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Appendix 2C
Decommissioning Plan

Decommissioning Plan

Compass Energy Storage Project

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
Applicant	Compass Energy Storage, LLC
BESS	battery energy storage system
CEC	California Energy Commission
City	City of San Juan Capistrano
kV	kilovolt
MV	medium voltage
SDG&E	San Diego Gas and Electric
Project	Compass Energy Storage Project

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1 Introduction

Compass Energy Storage, LLC (Applicant) proposes to construct, operate, and decommission the Compass Energy Storage Project (Project), a battery energy storage system (BESS) facility. The Project would have an interconnection to the existing San Diego Gas and Electric (SDG&E) Trabuco to Capistrano 138 kilovolt (kV) transmission line.

The Project will be located on approximately 13 acres of an approximately 40.8-acre parcel identified as Parcel B1 which is a portion of Assessor Parcel Number 637-082-71 in the City of San Juan Capistrano (City) in Orange County,California. The Project site is located in the northern portion of the City, adjacent to Camino Capistrano with Interstate-5 located to the east

This Decommissioning Plan establishes the approach to conduct decommissioning activities for the permanent closure of all or a portion of the Project. This Decommissioning Plan describes the approach for removal and/or proper abandonment of facilities and equipment associated with the Project and describes anticipated land restoration activities. The Decommissioning Plan will be updated at the time of a temporary or permanent closure is required to ensure that all applicable regulatory requirements are met with the proposed methods for decommissioning.

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2 Plan Purpose and Objectives

The purpose of this Decommissioning Plan is to address decommissioning activities for the permanent closure of all or a portion of the Project. This Decommissioning Plan describes the approach for removal and/or proper abandonment of facilities and equipment associated with the Project, and describes anticipated land restoration activities in accordance with regulatory codes and mitigation commitments.

All lithium-iron phosphate, or similar technology, BESS installed in California must meet the installation requirements of the 2022 California Fire Code. The California Fire Code and applicable subcodes provide minimum standards for the safe installation, operation, and maintenance of BESS facilities. Not specifically included, however, are regulations describing requirements for decommissioning and reclamation activities; as a result, dismantling the site and returning the parcel to pre-construction conditions, or other intended use, will follow the standards of any non-hazardous commercial facility. Additionally, the Applicant will submit a Final Decommissioning Plan to the California Energy Commission (CEC) for approval prior to planned decommissioning activities.

The Decommissioning Plan has been prepared based on the best information available at this time. The procedures for decommissioning, removal, and disposal of BESS equipment will be updated at end-of-life of the system prior to commencement of decommissioning activities. In the event of a BESS fire or other failure event, procedures and considerations for the decommissioning, removal, transportation, and disposal of damaged batteries may vary based on the situation and extent of damage, therefore a more detailed plan will need to be developed at that time.

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3 Plan Overview

To adhere to applicable regulations and policies specific to decommissioning and reclamation, this Decommissioning Plan identifies the following:

1. Components involved with the construction of the Project.
2. Decommissioning activities for the Project, including removal of all industrial facilities; recycling of equipment, hazardous waste, and sampling and cleanup issues; disposal of all solid and hazardous waste; restoration of the hydrologic regime; and restoration of the approximate original contours of the site.

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4 Project Components

The Project would consist of several components, including battery storage cabinets, transformers, inverters, a substation, an SDG&E switchyard, and an interconnection line to the SDG&E Trabuco to Capistrano 138 kV transmission line. The Project would also include stormwater detention improvements, landscaping, a perimeter wall, and access road improvements. The technologies that would be used at the Project site have been proven at energy storage facilities in the United States and globally. The Project's components that are subject to decommissioning are summarized below.

4.1 Grading

The Project site is fairly level with minimum topography, and as a result, only minor grading is anticipated to occur throughout the site. Materials suitable for compaction would be stored in stockpiles at designated locations using proper erosion-prevention methods. Materials unsuitable for compaction, such as debris and large rocks, would be stockpiled at designated locations for subsequent disposal at an acceptable off-site location. BESS containers, housing batteries connected in strings and housed on racks with monitoring, lighting, and cooling equipment, would be installed on concrete foundations.

