
DECOMMISSIONING PLAN

SOLAR ENERGY SYSTEM @

**Hudson National Golf Course
40 Arrowcrest Drive
Croton-on-Hudson, NY 10520**

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December 13, 2021

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1 Executive Summary

Decommissioning will occur as a result of any of the following conditions:

- The land lease expires or is terminated; or
- The solar energy system (SES) does not produce power for a period of 12 consecutive months.

The site activity impacts will be similar to the construction phase, but in reverse sequence. Decommissioning of electrical devices, equipment and wiring/cabling will be conducted in accordance with local, municipal, state, and federal standards and guidelines. Electrical decommissioning will include obtaining the required permits and following procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and wiring/cabling.

The procedures will include the following:

- The creation of temporary work areas. In order to provide sufficient area for the laydown of the disassembled panels and racking and loading onto trucks, gravel may be placed on a clear, level area that is accessible.
- Equipment will include, at a minimum:
 - The use of telehandlers to remove the panels, racking, inverters, and transformers.
 - The use of trucks for removal of panels, racking, inverters, and transformers.
- Driveways or access roads will be removed unless property owner requests them left in place. If removed, gravel access roads will be removed and replaced with soil for reuse by the landowner.

Erosion and sediment control measures, similar to those used during construction will be implemented and maintained by performing contractor.

2 Decommissioning

2.1 Dismantling PV Modules, Racks and Supports

Modules will be disconnected, removed from the racks and transported to a designated location for resale, recycling or disposal. If the modules are not resold or reused, they will be properly disposed based on regulations set forth by the authority of proper jurisdiction at the time of decommissioning. It is the applicants desire to the extent practical to ensure the panels are reused if the system is decommissioned or becomes obsolete. The connecting cables, and the junction boxes will be de-energized, disconnected and removed.

Steel racks supporting the modules will be unbolted and disassembled using standard hand tools, possibly assisted by use of other construction equipment. The vertical steel posts supporting the racks and steel support posts (driven or screwed) will be removed by mechanical equipment and transported off-site for salvage (driven piles) or reuse (screw piles).

Any demolition debris that is not salvageable will be transported by truck to an approved offsite disposal area. Other salvageable equipment and/or material will be removed from the site for resale, scrap value or disposal depending on market conditions.

2.2 Dismantling Electrical Equipment and Foundations

Decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, municipal, provincial and federal agency standards and guidelines. Electrical decommissioning will include obtaining the required permits before de-energizing, and disconnecting electrical devices, equipment and cabling.

Decommissioning will require dismantling and removal of the electrical equipment, including energy storage, inverters, transformers, cables, overhead lines, and prefabricated inverter enclosures, unless property owner requests some or all of the equipment to remain. The equipment will be disconnected and transported off-site by truck. The concrete foundations and support pads may be broken up by mechanical equipment (backhoe-hydraulic hammer/shovel, jackhammer), loaded onto dump trucks and removed from the site. At the request of the property owner, smaller pre-cast concrete support pads may be removed by cranes and loaded onto trucks for reuse on the property. Equipment and material may be salvaged for resale or scrap depending on the market conditions.

2.0 Dismantling Access Paths

Grass access paths to remain in place after the solar array has been decommissioned.

2.4 Other Components

Unless retained for other purposes, and at the request of the property owners, removal of other facility components from the site will be completed, including but not limited to surface drains, culverts, and fencing. Anything deemed usable shall be recovered and reused. Other remaining components will be considered as waste and managed according to federal, provincial and municipal requirements. For safety and security, the security fence will be the final component dismantled and removed from the site.

Concrete piers, footers or other supports must be removed to a depth of 48-inches below the soil surface. Underground electric lines must be abandoned in place. Access roads will be removed, unless otherwise specified by the landowner.

2.5 Decommissioning Costs

Decommissioning cost have been separated to allow for the flexibility to operate each system as required to meet the demands of the energy and capacity markets.

Solar System Assumptions	
System Size (wattage)	1,950,000
Module Size (wattage)	475
# of Modules	4,105
Racking Tables (5 x 4)	205
# Racking Screws (4 per table)	821
Decommissioning Labor Cost (\$\$/man-hr.)	\$90.00
Salvage Weight (lbs./watt)	0.026351

