NSF KIRKWOOD - SITE 1 - DECOMMISSIONING PLAN

SYNOPSIS

- SOLAR SYSTEM LIFESPAN
- COST OF DECOMMISSIONING
- ENSURING FUNDS FOR DECOMMISSIONING
- DESCRIPTION OF SITE RESTORATION

SOLAR SYSTEM LIFESPAN

Owner of Sites located at 149 Quilty Hill Road, Kirkwood, NY 13795 (the "Project"), to be subdivided, is responsible for decommissioning the Project. Community Distributed Generation ("CDG") solar fields are designed for a minimum expected operational life of 25 years but may operate for 40 years or more.

As the solar field approaches the end of its operational life, it is expected that technological advances will make more efficient and cost-effective solar arrays that will economically drive the replacement of the existing solar arrays.

The decommissioning plan provides financial assurance that there will be sufficient funds available for decommissioning and site restoration when the solar arrays have reached the end of their useful life. Salvage values are not included within the decommissioning cost estimates.

COST OF DECOMMISSIONING*

	Task	Estimated Cost
1	Remove Modules	$ 4,770.35
2	Remove Rack Wiring	$ 2,385.17
3	Dismantle Racks	$ 3,763.59
4	Remove and Load Electrical Equipment	$ 672.88
5	Break Up Concrete Pads	$ 1,359.86
6	Load Racks	$ 7,578.43
7	Remove Electrical Wiring	$ 13,224.90
8	Remove Foundation Screws	$ 4,058.18
9	Remove Fencing	$ 20,828.48
10	Remove Utility Poles	$ 7,500.00
11	Seed Disturbed Areas	$ 57,704.76
12	Truck to Transfer Station	$ 8,052.56
13	Road Reclamation	$ 39,292.54
	Cost: Labor and Equipment to Decommission	**$ 171,191.70**

**Please refer to the Decommissioning Estimate for an analysis of the methodology used to project the cost of decommissioning.*

ENSURING FUNDS FOR DECOMMISSIONING

At the start of physical construction of the Project following issuance of a building permit from the Town, funds will be reserved by the Project owner for decommissioning and site restoration in the form of a Decommissioning Surety acceptable to the Town ("Surety"). The Decommissioning Surety will be for an amount equal to 120% of the projected cost of decommissioning set forth in both the Decommissioning Plan and the Decommissioning Estimate.

The Decommissioning Surety will remain in place for as long as the Project remains in commercial operation, provided, however, to the extent available as liquid funds, the Decommissioning Surety may be used to offset the costs of the decommissioning. Please refer to the Decommissioning Agreement for specific details.

DESCRIPTION OF SITE RESTORATION

Decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with applicable federal, state, and local permits. Completion of decommission and site restoration activities will be accomplished within 180 days of commencement or such other period as may be agreed upon by the Town of Kirkwood and NSF.

The decommissioning and restoration process comprise removal of above-ground structures; grading, to the extent necessary; restoration of topsoil (if needed) and seeding.

The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and disposal. The above-ground structures and below-ground structures are collectively referred to herein as the "Project Components."

Temporary erosion and sedimentation control best management practices will be used during the decommissioning phase of the Project. Control features will be regularly inspected during the decommissioning phase and removed at the end at the process.

Removal of Electrical Components, Racks & Rack Wiring

Control cabinets, electronic components, and internal cables will be removed. The panels, racks and inverters will be lowered to the ground where they may be transported whole for reconditioning and reuse or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

PV Module Dismantling & Panel Removal

Solar photovoltaic modules used in the Project are manufactured within regulatory requirements for toxicity based on Toxicity Characteristic Leaching Procedure (TCLP). The solar panels are not considered hazardous waste.

The panels used in the Project will contain silicon, glass, and aluminum which have value for recycling. Modules will be dismantled and packaged per manufacturer or approved recyclers specifications and shipped to an approved off-site approved recycler.

Breakup and Remove Concrete Pads or Ballast

Pads will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and

concrete to a depth of 24 inches below grade. The remaining excavation will be filled with clear sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding subgrade material.

All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area.

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site.

Electrical Cable Removal

Electric wire made from copper or aluminum has value for recycling. DC wiring can be removed manually from the panels to the inverter. Underground wire in the area of the array will be pulled and removed from the ground. Overhead cabling for the interconnection will be removed from poles. All wire will be sent to an approved recycling facility.