4.2 Battery Energy Storage System

The lithium-iron phosphate batteries will be housed in racks similar to common computer server racks. The racks are typically made of aluminum, but sometimes may be composed of steel. The proposed facility will use a lithium-iron phosphate technology that has a long lifespan and boasts superior safety and stability characteristics. The battery racks will be designed and installed in accordance with the local seismic design requirements.

The battery racks will be housed in non-habitable enclosures. The BESS will be designed and installed in conformance with the nationally recognized National Fire Protection Association 855 Standard for the Installation of Stationary Energy Storage Systems, along with all applicable state and local fire protection requirements. Additionally, the BESS includes the following monitoring and safety components:

- Modular battery racks designed for ease of maintenance
- Fire suppression system
- Heating, ventilation, and air conditioning system
- Integrated battery management system

4.3 Power Inverters and Transformers

The Project inverters are unattended, stand-alone units that operate in all conditions. They operate in both a charge mode and a discharge mode. They are UL listed for bi-directional use and are monitored and controlled remotely. There will be on-site disconnects in the case of an emergency or unscheduled maintenance. They are robust in their design and are designed to last more than 30 years with proper preventive maintenance, scheduled maintenance, and occasional major overhauls.

Medium-voltage (MV) transformers and additional electrical equipment will be installed outside the BESS enclosure. Underground wires and cabling will run from the battery cable collection box to a concrete pad housing the inverter and transformer. From the MV transformer, cabling will be run to the Project substation. All outside electrical equipment will be housed in the appropriate National Electrical Manufacturers Association rated enclosures and screened from view, to the extent possible, on all sides.

4.4 Project Substation

A Project substation will be installed that will include open rack, air insulated switch gear and the main power transformer to step up from 34.5 kV to 138 kV, as well as a pole to connect the Project substation to the SDG&E switchyard.

4.5 SDG&E Switchyard

An SDG&E switchyard will be installed adjacent to the Project substation that will include open rack, air insulated switch gear and the main power transformer to deliver power to the nearby Trabuco to Capistrano 138 kV transmission line. The switchyard will be owned and operated by SDG&E.

4.6 Telecommunication Facilities

The project will include telecommunication facilities for communication with the SDG&E/CAISO facilities and to support remote project operations monitoring. To provide for communication with SDG&E facilities, a fiber-optic cable will be used to connect the project site switchyard with the SDG&E point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the project footprint. For remote monitoring and operations communication, the project will use local exchange carrier services, connecting to existing telecommunication fiber-optic lines owned and managed by local telecommunication providers.

4.7 Loop-In Transmission Line

The Project will be interconnected with the regional electrical grid by a loop-in transmission line that will transfer power to and from the proposed Project and the SDG&E Trabuco to Capistrano 138 kV transmission line approximately 500 feet to the east of the Project site. The loop-in transmission line poles will be sited to avoid Oso Creek and construction and operation of the line and poles will fully avoid Oso Creek. Up to five poles will be constructed to support the line. The loop-in transmission line will be owned and operated by SDG&E. These poles consist of two poles on the project site within the SDG&E switchyard, west of Oso Creek, and three poles on the east side of Oso Creek (two of which will be replacing existing poles; only one pole on the east side of Oso Creek will be new).

4.8 Landscaping and Security

To conform with the City General Plan Policy 7.1 and visually screen the BESS, the Project will incorporate a 20-foot landscape buffer around the perimeter. The landscape buffer will consist of a mixture of trees, shrubs and groundcover, and vines to create a varied, aesthetically pleasing visual buffer. Trees within the landscape buffer

will include species native to southern California, ranging from 24- to 36-inch box size, with heights of 20 to 60 feet and widths of 15 to 40 feet, depending on the tree type. All plantings will require minimal supplemental irrigation once established.

The Project site is surrounded by open space and Oso Creek. There are no public roads within or adjacent to the Project site.

