in accordance with AIMA guidelines. Several cables/circuits are placed side by side in each trench. The conduits and cables can be removed by trenching.
18. The Facility is assumed to have one entrance from the existing roadway, therefore one rock construction entrance has been included. Although the exact access road design is in progress, one culvert has also been included.
19. Perimeter control pricing is based on silt fence installation around downgradient sides of the project perimeter.
20. Metal salvage prices (steel, aluminum, copper) are based on October 2023 quotes from [www.scrapmonster.com](http://www.scrapmonster.com) for the Midwest. Posted prices are three months old. These prices are based on delivery to the recycling facility with the material prepared to meet size, thickness, cleanliness, and other specifications.
21. A reduction of 25% has been taken from all pricing obtained from [www.scrapmonster.com](http://www.scrapmonster.com) to reflect the processing by the contractor to meet the specifications.
22. The salvage value for steel uses pricing from the Midwest United States at \$305 per metric ton, or \$276.69 for U.S. ton.
23. Solar module salvage values are shown in current values, assuming near-new conditions for the first few years of operations. Solar modules are anticipated to degrade at approximately 0.50% per year, or 88% after 25 years. There is currently a robust market for used solar panels. We have assumed that as long as the modules are producing power, they will have economic value.
24. There is an active market for reselling and recycling electrical transformers and inverters with several national companies specializing in recycling. However, we have assumed that the electrical equipment will be obsolete at the time of decommissioning, so we have based the pricing on a percentage of the weight that reflects the copper windings that can be salvaged. Pricing was used for Copper Transformer Scrap for the Region United States, at \$0.36 per pound.
25. The collection lines are priced assuming copper conductor wire for the direct current circuits and aluminum wire for the alternating current circuits. The prices reflect a reduced yield of copper or aluminum resulting from the stripping of insulation and other materials from the

wire prior to recycling. The estimate uses the Midwest prices of #2 insulated copper wire with a 50% recovery rate (\$1.29/pound) and E.C. Aluminum Wire (\$0.98/pound).

26. Care to prevent damage and breakage of equipment, PV modules, inverters, capacitors, and SCADA must be exercised, but removal assumes unskilled common labor under supervision.
27. According to Zoning ordinance section 6.15Q(4)b.(g), a financial assurance of \$1,000 per acre is required. Total area enclosed within the fence is approximately 22.49 acres.