



# NORTH BAY ENERGY STORAGE

## PROJECT DESCRIPTION

- APPLICANTS:** (1) Bolero Energy Storage, LLC (Bolero Energy)
- PROPERTY OWNER:** Adobe Investments, LLC
- LOCATION:** 1901 Frates Road, Petaluma (APN 017- 140- 011) (“Project Site”)
- PROJECT SUMMARY:** An application for design review and a conditional use permit (CUP) for a Battery Energy Storage System Public Utility Facility (BESS Facility) in a Recreation and Visitor-Serving Commercial District (K) zone and associated Findings, a fence taller than six (6) feet on all sides of the BESS Facility, and an allowance for the BESS Facility to exceed the maximum 50% lot coverage limitation for the K zoning district, provided the BESS Facility does not exceed the maximum allowed building intensity; and a final resolution of the Board of Supervisors finding that the proposed BESS Facility is not inconsistent with the purposes of an existing County Open Space Easement (collectively the “Project”).
- COUNTY APPROVALS SOUGHT:**
1. Adoption of an environmental review document and Mitigation Monitoring and Reporting Program (MMRP) pursuant to the California Environmental Quality Act (CEQA);
  2. A Final Resolution adopted by the County Board of Supervisors finding that the proposed BESS Facility does not conflict with the aesthetic and environmental values intended in the existing County Open Space Easement (COSE) on the Project Site; and
  3. Design review and a CUP for: (i) an up to 200 megawatt (MW)/800 megawatt-hour (MWh) BESS Facility located on approximately 15.6 acres; (ii) a fence taller than six (6) feet on all sides of the BESS Facility; and (iii) an allowance for the BESS Facility to exceed the maximum 50% lot coverage limitation for the K zoning district, provided the BESS Facility does not exceed the maximum allowed building intensity.

**GENERAL PLAN:** Recreation and Visitor Serving – Commercial (RVSC)

**SPECIFIC PLAN:** Sonoma Mountain Area Plan

**EXISTING ZONING:** Recreation and Visitor-Serving Commercial District (K); Valley Oak Habitat Combining District (VOH).

**ORIGINAL JURISDICTION:** The Board of Supervisors took original jurisdiction of the Project, pursuant to Sonoma County Code sections 26-92-060, subd. (c) and 26-92-155 and concurrently process all related applications. (See Sonoma County Code, § 26-92-060, subd. (c).) Original Jurisdiction was approved as recommended by the Board of Supervisors on May 3, 2022.

## **1 PROJECT**

### **1.1 Project Location and Existing Physical Condition**

The approximately 15.6-acre Project Site is located in an unincorporated area in the southern part of Sonoma County, immediately east of the municipal boundaries of the City of Petaluma (City) and within the City’s Sphere of Influence (SOI). Specifically, the Project Site comprises the entirety of APN 017- 140- 011 and is immediately bounded to the east by the Pacific Gas & Electric (PG&E) Lakeville substation and to the south by Frates Road, and to the north and west by the former Adobe Creek golf course. Casa Grande Road is located approximately 840 feet north of the Project site, Old Adobe Road is located to the east beyond the PG&E substation, and Clubhouse Drive is approximately 1,400 feet to the west. The Adobe Creek waterway and the Adobe Creek residential neighborhood are located north and west, respectively, of the Project Site. Refer to the Project site plan set provided under separate cover for an illustrative description of the Project Site’s location and boundaries.

The Project Site was formerly part of the Adobe Creek Golf Course. Existing structures on the Project Site include a maintenance facility with accompanying bathroom facilities. The maintenance facility is still in limited use for ongoing maintenance operations.

According to the latest California Department of Forestry and Fire Protection’s (Cal Fire) State Responsibility Area Fire Hazard Severity Zones map dated November 21, 2022, the unincorporated County areas east and south of the Project site are located within a High Fire Hazard Severity Zone. The Project Site is not designated as being within a high fire threat district on the California Public Utilities Commission Fire Threat Map.

The County classifies the project Site as being in a “Zone 1” groundwater zone, meaning there are sufficient groundwater supplies underlying the Project Site. The Project Site is located immediately outside the City’s Urban Growth Boundary and Urban Service Area.