Fencing and Racking Removal

All racking and fencing material will be broken down into manageable units and removed from facility and sent to an approved recycler. All racking posts driven into the ground will be pulled and removed.

Grading and Road Removal

During decommissioning, the processed stone access roads will be maintained for access and future use.

Seed Disturbed Areas

Following decommissioning activities, the sub-grade material and topsoil from affected areas may need to be de-compacted and restored to a density and depth consistent with the surrounding areas. If the subsequent use for the Project site will involve agriculture, a deep till of the Project site may be undertaken.

The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. Disturbed areas will be reseeded to promote re-vegetation of the area unless the area is to be immediately redeveloped.

In all areas, restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

Areas disturbed during the decommissioning phase will be seeded with a drought-tolerant grass seed mix appropriate for the area unless such areas are being immediately redeveloped for other uses.

NSF KIRKWOOD - SITE 1 - DECOMMISSIONING ESTIMATE

This Decommissioning Estimate has been prepared in order to predict the cost associated with removal of the proposed solar facility. The primary cost of decommissioning is the labor to dismantle and load as the cost of trucking and equipment. All material will be removed from the site, including any concrete foundations, which will be broken up at the site and hauled to the nearest transfer station.

The following values were used in this Decommissioning Estimate:

SYSTEM SPECIFICATIONS	
Number of Modules	10,224
Number of Racks	202
Number of Inverters	2
Number of Transformers	3
Number of Batteries	-
Electrical Wiring Length (ft)	9,434
Number of Foundation Screws/Posts	807
Length of Perimeter Fence	4,334
Number of Power Poles	5
Access Road Material Volume (YD)	1,084
Total Disturbed Area (SF)	961,746
Total Fence Weight (lbs)	3,034
Total Racking Weight (lbs)	171,409
Total Foundation Screw Weight (lbs)	32,265

LABOR AND EQUIPMENT COSTS	
Labor Rate ($/hr)	$55.99
Operator Rate ($/hr)	$72.12
Bobcat Cost ($/hr)	$96.10
Front End Loader ($/hr)	$797.63
Excavator Cost ($/hr)	$1,287.74
Trucking Cost ($/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)	$0.06
Fuel Cost ($/mile)	$0.50

EQUIPMENT & MATERIAL REMOVAL RATES	
Module Removal Rate (min/module)	0.50
Rack Wiring Removal Rate (min/module)	0.25
Racking Dismantling Rate (min/rack)	20.00
Inverter Removal Rate (hr/unit)	0.50
Transformer Removal Rate (hr/unit)	1.00
Battery Removal Rate (hr/unit)	1.00
Rack Loading Rate (min/rack)	10.00
Electrical Wiring Removal Rate (min/LF)	0.50
Screw Removal Rate (screws/day)	600.00
Fence Removal Rate (min/LF)	1.00
Days Req'd to Break up Concrete Pads	1.00
Days Req'd w/ Rough Grader	1.00
Days Req'd w/ Fine Grader	2.00
Total Truckloads Req'd	31.00
Round Trip Distance to Trans. Station	39.00
Round Trip Time to Trans. Station	2.00

[redacted]

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 to unclamp the module and reach over and slide the module out of the track.

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

Total = $4,770.35

2.) REMOVE RACK WIRING

The solar modules are plugged together in the same manner as most electronics. The string wires are in a tray. A laborer only needs to unplug the module, reach into the array and remove the strands of wire.

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

Total = $2,385.17

3.) DISMANTLE RACKS

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

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

Total = $3,763.59

4.) REMOVE AND LOAD ELECTRICAL EQUIPMENT

Inverters, batteries and transformers are all considered electrical equipment.

(Number of Inverters x Inverter Removal Rate)+(Number of Transformers x Transformer Removal Rate)+(Number of Batteries x Battery Removal Rate) x (Labor Rate + Bobcat Cost) = Cost to Remove and Load Eletrical Equipment

Total = $672.88

5.) BREAK UP CONCRETE PADS

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site.

Days Required to Break Up Concrete Pads x (Excavator Cost + Operator Rate) = Cost to Break Up Concrete Pads

Total = $1,359.86

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.

Number of Racks x Rack Loading Rate x (Operator Rate x Front End Loader Cost x Trucking Cost) = Rack Loading Cost

Total = $7,578.43

7.) REMOVE ELECTRICAL WIRING

Electrical wiring will be removed from all underground conduits.

