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Appendix 2C
Decommissioning Plan

Decommissioning Plan

Potentia-Viridi Battery Energy Storage Project Alameda County, California

JULY 2024

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
Applicant	Levy Alameda, LLC
BESS	battery energy storage system
CEC	California Energy Commission
Opt-in	Assembly Bill (AB) 205 Opt-in Certification
PG&E	Pacific Gas & Electric
Project	Potentia-Viridi BESS Project

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1 Introduction

Levy Alameda, LLC (applicant), a wholly owned subsidiary of Obra Maestra Renewables, LLC, proposes to construct, operate, and eventually repower or decommission the 400-megawatt (MW) Potentia-Viridi Battery Energy Storage System (Project) on approximately 85 acres in eastern Alameda County. The primary components of the Project include an up to 3,200-megawatt-hour (MWh) battery energy storage system (BESS) facility, an operations and maintenance (O&M) building, a Project substation, a 500-kilovolt (kV) overhead intertie transmission (gen-tie) line, and interconnection facilities within the Pacific Gas and Electric (PG&E) owned and operated Tesla Substation.

The Project would draw electricity from the power grid to charge and store electrical energy and discharge back to the power grid when the stored energy is needed. The Project would provide several benefits to the power grid, including reducing the need to operate natural gas power plants to balance intermittent renewable generation and serving as an additional capacity resource that would enhance grid reliability.

The Project would be remotely operated and monitored year-round and be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians would routinely inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

The Project would be located in Alameda County, California within a portion of Assessor Parcel Number (APN) 99B-7890-002-04 located at 17257 Patterson Pass Road, southwest of Interstate 580 and Interstate 205 (Figure 1). Development of the BESS facility would occur on about 70 acres of APN 99B-7890-002-04, which currently consists of fallowed annual grasslands suitable for grazing. The gen-tie line would extend southeast from the Project substation, crossing Patterson Pass Rd, and then proceed east to the Point of Interconnection (POI) at the Tesla Substation. The Project's gen-tie line would be sited on APNs 99B-7890-2-4, 99B-7890-2-6, and 99B-7885-12. The subject property is southwest of Interstate 580 and Interstate 205 and currently vacant.

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.

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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-ion 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 CEC for approval prior to planned decommissioning activities.

As part of the Opt-in CEC licensing, the Applicant will prepare a site-specific Emergency Response Plan (Appendix 1J of the Opt-in Application). The Emergency Response Plan includes the plan development as well as regular training and updates. The Emergency Response Plan takes into account common items, including a description of the equipment; procedures on how to safely shutdown, de-energize, or isolate the equipment to reduce the risk of fire, electric shock, and personal injuries; emergency procedures to be followed in case of fire, explosion, release of vapors, or other emergency; safety data sheet procedures and schedules for on-site training; and any other procedures or critical safety issues specific to the BESS installation. The procedures and measures outlined in the Emergency Response Plan would be applied to decommissioning and reclamation phases of the Project.

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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 (see Appendix 1I, Waste Management Plan).

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4 Project Components

The Project would include construction, O&M, and eventual decommissioning of a 400 MW BESS with an energy storage capacity up to 3,200 MWhs. Charging from or discharging to the electrical grid would be a 500kV gen-tie connecting the Project substation to the POI within the existing PG&E Tesla Substation. The BESS Facility would include the following components:

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)
- Medium voltage (MV) Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Facilities and Outfall
- Site Security and Fencing, including fire detection system
- Operations and Maintenance Building

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 and Civil Work

Following site preparation activities, grading and civil work would commence. Construction activities during this phase would include excavation and grading of the Project site. Earthwork on the site is ultimately anticipated to result in nearly balanced cut and fill volumes, but the preliminary designs conservatively assume that grading would include up to approximately 588,018 cubic yards (cy) of cut and up to approximately 344,900 cy of fill, resulting in up to approximately 243,118 cy of export material. As appropriate, all, or a portion of, of the Project's excess material resulting from earthwork may be used beneficially used on-site for the construction of berms or other onsite needs. Where appropriate, excess material would be processed in one or more different types of rock crushing equipment depending on the requirements of the various potential beneficial uses onsite. Blasting may be required if large boulders are encountered during excavation and grading.

Conventional grading would be performed throughout the Project site but minimized to the maximum extent feasible to reduce unnecessary soil movement that may result in dust. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Following major civil work within the BESS facility site, site access roads and driveways, the perimeter and substation access roads, and interior roadways to access the laydown areas and BESS yards would be graded, compacted, and surfaced with gravel or aggregate. Class II road base would be imported to create necessary compaction under the equipment, as determined by geotechnical testing and

Project specifications. Once the roadways have been constructed, the Project perimeter fence and access gates would be constructed.

