San Luis West Solar Project



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Reclamation Plan

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Purpose of the Reclamation Plan 1

1.2 Project Overview 2

2.0 GUIDANCE FOR RECLAMATION PLAN CONTENTS 2

3.0 DECOMMISSIONING AND RECLAMATION PROCEDURES 3

3.1 Pre-Decommissioning Activities 4

3.2 Removal of Facilities 4

3.2.1 Project Above- and Below-Ground Facilities 4

3.2.2 PV Modules 4

3.2.3 BESS Facility 5

3.2.4 Component Pads 5

3.2.5 Electrical Wire 5

3.2.6 Racking and Fencing 5

3.2.7 Concrete Slabs 5

3.2.8 Roads 5

3.2.9 Gen-Tie Transmission Lines 6

3.3 Debris Management, Disposal, and Recycling 6

3.4 Hazardous Waste Management 6

3.5 Post-Demolition Site Restoration 6

4.0 PROJECT DECOMMISSIONING COSTS AND BONDING 7

4.1 Reclamation Cost Estimate Assumptions 7

ACRONYMS AND ABBREVIATIONS

AC	alternating current
Applicant	San Luis West Solar, LLC
BESS	battery energy storage system
DC	direct current
PG&E	Pacific Gas & Electric
MW	megawatt
MWh	megawatt hour
PPE	Personal Protective Equipment
Project	San Luis West Solar Project
PV	photovoltaic

1.0 INTRODUCTION

1.1 Purpose of the Reclamation Plan

The purpose of this Closure, Decommissioning, and Reclamation Plan (Reclamation Plan) is to describe the decommissioning and reclamation activities associated with the permanent closure of the facilities at the San Luis West Solar Project (Project) in Fresno County (County), California by San Luis West Solar, LLC (Applicant). The specific activities implemented during facility closure will be determined based on the expected future use of the site. Therefore, a more detailed reclamation plan will be developed in advance of the start of decommissioning activities.

This Reclamation Plan was developed in compliance with the Solar Facility Guidelines developed by the Fresno County Public Works and Planning Board of Supervisors (dated December 12, 2017, found at https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/photovoltaic-facilities-p-1621). These guidelines, in bullet number 6, require Applicants for solar facilities to "provide a Reclamation Plan detailing the lease life, timeline for removal of the improvements and specific measures to return the site to the agricultural capability prior to installation of solar improvements."

Additionally, the County developed a set of guidelines for preparing a Solar Electrical Generation Facility Reclamation Plan. These guidelines are discussed in further detail in Section 2.

For purposes of developing this Reclamation Plan, it was assumed that if and when the Project is decommissioned, all Project structures and electrical equipment would be removed from the site and the disturbed areas would be reclaimed for purposes of restoring the site to its present-day conditions to the extent feasible.

This Reclamation Plan addresses the following:

- Project Overview
- Guidance for Reclamation Plan Contents
- Decommissioning and Reclamation Procedures
    - Pre-Decommissioning Activities
    - Removal of Facilities
    - Debris Management, Disposal, and Recycling
    - Hazardous Waste Management
    - Post-Demolition Site Restoration
- Project Reclamation Costs and Bonding
    - Reclamation Cost Estimate Assumptions

As mentioned above, because this document addresses Project actions that would occur well in the future, it will be updated and finalized in the months prior to the scheduled decommissioning. This will ensure the final plan addresses the proposed future land use of the site and the applicable rules and regulations in place at that time.

1.2 Project Overview

The Project will consist of a 125-megawatt (MW) solar photovoltaic (PV) electric generation facility coupled with an estimated 30 MW battery energy storage system (BESS). The PV portion of the Facility will produce electricity by way of the photovoltaic effect, which uses a semi-conductor material to convert photons from the Sun into electrons, for injection into the electrical grid operated by Pacific Gas & Electric (PG&E). The BESS portion of the Facility will store electricity either generated by the PV arrays or absorbed from the PG&E grid. In either case, the BESS will make the stored energy available for discharge during periods of peak electrical load. Construction is anticipated to endure approximately 9 months, beginning in early 2025. The anticipated operational lifespan of the Project is approximately 35 years.

2.0 GUIDANCE FOR RECLAMATION PLAN CONTENTS

The County's Solar Facility Guidelines and Reclamation Plan Preparation Guidelines provides the following guidance on the minimum content for reclamation plans. Where necessary, reference is made to other sections of the Reclamation Plan where more detailed information is provided:

1. **Description of present use of the site.**

The present use of the site mostly consists of fallow agricultural land. See attached Project Description for more details.