ITEM	DESCRIPTION OF ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
DISASSEMBLY & DISPOSAL					
1.0	PV Modules	4,105	EA.	\$5.33	\$ 21,881.05
2.0	Inverter(s)	11	EA.	\$271.00	\$ 2,981.00
3.0	Transformer	0	EA.	0	\$ -
4.0	Racking Frame	205	EA.	\$260.00	\$ 53,368.42
5.0	Racking Screws	821	EA.	\$50.00	\$ 41,052.63
6.0	LV Wiring	3020	LF	\$1.50	\$ 4,530.00
7.0	MV Wiring	300	LF	\$3.50	\$ 1,050.00
8.0	Fiber Optic Cable	300	LF	\$0.66	\$ 198.00
9.0	Fence	3480.0	LF	\$2.50	\$ 8,700.00
10.0	Concrete	8.5	CY	\$200.00	\$ 1,700.00
11.0	General Conditions	2	MW	\$3,822.00	\$ 7,644.00
				SUBTOTAL	\$143,105.11
SITE RESTORATION					
12.0	Re-Seeding (drives & fenced area)	8	AC	\$3,924.00	\$ 31,392.00
13.0	Re-Grading (access path only)	60	CY	\$120.00	\$ 7,200.00
				SUBTOTAL	\$ 38,592.00
SALVAGE					
14.0	Racking (Frame & Screws)	51,384.45	LBS.	\$0.09	4,624.60
15.0	Solar Panels	4,105	EA.	15.576	63,943.58
				SUBTOTAL	68,568.18
SUBTOTAL - Disassembly, Disposal and Site Restoration					\$181,697.11
TOTAL - Salvage Value					(68,568.18)
NET DECOMMISSIONING COST					\$113,128.93
10 % Contingency					\$ 11,312.89
TOTAL - DECOMMISSIONING Costs					\$124,441.82

ASSUMPTIONS/EXCLUSIONS:

- 17.0 LV & MV Wiring quantities are estimates only since the project has not been fully designed.
- 18.0 Line item #9.0 includes removal of fence and all appurtenances, including but not limited to footings, posts and barbed wire.
- 19.0 Line item #13.0 includes re-seeding of the driveway area (after stone removal), concrete pads and reseeding within the fenced area as a result of

Energy Storage Decommissioning Assumptions	
Total Shipping Weight	54,000
Battery Enclosure Weight	32,756
Inverters Quantity	22
Inverter Rating (watts)	59,091
Total Inverter Weight (lbs)	4,400
Battery Weight (lbs)	16,000
HVAC - Therma Weightl (lbs)	4,356
Miscellaneous (lbs)	844
Labor Rate (\$\$/hr)	\$110.00
Manhrs (4 labors x 4 days)	128
Shipping Distance (miles)	400

ITEM	DESCRIPTION OF ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
1.0	Cost of Rigging/Crane	1	EA.	\$7,500.00	\$7,500
2.0	Labor	128	Hrs	\$110.00	\$14,080
3.0	Shipping Costs	400	Miles	\$10.00	\$4,000
4.0	Lithium Recycling Costs	16,000	lbs	\$0.1598	\$2,557
5.0	Salvage Value (steel, aluminum & copper)	32,756	lbs	\$0.20	-\$6,551
NET DECOMMISSIONING COST					\$21,586
10 % Contingency					\$2,158.56
TOTAL - DECOMMISSIONING COST					\$23,744.16

ASSUMPTIONS/EXCLUSIONS:

- 6.0 Due to the present day supply change issues, actual equipment may change the quantities listed
- 7.0 Advancements of Lithium Ion battery recycling technology are expected and supply chain are likely to decrease costs.

2.6 Decommissioning Schedule

At an appropriate time which will be mutually determined in writing with the Village of Croton-on-Hudson, the owner and operator shall begin the process of decommissioning and site restoration. It is anticipated that all decommissioning activities will be concluded with 365 days from receiving written notification from the Village Attorney, unless otherwise mutually determined between both parties. Decommissioning schedule shall also include repairing damage caused by installation of decommissioning activities. The solar system is expected to be fully operational at the end of the 25 year Site Plan Approval period and that both parties may seek to extend site plan approval based on the significant environmental benefits offered at the time. Owner may request a 1 year extension, which shall not be unreasonably withheld by the Village of Croton-on-Hudson, to either finalize a Site Plan Approval extension with the Village or complete certain site restoration that impacted by seasonal weather conditions.

3 Erosion and Sediment Control Plan

3.1 Erosion and Sediment Control Measures

Temporary erosion and sediment control measures to be used during decommissioning construction generally include the following:

- Stabilized construction access.
- Dust control.
- Temporary soil stockpiles.
- Silt fencing.
- Temporary seeding.

Once decommissioning is completed, disturbed areas shall be seeded within 14 days after completion of the land disturbing activities. Final site stabilization is achieved when soil-disturbing activities have been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on the disturbed unpaved areas and areas not covered by permanent structures.