## **1.2 Project Components<sup>1</sup>**

### **Assembly Bill 2652**

Pursuant to Assembly Bill 2652, which was signed into law on August 29, 2022, energy storage projects are excluded from the California Subdivision Map Act’s provisions related to leases and easements for qualifying energy storage projects. Assembly Bill 2652 clarifies that leases and easements for the financing, erection, and sale of energy storage projects are, like leases and easements for qualifying wind and solar projects, not subject to the Subdivision Map Act.

### **1.2.1 Design Review and Conditional Use Permit for BESS Facility**

#### **BESS Facility Summary**

The BESS Facility will be capable of delivering up to 200 MW and 800 MWh of on-demand energy to the electrical grid. As an example, this is enough electricity for about 200,000 average existing single-family homes in Sonoma County and surrounding counties for an approximately 4-hour duration. The BESS Facility equipment (described further herein) will be comprised of lithium-ion battery racks housed within standardized, purpose-built, all-weather outdoor enclosures. The enclosures will be paired with cooling systems, safety systems, inverters, controls, metering/telemetry and interconnection equipment. As discussed above, the BESS Facility will be located within an approximately 15.6-acre footprint, inclusive of all Project components such as equipment and landscape buffer areas.

The ultimate technology providers for the BESS Facility have not yet been selected at this time but will be procured via a competitive solicitation of reputable Tier 1 BESS suppliers. Augmentation of the lithium-ion batteries will be required over the lifespan of the BESS Facility. Depending on technology selection, augmentation could include replacement of the lithium-ion batteries within enclosures and/or the phased installation of new enclosures over the life of the BESS Facility. In order for Sonoma County to fully analyze the potential impacts from the BESS Facility, the estimated full buildout of all BESS enclosures that could be constructed through the life of the facility were included on the BESS Facility’s preliminary site plan.

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<sup>1</sup> As is normal and common, this Project has evolved in response to agency and public feedback. Obsolete version of the Project included a proposed tentative parcel map and Outside Service Area Agreement, among other things. Those applications were withdrawn and removed from this Project Description, and have been abandoned. Thus, they are omitted from this Project Description because they are no longer relevant or reasonably foreseeable.

## **Project Purpose and Need**

### ***Battery Energy Storage and California’s Transition to 100% Carbon Free Electricity***

The Governor, Legislature, California Energy Commission (CEC), California Public Utility Commission (CPUC) and California Independent System Operator (CAISO) have all identified large-scale energy storage as critical for the California electrical grid. In particular, energy storage serves the need for fast-ramping capability and the capacity to store generation from eligible renewable energy resources. Energy storage has also been identified as a key resource to help meet the challenges of integrating electricity from eligible renewable energy resources into the California electrical grid and of supporting economywide goals for reducing emissions of greenhouse gases. California needs energy storage given its ability both to store excess electricity generated by eligible renewable energy resources and, when needed, to quickly inject that electricity back into the electrical grid to meet ramping, peak demand needs and other reliability requirements, including those related to weather or fire events.

California currently has a number of initiatives, policies and programs that set clean energy goals. For example, with Senate Bill No. 100 (SB 100), also referred to as the 100% Clean Energy Act of 2018, the State Legislature declared that various agencies should plan for “100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045.” A critical element of statewide renewable goals is reliable storage of energy produced by solar, wind, geothermal and other renewable sources of energy.

The following milestones are enacted as a part of SB 100:

- 33% renewable energy resources target by December 31, 2020
- 50% renewable energy resources target by December 31, 2026
- 60% renewable energy resources target by December 31, 2030
- 100% renewable energy resource target by December 31, 2045

Methods to achieve the above-mentioned milestones include the following:

1. Displacing fossil fuel consumption within the state.
2. Adding new electrical generating facilities in the transmission network within the Western Electricity Coordinating Council service area.
3. Reducing air pollution, particularly criteria pollutant emissions and toxic air contaminants, in the state.
4. Meeting the state's climate change goals by reducing emissions of greenhouse gases associated with electrical generation.
5. Promoting stable retail rates for electric service.
6. Meeting the state's need for a diversified and balanced energy generation portfolio.
7. Assisting with meeting the state's resource adequacy requirements.
8. Contributing to the safe and reliable operation of the electrical grid, including providing predictable electrical supply, voltage support, lower line losses and congestion relief.
9. Implementing the state's transmission and land use planning activities related to development of eligible renewable energy resources.