4.2 Battery Energy Storage System

The energy storage facility would utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common at present being lithium iron phosphate (LFP) cells (often colloquially referred to as 'lithium-ion'). LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology. By the time the Project reaches the procurement stage, it is possible for other battery cell technology with proven safety and performance records to be suitable for the Project. Although the number and dimensions of the containers may change (as it does between LFP technology providers), the technology ultimately procured would result in potential environmental impacts substantially similar to, or less than, those analyzed based on this Project Description.

The BESS enclosures would be prefabricated off-site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure would include battery packs on racks, a battery management system (BMS), fire protection, and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures would not exceed approximately 15 feet in height. The BESS enclosures may also have a heating, ventilation, and air conditioning (HVAC) system for optimal performance and safety. Power for the HVAC system, lighting, and other electrical systems would be provided through separate auxiliary power connection to the on-site Project substation with connection lines installed above and/or below ground.

The BESS enclosures would preclude walk-in access; thus, the battery storage cabinets would not be habitable structures per state and local fire codes. Additionally, the BESS includes the following monitoring and safety components:

- Modular battery racks designed for ease of maintenance
- Infrared camera monitoring system
- Exhaust/ventilation systems
- Integrated battery management system

4.3 Interconnection Line

The 500kv gen-tie line would originate at the Project substation within the BESS facility site and extend southeast, crossing Patterson Pass Rd overhead until reaching the POCO structure. After reaching the POCO structure the route would proceed east to an angled dead-end structure outside of the Tesla Substation fence line before extending north to a new substation dead-end structure at the POI bay within the Tesla Substation footprint. The 200-foot-wide transmission corridor would be within the BESS facility lease area on APN 99B-7890-2-4 and within an easement on APN 99B-7890-2-6 until reaching the parcel's eastern boundary about 255 feet east of the POCO structure. Both parcels comprising the BESS facility lease area and transmission corridor easement are private lands owned by the same landowner. After crossing the eastern boundary of APN 99B-7890-2-6, the remaining portion of the gen-tie would be on the same PG&E-owned parcel that includes the 500kV Tesla Substation and POI.

A transmission structure access path would be located within portions of the transmission corridor outside of the BESS facility and Tesla Substation footprints and generally follow the centerline of the gen-tie. The portion of the transmission structure access path between Patterson Pass Road and the POCO structure would include a dry crossing of Patterson Run and require clean fill material (e.g., large cobbles, clean, native gravel, prefabricated mats) to be placed beneath the ordinary high water mark elevation for stabilization and erosion and sedimentation control.

4.4 Security

The BESS facility site would be enclosed with an 8-foot-tall chain link fence topped with 1 foot of three-strand barbed wire or razor wire. The fence would be installed on the outside of the perimeter road. An additional fence with the same specifications would be installed around the Project substation area. The fences would be required to prevent unauthorized access and to comply with human health and safety regulations. Gates would be installed at various access points along the fence lines and equipped with lock boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site.

Lighting would only be in areas where it is required for safety, security, or operations. Low-elevation (less than 14 feet) controlled security lighting would be installed at the Project substation and around the BESS yards, in accordance with applicable requirements and regulations. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras would be placed on site and monitored 24/7.

4.5 Other Site Improvements

A detailed lightning plan would be submitted to CEC for review and approval to ensure that adequate lighting is provided throughout the site and that all site lighting is appropriately shielded to direct light toward the Project site in order to keep glare away from adjacent land uses and rights-of-way.

Facility signage for the Project would comply with CEC standards, and the Applicant will be required to submit a separate sign application with the Planning Department for approval.

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.

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6 Plant Decommissioning and Recycling

At the time of decommissioning, the Decommissioning Plan would be finalized and submitted to 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. All site decommissioning would occur within the existing security fence; the security fence would be the last component to be removed. Preparation activities may include electrical inspections, as well as inspections of access routes, security fences, and gates. Repairs or improvements may occur if inspections identify electrical, road, fencing, or gate 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 BESS Removal and Recycling

During decommissioning, Project components that are no longer needed would be removed from the site and recycled. All underground cables would be excavated and removed or abandoned in place 3 feet below grade for all underground conductors. Inverters and BESS containers would be removed from concrete foundations and the foundations removed or abandoned in place 3 feet below grade. All wiring, cables, heating, cooling, and ventilation equipment would be disconnected from the BESS containers and batteries. Demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried by the on-site equipment being used.

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 life of the proposed BESS, estimated to be approximately 35 years after the start of operations.

