

Decommissioning Plan

Great Western Dennis Solar Field
131 Great Western Road, Dennis, MA

August 20, 2021

VS Great Western Dennis SMART, LLC
24941 Dana Point Harbor Drive, Suite C-220
Dana Point, CA 92629

1.0 PROJECT DESCRIPTION

VS Great Western Dennis SMART, LLC (“Applicant”) submits this Decommissioning Plan in connection with its proposed redevelopment of, and improvements to, the property located at 131 Great Western Road, Dennis (the “Property”). As described in Applicant’s related application materials, the proposed redevelopment consists of a 3.119-megawatt (DC) solar energy facility with battery storage, on approximately 8.5 acres of the 13.9-acre parcel. In addition, the redevelopment also includes other improvements such as stormwater management enhancements, landscaping, and screening from Great Western Road. Details regarding these proposed improvements are described in the Project Site Narrative prepared included as Attachment 10.

By way of background, the site was part of a larger parcel consisting of approximately 19 acres and was previously used as a sand and gravel operation. Subsequently, in 1990, the 19-acre parcel was used as a golf driving range consisting of 70 sheltered tees, a small clubhouse and 62 parking spaces. The golf driving range had the benefit of a DRI Permit entitled the Crowell Golf Driving Range (Decision 90037).

The generation of electricity will meet all the requirements of the Solar Massachusetts Renewable Target (SMART) Program, which provides for access to a twenty-year tariff paid directly by the utilities based upon the amount of electricity generated.

The Project as currently designed consists of a ground-mounted solar array where the solar panels are mounted on a simple fixed-tilt, post, rail and cross-beam structure built of galvanized steel and aluminum. Steel or galvanized I-Beams are driven or in the case of augured post are mechanically screwed into the ground. The solar panel array is located close to the ground with the lower leading edge being three (4’) feet above the existing grade and with the high end of the panels being approximately 10 -12 feet off the ground. The solar array will be connected to inverters, which are connected to conversion equipment and switches all of which meets the National Electric Code as revised. The electric power from the inverters will run via underground conduit to electric switchgear and then to the utility single point of interconnection to the utility company distribution lines within the public way.

A battery system will form part of the installation and will be installed on the northern end of the field inside the fence. The batteries will be charged using the electricity from the solar field and discharged at pre-determined intervals.

1.1 Procedures for Decommissioning after Ceasing Operation

The Project consists of numerous recyclable materials including glass, steel, aluminum, copper and plastics. When the Project reaches the end of its operational life, the component parts can be dismantled and recycled. The Project components will be dismantled and recycled. The Project components will be dismantled in separate and distinct parts and removed using minimal impact conventional construction equipment. After dismantling and removal, the Project components will be recycled or disposed of safely.

1.2 Temporary Erosion Control

Appropriate temporary (construction-related) erosion and sediment best management practices (BMP) will be used during the decommissioning phase of the Project. The BMP's will be inspected on a regular basis to ensure their function.

1.3 General Removal Process

Effectively, the decommissioning of the Project proceeds in reverse order of the installation.

1. The PV facility shall be disconnected from the utility.
2. PV modules and battery equipment shall be disconnected, collected and shipped to a PV recycling and collection program.
3. Above ground and underground electrical interconnection and distribution cables shall be removed and recycled off-site by an approved recycling facility.
4. PV module support post shall be removed and recycled off-site by an approved metal recycler.
5. PV module racking shall be removed and recycled off-site by an approved recycler.
6. Electrical and electronic devices, including transformers and inverters shall be removed and recycled off-site by an approved recycler.
7. Fencing shall be removed and will be sold or recycled off-site by an approved recycler.
8. Site circulation roads created for the Project will remain in place. There are no permanent changes to the site and it will be left in a condition similar to a grassy meadow. Any soil disturbed in the removal of underground wiring will be backfilled and loam and seeded.