The BESS Facility will directly support the State's above stated methods to reach 100% renewable energy resource goals and will operate without any emissions to provide on-demand power to Sonoma County and the broader region. In addition to operating as a zero-emission facility, the BESS Facility will incrementally allow for the retirement of existing power plants that utilize natural gas for fuel and ocean water for cooling.

On June 24, 2021, the California Public Utilities Commission (CPUC) voted to approve an 11.5 gigawatts (GW) procurement package composed entirely of clean energy resources that will come online in the middle of the decade, marking its largest-ever capacity procurement ordered at once. The new resources are intended to prepare the state for more extreme weather and to help replace electrical generation currently produced by natural gas plants that are slated to retire soon. The decision sets California on the path of bringing online 2,000 MW of new, clean resources by 2023, followed by increments of 6,000 MW, 1,500 MW and 2,000 MW by 2024, 2025 and 2026, respectively.

Further, on January 13, 2023, the CPUC issued a proposal for power providers to procure an additional 4,000 MW of renewable resources to come online in 2026 and 2027. The BESS Facility, along with other similar clean energy resources throughout the region and state, are necessary to meet these ambitious targets.

## ***Direct BESS Facility Benefits***

### Reliability and Resiliency

The BESS Facility will reinforce the regional power network while the State transitions away from fossil fuels. As approximately 2,000 MW of fossil fuel power generation that uses ocean water for cooling is slated for retirement (enough electricity for about ~1,000,000 homes), PG&E, Sonoma Clean Power (SCP) and other electric customers throughout the State are demanding that new power resources be non-emitting and utilize renewable energy. The BESS Facility will serve as a critical piece of infrastructure to achieve this goal and advance the needs of Sonoma County residents. The BESS Facility has the capacity to provide power for approximately 200,000 homes and business in the Project area and the broader region for an approximately 4-hour duration.

As a local electricity resource, the BESS Facility will provide reliable on-demand power every day of the year for peak needs and renewable integration. With the increase in wildfires, mudslides and high wind events that can cause a loss in power, the BESS Facility can be used to ensure electric reliability in the event of public safety event. During Public Safety Power Shutoff (PSPS) events, the BESS Facility can be available to continue to provide power in Sonoma County and elsewhere. For example, in the event of a disruption in service with the broader high-voltage transmission system, PG&E may be able to utilize power from the BESS Facility to maintain power temporarily on the local system until service on the transmission system could be restored.

### Economic Benefits

Additionally, the BESS Facility will provide significant economic benefits to Sonoma County and the broader region. Construction jobs, new property tax revenue and ancillary economic stimulus will be injected into the community during the construction and operations of the facility. Once online, Sonoma County will join dozens of other communities across California and the world that are utilizing advanced energy storage facilities to provide on-demand and reliable electricity. The BESS Facility's strategic location, close to population centers, benefits the community by reducing dependency on long-range transmission lines and non-local power generation resources. Further, this state-of-the-art BESS Facility is being proposed at a time when the local community has made clear that it wants to move beyond fossil fuels. While California increases the build-out and utilization of renewable resources, energy storage projects such as the BESS Facility allow for the most efficient utilization of wind and solar power.

### Proximity to Point of Interconnection

Due to Project Site being located immediately adjacent to the PG&E Lakeville Substation, which will serve as the BESS Facility's Point of Interconnection (POI), the BESS Facility will be able to interconnect to the electrical grid without the need for additional transmission lines. Because a long transmission line is not required to connect the BESS Facility with its POI, and because a long transmission line does not need to span roadways, public right-of-way or excess private lands, impacts typically associated with transmission line construction and operations, including aesthetic considerations, can be minimized.

In addition, because longer gen-tie lines can result in energy efficiency loss as energy has to travel a longer distance through a circuit, locating the BESS Facility in close proximity to the POI cuts down on roundtrip efficiency loss, making for a more effective and efficient energy storage system.

### **Proposed BESS Facility**

#### ***Battery Enclosures***

A typical BESS enclosure is about the same size as a standard shipping container; however, the number, size, layout and capabilities of each enclosure varies depending on the final system manufacturer selected for the BESS Facility. On average, the enclosure will be approximately 10 feet in height (inclusive of the foundation) and roughly 8 feet in width. The lengths of the enclosures vary due to the modular nature of these units.

