Decommissioning Estimate/Narrative

Date: 11/28/18

2240 N 375 E Road
De Land, IL

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. Key assumptions used include the fact that the fencing, electrical cabinetry, solar racking, solar panels, wiring and all other equipment are all one hundred percent recyclable, therefore, the primary cost of decommissioning is the labor to dismantle and load as well as the cost of trucking. The concrete pads will be broken up at the site and hauled to the nearest transfer station where it will be accepted without a charge.

The salvage value of the racking, foundation screws, and fencing has been calculated in this estimate. Solar module salvage has been ommitted because there is insuffient data on module salvage value.

The following values were used in this Decommissioning Estimate:

System Specifications	
Number of Modules	13,608
Number of Racks	168
Number of Inverters	32
Number of Transformers	2
Electrical Wiring Length (ft)	6,755
Number of Foundation Screws	672
Length of Perimeter Fence (ft)	6,265
Number of Power Poles	12
Access Rd Material Volume (YD)	907
Total Disturbed Area (SF)	37,847
Total Fence Weight (lbs)	4,448
Total Racking Weight (lbs)	142,800
Total Foundation Screw Weight (lbs)	26,880

Labor and Equipment Costs		
Labor Rate ($/hr)	$	35.60
Bobcat Cost ($/hr)	$	195.00
Front End Loader Cost ($/Day)	$	2,000.00
Excavator Cost ($/Day)	$	2,000.00
Trucking Cost ($/hr)	$	130.00
Backhoe Cost ($/hr)	$	245.00
Power Pole Removal Cost ($/pole)	$	1,500.00
Grader Cost ($/day)	$	1,800.00
Gravel Export Cost ($/YD)	$	10.00
Loam Import Cost ($/YD)	$	25.00
Seeding Cost ($/SF)	$	0.10
Fuel Cost ($/mile)	$	0.50

Equipment & Material Removal Rates	
Module Removal Rate (min/module)	1
Rack Wiring Rem. Rate (min/mod)	0.5
Racking Dismantling Rate (min/rack)	30
Inverter Removal Rate (units/hr)	1
Transformer Removal Rate (units/hr)	0.5
Rack Loading Rate (min/Rack)	20
Elect. Wiring Removal Rate (min/LF)	3
Screw Rem. Rate (screws/day)	400
Fence Removal Rate (min/LF)	2
Days req. to break up concrete pads	1
Days req. with Rough Grader	1
Days req. with Fine Grader	1
Total Truckloads Required	12
Round-Trip Dist. to Trans. Sta.(miles	19
Round-Trip Time to Trans. Sta. (hr)	1

Salvage Value		
Galvanized Steel Salvage Value ($/lb	$	0.05

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.

Module Removal Rate • Total Number of Solar Modules • Labor Rate = Module Removal Cost

Total = $ 8,074.08

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.

Wire Removal Rate • Total Number of Solar Modules • Labor Rate = Rack Wiring Removal Cost

Total = $ 4,037.04

3. Dismantle Racks

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

Number of Racks • Rack Dismantling Rate • Labor Rate = Rack Dismantling Cost

Total = $ 2,990.40

4. Remove and Load Electrical Equipment

Electrical equipment includes transformers and inverters.

(Number of Inverters • Inverter Removal Rate + Number of Transformers • Transformer Removal Rate) • (Labor Rate + Bobcat Cost) = Electrical Equipment Removal Cost

Total = $ 7,609.80

5. Break Up Concrete Pads

Concrete pads are broken up using an excavator and jackhammer.

Number of Demolition Days • (Excavator Cost + Labor Cost) = Total Concrete Pad Removal

Total = $ 2,284.80

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 • (Labor Cost + Front End Loader Cost + Trucking Cost) = Total Rack Removal Cost

Total = $ 20,193.60

7. Remove Electrical Wiring

Electrical wiring will be removed from all underground conduits.

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

Total = $ 94,772.65

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) • (Labor Rate + Excavator Cost) = Total Screw Removal Cost

Total = $ 3,838.46

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) • (Labor Rate + Bobcat Cost + Trucking Cost) = Total Screw Removal Cost

Total = $ 75,305.30

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 = $ 18,000.00

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) • Grader Cost per Day + [Roadway Material Volume • (Gravel Export Cost + Loam Import Cost)] = Gravel Road Reclamation Cost

Total = $ 35,345.00

11. Pervious Road Reclamation

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

(Days with Rough Grader + Days with Fine Grader) • Grader Cost per Day + [Roadway Material Volume • (Pervious Material Export Cost + Loam Import Cost)] = Pervious Material Road Reclamation Cost

Total = $ -

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 • Disturbed Area = Total Seeding Cost

Total = $ 3,784.65

13. Truck to Transfer Station

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

(Total Truckloads • Roundtrip Distance • Fuel Cost) + (Total Truckloads • Round Trip Time •

Total = $ 1,674.00

Salvage Values

1S. Fencing, Racking, and Foundation Pile Salvage Value

The racking, foundations, and fencing are all made of galvanized steel, which is recyclable. They will be trucked to Clinton Landfill.

(Total Fencing Weight + Total Racking Weight + Total Screw Weight) • Galvanized Steel Salvage

Total = $ (8,706.41)

Summary of Decommissioning Costs and Salvage Values

Line Item	Task	Cost	
1	Module Removal	$	8,074.08
2	Rack Wiring Removal	$	4,037.04
3	Rack Dismantling	$	2,990.40
4	Electrical Equipment Loading and Removal	$	7,609.80
5	Break Up Concrete Pads	$	2,284.80
6	Load Racks	$	20,193.60
7	Electrical Wiring Removal	$	94,772.65
8	Foundation Screw Removal	$	3,838.46
9	Fence Removal	$	75,305.30
10	Power Pole Removal	$	18,000.00
11	Gravel Road Reclamation	$	35,345.00
12	Seed Disturbed Areas	$	3,784.65
13	Trucking to Transfer Station	$	1,674.00
14	Module Disposal Cost	$	-
	Subtotal =	$	277,909.78

Line Item	Task	Salvage Values	
1S	Fencing, Racking, and Foundation Salvage Value	$	(8,706.41)
	Salvage Subtotal =	$	(8,706.41)

Present Value Total = $ 269,203.38

Total after 20-years @ 2% Inflation

Present Value • (1+ Inflation Rate)^Number of Years =

Grand Total = $400,022.06