1.4 Electrical Wiring Removal and Recycling

The electrical wiring is typically installed underground (a limited amount) or is attached to the racking beams (majority) on the module racking structure. To remove the underground wire, the original trenches in which the wire is buried will be dug up and the conduit and wire removed. The wire attached to the rail is primarily attached via a plastic clip and can be removed by hand. The wiring is either copper or aluminum (depending upon the function / location) encapsulated in an insulating plastic material; most of these materials are desirable commodities that can be recycled.

1.5 Racking Structure Removal and Recycling

The racking structure consists of aluminum racking rails and steel post. All materials can be recycled and or re-used. Removal of the aluminum racking is straightforward, as the primary attachment is via screws, clips, nuts, and bolts. The steel post will be removed using heavy equipment. An appropriate recycler can reuse these materials.

1.6 Procedures for Decommissioning during Construction (Abandonment of Project)

In case of abandonment of the Project during construction, the same decommissioning procedures as for Decommissioning after ceasing operation will be undertaken and the same decommissioning plan and restoration plan will be honored, in as far as construction proceeded before abandonment. The facility will be dismantled, materials removed, reused, or recycled and the soil that was disturbed will be regarded, and the site will be returned to its preconstruction state.

2.0 Financial Guarantees

1. The proposed Project is designed to be built and in compliance with the Solar Massachusetts Renewable Target (SMART) Program, which provides access to the SMART tariff for 20-years. System owners are paid directly by the utility, in this case, National Grid for electricity generated by solar production.
2. Operational Security. All solar modules shall be Tier 1 modules as a recognized indication of quality of the manufactured solar module by its manufacturer. PV panels come with a performance warranty. In the event a module breaks down, a manufacturer provides a replacement module at no cost to the system owner. Solar fuel is free and low operational cost provided few opportunities for mismanagement or project failure.
3. Bank financing looks very favorably on a fixed 20-year tariff structure that does not contain large amounts of credit risk. Bank financing will look deeply at the selected modules and equipment and operational contracts to protect their investments. Bank financing requires significant due diligence.
4. Security against company performance: Should the Project owners fail to operate the facility successfully, the financiers, as long-term investors in the project, will step in to take over the facility and run the project for the life of the project or find another operator to do so.
5. High residual value: Once financing loans are paid off, the facility will have additional years of operational life with the original solar modular panels. Tier 1 solar panels typically have a 25-year, 80% of original solar generation production warranty.
6. Salvage value: At the end of the useful life of the solar modules, the facility value will be reduced to that of the commodity materials from which it is constructed, steel, copper, aluminum and glass.
7. Installed Renewable Energy Infrastructure: Current Massachusetts legislation, the Renewable Portfolio Standard developed in 2003 and increased in 2009, requires that the utilities acquire an additional one (1%) per year of electricity generated by renewable sources. Given that 15% of the energy will have to come from renewable sources by 2020, in 25-years, more than 40% of our electricity will be coming from renewable sources. This commercial utility scale project will become a part of Massachusetts installed energy infrastructure base. Panels will be most likely be replace with higher production panels in 25-35 years, it is expected that this facility will be repowered in place for another 25 years' worth of renewable energy production.

2.1 Estimated Decommissioning Costs:

For planning purposes, Applicant provides below the estimated costs for decommissioning. The cost of decommissioning the 3.119 MW megawatt solar facility is \$63,000 and will take approximately sixty (60) days. Please see the following table for a breakdown of the costs:

The estimated cost at 20-years with a 2% inflation rate is \$93,614.

Great Western Dennis Solar Field Removal Cost Estimate				
Item	Quantity	Rate / ea.	Days	Amount
Laborers	6	\$200.00	20	\$24,000
Heavy Equipment & Operator	2	\$1,000.00	10	\$20,000
Debris Container / Disposal	20	\$850.00	-	\$17,000
Site Repair (grade/seed)	-	-	-	\$6,000
Mobilize / Demobilize	-	-	-	\$4,000
Salvage Estimate	-	-	-	\$8,000
Total				\$63,000*

*Assuming 2% / year inflation, the estimated cost in 20 years will be \$93,614.