A 10-foot-tall perimeter wall will be constructed. This will consist of a prefabricated decorative wall that will be utilized for both visual enhancement and fire protection. Access to the Project site will only be available to authorized personnel. A Knox box will be provided at all access gates to allow for emergency access.

Permanent motion-sensitive, directional security lights will be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. Security cameras will be placed on site and monitored 7 days a week and 24 hours per day.

4.9 Stormwater Detention Improvements

Stormwater runoff from the Project site currently outflows to an unchannelized section of Oso Creek. To meet regulatory standards and reduce potential for stormwater to be discharged off site in exceedance of existing conditions, onsite stormwater will be detained in an underground storage chamber system located under or adjacent to the access roads. From here, the water will be pumped north to one of two existing Orange County Flood Control District (OCFCD) outfalls north of the Project site. The Project's onsite discharge pumped into the channelized portion of Oso Creek via the outfalls will be incorporated into, and consistent with the OCFCD's National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region (Order No. R9-2013-0001, NPDES No. CAS0109266, as amended by Order No., R9-2015-0001) authorized by the San Diego RWQCB. With respect to offsite flows, based on the existing topography, an additional area drains toward the Project site from the west. The proposed stormwater design is to reroute stormwater runoff from the offsite area utilizing a drainage ditch along the western boundary of the project site, that gradually releases water to the east of the project site. To recreate existing flow conditions and mitigate erosive impacts associated with this discharge, the design ties the release point to a level spreader. The level spreader distributes the stormwater runoff evenly along the entire east edge of the site, promoting even and controlled release to the existing grade.

4.10 Other Site Improvements

Access to the Project site will be provided via an existing access road off Camino Capistrano approximately 0.6 miles northeast of the Project site. A new access road will be improved from the access road off Camino Capistrano to the Project site. Road improvements shall consist of converting dirt roads into gravel roads and widening the roads to meet Orange County Fire Authority standards (20-feet wide).

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5 Closure

Facility closure can be temporary or permanent. Temporary closure is a shutdown for a period exceeding the time required for normal maintenance, including closure for overhaul or replacement of a major component. Causes for temporary closure could include damage to an integral component from natural events such as earthquake or flood, or a radical change in the market for electrical energy. Permanent closure is defined as a cessation in operations with no intent to restart operations because of plant age, damage to the plant beyond repair, economic conditions, or other reasons.

Temporary closures are not discussed in this Decommissioning Plan because it assumes that the Project would be restarted once repairs are made or the condition causing the temporary closure is corrected. As used here, "closure" is synonymous with decommissioning and includes removal of the facilities and materials that were employed to support the operation of the facility and the physical operations necessary to return the surface to a condition wherein revegetation and rehabilitation activities may then take place.

As discussed in Section 2, the Decommissioning Plan has been prepared based on the best information available at this time. The detailed procedures for temporary closures or full closure of the facility will need to be provided at the time a closure is required. The Decommissioning Plan will be updated at the time of any temporary or full closure to include the following information:

- Who is responsible for activities including handling and removal of damaged batteries, transportation, and disposal, etc., as well as personnel requirements.
- Safe handling of damaged batteries which may still have potential for inadvertent thermal runaway, short-circuiting, or re-ignitions.
- Safe discharge / management of stranded energy which may still be present in batteries (even if they appear fully consumed or damaged by fire)
- Considerations for specific BESS technologies, chemistries, safety systems, etc., if required.
- Preservation of evidence and chain of custody.
- Preparation for shipment, labeling, other logistical considerations. -
- Considerations for environmental cleanup.

The Final Decommissioning Plan will meet the requirements of California Fire Code §1207.2.1.12 and §1207.2.3 as reference below.

- **§1207.2.1 Commissioning**: Commissioning of a newly installed ESS and existing ESS that have been retrofitted, replaced or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:

...