Regardless of the manufacturer, the BESS Facility's footprint and overall capability will not materially change. The BESS enclosures will be arranged in neat rows on the Project Site. As proposed, the enclosures located on the southwestern part of the BESS Facility will be constructed more than 1,400 feet (e.g., greater than 0.25 mile) from the closest residences located on the west side of Clubhouse Drive, with the majority of the enclosures being installed even farther away from these existing homes. Pursuant to feedback received during the Sonoma County's Preliminary Design Review, the BESS enclosures will be painted a shade of green (such as forest green) to better blend into the surrounding vegetation.

The battery units will be continuously monitored and controlled to ensure safe and efficient operations, with every BESS enclosure being equipped with integrated operational management systems and safety systems such as HVAC systems, ventilation, gas/heat/smoke detection (or similar) and alarms. The systems will be designed, constructed and operated pursuant to the applicable California Fire Code and in consultation with the Sonoma County Fire Inspector.



The battery modules are accessed for maintenance from the outside via all-weather doors. As a purpose-built space, each enclosure is designed to precisely house only the batteries and associated equipment, with no additional space to allow for entry or entrapment. As such, these BESS enclosures are not considered habitable structures and all maintenance work is conducted from outside of the enclosure, with no risk of confinement.

### ***Inverters/Transformers***

Low-voltage underground cables will connect the BESS enclosures to adjacent pad-mounted inverter-transformer skids. The inverters convert electricity from alternating current (AC) to direct current (DC) for charging and discharging operations. The transformers convert electricity between the inverter's voltage and the low-side voltage of the BESS Facility's main step-up transformer, before the electricity is transmitted to the grid.

### ***Supervisory Control and Data Acquisition (SCADA)***

An unmanned relay and control cabinet on the BESS Facility site will contain the SCADA equipment (i.e., utility cabinet). The relay and control console will be connected to the BESS Facility via underground cables. The SCADA will manage and monitor communication information to and from the BESS Facility. A wireless or fiber optic link will provide communication between the SCADA and existing offsite BESS control centers that are currently operated by the Applicant, the BESS Facility's integrator, PG&E and CAISO.

### ***On-Site Substation***

The BESS Facility's on-site substation will be located along the eastern edge of the Project Site. The on-site substation will be a separate and secure area within the BESS Facility site. The on-site substation will consist of high voltage electrical equipment, auxiliary transformers, circuit breakers, relays, meters and communications equipment. This equipment includes the power distribution center and main step-up transformer. The main step-up transformer increases voltage from that of the inverter-transformer skids to the grid interconnection voltage for discharging operation and vice-versa for charging operation. To comply with the 35-foot height maximum requirement outlined in the Sonoma County Zoning Code for the K zoning district, no on-site substation equipment will exceed 35 feet in height.

The on-site substation is connected to the adjacent PG&E Lakeville substation via a short generation-tie transmission line. The connection to the PG&E grid allows the BESS Facility to be charged from the electric grid and then discharged to the grid when needed, providing critical electrical reliability services to the region.

### ***Generation-Tie Line***

A generation-tie line (sometimes referred to as a “gen-tie” line) and fiber optic cables will be constructed from the on-site BESS Facility substation to a Point of Change of Ownership (POCO) designated by PG&E at the Lakeville substation. PG&E has the ultimate discretion in this design and will have further input on the preferred location (overhead or underground) and route of the gen-tie line. Given this uncertainty, both the overhead or underground gen-tie line installation scenarios are described below, in order for environmental impact analysis to capture potential effects from both installation methods.

If the gen-tie line connection occurs underground, a combination of trenching, directional drilling and jack-and-bore installation activities will be necessary. However, it is important to note that PG&E has ultimate discretion as to whether the gen-tie will travel underground. In the underground-connection scenario, the gen-tie line would be placed several feet below the surface and will not be visible until ‘daylighting’ on the PG&E property and connecting with the Lakeville substation atop a POCO riser pole.