Electrical Wiring Length x Electrical Wiring Removal Rate x (Operator Rate + Backhoe Cost) = Electrical Wiring Removal Cost

Total = $13,224.90

8.) REMOVE FOUNDATION SCREWS

The racking is supported by ground screw foundations. The racking will be disconnected from the

Number of Foundation Screws / Screw Removal Rate x (Operator Rate + Excavator Cost) = Foundation Screws Removal Cost

Total = $4,058.18

9.) REMOVE FENCING

Fencing posts, fabric, and foundations will be loaded into a truck and removed from the site. Trucking costs included in this line item are for the removal process.

Length of Perimeter Fence x Fence Removal Rate (Operator Rate + Bobcat Cost + Trucking Cost) = Fence Removal Cost

Total = $20,828.48

10.) REMOVE UTILITY POLES

Power poles will be removed and shipped off site.

Number of Power Poles x Power Pole Removal Cost = Utility Pole Removal Cost

Total = $7,500.00

11.) SEED DISTURBED AREAS

Seeding cost includes time and materials for reseeding all disturbed areas.

Total Disturbed Area x Seeding Cost = Cost to Seed Disturbed Areas

Total = $57,704.76

12.) TRUCK TO TRANSFER STATION

Inverters, batteries and transformers are all considered electrical equipment.

(Total Truckloads Required x Round Trip Distance to Transfer Station x Fuel Cost) + (Total Truckloads Required x Roundtrip Time to Transfer Station x Trucking Cost) = Cost to Truck to Transfer Station

Total = $8,052.56

13.) ROAD RECLAMATION

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

(Days Required with Rough Grader + Days Required with Fine Grader) x (Grader Cost + Operator Rate) + (Access Road Material Volume (Gravel Export Cost + Loam Import Cost)) = Gravel Road Reclamation Cost

Total = $39,292.54

SUMMARY OF DECOMMISSIONING COSTS

The costs below are the current estimated costs to decommission a 5 MW (AC) Solar Facility, based on guidance from NYSERDA and estimates from the New York solar market. The salvage values of valuable recyclable materials (aluminum, steel, copper, etc.) are not factored into the below costs.

LINE ITEM	TASK	COST
1	REMOVE MODULES	$4,770.35
2	REMOVE RACK WIRING	$2,385.17
3	DISMANTLE RACKS	$3,763.59
4	REMOVE AND LOAD ELECTRICAL EQUIP.	$672.88
5	BREAK UP CONCRETE PADS	$1,359.86
6	LOAD RACKS	$7,578.43
7	REMOVE ELECTRICAL WIRING	$13,224.90
8	REMOVE FOUNDATION SCREWS	$4,058.18
9	REMOVE FENCING	$20,828.48
10	REMOVE UTILITY POLES	$7,500.00
11	SEED DISTURBED AREAS	$57,704.76
12	TRUCK TO TRANSFER STATION	$8,052.56
13	ROAD RECLAMATION	$39,292.54
	TOTAL =	**$171,191.70**

NSF KIRKWOOD - SITE 2 - DECOMMISSIONING PLAN

SYNOPSIS

- SOLAR SYSTEM LIFESPAN
- COST OF DECOMMISSIONING
- ENSURING FUNDS FOR DECOMMISSIONING
- DESCRIPTION OF SITE RESTORATION

SOLAR SYSTEM LIFESPAN

Owner of Sites located at 149 Quilty Hill Road, Kirkwood, NY 13795 (the "Project"), to be subdivided, is responsible for decommissioning the Project. Community Distributed Generation ("CDG") solar fields are designed for a minimum expected operational life of 25 years but may operate for 40 years or more.

As the solar field approaches the end of its operational life, it is expected that technological advances will make more efficient and cost-effective solar arrays that will economically drive the replacement of the existing solar arrays.

The decommissioning plan provides financial assurance that there will be sufficient funds available for decommissioning and site restoration when the solar arrays have reached the end of their useful life. Salvage values are not included within the decommissioning cost estimates.