6.3 Access Roads and Fencing

Access roads would be disked for decompaction purposes, and the perimeter chain-link fence would be removed using small skid steers, a mini excavator, a small dump trailer, and full-size 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 (refer to Section 3.5, Hazardous Material Handling for additional details)

7 Site Reclamation

The decommissioning process would remove BESS-related structures and infrastructure as described in the previous chapters. The Project owner would contract with a qualified reclamation contractor to evaluate and prescribe specific reclamation measures. The reclamation contractor would coordinate with the Project owner 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 be completed as close to the pre-construction condition as possible in coordination with the landowner.

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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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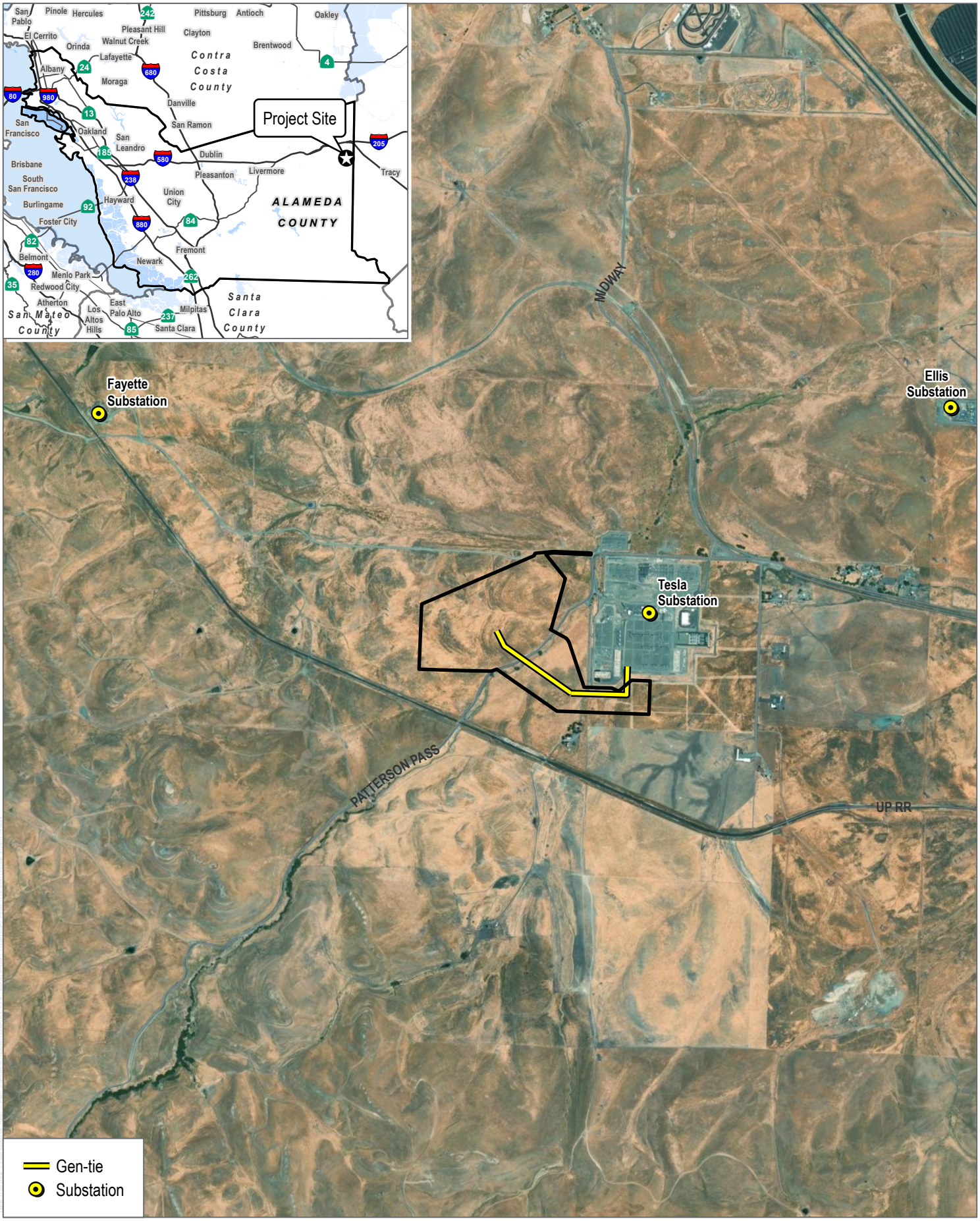

SOURCE: Bing Maps 2023; County of Alameda 2023; CEC 2023

0 500 1,000 Feet

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Figure 1

Project Location

Tesla BESS Project