If PG&E determines that an overhead connection is preferred, the segment of the gen-tie line between the BESS Facility and the POCO may be above ground. In an above ground-connection scenario, up to approximately 500 feet of 60-kV overhead gen-tie line will be strung between two to four galvanized steel, wooden or similar material mono poles. This overhead gen-tie line will connect to a POCO riser pole located on PG&E property. To facilitate this connection, at least two of the existing powerlines located on PG&E property between the BESS Facility Site and the adjacent PG&E substation will need to be raised. To comply with the 35-foot height maximum requirement outlined in the Sonoma County Zoning Code for the K zoning district, the two to four mono poles will not exceed 35 feet in height. (Note that the height of these utility poles will be a similar height as many of the existing utility poles in the immediate vicinity of the BESS Facility and PG&E Lakeville substation).

PG&E has mandatory vegetation clearance requirements for its power lines. In order to comply with these clearance requirements for the BESS Facility’s gen-tie line, it is estimated that up to approximately eight to twelve existing trees will need to be trimmed or removed within the existing windrow located between the BESS Facility Site and the Lakeville substation.

Regardless of the final number of trees to be removed, any tree removed as part of the gen-tie line construction or any other BESS Facility component are subject to the Sonoma County Tree Preservation Ordinance. This ordinance outlines requirements related to mandatory tree replacement and compensation for the trees removed. Every effort will be made during the design of the gen-tie line to avoid removal of any and all healthy County-protected tree species.

### ***Other BESS Site Design Features***

In addition to the BESS components described above, the BESS Facility includes other design features to ensure compliance with all building, fire, health and safety regulations, including setbacks, fire-operations access roads, perimeter fencing, separation between equipment and other features, as described below.

#### BESS Facility Access and Security

Access to the BESS Facility will be provided by an existing, approximately 20-foot-wide driveway, located off Frates Road. Construction of the BESS Facility includes extending this driveway to the gated entrance of the BESS Facility. A metal gate will be installed at the BESS Facility entrance at the end of the extended driveway. A Knox Box will be installed at the gate to provide for fire and police department access in the event of an emergency.

The BESS enclosures and transformers will be arranged in rows separated by a Class II Base gravel surface, including an approximately 24-foot-wide central drive aisle bisecting the BESS Facility to provide internal access to both maintenance and emergency vehicles. In addition to this central drive aisles, a 16-foot-wide drive aisle will be provided around the perimeter of the enclosures for maintenance vehicles and secondary emergency access.

To secure the BESS Facility, it will be bound by an approximately six- to eight-foot-tall (depending on the underlying grade) chain-link fence, portions of which may consist of a neutral-colored, vinyl-coated, chain-link material that may also contain neutral-colored vinyl slats. Thus, this use permit application includes a fence taller than six (6) feet on all sides of the BESS. Design of the BESS Facility will consist of a combination of landscaped earthen berms, vegetation, existing topographical variations and natural distance to ensure that receptors in the vicinity do not have direct line-of-sight of the perimeter fence and the equipment behind the fencing. Additionally, the on-site substation will be a secure, separately chain-link fenced area. This internal area should not be directly visible from any public vantage point outside of the BESS Facility.

#### Lighting

For safety and security purposes, a limited number of new luminaires will be installed on the BESS Facility site, likely only at the gated entrance of the BESS Facility and within the on-site substation area. Lighting located at the entrance will be automatically controlled to operate between dusk and dawn, while lighting within the on-site substation area will only be illuminated if/when needed for non-routine, unplanned nighttime maintenance activities. The BESS equipment will not be illuminated as part of normal operations and entrance and on-site substation lighting will be used

only for security, emergency ingress and egress, and maintenance. The luminaires will be fully shielded and directed downward to avoid light trespass beyond the facility's boundary. The facility will not be illuminated during normal daytime and nighttime operations. Although not anticipated, in the off chance that nighttime maintenance work is ever required, operations and maintenance staff would bring temporary portable lighting onto the site as needed.

### Stormwater Drainage

Generally, the BESS Facility parcel drains from north to south, with stormwater surface flows eventually discharging to a vegetated drainage swale that parallels the northern edge of Frates Road. A new engineered stormwater drainage system will be constructed on the BESS Facility site to collect and treat on-site stormwater flows through a combination of stormwater infiltration, retention and/or detention features. The new stormwater drainage system will comply with all applicable County Low Impact Design (LID) and other applicable stormwater collection, treatment and discharge requirements.

