

## **DRAFT PROJECT DECOMMISSIONING AND RESTORATION PLAN**

### **I. INTRODUCTION**

This draft Decommissioning and Restoration Plan for the Front Range-Midway Solar Project (Project) located near Fountain, Colorado was prepared for El Paso County by the Project applicant and owner and operator of the proposed solar facility, Front Range-Midway Solar Project, LLC (Project Applicant or Project Owner). The purpose of this Plan is to detail the demolition, removal, and rehabilitation actions to be conducted during Project decommissioning. The Project is sited on property owned and leased by the Project Owner; decommissioning activities would occur in coordination with all property owners. The Project Owner will seek to comply with the property owners' requests while decommissioning and restoring the site in compliance with all applicable laws and regulations. The decommissioning and restoration procedures and practices employed by Project Owner will meet applicable federal, state, and county requirements for the restoration phase following construction of the Project and for the restoration of the Project site following decommissioning. Pre-construction conditions should be documented.

While this report is designed to address all aspects of decommissioning, it should be considered a draft document, as the Project has not yet been constructed.

The following components are included in this plan:

- Structure, Equipment, and Facility Removal: Solar photovoltaic (PV) modules and support systems, infrastructure, roads, substation equipment and structures, operations and maintenance building, energy storage facility, and miscellaneous equipment (i.e., fencing and gates)
- Removal of the perimeter security fencing, including all components, gates and hardware, if desired by the landowner at time of Project decommissioning
- Deconstruction of the private access and Project site perimeter roads (if required)
- Grading and recontouring of the affected areas after demolition, deconstruction, and materials removal as necessary
- Revegetation of the affected areas after grading and recontouring is completed (if required)

## **2. PROJECT FACILITIES DESCRIPTION**

**Access Roads** – Access to the site will occur via Exit 119 from Interstate-25 (I-25). Vehicle traffic will travel west on Rancho Colorado Boulevard. Site access will occur along Rancho Colorado Boulevard at the southwestern portion of the Project.

**Security Fencing and Gates** – Permanent perimeter site security fence will be installed and will consist of a six-foot fence with a one-foot three-strand barbed wire on top. The security fencing will be constructed within the Project boundary to allow room for fence and vegetation maintenance. Fencing will be designed to resist wind and other weather or debris loads. Gates of similar design will be installed at the primary and emergency access points into each section of the solar field.

**Solar Field** - PV solar panels would be mounted on tracking systems that help minimize the angle between the solar panels and the sun. The electricity generated will be sent to inverters located at the perimeter of each array that will convert the electricity from direct current to alternating current. Underground electric collection lines will transfer the electricity from the inverters to the substation where it will be stepped up to transmission voltage and an overhead electrical gen-tie line that will transfer the electricity to the Midway or PsCo substation. Inverter hardware will be located in a series of Power Conversion Units (PCU), which will convert the direct current (DC) electric input into grid-quality AC electric output. The PCU's consist of an inverter, transformer, and related hardware. The PCU inverter steps of the electrical voltage from about 550 Volts to 34.5 kV, allowing for efficient electrical collection from the site with marginal power losses.

**Project Substation** – The Project will include construction of a substation that collects the 34.5 kV power from the solar field and steps up the voltage to the interconnection level of 115 kV or 230 kV, depending on the executed interconnection agreement with the Public Service Company (PSCo) at 115 kV or Western Area Power Administration (WAPA) at 230 kV. The substation will consist of a 34.5 / 115 kV main transformer, one 115 kV and multiple 34.5 kV breakers, motor-operated and manually operated switches, a control enclosure, instrument transformers for metering, and galvanized steel support structures within an eight-foot-tall fence enclosure.

**Energy Storage Facility** – The Project will include an energy storage facility that will be coupled to the solar facility through an AC electrical bus system. The energy storage will utilize battery technology to store the energy for later use. The system will be comprised of multiple, specially designed cabinets that will be arranged on the site to house the batteries, inverters, and transformers. There will be temperature control equipment on each container, as well as an integrated fire protection system or UL 9540 certifications, or a unit will be used that is NFPA qualified.

**Operations and Maintenance Building** – The Project will include an operations and maintenance building to support operations and maintenance staff during Project operations. This building may be a one-story or two-story building with electric power supply and tanks for drinking water and septic.