2. **Describe the proposed alternate use of the land (all equipment to be installed above and underground, structures, fencing, etc.).**

The Project is anticipated to include the following elements:

- PV modules (panels)
- Collection line system
- BESS components
- Project substation
- Gen-tie line
- Interconnection
- Access roads
- Fencing
- Lighting
- Telecommunications
- Meteorological data collection system
- Operations and Maintenance (O&M) Facility

3. **Duration of the alternate use of the property (specify termination date).**

The anticipated operational lifespan of the Project is approximately 35 years, with a potential for continued use in accordance with County permitting requirements.

4. Address ownership of the property (lease or sale).

All properties will be leased or owned by the Applicant. See Parcel Table (1c) for specific ownership information.

5. Describe how the subject property will be reclaimed to its previous agricultural condition, specifically:

A. Timeline for completion of reclamation after solar facility lease has termed (identify phasing if needed)
B. Handling of any hazardous chemicals/materials to be removed
C. Removal of all equipment, structures, buildings, and improvements at and above-grade
D. Removal of any below-grade foundations;
E. Removal of any below-grade infrastructure (cables/lines, etc.) that are no longer deemed necessary by the local public utility company
F. Detail any grading necessary to return the site to original grade
G. Type of crops to be planted
H. Irrigation system details to be used (existing wells, pumps, etc. should remain throughout the solar facility use).

These procedures to return the proposed Project site to pre-construction conditions are discussed in Section 3.

6. A Site Plan shall be submitted along with the text of the Reclamation Plan showing the location of equipment, structures, above and underground utilities, fencing, buffer area, reclamation phasing, etc.

See attached Site Plan for the Project.

7. An engineering cost estimate of reclaiming the site to its previous agricultural condition shall be submitted for review and approval.

The preliminary engineering cost estimate is provided in Section 4. A detailed cost estimate is attached as Attachment 8b.

3.0 DECOMMISSIONING AND RECLAMATION PROCEDURES

The procedures described for decommissioning and reclamation are designed to promote public health and safety, environmental protection, and compliance with applicable regulations. It was assumed that decommissioning will begin approximately 35 or more years after Project operation is initiated. The Project decommissioning plan may incorporate the sale of some of the facility components via the used equipment market and recycling of components. Decommissioning will be conducted in accordance with a Final Reclamation Plan that will be developed in the months prior to decommissioning being initiated.

This conceptual reclamation plan assumes that all equipment and facilities within and associated with the Project will be removed.

3.1 Pre-Decommissioning Activities

Pre-decommissioning activities will be conducted to prepare the Project for demolition. These would include assessing the existing site conditions and development of a Final Reclamation Plan and schedule as described above.

Pre-decommissioning activities would include removing hazardous materials from the site including residues that occur in equipment. All operational liquids and chemicals are expected to be removed and disposed of as discussed in Section 3.4. Hazardous material and petroleum containers, pipelines, and other similar structures shall be rinsed clean when feasible and the waste liquid collected for off-site disposal.

Locations for decommissioned structures, non-hazardous waste, and debris will be designated on the Final Reclamation Plan to facilitate the decommissioning process and off-site removal.

3.2 Removal of Facilities

Site decommissioning and equipment removal may take a year or more. Therefore, access roads, fencing, electrical power, and the on-site O&M facility will remain in place temporarily for use by the decommissioning and restoration workers until no longer needed. These components would be the last to be removed prior to site rehabilitation.

3.2.1 Project Above- and Below-Ground Facilities

Aboveground structures that need to be dismantled during decommissioning include the PV panels, PV panel racking and foundations, transformers and inverters, site fencing, access roads, substations, the BESS facility, and the on-site O&M facility. Below-ground facilities/utilities that potentially may be removed include electrical lines and conduits, foundations, and concrete slabs.

It was assumed that the Project will incur costs for removal and disposal of the Project facilities as well as costs for the restoration of the Project Site. Above-grade steel, aluminum, and copper equipment, however, is expected to have significant scrap value to a salvage contractor. All recyclable materials will be recycled to the extent possible, while all other non-recyclable waste materials will be disposed of in accordance with state and federal law.

The process of removing structures involves evaluating and categorizing all components and materials into categories of salvage, recycling, and disposal. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on site in a pre-approved location until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal.