COST OF DECOMMISSIONING*

	Task	Estimated Cost
1	Remove Modules	$ 4,747.95
2	Remove Rack Wiring	$ 2,373.98
3	Dismantle Racks	$ 3,745.93
4	Remove and Load Electrical Equipment	$ 672.88
5	Break Up Concrete Pads	$ 1,359.86
6	Load Racks	$ 7,542.85
7	Remove Electrical Wiring	$ 13,224.90
8	Remove Foundation Screws	$ 4,039.12
9	Remove Fencing	$ 20,828.48
10	Remove Utility Poles	$ 7,500.00
11	Seed Disturbed Areas	$ 57,704.76
12	Truck to Transfer Station	$ 8,052.56
13	Road Reclamation	$ 39,292.54
	Cost: Labor and Equipment to Decommission	**$ 171,085.80**

**Please refer to the Decommissioning Estimate for an analysis of the methodology used to project the cost of decommissioning.*

ENSURING FUNDS FOR DECOMMISSIONING

At the start of physical construction of the Project following issuance of a building permit from the Town, funds will be reserved by the Project owner for decommissioning and site restoration in the form of a Decommissioning Surety acceptable to the Town ("Surety"). The Decommissioning Surety will be for an amount equal to 120% of the projected cost of decommissioning set forth in both the Decommissioning Plan and the Decommissioning Estimate.

The Decommissioning Surety will remain in place for as long as the Project remains in commercial operation, provided, however, to the extent available as liquid funds, the Decommissioning Surety may be used to offset the costs of the decommissioning. Please refer to the Decommissioning Agreement for specific details.

DESCRIPTION OF SITE RESTORATION

Decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with applicable federal, state, and local permits. Completion of decommission and site restoration activities will be accomplished within 180 days of commencement or such other period as may be agreed upon by the Town of Kirkwood and NSF.

The decommissioning and restoration process comprise removal of above-ground structures; grading, to the extent necessary; restoration of topsoil (if needed) and seeding.

The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and disposal. The above-ground structures and below-ground structures are collectively referred to herein as the "Project Components."

Temporary erosion and sedimentation control best management practices will be used during the decommissioning phase of the Project. Control features will be regularly inspected during the decommissioning phase and removed at the end at the process.

Removal of Electrical Components, Racks & Rack Wiring

Control cabinets, electronic components, and internal cables will be removed. The panels, racks and inverters will be lowered to the ground where they may be transported whole for reconditioning and reuse or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

PV Module Dismantling & Panel Removal

Solar photovoltaic modules used in the Project are manufactured within regulatory requirements for toxicity based on Toxicity Characteristic Leaching Procedure (TCLP). The solar panels are not considered hazardous waste.

The panels used in the Project will contain silicon, glass, and aluminum which have value for recycling. Modules will be dismantled and packaged per manufacturer or approved recyclers specifications and shipped to an approved off-site approved recycler.

Breakup and Remove Concrete Pads or Ballast

Pads will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and

concrete to a depth of 24 inches below grade. The remaining excavation will be filled with clear sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding subgrade material.All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area.

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site.

Electrical Cable Removal

Electric wire made from copper or aluminum has value for recycling. DC wiring can be removed manually from the panels to the inverter. Underground wire in the area of the array will be pulled and removed from the ground. Overhead cabling for the interconnection will be removed from poles. All wire will be sent to an approved recycling facility.

Fencing and Racking Removal

All racking and fencing material will be broken down into manageable units and removed from facility and sent to an approved recycler. All racking posts driven into the ground will be pulled and removed.

Grading and Road Removal

During decommissioning, the processed stone access roads will be maintained for access and future use.

Seed Disturbed Areas

Following decommissioning activities, the sub-grade material and topsoil from affected areas may need to be de-compacted and restored to a density and depth consistent with the surrounding areas. If the subsequent use for the Project site will involve agriculture, a deep till of the Project site may be undertaken.

The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. Disturbed areas will be reseeded to promote re-vegetation of the area unless the area is to be immediately redeveloped.

In all areas, restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

Areas disturbed during the decommissioning phase will be seeded with a drought-tolerant grass seed mix appropriate for the area unless such areas are being immediately redeveloped for other uses.

NSF KIRKWOOD - SITE 2 - DECOMMISSIONING ESTIMATE

This Decommissioning Estimate has been prepared in order to predict the cost associated with removal of the proposed solar facility. The primary cost of decommissioning is the labor to dismantle and load as the cost of trucking and equipment. All material will be removed from the site, including any concrete foundations, which will be broken up at the site and hauled to the nearest transfer station.