- 12. A decommissioning plan for removing the ESS from service, and from the facility in which it is located. The plan shall include details on providing a safe, orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

- **§1207.2.3 Decommissioning:** The code official shall be notified prior to the decommissioning of an ESS. Decommissioning shall be performed in accordance with the decommissioning plan that includes the following:

  - A narrative description of the activities to be accomplished for removing the ESS from service, and from the facility in which it is located.

  - A listing of any contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

6 Decommissioning and Recycling

At the time of decommissioning, the Decommissioning Plan would be finalized and submitted to the CEC for approval that describes the proposed equipment to be removed and equipment that would remain for future use, based on expected future use of the site. In general, decommissioning would attempt to maximize recycling of all facility components. The key Project components to be affected by decommissioning activities are discussed below. The general decommissioning approach would be the same whether a portion of the Project or the entire Project would be decommissioned.

6.1 Decommissioning Preparation

The first step in the decommissioning process would be to assess existing site conditions and prepare the site for demolition. Preparation activities may include electrical inspections, as well as inspections of access routes and security features. Repairs or improvements may occur if inspections identify electrical or road improvements or repairs that must be made prior to decommissioning activities. Demolition debris would be placed in temporary on-site storage area(s) pending final transportation and disposal/recycling according to the procedures listed below.

6.2 Decommissioning and Recycling

Decommissioning of the Project at the end of its useful life would include the removal of BESS equipment from the foundations, disconnection of wiring, and removal of site infrastructure. The facilities would be decommissioned and dismantled, and the site would be restored. Batteries and other equipment and materials will be recycled to the extent feasible to minimize disposal in landfills.

In general, activities would include the following:

- Dismantling and removal of all aboveground equipment (battery enclosure units, substation equipment, etc.)
- Excavation and removal of all underground cabling less than 3 feet below ground
- Break up and removal of concrete pads and foundations
- Scarification of compacted areas
- Seeding of disturbed areas with a native seed mix

6.2.1 Battery Recycling

Batteries would be recycled at a specialized recycling plant, and the remaining BESS components would be recycled or disposed of in accordance with the procurement documents provided by the battery manufacturer.

6.2.1.1 Battery Recycling Technology

It is anticipated that the availability of end-of-life battery recycling centers will increase along with battery production. As of late 2021, there were 32 lithium battery recycling facilities globally, with the majority located in China and four in North America. Five additional plants are planned for the United States and Mexico (Pubs ACS 2023). Strategic

global demand for precious metals, along with the fledgling green-energy market, continue to drive technological advances in recycling (WBUR 2022). Recycling enhancements and innovation are anticipated to continue, and are anticipated to be in place by the projected end of useful life of the proposed BESS.

6.3 Access Roads and Perimeter Wall

Access roads would be disked for decompaction purposes, and the perimeter wall would be removed using skid steers, a excavator, a dump trailer, and pickup trucks.

6.4 Hazardous Materials and Waste

During the decommissioning process, there is a chance that hazardous waste may be generated. In the event that decommissioning activities generate hazardous waste, it would be stored, handled, and disposed of according to local, state, and federal regulations.

7 Site Reclamation

The decommissioning process would remove BESS-related structures and infrastructure as described in the previous chapters. The Applicant would contract with a qualified reclamation contractor to evaluate and prescribe specific reclamation measures. The reclamation contractor would coordinate with the Applicant to ensure that the prescriptions are implemented as written.

Reclamation would restore landform features, vegetative cover, and hydrologic function after closure of the facility. The process would involve replacement of topsoil, brush, rocks, and natural debris over disturbed areas so that the site blends with the surrounding landscape. Restoring these features to a pre-construction condition and compatibility with the adjacent surroundings would inherently restore the basic visual elements of line, form, texture, and color of the site to pre-disturbance conditions.

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8 References

Pubs ACS (American Chemical Society). 2021. Public Online Publications. Accessed May 8, 2023. https://pubs.acs.org/doi/10.1021/acsenergylett.1c02602.

WBUR (Boston Public Radio). 2022. Public Website. Accessed May 2023. https://www.wbur.org/news/2022/01/25/lithium-ion-battery-recycling-electric-vehicles.

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