Stormwater retention basins and other stormwater conveyance methods will be filled and brought to grade level.

3.2.2 PV Modules

Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. The specific manufacturer and model of panels to be used in the Project is yet to be

determined, however any solar panels used for the Project will be manufactured and disposed of within regulatory requirements for toxicity based on the Toxicity Characteristic Leaching Procedure. Modules will be disposed in an approved landfill near the Project or recycled by an approved module recycler, as the modules will still be up to 87.5% efficient (based on industry standard annual degradation modeling of 0.5%) and markets for recycled PV modules are anticipated to exist at the time of Project decommissioning.

3.2.3 BESS Facility

Foundation materials will be broken and removed or recycled depending upon the materials used. Clean concrete will be crushed and disposed of off-site and/or recycled and reused on site or off site. Inverters, control systems, and other electronic equipment shall be either reused, returned to original equipment manufacturers for reuse as refurbished or spare parts, or recycled. The old batteries will be transported to facilities for refurbishment, recycling, or disposal using industry best management practices.

3.2.4 Component Pads

Pads will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and concrete. The remaining excavation will be filled with clean sub-grade material of quality comparable to the immediate surrounding area. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and surface material to the proper density consistent and compatible with the surrounding area and to support revegetation.

3.2.5 Electrical Wire

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

3.2.6 Racking and Fencing

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

3.2.7 Concrete Slabs

Concrete slabs used as equipment pads will be broken and removed. Clean concrete will be crushed and disposed of off-site and/or recycled and reused on site or off site.

3.2.8 Roads

Access and on-site roads will remain in place to accomplish decommissioning at the end of the facility's life and would be one of the last Project components to be removed. During decommissioning, the processed stone access roads will be stripped exposing the geotextile beneath (if applicable). The geotextile will then be removed and disposed to reveal the original soil surface.

The compacted soil beneath the road fill may require ripping with a subsoiler plow to loosen it before it can be revegetated. Any access roads that the landowner desires to keep will be left in place.

3.2.9 Gen-Tie Transmission Lines

If the gen-tie transmission lines will not continue to be utilized for another purpose at the time of Project decommissioning, the lines will be removed. Decommissioning of the gen-tie will consist of removal of all structures associated with the construction of the transmission line(s) to include, but not limited to, overhead conductors and the removal of poles. All steel will be recycled and the foundations will be removed to a depth of at least 2 feet below the ground surface or as otherwise obligated by any real estate agreements. Aluminum from overhead conductors will be recycled.

3.3 Debris Management, Disposal, and Recycling

All removed material and demolition debris will be staged in designated locations within the Project boundaries, and recycled or disposed of in permitted off-site facilities. All subsurface materials will be removed.

3.4 Hazardous Waste Management

All disposal and transportation of hazardous waste will be conducted under compliance with applicable regulations as required. In areas where no record of hazardous waste exposure occurred, a visual inspection will be conducted. If a concern is identified, further evaluation of the area shall occur and the area or structure will be treated accordingly. A licensed state waste contractor would be used to ensure that all required laws and regulations have been met and to address any remaining requirements needed to successfully close the Project.

3.5 Post-Demolition Site Restoration

Once the existing structures of the Project and ancillary facilities have been removed, the Project area will be restored to topographic conditions similar to pre-construction.

To the extent possible, topsoil will be removed prior to site restoration in all work areas and stockpiled, clearly designated, and separated from other excavated material. Prior to topsoil replacement, all rocks 4 inches or greater will be removed from the surface of the subsoil. The topsoil will be de-compacted to match the density and consistency of the immediate surrounding area. The topsoil will be replaced to original depth and to original surface contours reestablished where possible. Any topsoil deficiency and trench settling will be mitigated with imported topsoil consistent with the quality of the affected site.

All disturbed soil surfaces will be prepared for return to agricultural use. These areas will be restored to a condition and forage density similar to the original condition. In all areas, restoration will include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion.

4.0 PROJECT DECOMMISSIONING COSTS AND BONDING

At the time of retirement, the above-grade steel structures, electrical wiring, and other components are assumed to have significant scrap value which will offset a portion of the cost to remove these items. However, the Project will also incur costs for removal and disposal of the PV panels, foundations, and other non-recyclable Project facilities, and these activities will impact the cost of the restoration of the site following the removal of salvageable equipment and disposal of other items.