### 3. METHODOLOGY

The objective of decommissioning and restoration is to remove the Project installed materials and equipment and return the land to substantially similar condition as existed prior to construction. Some parcels may not require complete decommissioning and restoration based on the landowner's plans for future uses. The procedures described for decommissioning and restoration will ensure public health and safety, environmental protection, and compliance with applicable regulations. Procedures include restoration of land which may include land contours, native revegetation, hydrology, visual resources, and wildlife habitats.

The procedures outlined for restoration include a description of the proposed activities for restoration to be undertaken during and after completion of Project operation and measures to be taken to prevent unnecessary or undue degradation.

All facility components will be recycled to the greatest extent possible during decommissioning. Specific opportunities for recycling (i.e., PV solar panels) are discussed below in the context of various site components. The steps for decommissioning are included in the list below.

- Conducting pre-closure activities, such as final closure and restoration planning, that addresses the “as-found” site conditions at the start of the Project
- Establishing and documenting health and safety procedures
- Using industry standard demolition methods will allow personnel to efficiently undertake demolition activities, thereby minimizing the environmental safety exposures
- Demolishing the aboveground structures in a phased approach so that some project structures can be used until the final demolition
- Demolishing and removing underground collection facilities as needed to meet the closure goals
- Remediating soils, if needed, to ensure that clean closure is achieved
- Disposing of materials in appropriate facilities for treatment, disposal, or recycling
- Re-contouring lines and grades to substantially match the original grade and ecological function
- Evaluating the execution of the decommissioning and restoration plan through appropriate oversight and quality assurance
- Documenting implementation of the plan and compliance with environmental requirements

Decommissioning activities are discussed in detail below. Technologies and construction techniques are expected to change prior to decommissioning of the Project and may impact the details of each activity described.

#### **4. DECOMMISSIONING ACTIVITIES**

The anticipated Project life is 30-35 years. Decommissioning may occur sooner or later depending on unforeseen circumstances. If the Project remains economically viable, it could operate for more than 35 years. However, if the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. Nonetheless, a Final Decommissioning Plan would be prepared and put into effect when permanent closure occurs.

An updated Final Decommissioning Plan will be submitted to the County for approval at least six (6) months prior to the commencement of decommissioning activities. The plan will describe the proposed equipment to be removed and equipment that will remain for future use, based on expected future use of the property. Decommissioning activities will not commence until the Final Decommissioning Plan is approved by the County.

In general, decommissioning will attempt to maximize the recycling of all facility components. Specific opportunities for recycling (i.e., PV solar panels) are discussed below in the context of various site components. The individual Project components to be decommissioned will be recycled to the maximum extent possible.

The key Project components to be affected by decommissioning activities are discussed below. The general decommissioning approach will be the same whether a portion of the Project or the entire Project would be decommissioned.

##### **Implementation Strategy**

In general, decommissioning will include the removal of all improvements to 3 feet below final grade to prepare for restoration of disturbed areas.

The Project Owner proposes the following strategies to achieve the goals of implementation:

- Use industry standard demolition means and methods to minimize personnel and environmental safety exposures by limiting time and proximity to actual demolition activities to the extent practical
- Plan each component of the decommissioning such that personnel and environmental safety are maintained while efficiently executing the work
- Evaluate the execution of the Decommissioning and Restoration Plan through Project oversight and quality assurance
- Document implementation of the Plan and compliance with environmental requirements.

The Decommissioning Plan for the Project consists of the following major elements:

- Establishment and documentation of health and safety requirements and procedures
- Completion of pre-decommissioning planning activities such as preparing the Final Decommissioning and Restoration plan and schedule based on the “as-found” site conditions documented prior to construction

- Dismantling and removal of Project materials and improvements
- Soil cleanup procedures and disposal requirements as detailed in Section 5
- Disposal of materials in appropriate facilities for treatment, disposal, or recycling

Dismantling of Project components will proceed according to the following general staging process. The first stage will consist of dismantling/demolition and removal of the PV panels and underground and above ground electrical components, parking areas, and other installed facilities. The second stage will consist of removing the installed fencing and site contouring to return disturbed areas to original conditions to the greatest extent possible. The second stage is covered in the Restoration Plan (Section 5).

### **Health and Safety Procedures (HASP)**

The following health and safety procedures will be established prior to decommissioning:

- General safety and hazard responsibilities
- Establishment of an effective hazard communications program
- Task hazard analysis and control
- Personal protection equipment (PPE) requirements
- Occupational and environmental monitoring requirements
- Medical and other emergency procedures
- Personnel training
- Incident reporting
- Self-audit and compliance procedures

A site-specific HASP or equivalent will document health and safety requirements for establishing and maintaining a safe working environment during the implementation of the planned site decommissioning activities.