The following values were used in this Decommissioning Estimate:

SYSTEM SPECIFICATIONS	
Number of Modules	10,176
Number of Racks	201
Number of Inverters	2
Number of Transformers	3
Number of Batteries	-
Electrical Wiring Length (ft)	9,434
Number of Foundation Screws/Posts	803
Length of Perimeter Fence	4,334
Number of Power Poles	5
Access Road Material Volume (YD)	1,084
Total Disturbed Area (SF)	961,746
Total Fence Weight (lbs)	3,034
Total Racking Weight (lbs)	170,604
Total Foundation Screw Weight (lbs)	32,114

LABOR AND EQUIPMENT COSTS	
Labor Rate ($/hr)	$55.99
Operator Rate ($/hr)	$72.12
Bobcat Cost ($/hr)	$96.10
Front End Loader ($/hr)	$797.63
Excavator Cost ($/hr)	$1,287.74
Trucking Cost ($/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)	$0.06
Fuel Cost ($/mile)	$0.50

EQUIPMENT & MATERIAL REMOVAL RATES	
Module Removal Rate (min/module)	0.50
Rack Wiring Removal Rate (min/module)	0.25
Racking Dismantling Rate (min/rack)	20.00
Inverter Removal Rate (hr/unit)	0.50
Transformer Removal Rate (hr/unit)	1.00
Battery Removal Rate (hr/unit)	1.00
Rack Loading Rate (min/rack)	10.00
Electrical Wiring Removal Rate (min/LF)	0.50
Screw Removal Rate (screws/day)	600.00
Fence Removal Rate (min/LF)	1.00
Days Req'd to Break up Concrete Pads	1.00
Days Req'd w/ Rough Grader	1.00
Days Req'd w/ Fine Grader	2.00
Total Truckloads Req'd	31.00
Round Trip Distance to Trans. Station	39.00
Round Trip Time to Trans. Station	2.00

[redacted]

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 to unclamp the module and reach over and slide the module out of the track.

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

Total = $4,747.95

2.) REMOVE RACK WIRING

The solar modules are plugged together in the same manner as most electronics. The string wires are in a tray. A laborer only needs to unplug the module, reach into the array and remove the strands of wire.

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

Total = $2,373.98

3.) DISMANTLE RACKS

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

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

Total = $3,745.93

4.) REMOVE AND LOAD ELECTRICAL EQUIPMENT

Inverters, batteries and transformers are all considered electrical equipment.

(Number of Inverters x Inverter Removal Rate)+(Number of Transformers x Transformer Removal Rate)+(Number of Batteries x Battery Removal Rate) x (Labor Rate + Bobcat Cost) = Cost to Remove and Load Eletrical Equipment

Total = $672.88

5.) BREAK UP CONCRETE PADS

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site.

Days Required to Break Up Concrete Pads x (Excavator Cost + Operator Rate) = Cost to Break Up Concrete Pads

Total = $1,359.86

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.

Number of Racks x Rack Loading Rate x (Operator Rate x Front End Loader Cost x Trucking Cost) = Rack Loading Cost

Total = $7,542.85

7.) REMOVE ELECTRICAL WIRING

Electrical wiring will be removed from all underground conduits.

Electrical Wiring Length x Electrical Wiring Removal Rate x (Operator Rate + Backhoe Cost) = Electrical Wiring Removal Cost

Total = $13,224.90

8.) REMOVE FOUNDATION SCREWS

The racking is supported by ground screw foundations. The racking will be disconnected from the

Number of Foundation Screws / Screw Removal Rate x (Operator Rate + Excavator Cost) = Foundation Screws Removal Cost

Total = $4,039.12

9.) REMOVE FENCING

Fencing posts, fabric, and foundations will be loaded into a truck and removed from the site. Trucking costs included in this line item are for the removal process.

Length of Perimeter Fence x Fence Removal Rate (Operator Rate + Bobcat Cost + Trucking Cost) = Fence Removal Cost

Total = $20,828.48

10.) REMOVE UTILITY POLES

Power poles will be removed and shipped off site.

Number of Power Poles x Power Pole Removal Cost = Utility Pole Removal Cost

Total = $7,500.00

11.) SEED DISTURBED AREAS

Seeding cost includes time and materials for reseeding all disturbed areas.

Total Disturbed Area x Seeding Cost = Cost to Seed Disturbed Areas

Total = $57,704.76

12.) TRUCK TO TRANSFER STATION

Inverters, batteries and transformers are all considered electrical equipment.