The decommissioning cost estimates provided herein include the costs to return the site to a condition compatible with the surrounding land and similar to the conditions that existed before development of the Project to the extent feasible. Included in the estimate are the costs to decommission the power generating equipment associated with the Project as well as the costs to retire the Project facilities, including removing all equipment and structures. These costs are offset by the estimated revenue that will be received for scrap value of steel, aluminum, and copper equipment; no resale of the Project facilities for reuse is considered. Accordingly, it is a "no resale" estimate. Moreover, no recycling value of the PV modules has been included, given that the market value of recycled PV modules is currently unknown.

The estimated decommissioning costs for the Project were prepared using available information from a variety of credible industry sources. As detailed in Attachment 8b, the current estimated cost of decommissioning the Project is $7,376,095.97.

Prior to the issuance of any construction-related permits (e.g., Grading Permit), the Applicant will provide financial assurance in an amount sufficient to ensure restoration the Project land to conditions similar to pre-construction to the extent feasible in accordance with the approved Reclamation Plan. Financial assurances shall be made to the County of Fresno and may take the form of cash, letter of credit or bond that complies with Section 66499 of the California Government Code, et seq.

4.1 Reclamation Cost Estimate Assumptions

The scope of work and individual tasks were established using professional experience in collaboration with the Applicant's engineering staff. The Project was broken into individual tasks that were each estimated separately to include labor requirements, equipment needs, and duration. Production rates were established using professional experience and published standards that include RS Means (www.rsmeans.com). Labor rates prevalent to the geographic area of the Project were obtained by referencing U.S. Department of Labor wage determinations. Once the estimate had been completed, typical average markups that are industry standard were applied for contingency, overhead, and fee. Estimating methods and assumptions specific to this estimate are as follows:

- Labor rates with fringe are from the most recent Davis Bacon wage determination for Fresno County.
- Equipment (commonly referred to as yellow iron) rates used in the estimate are developed by reviewing rates published by RS Means and historical vendor quotes. Rates include fuel, maintenance and wear and tear of ground engaging components. Rates utilized assume the use of rental equipment, not owned.

- Mobilization and demobilization costs are estimated to be approximately 15 percent of the overall contractor's costs. These reflect the actual costs to mobilize equipment, facilities, and crew to the Project site. This amount does not include the front loading of cost from other tasks.
- Work was estimated on a unit cost basis, priced by task that follows the progression of work from start to finish. Unit costs are developed by including the labor, equipment, and production rate required for each individual task. RS Means and estimator's experience were utilized to establish the crew, equipment, and production for each individual task.
- Access roads and driveways over public roads and ROWs will be subject to road maintenance agreements and associated restoration conditions stipulated in the project's Fresno County Public Works and Planning, Road Maintenance and Operations Division, Encroachment, Improvement and Transportation Permits as well as Caltrans Encroachment Permits.
- Access roads located on agricultural land, assumed to be 50 percent of roads, will be recovered in accordance with the project's Reclamation Plan and as determine by mutual agreement (i.e., lease and/or easement conditions) negotiated between the Project and private landowners.
- All concrete foundations will be removed. Concrete foundation removal will be accomplished with the use of excavators with concrete breakers. Processed concrete will be transported off site under the same assumptions as road gravel.
- Underground electrical distribution cabling will be removed.
- Oil from transformers will be drained prior to removal, and the oil disposed of following state and federal regulations. Oil disposal cost was assumed to be $4 per gallon.
- Transmission line was assumed to include two towers and cables. Towers are assumed to be steel and will be processed on site and shipped as scrap.
- Final restoration will include spot grading of disturbed areas and soil preparation in anticipation for the Project site to return to agricultural use.
- The costs for temporary facilities were included in the restoration cost. These include one (1) office trailer, two (2) Conex storage units, portable toilets, first aid supplies, and utilities.
- Field management during construction activities was added to the estimate. These costs include one (1) Superintendent.
- A contractor's Home Office, Project Management, Overhead, and Fee can vary widely by contractor. As such, averages were developed for the estimate and added as a percentage of total cost. These include 5 percent for Home Office and Project Management and 10 percent for Overhead and Fee. Note that Contractor contingency costs are not included. Several other miscellaneous costs were approximated, including permits, engineering, signage, fencing, traffic control, utility disconnects, etc. In the context of the overall estimate, these are incidental costs that are covered in the estimate markups.