3.2 Pollution Prevention Controls

Good housekeeping practices are designed to maintain a clean and orderly work environment. Good housekeeping measures shall be maintained throughout the construction process by those parties involved with the direct care and development of the site. The following measures shall be implemented to control the possible exposure of harmful substances and materials to stormwater runoff:

1. Soil stockpile locations shall be located away from storm drainage, water bodies or watercourses and surrounded with adequate erosion and sediment control measures. Soil stockpile locations shall be exposed no longer than 14 days before seeding.
2. Equipment maintenance areas shall be protected from stormwater flows and shall be supplied with appropriate waste receptacles for spent chemicals, solvents, oils, greases, gasoline, and any pollutants that might contaminate the surrounding habitat or water supply. Equipment wash-down zones shall be within areas draining to sediment control devices.
3. The use of detergents for large-scale (e.g., vehicles, buildings, pavement surfaces) washing will be prohibited.
4. Material storage locations and facilities (e.g., covered storage areas, storage sheds) shall be on-site and shall be stored according to the manufacturer's standards in a dedicated staging area. Chemicals, paints, solvents, fertilizers, and other toxic material shall be

stored in waterproof containers. Runoff containing such materials shall be collected, removed from the site, treated and disposed of at an approved solid waste or chemical disposal facility.

5. Hazardous spills shall be immediately contained to prevent pollutants from entering the surrounding habitat or water supply. Spill Kits shall be provided on site and shall be displayed in a prominent location for ease of access and use. Spills greater than 5 gallons shall be reported to the NYSDEC Response Unit at 1-800-457-7362. In addition, a record of the incidents or notifications shall be documented and attached to the SWPPP.
6. Portable sanitary waste facilities shall be provided on site for workers and shall be properly maintained.
7. Dumpsters or debris containers shall be on site and shall be of adequate size to manage respective materials. Regular collection and disposal of wastes must occur as required.
8. Non-stormwater components of site discharge shall be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or approved private well. Water used for construction that does not originate from an approved public supply must not discharge from the site.
9. Discharges from dewatering activities, including discharges from dewatering trenches and excavations, shall be managed by appropriate control measures.

3.3 Inspections and Maintenance

3.3.1 Trained Contractor Requirements

The trained contractor must inspect the erosion and sediment control practices and pollution-prevention measures to verify that they are being maintained in effective operating condition during the construction of the project. The inspections will be performed daily in the active work area. If deficiencies are identified, the contractor will begin implementing corrective actions within two business days and must complete the corrective actions by the end of the day.

3.3.2 Qualified Inspector Requirements

The site contractor must have a Qualified Inspector conduct site inspections to verify the stability and effectiveness of protective measures and practices employed during construction. The site inspections will be conducted at least once every seven days.

Inspection reports must identify and document the maintenance of the erosion and sediment control measures. If deficiencies are identified, the contractor will begin implementing corrective actions within two business days and must complete the corrective actions by the end of the day.

4 Waste Disposal

As discussed above, the waste generated by the installation, operation and decommissioning of The Project is minimal, and there are no toxic residues. Any wastes generated will be disposed of according to standards of the day with the emphasis of recycling materials whenever possible.

5 Restoration of Land

5.1 General

The agricultural use of the areas will be restored by:

- Site cleanup.
- Any excavation and/or trenching caused by the removal of building or equipment foundations, rack supports and underground electrical cables will be backfilled with the appropriate material and leveled to match the ground surface.
- Driveways will be removed completely, filled with suitable sub-grade material and leveled. Topsoil will be placed on these areas to restore agricultural capability.
- Any compacted ground will be tilled, mixed with suitable sub-grade materials and leveled.

5.1 Tree Restoration Plan

At the conclusion of the mechanical disassembly and regrading, trees will be replanted on a 1 to 1 ratio to the healthy trees removed, excluding invasive species. Replanting will contain an assortment of native hardwood species, including oaks (*Quercus* spp.), hickory (*Carya* spp.) birch (*Betula* spp.), American beech (*Fagus grandifolia*), and Sugar maple (*Acer saccharum*). Spacing will be consistent with published requirements for each species and collectively for groups of plantings. A final tree restoration site plan will be submitted to the Village of Croton for review and approval as a condition of Site Plan approval.

6 Emergency Response and Communications Plans

Prior to initiating any decommissioning activities, Prickly Pear Solar, LLC will notify authorities having jurisdiction and relevant government agencies of their intent to decommission the equipment. Copies of a emergency response plan, developed in conjunction with the local emergency services, will be provided to the local municipality prior to the commencement of operations. A plan specific to the project will be developed during the construction phase of and will be applicable to both the operations and decommissioning phases of the project.

During decommissioning, Prickly Pear Solar, LLC will coordinate with the local authority, the public and others as required to provide them with information about the ongoing activities. Contact information signage for general inquires or emergency purposes will be posted at the gate of the solar facility which will include (telephone number, e-mail and mailing address)

7 Permit and Approvals

Decommissioning activities are not expected to disturb more than one or more acres of land. Therefore, coverage under the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity (General Permit) latest revision will not be required prior to commencement of decommissioning. If during disturbance limits change during the planning process, the performing contractor shall obtain the necessary permits and approvals including but not limited to SPDES General Permit. Erosion and sediment control inspections will be preformed in accordance with approvals.