(Total Truckloads Required x Round Trip Distance to Transfer Station x Fuel Cost) + (Total Truckloads Required x Roundtrip Time to Transfer Station x Trucking Cost) = Cost to Truck to Transfer Station

Total = $8,052.56

13.) ROAD RECLAMATION

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

(Days Required with Rough Grader + Days Required with Fine Grader) x (Grader Cost + Operator Rate) + (Access Road Material Volume (Gravel Export Cost + Loam Import Cost)) = Gravel Road Reclamation Cost

Total = $39,292.54

SUMMARY OF DECOMMISSIONING COSTS

The costs below are the current estimated costs to decommission a 5 MW (AC) Solar Facility, based on guidance from NYSERDA and estimates from the New York solar market. The salvage values of valuable recyclable materials (aluminum, steel, copper, etc.) are not factored into the below costs.

LINE ITEM	TASK	COST
1	REMOVE MODULES	$4,747.95
2	REMOVE RACK WIRING	$2,373.98
3	DISMANTLE RACKS	$3,745.93
4	REMOVE AND LOAD ELECTRICAL EQUIP.	$672.88
5	BREAK UP CONCRETE PADS	$1,359.86
6	LOAD RACKS	$7,542.85
7	REMOVE ELECTRICAL WIRING	$13,224.90
8	REMOVE FOUNDATION SCREWS	$4,039.12
9	REMOVE FENCING	$20,828.48
10	REMOVE UTILITY POLES	$7,500.00
11	SEED DISTURBED AREAS	$57,704.76
12	TRUCK TO TRANSFER STATION	$8,052.56
13	ROAD RECLAMATION	$39,292.54
	TOTAL =	**$171,085.80**

NSF KIRKWOOD - SITE 3 - DECOMMISSIONING PLAN

SYNOPSIS

- SOLAR SYSTEM LIFESPAN
- COST OF DECOMMISSIONING
- ENSURING FUNDS FOR DECOMMISSIONING
- DESCRIPTION OF SITE RESTORATION

SOLAR SYSTEM LIFESPAN

Owner of Sites located at 149 Quilty Hill Road, Kirkwood, NY 13795 (the "Project"), to be subdivided, is responsible for decommissioning the Project. Community Distributed Generation ("CDG") solar fields are designed for a minimum expected operational life of 25 years but may operate for 40 years or more.

As the solar field approaches the end of its operational life, it is expected that technological advances will make more efficient and cost-effective solar arrays that will economically drive the replacement of the existing solar arrays.

The decommissioning plan provides financial assurance that there will be sufficient funds available for decommissioning and site restoration when the solar arrays have reached the end of their useful life. Salvage values are not included within the decommissioning cost estimates.

COST OF DECOMMISSIONING*

	Task	Estimated Cost
1	Remove Modules	$ 4,714.36
2	Remove Rack Wiring	$ 2,357.18
3	Dismantle Racks	$ 3,719.42
4	Remove and Load Electrical Equipment	$ 672.88
5	Break Up Concrete Pads	$ 1,359.86
6	Load Racks	$ 7,498.48
7	Remove Electrical Wiring	$ 13,224.90
8	Remove Foundation Screws	$ 4,010.54
9	Remove Fencing	$ 20,828.48
10	Remove Utility Poles	$ 7,500.00
11	Seed Disturbed Areas	$ 57,704.76
12	Truck to Transfer Station	$ 8,052.56
13	Road Reclamation	$ 39,292.54
	Cost: Labor and Equipment to Decommission	**$ 171,926.96**

**Please refer to the Decommissioning Estimate for an analysis of the methodology used to project the cost of decommissioning.*

ENSURING FUNDS FOR DECOMMISSIONING

At the start of physical construction of the Project following issuance of a building permit from the Town, funds will be reserved by the Project owner for decommissioning and site restoration in the form of a Decommissioning Surety acceptable to the Town ("Surety"). The Decommissioning Surety will be for an amount equal to 120% of the projected cost of decommissioning set forth in both the Decommissioning Plan and the Decommissioning Estimate.

The Decommissioning Surety will remain in place for as long as the Project remains in commercial operation, provided, however, to the extent available as liquid funds, the Decommissioning Surety may be used to offset the costs of the decommissioning. Please refer to the Decommissioning Agreement for specific details.

DESCRIPTION OF SITE RESTORATION

Decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with applicable federal, state, and local permits. Completion of decommission and site restoration activities will be accomplished within 180 days of commencement or such other period as may be agreed upon by the Town of Kirkwood and NSF.

The decommissioning and restoration process comprise removal of above-ground structures; grading, to the extent necessary; restoration of topsoil (if needed) and seeding.