### **Decommissioning Planning and Preparation**

The first phase in the decommissioning process will consist of a site assessment of existing conditions and preparation for demolition. The removal of solar facility components will follow. However, access roads, fencing, and electrical power facilities will remain in place for use by the decommissioning and restoration workers until the solar panel components and associated facilities are removed. Demolition debris will be placed in temporary on-site storage area(s) pending final transportation and disposal/recycling according to the procedures listed below.

### **Decommissioning of Project Components**

During decommissioning, Project components that are no longer needed will be dismantled (including breaking concrete into gravel), removed from the site and recycled or disposed of, or abandoned in place

where allowable and as outlined in this Plan. Decommissioning procedures associated with each Project component are discussed below.

### **PV Equipment Removal and Recycling**

The PV solar panels, supports, and buried underground conductors will be removed. The demolition debris and removed components will be dismantled into pieces that can be safely lifted or carried with the on-site equipment being used. The majority of glass and steel will be processed for transportation and delivery to an off-site recycling center. All steel, aluminum, and copper will be recycled to the greatest extent that is economically viable. PV panels will be recycled or disposed of in accordance with the manufacturer's recycling program.

### **Energy Storage Facility Removal and Recycling**

The energy storage facility will be dismantled and removed for recycling by the battery manufacturer. Gravel and other foundation materials will be removed down to 3 feet below grade and recontoured to pre-construction conditions as described in Section 5.

### **Operation and Maintenance Building**

Unless the property owner determines that the building may be repurposed, the operations and maintenance building will be dismantled and demolished with recycling of appropriate building materials as feasible. Water and septic tanks will be removed, any foundation materials will be removed down to 3 feet below grade and recontoured to pre-construction conditions as described in Section 5.

### **Site Access, Parking Area and Maintenance Roads**

On-site roads will remain in place to accomplish decommissioning at the end of the facility's life. Project access roads will remain if the landowner determines that some of these roads will be beneficial for future use of the site. Roads that will not remain will be restored to preconstruction conditions. The road surface will be restored and revegetated as described in Section 5.

### **Project Substation**

At decommissioning the prefabricated control enclosure and electronic components of the substation equipment will be electrically disconnected and made safe for removal. The control enclosure will then be disassembled and removed from the site. The transformers, breakers, bus work, and metal dead-end structures will also be disassembled and removed. Concrete foundations and containment berms/curbs for the transformers to 3 feet below grade will be broken into pieces, and all debris and aggregate rock will either be removed from the site or crushed into gravel and used on-site in coordination with the property owners'. These areas will be revegetated as described in Section 5.

The main power transformer's insulating oil will be drained and transferred to a licensed disposal facility for recycling or disposal. Site personnel involved in handling these materials will be trained appropriately.

As part of the preparation for closure, the stormwater management for the site will be updated to cover spill prevention and countermeasures for handling specific materials during decommissioning. Procedures to

decrease the potential for release of contaminants to the environment will be specified in the Final Decommissioning Plan.

### **Dismantling and Demolition of Fencing**

Demolition of security fencing will entail breakdown and removal of gates and fencing materials at the completion of demolition of other Project components. Residual materials from fencing will be transported via heavy haul dump truck to a central recycling/staging area where the materials will be processed for transport to an off-site recycler. A Project recycle center may be established to reduce staging of materials for transport to an off-site recycling location. The materials could include barbed wire, steel fence bracing and stretcher bars, galvanized steel hardware fabric, chain link fabric, posts, and concrete post supports.

The use of mechanized equipment and trained personnel will ensure the safe dismantling and removal of the perimeter security gates and fence.

The permanent security fence below-ground materials consist of concrete support for the posts. Fence post supports will be unearthed and removed. The concrete attached to the posts will be physically removed and transported to the recycling area for recycling off-site or crushed into gravel to remain on-site.

### **Demolition Debris Management, Disposal and Recycling**

All demolition procedures will maximize the recycling of materials to the greatest extent possible. Non-hazardous wastes will be collected and disposed of in specific and appropriate waste areas. Hazardous wastes will be disposed of according to applicable laws, ordinances, regulations, and standards (LORS). Demolition debris will be placed in temporary on-site storage area(s), prior to transport to an off-site recycling center, in accordance with the procedures listed below.

For the purpose of this Plan, it is assumed that the removal of all equipment and appurtenant facilities from all Project areas will be required. Removal activities will be achieved in conformance with all applicable laws and regulations. Aboveground structures will be removed through mechanical or other approved methods and transported off-site. Below ground materials will be removed as described in the sections above. Once all structural elements are removed, the ground surface will be re-contoured to return the site topography to substantially the same as the pre-construction conditions.

