



May, 13<sup>th</sup> 2021

Town of Glen Planning Board  
7 Erie Street  
Fultonville, NY 12072  
ATTN: Tim Reilly

**RE: Decommissioning Plan  
Borrego Solar Project #: 67-1901**

**Project Introduction:**

The proposed action is to install a large-scale, ground-mounted, solar photovoltaic system. The existing parcel is owned by Jeffrey Lanfear and it has an area of 47.0 AC±. The project will consist of a 5 MW AC system with 12,688 ± panels. The panels will be mounted on a system of steel posts & racks. The system will be secured with a 7'H chain-link fence. The area inside the fence will be 19.17 AC±. Equipment pads will be located near the panels & will consist of inverters, transformers, data systems & switch gear.

**Scope of Decommissioning Work Required:**

Decommissioning will occur at the end of our lease with the landowner, which is typically after 25 years and will be completed through a third-party Subcontractor. The subcontractor' typical scope includes a pre-decommissioning inspection at the job site prior to decommissioning, decommissioning checklist & supervision, labor to remove all system parts.

Other activities associated with removing a photovoltaic system from service include removal of all other electrical equipment such as transformers, breaking up concrete pads and footings, removing electrical wiring, fencing and power poles. The site will be re-graded to match existing conditions.

**Establishment of Decommissioning Fund:**

Prior to the start of construction, a security to cover the full cost of the removal and disposal of the utility-scale solar collector system and any associated accessory structures less the salvage value of the utility scale solar collector system upon abandonment of said facility shall be provided by the owner/operator. The owner/operator shall provide an updated Decommissioning Cost Estimate prepared by a N.Y.S. Licensed Engineer every five (5) years, and the decommissioning surety shall be adjusted, if necessary, to reflect the then current decommissioning cost. Any such security must be provided pursuant to a written security agreement with the Town, approved by the Town Board and also approved by the Town Attorney as to form, sufficiency and manner or execution. The form of security shall be limited to those permissible under NYS Town Law. If the owner of the site fails to comply with any conditions of the approval during construction or as part of the long-term maintenance of the site, all costs of the Town incurred to comply with conditions of the approval shall be paid using the surety provided by the applicant. Failure to comply with the conditions of the approval or to maintain an acceptable level of surety will result in revocation of the certificate of occupancy.



# Decommissioning Estimate/Plan

2621 State Highway 5S  
Fultonville, NY

Date: 05/13/2021

This Decommissioning Estimate has been prepared by Borrego Solar in an attempt to predict the cost associated with the removal of the proposed solar facility. The primary cost of decommissioning is the labor to dismantle and load as well as the cost of trucking and equipment. All material will be removed from the site, including the concrete equipment pads, which will be broken up at the site and hauled to the nearest transfer station. Solar panels out of use for 12 months must be removed at owner's/operator's expense. Expected lifetime of solar system is 25 years.

No salvage values have been assumed in this calculation.

Decommissioning Plan is to be executed no more than nine (9) months after written notice to remove solar collector system has been issued by Town.

The following values were used in this Decommissioning Estimate:

<b>System Specifications</b>		<b>Equipment &amp; Material Removal Rates</b>	
Number of Modules	12,402	Module Removal Rate (min/module)	2
Number of Racks	477	Rack Wiring Rem. Rate (min/mod)	0.5
Number of Inverters	2	Racking Dismantling Rate (min/rack)	20
Number of Transformers	2	Inverter Removal Rate (hr/unit)	0.5
Electrical Wiring Length (ft)	3,814	Transformer Removal Rate (hr/unit)	1
Number of Foundation Screws	1,908	Rack Loading Rate (min/Rack)	10
Length of Perimeter Fence (ft)	4,116	Elect. Wiring Removal Rate (min/LF)	0.5
Number of Power Poles	9	Screw Rem. Rate (screws/day)	600
Access Rd Material Volume (YD)	984	Fence Removal Rate (min/LF)	1
Total Disturbed Area (SF)	41,145	Days req. to break up concrete pads	1
Total Fence Weight (lbs)	2,922	Days req. with Rough Grader	1
Total Racking Weight (lbs)	405,450	Days req. with Fine Grader	1
Total Foundation Screw Weight (lbs)	76,320	Total Truckloads Required	24
		Round-Trip Dist. to Trans. Sta.(miles)	15
		Round-Trip Time to Trans. Sta. (hr)	1.25

<b>Labor and Equipment Costs</b>		
Labor Rate (\$/hr)	\$	33.30
Operator Rate (\$/hr)	\$	49.43
Bobcat Cost (\$/hr)	\$	96.10
Front End Loader Cost (\$/Day)	\$	797.63
Excavator Cost (\$/Day)	\$	1,287.74
Trucking Cost (\$/hr)	\$	120.13
Backhoe Cost (\$/hr)	\$	96.10
Power Pole Removal Cost (\$/pole)	\$	1,500.00
Grader Cost (\$/day)	\$	1,249.30
Gravel Export Cost (\$/YD)	\$	8.00
Loam Import Cost (\$/YD)	\$	20.00
Seeding Cost (\$/SF)	\$	0.15
Fuel Cost (\$/mile)	\$	0.50

## Labor, Material, and Equipment Costs

### 1. Remove Modules

The solar modules are fastened to racking with clamps. They slide in a track. A laborer needs only unclamp the module and reach over and slide the module out of the track.

$$\text{Module Removal Rate} \cdot \text{Total Number of Solar Modules} \cdot \text{Labor Rate} = \\ \text{Module Removal Cost}$$

$$\text{Total} = \$ \quad 13,766.22$$

### 2. Remove Rack Wiring

The modules are plugged together in the same manner as an electrical cord from a light is plugged into a wall socket. The string wires are in a tray. A laborer needs only unplug the module, reach into the tray and remove the strands of wire.