### Water Service

The City provides domestic water to the former golf course property through an existing water line in Clubhouse Drive. From Clubhouse Drive, the water line runs in an easterly direction and connects to the existing pro shop found near the northern terminus of the road, the golf course restroom facility located just north of the Project Site and the existing maintenance facility on the Project Site.

In addition, an existing post indicator valve and fire hydrant are located on the Project Site, both of which are connected to an existing domestic water line located within Frates Road. The Project Site also contains a recycled water line that traverses the eastern edge of site. This recycled water line runs from Frates Road to the existing golf course pond located north of the Project Site.

During BESS construction, water will be required for concrete installation, soil conditioning, dust control and erosion control. Water usage on-site during construction will fluctuate from day-to-day depending on construction activities performed, with more water than average being required during the earlier stages of construction (site preparation, grading) and less water than average during the later construction phases. But on average, roughly 2 to 3 water trucks will operate on the BESS Facility site during construction, equating to a construction water demand of approximately 15,000 gallons per days. Extrapolated over a 10-month construction schedule (assuming 22 construction working days per month), this equals a construction water demand of 10 acre-feet over the entire course of BESS Facility construction.

As allowed by the County, recycled water would be used in place of domestic water during construction. The construction contractor will also have access to the existing groundwater well and former golf course pond located north of the Project Site to use for construction water needs, if necessary. All reasonable attempts to minimize the use of either potable water or groundwater during construction will be made. Note that the County classifies the Project Site as being in a “Zone 1” groundwater zone, meaning there are sufficient groundwater supplies underlying the Project Site.

Once operational, the BESS Facility’s water demand will be limited to landscape irrigation and for emergency fire response. The BESS Facility design includes the installation of additional fire hydrants for emergency fire suppression needs. The BESS Facility intends to utilize the existing recycled water line already located on the Project Site for the purpose of both fire control and irrigation water. In addition, as a secondary option for irrigation water, the BESS Facility will have access to the existing groundwater well and former golf course pond located north of the Project Site; however, all reasonable attempts will be made to use reclaimed water for landscaping.

Use of either recycled water or groundwater/golf course pond water for emergency fire suppression purposes may require the use of a pressure tank and booster pumps to provide the required water pressure. In addition, there is potential that emergency fire suppression water may need to be stored on-site within approximately two, up to approximately 90,000-gallon fire protection water tanks located in the same location as the current on-site maintenance building. The fire protection water tanks would be approximately 10 feet in height (which is shorter than the present height of the maintenance building) and would have a diameter of roughly 40 feet. A pump pad would be located adjacent to the fire suppression water tanks and would include a pressure tank, booster pumps, control panel, and associated equipment, most or all of which would be housed in a small utility building. These tanks would be colored with a neutral tone consistent with the surrounding aesthetic environment.

### Sewer Service

The Project Site is currently served with sanitary sewer service to the pro shop building found near the northern terminus of the road, the golf course restroom facility located just north of the Project Site and the existing maintenance facility on the Project Site. The BESS Facility will be unmanned and not require sewer service. Existing sewer service on the former golf course property will remain in-place.

### Landscape and Frontage Improvements

The new driveway and stormwater collection and treatment features will be located at or slightly below grade. The nearest above-grade BESS Facility improvement (i.e., the gated entrance to the facility) will be located at least 200 feet from the nearest public right-of-way vantage point. To soften views of the BESS Facility from any public vantage points, a combination of drought-tolerant landscaping, earthen berms and naturally contoured earthwork will be incorporated along the northern, southern and western edges of the BESS Facility site (the eastern boundary is not readily visible from a public vantage point, as this side of the BESS Facility directly faces the PG&E Lakeville substation and is bound by the existing windrow of mature trees). Further, pursuant to feedback received during the Preliminary Design Review conducted by the County for the Project, the BESS enclosures will be painted a shade of green similar to forest green in order to better blend into the surrounding vegetation.

Plantings within the landscape areas will consist of a mix of 200-plus mature trees in addition to shrubs, flowering perennials and groundcover consistent with the County's approved plant list/palette. The landscape areas will be designed and irrigated consistent with all applicable County requirements. For irrigation water, the BESS Facility will connect to the existing recycled water line that is already located on the Project Site. As a secondary option for irrigation water, the BESS Facility will also have access to the existing groundwater well and former golf course pond located north of the Project Site.