## **5. SITE RESTORATION**

Decommissioning procedures will remove Project components and related structures as described above. Site restoration activities will occur following the completion of decommissioning. Restoration will restore natural topography, vegetative cover, and hydrologic function after closure of the facility. Restoring ecological features to a condition compatible with the adjacent landform will inherently restore the visual elements of the site to pre-construction conditions in accordance with Project approvals and restoration requirements.

If soils are determined to be compacted at levels that will negatively impact successful revegetation, decompaction will occur. The method of decompaction will depend on the level of compaction. Regrading and contouring the site will follow the necessary decompaction of soils. Regrading and contouring will occur as necessary, where Project construction resulted in changes to the natural topography of the site. It is unlikely that a significant amount of earthwork will be required as the construction plan calls for limited disturbance of the Project site. Restoration grading activities will be limited to disturbed areas that require re-contouring.

As the pre-construction use for the Project site is primarily vacant lots and relatively undisturbed, it is anticipated that reseedling will be the primary method of revegetation within the proposed disturbance areas. The primary goal of revegetation will be to establish a barrier to erosion of soils. The site will be revegetated with a native seed mix compatible with the surrounding vegetative cover. The method by which seeds will be placed will be determined at the time of decommissioning, since revegetation technology may change over the next 30 years.

### **Closure and Restoration Strategy**

The overall closure and restoration strategy includes the following major elements:

- Conducting restoration planning that addresses the “as-found” site conditions at the start of the Project
- Documenting and establishing health and safety procedures
- Re-contouring topography and grades to match the natural grades and ecological function of the site
- Restoring soils, if needed, to ensure that clean closure is achieved
- Evaluating the execution of the Decommissioning and Restoration Plan through Project oversight and quality assurance
- Documenting implementation of the Plan and compliance with environmental requirements

It is the responsibility of the Project owner to ensure the Project is constructed, commissioned, operated and decommissioned according to federal, state and local requirements.

### **Site Recontouring**

Re-contouring of the site will be conducted using standard grading equipment to return the land to substantially the same grade as existed pre-construction. Grading activities will be limited to disturbed areas

that require re-contouring. Fills will be compacted to approximately 85 percent relative compaction by wheel or track rolling to avoid over-compaction of the soils.

Best management practices will be implemented to provide erosion and sediment control until revegetation efforts have sufficiently stabilized the soil.

### **Restoration of Drainage**

This section presents an initial drainage restoration plan for the Project that focuses on permanent closure and subsequent decommissioning activities to restore the site drainage to conditions that will complement present off-site drainage conditions. This plan is a draft and will be reviewed and revised as necessary for the Final Decommissioning Plan when decommissioning activities are imminent.

As used here, “closure” is synonymous with decommissioning and includes removal of the Project fencing and materials that were used to support the pre-construction activities of the Project. Drainage restoration will be one of the final decommissioning activities. Stormwater detention ponds are planned for construction of the Project; detention ponds will maintain the historic drainage patterns and release rates for the site. Since the Project components, roads, fences, and all other appurtenant facilities will be decommissioned (unless otherwise indicated by landowners), stormwater detention ponds will be decommissioned as part of the restoration effort. Removal of the detention ponds along with regrading and recontouring will ensure that pre-construction drainage patterns and release rates can be maintained. It is assumed that the removal of all equipment will be required and will be achieved in conformance with all applicable laws and regulations and local/regional plans.

### **Soil Restoration**

As part of the decommissioning planning, determination of the depth and lateral extent of contaminated soil (if present) will be conducted as needed. Any required soil cleanup will be based on visual observations, a review of spill records and daily operating practices, and results of any chemical analyses performed on soil samples collected during site closure.

At this time and for the purposes of this preliminary Plan, it is not anticipated that soil cleanup will be required due to the limited amount of contaminants used and stored on the Project site. If required, appropriate soil cleanup and rehabilitation methods will be selected to meet Project objectives and regulatory requirements based on criteria contained in applicable federal, state, and county guidance in place at the time of decommissioning. If contaminated soil removal is required, the resulting excavations will be backfilled with native soil of similar permeability and consistency as the surrounding soils and compacted to 85 percent relative compaction.

If required, soil restoration will be one of the final decommissioning activities implemented (following removal of site equipment, in accordance with all applicable laws and regulations and local/regional plans).