$$\text{Wire Removal Rate} \cdot \text{Total Number of Solar Modules} \cdot \text{Labor Rate} = \\ \text{Rack Wiring Removal Cost}$$

$$\text{Total} = \$ \quad 3,441.56$$

### 3. Dismantle Racks

The racking is supported by screw foundations. The racking will be disconnected from the foundation and removed separately.

$$\text{Number of Racks} \cdot \text{Rack Dismantling Rate} \cdot \text{Labor Rate} = \\ \text{Rack Dismantling Cost}$$

$$\text{Total} = \$ \quad 5,294.70$$

### 4. Remove and Load Electrical Equipment

Electrical equipment includes transformers and inverters.

$$(\text{Number of Inverters} \cdot \text{Inverter Removal Rate} + \text{Number of Transformers} \cdot \text{Transformer Removal Rate}) \cdot (\text{Operator Rate} + \text{Bobcat Cost}) = \\ \text{Electrical Equipment Removal Cost}$$

$$\text{Total} = \$ \quad 436.59$$

### 5. Break Up Concrete Pads

Concrete pads are broken up using an excavator and jackhammer.

$$\text{Number of Demolition Days} \cdot (\text{Excavator Cost} + \text{Operator Cost}) = \\ \text{Total Concrete Pad Removal}$$

**Total = \$ 1,683.18****6. Load Racks**

Once the racks have been dismantled, they will be loaded onto trucks for removal from the site. The trucking cost associated with this line item represents the additional time a truck will be needed during loading. Please see item # 13 for additional trucking costs.

*Number of Racks • Rack Loading Rate • (Operator Cost + Front End Loader Cost + Trucking Cost)*  
*= Total Rack Removal Cost*

**Total = \$ 21,119.57****7. Remove Electrical Wiring**

Electrical wiring will be removed from all underground conduits.

*Cable Length • Cable Removal Rate • (Operator Cost + Backhoe Cost) =*  
*Total Cable Removal Cost*

**Total = \$ 4,625.43****8. Remove Foundation Screws**

Foundation screws will be backed out of the ground and loaded onto a truck to be removed from site.

*(Total Number of Screws / Daily Screw Removal Rate) • (Operator Rate + Excavator Cost) =*  
*Total Screw Removal Cost*

**Total = \$ 5,352.51****9. Remove Fencing**

Fencing posts, mesh, and foundations will be loaded onto a truck and removed from site. Trucking costs included in this line item are for the removal process. Trucking to a recycling facility are included in item #13.

*(Total Length of Fence • Fence Removal Rate) • (Operator Rate + Bobcat Cost + Trucking Cost) =*

**Total = \$ 18,223.93****10. Remove Power Poles**

Power poles will be removed and shipped off site.

*Number of Power Poles • Pole Removal cost =*  
*Total Power Pole Removal Cost*

**Total = \$ 13,500.00**

### 11. Gravel Road Reclamation

Reclamation of the gravel access road will entail removing the gravel material and exporting it off site. The area will then be backfilled with loam and graded.

$$(Days\ with\ Rough\ Grader + Days\ with\ Fine\ Grader) \cdot (Grader\ Cost\ per\ Day + Operator\ Cost\ per\ Day) + [Roadway\ Material\ Volume \cdot (Gravel\ Export\ Cost + Loam\ Import\ Cost)] = \\ Gravel\ Road\ Reclamation\ Cost$$

**Total = \$ 30,835.89**

### 12. Seed Disturbed Areas

Seeding cost includes labor and materials for reseeding all disturbed areas including the reclaimed gravel road area, former electrical areas, and areas disturbed by racking foundation removal.

$$Seeding\ Cost \cdot Disturbed\ Area = \\ Total\ Seeding\ Cost$$

**Total = \$ 6,171.69**

### 13. Truck to Transfer Station

All material will be trucked to the nearest Transfer station that accepts construction material. The nearest transfer station is MOSA Amsterdam Transfer

$$(Total\ Truckloads \cdot Roundtrip\ Distance \cdot Fuel\ Cost) + (Total\ Truckloads \cdot Round\ Trip\ Time \cdot \\ Trucking\ Cost) = \\ Total\ Trucking\ Cost\ to\ Transfer\ Station$$

**Total = \$ 3,783.75**



2621 State Highway 5S  
Fultonville, NY

Salvage Values

Salvage Value Not Included

**Summary of Decommissioning Costs and Salvage Values**

Line Item	Task	Cost
1	Module Removal	\$ 13,766.22
2	Rack Wiring Removal	\$ 3,441.56
3	Rack Dismantling	\$ 5,294.70
4	Electrical Equipment Loading and Removal	\$ 436.59
5	Break Up Concrete Pads	\$ 1,683.18
6	Load Racks	\$ 21,119.57
7	Electrical Wiring Removal	\$ 4,625.43
8	Foundation Screw Removal	\$ 5,352.51
9	Fence Removal	\$ 18,223.93
10	Power Pole Removal	\$ 13,500.00
11	Gravel Road Reclamation	\$ 30,835.89
12	Seed Disturbed Areas	\$ 6,171.69
13	Trucking to Transfer Station	\$ 3,783.75
		<b>Sub Total = \$ 128,235.02</b>

**Total = \$ 128,235.02**

Task	Future Value
------	--------------

Inflation

# of Years= 25

Inflation Rate= 2.5%

*Total • (1+ Inflation Rate)^Number of Years =Grand Total*

**Grand Total = \$ 237,740.56**