Design considerations will be made to ensure that the landscape and hardscape areas surrounding the BESS Facility site provide defensible space to minimize the risk of wildland fire impacting the Facility and surrounding areas.

### Tree Removal

PG&E has mandatory vegetation clearance requirements for its power lines. In order to comply with these clearance requirements for the BESS Facility's gen-tie line, it is estimated that up to approximately eight to twelve existing trees will need to be either trimmed or removed within the existing windrow, located between the BESS Facility Site and the Lakeville substation.

In addition to the trees within the adjacent windrow, there are existing trees located on-site that are within the footprint of the BESS Facility that will need to be removed. Upon buildout of the BESS Facility, it is estimated that approximately 20 existing on-site trees of varying species, dimension and health will be removed. Note that this estimate is in addition to the trees to be trimmed or removed as part of construction of the gen-tie.

Given that the Project Site is located in a VOH Combining District, design of the BESS Facility was specifically laid out to avoid impacts to valley oaks. Other tree species found on-site include acacia, coast live oak, coast redwood, eucalyptus, lemon scented gum, Monterey cypress and Monterey pine. Removal of any existing on-site trees are subject to the Sonoma County Tree Preservation Ordinance, which outlines requirements related to mandatory tree replacement as compensation for the trees removed.

A tree inventory was conducted to catalog the location, species, dimension and health of all trees on- and adjacent to the BESS Facility. This inventory, along with a qualitative breakdown of tree replacement mitigation requirements are found in the Arborist Report prepared for the BESS Facility.

#### Fire Safety

The BESS Facility will utilize a battery enclosure/cabinet (or similar configuration) with an integrated fire protection system designed to prevent and effectively manage all risks of fire. In the unlikely situation that a fire does occur, the integrated fire protection system controls the fire so that it does not spread to surrounding batteries and cabinets or neighboring exposures.

Fire protection will also include multiple fire detection systems on-site and within the individual battery cabinets. In addition, each battery cabinet contains an onboard battery management system that monitors the appropriate state of the individual battery cells. In the event of an anomaly, the system is designed to automatically and instantaneously cutoff power from the effected part of the BESS Facility. Further, the BESS Facility will be continuously monitored around the clock by offsite staff at existing BESS control centers that are presently operated by the Applicant, the BESS Facility's integrator, PG&E and CAISO. At the first sign of an anomaly, staff at the offsite control centers will alert local field staff, who will be immediately dispatched to the BESS Facility site to conduct further investigation. If necessary, the control center staff would also alert local public agencies in the event of a system anomaly.

The BESS Facility will only utilize battery vendors that are fully certified to the most rigorous safety codes and standards. Overall, BESS facilities and batteries are subject to extensive review and regulations. Some of the relevant safety codes and standards are discussed below.



**Underwriters Laboratories (UL)**, a globally-recognized safety certification company.

**UL9540A:** Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems – this test methodology evaluates the fire characteristics of battery cells, modules, units (racks) and installations that are purposefully induced into thermal runaway. The data generated can be used to determine the fire and explosion protection required for an installation of a battery energy storage system.

**UL1973:** Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications – This standard evaluates the battery system’s ability to safely withstand simulated abuse conditions. This standard evaluates the system based upon the manufacturer’s specified charge and discharge parameters. Requires that a BESS is not allowed to be an explosion hazard when exposed to an external fire source and that a single cell failure will not result in a cascading thermal runaway of cells.

**UL1741:** Inverters, Controllers, Converters and Interconnection Equipment Standards – These requirements cover inverters, converters, charge controllers and interconnection system equipment (ISE) intended for use in stand-alone (not grid-connected) or interactive (grid-connected) power systems. Interactive inverters, converters and ISE are intended to be operated in parallel with an electric power system (EPS) to supply power to common loads.

**UL9540:** Energy Storage Systems and Equipment – This standard requires compliance with key UL sub-standards as well as standards from other recognized parties to certify safety of an integrated energy storage system.

**Institute of Electrical and Electronics Engineers (IEEE)**, the world’s largest technical professional organization dedicated to advancing technology for the benefit of humanity.