The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and disposal. The above-ground structures and below-ground structures are collectively referred to herein as the "Project Components."

Temporary erosion and sedimentation control best management practices will be used during the decommissioning phase of the Project. Control features will be regularly inspected during the decommissioning phase and removed at the end at the process.

Removal of Electrical Components, Racks & Rack Wiring

Control cabinets, electronic components, and internal cables will be removed. The panels, racks and inverters will be lowered to the ground where they may be transported whole for reconditioning and reuse or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

PV Module Dismantling & Panel Removal

Solar photovoltaic modules used in the Project are manufactured within regulatory requirements for toxicity based on Toxicity Characteristic Leaching Procedure (TCLP). The solar panels are not considered hazardous waste.

The panels used in the Project will contain silicon, glass, and aluminum which have value for recycling. Modules will be dismantled and packaged per manufacturer or approved recyclers specifications and shipped to an approved off-site approved recycler.

Breakup and Remove Concrete Pads or Ballast

Pads will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and

concrete to a depth of 24 inches below grade. The remaining excavation will be filled with clear sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding subgrade material.

All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area.

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site.

Electrical Cable Removal

Electric wire made from copper or aluminum has value for recycling. DC wiring can be removed manually from the panels to the inverter. Underground wire in the area of the array will be pulled and removed from the ground. Overhead cabling for the interconnection will be removed from poles. All wire will be sent to an approved recycling facility.

Fencing and Racking Removal

All racking and fencing material will be broken down into manageable units and removed from facility and sent to an approved recycler. All racking posts driven into the ground will be pulled and removed.

Grading and Road Removal

During decommissioning, the processed stone access roads will be maintained for access and future use.

Seed Disturbed Areas

Following decommissioning activities, the sub-grade material and topsoil from affected areas may need to be de-compacted and restored to a density and depth consistent with the surrounding areas. If the subsequent use for the Project site will involve agriculture, a deep till of the Project site may be undertaken.

The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. Disturbed areas will be reseeded to promote re-vegetation of the area unless the area is to be immediately redeveloped.

In all areas, restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

Areas disturbed during the decommissioning phase will be seeded with a drought-tolerant grass seed mix appropriate for the area unless such areas are being immediately redeveloped for other uses.

NSF KIRKWOOD - SITE 3 - DECOMMISSIONING ESTIMATE

This Decommissioning Estimate has been prepared in order to predict the cost associated with removal of the proposed solar facility. The primary cost of decommissioning is the labor to dismantle and load as the cost of trucking and equipment. All material will be removed from the site, including any concrete foundations, which will be broken up at the site and hauled to the nearest transfer station.

The following values were used in this Decommissioning Estimate:

SYSTEM SPECIFICATIONS	
Number of Modules	10,104
Number of Racks	199
Number of Inverters	2
Number of Transformers	3
Number of Batteries	-
Electrical Wiring Length (ft)	9,434
Number of Foundation Screws/Posts	797
Length of Perimeter Fence	4,334
Number of Power Poles	5
Access Road Material Volume (YD)	1,084
Total Disturbed Area (SF)	961,746
Total Fence Weight (lbs)	3,034
Total Racking Weight (lbs)	169,397
Total Foundation Screw Weight (lbs)	31,886

LABOR AND EQUIPMENT COSTS	
Labor Rate ($/hr)	$55.99
Operator Rate ($/hr)	$72.12
Bobcat Cost ($/hr)	$96.10
Front End Loader ($/hr)	$797.63
Excavator Cost ($/hr)	$1,287.74
Trucking Cost ($/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)	$0.06
Fuel Cost ($/mile)	$0.50

EQUIPMENT & MATERIAL REMOVAL RATES	
Module Removal Rate (min/module)	0.50
Rack Wiring Removal Rate (min/module)	0.25
Racking Dismantling Rate (min/rack)	20.00
Inverter Removal Rate (hr/unit)	0.50
Transformer Removal Rate (hr/unit)	1.00
Battery Removal Rate (hr/unit)	1.00
Rack Loading Rate (min/rack)	10.00
Electrical Wiring Removal Rate (min/LF)	0.50
Screw Removal Rate (screws/day)	600.00
Fence Removal Rate (min/LF)	1.00
Days Req'd to Break up Concrete Pads	1.00
Days Req'd w/ Rough Grader	1.00
Days Req'd w/ Fine Grader	2.00
Total Truckloads Req'd	31.00
Round Trip Distance to Trans. Station	39.00
Round Trip Time to Trans. Station	2.00

[redacted]

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 to unclamp the module and reach over and slide the module out of the track.

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

Total = $4,714.36

2.) REMOVE RACK WIRING

The solar modules are plugged together in the same manner as most electronics. The string wires are in a tray. A laborer only needs to unplug the module, reach into the array and remove the strands of wire.

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

Total = $2,357.18

3.) DISMANTLE RACKS

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

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

Total = $3,719.42

4.) REMOVE AND LOAD ELECTRICAL EQUIPMENT

Inverters, batteries and transformers are all considered electrical equipment.

(Number of Inverters x Inverter Removal Rate)+(Number of Transformers x Transformer Removal Rate)+(Number of Batteries x Battery Removal Rate) x (Labor Rate + Bobcat Cost) = Cost to Remove and Load Eletrical Equipment

Total = $672.88

5.) BREAK UP CONCRETE PADS

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site.

Days Required to Break Up Concrete Pads x (Excavator Cost + Operator Rate) = Cost to Break Up Concrete Pads

Total = $1,359.86

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.

Number of Racks x Rack Loading Rate x (Operator Rate x Front End Loader Cost x Trucking Cost) = Rack Loading Cost

Total = $7,489.48

7.) REMOVE ELECTRICAL WIRING

Electrical wiring will be removed from all underground conduits.

Electrical Wiring Length x Electrical Wiring Removal Rate x (Operator Rate + Backhoe Cost) = Electrical Wiring Removal Cost

Total = $13,224.90

8.) REMOVE FOUNDATION SCREWS

The racking is supported by ground screw foundations. The racking will be disconnected from the

Number of Foundation Screws / Screw Removal Rate x (Operator Rate + Excavator Cost) = Foundation Screws Removal Cost

Total = $4,010.54

9.) REMOVE FENCING

Fencing posts, fabric, and foundations will be loaded into a truck and removed from the site. Trucking costs included in this line item are for the removal process.

Length of Perimeter Fence x Fence Removal Rate (Operator Rate + Bobcat Cost + Trucking Cost) = Fence Removal Cost

Total = $20,828.48

10.) REMOVE UTILITY POLES

Power poles will be removed and shipped off site.

Number of Power Poles x Power Pole Removal Cost = Utility Pole Removal Cost

Total = $7,500.00

11.) SEED DISTURBED AREAS

Seeding cost includes time and materials for reseeding all disturbed areas.

Total Disturbed Area x Seeding Cost = Cost to Seed Disturbed Areas

Total = $57,704.76

12.) TRUCK TO TRANSFER STATION

Inverters, batteries and transformers are all considered electrical equipment.

(Total Truckloads Required x Round Trip Distance to Transfer Station x Fuel Cost) + (Total Truckloads Required x Roundtrip Time to Transfer Station x Trucking Cost) = Cost to Truck to Transfer Station

Total = $8,052.56

13.) ROAD RECLAMATION

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

(Days Required with Rough Grader + Days Required with Fine Grader) x (Grader Cost + Operator Rate) + (Access Road Material Volume (Gravel Export Cost + Loam Import Cost)) = Gravel Road Reclamation Cost

Total = $39,292.54

SUMMARY OF DECOMMISSIONING COSTS

The costs below are the current estimated costs to decommission a 5 MW (AC) Solar Facility, based on guidance from NYSERDA and estimates from the New York solar market. The salvage values of valuable recyclable materials (aluminum, steel, copper, etc.) are not factored into the below costs.

LINE ITEM	TASK	COST
1	REMOVE MODULES	$4,714.36
2	REMOVE RACK WIRING	$2,357.18
3	DISMANTLE RACKS	$3,719.42
4	REMOVE AND LOAD ELECTRICAL EQUIP.	$672.88
5	BREAK UP CONCRETE PADS	$1,359.86
6	LOAD RACKS	$7,489.48
7	REMOVE ELECTRICAL WIRING	$13,224.90
8	REMOVE FOUNDATION SCREWS	$4,010.54
9	REMOVE FENCING	$20,828.48
10	REMOVE UTILITY POLES	$7,500.00
11	SEED DISTURBED AREAS	$57,704.76
12	TRUCK TO TRANSFER STATION	$8,052.56
13	ROAD RECLAMATION	$39,292.54
	TOTAL =	**$170,926.96**