**IEEE C2:** This Code covers basic provisions for safeguarding of persons from hazards arising from the installation, operation or maintenance of (1) conductors and equipment in electric supply stations and (2) overhead and underground electric supply and communication lines. It also includes work rules for the construction, maintenance and operation of electric supply and communication lines and equipment. The Code is applicable to the systems and equipment operated by utilities (or similar systems) and equipment, of an industrial establishment or complex under the control of qualified persons.



**International Fire Code (IFC):** is the model up-to-date fire code addressing conditions hazardous to life and property from fire, explosion, handling or use of hazardous materials and the use and occupancy of buildings and premises.

**IFC:** Specifies minimum size requiring permits (Lithium, all types, 20 kilowatt-hours (kWh)), specifies maximum limits on sizing for battery systems (Lithium all type, 50 kwh each array), seismic and structural design, spacing (minimum 3 feet separation of arrays), vehicle impact protection, testing, maintenance and repairs, maximum quantities within a building (Lithium of 600 kwh), BMS monitoring, shutdown and notification requirements, automatic smoke detector requirements, automatic fire sprinkler systems, ventilation specifications.

**National Fire Protection Association (NFPA),** an international nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards.

**NFPA 70:** National Electrical Code, addresses electrical design, installation and inspection.

**NFPA 550:** Guide to Fire Safety Concepts Tree for Protecting Energy Systems – addresses issues such as utilizing BMS and compatible equipment, ventilation as needed, fire resistive separation, array spacing, signage.

**NFPA 855:** Standard for the Installation of Stationary Energy Storage Systems – offers comprehensive criteria for the fire protection of BESS installations based on the technology used in BESS, the setting where the technology is being installed, the size and separation of BESS installations and the fire suppression and control systems in place. Additional considerations include ventilation, detection, signage, listings and emergency operations responding to BESS emergencies.

## **Operations and Maintenance**

Energy stored in the BESS Facility will be discharged to the grid when the energy is needed throughout the day and night; as such, the BESS Facility will be available to operate 24 hours per day/seven days per week. In accordance with operational norms, it is expected that the BESS Facility will fully charge and discharge once per day up to 365 days per year. The BESS Facility site will be unmanned and the site will not contain any habitable enclosures or facilities for on-site personnel. It is expected that between two to four staff members will visit the BESS Facility approximately once or twice a week and as needed for maintenance and monitoring; thus, operational vehicular traffic will be minimal.

In addition to regularly scheduled maintenance, augmentation of the batteries will be required over the 20-year lifespan of the BESS Facility. Depending on technology selection, augmentation could include replacement of batteries within enclosures and/or the phased installation of new BESS enclosures over the life of the BESS Facility. In order for Sonoma County to fully analyze the potential impacts from the BESS Facility, the estimated full buildout of all BESS enclosures that could be constructed through the life of the BESS Facility have been included on the preliminary site plan.

### **BESS Construction**

Construction of the BESS Facility is anticipated to occur over approximately 10 months, beginning no earlier than late 2023. BESS construction includes demolition of the existing maintenance building, site preparation and grading, extension of the BESS Facility driveway, installing the BESS foundations, installing the BESS enclosures, laying the undergrounding electrical collection and communication lines, assembly of accessory electrical components including inverter-transformers and installation of high-voltage equipment including the on-site switchyard and gen-tie line. The municipal water supply and on-site recycled water lines will also need to be rerouted from their current alignment for new irrigation and fire protection needs, including new fire hydrants.

Preliminary grading quantity estimates show that the BESS Facility will require up to approximately 40,000 cubic yards (cy) of soil cut and up to 40,000 cy of soil fill. A preliminary geotechnical investigation has identified that weak soils may be encountered on-site. As such, environmental impact analysis conducted for the Project, including air quality modeling, will assume that construction of the Project will require up to 30 inches of over excavation for the BESS enclosures and associated electrical equipment, which, along with the new perimeter earthen berms, will equate to an estimated 1,350 cy of soil export and 8,000 cy of soil import.

Water usage on-site during construction would fluctuate from day-to-day depending on construction activities performed, with more water than average being required during the earlier stages of construction (site preparation, grading) and less water than average during the later construction phases. But on average, roughly two to three water trucks would operate on the BESS Facility Site during construction, equating to a construction water demand of approximately 15,000 gallons per day. Extrapolated over a 10-month construction schedule (assuming 22 construction working days per month), this equals a construction water demand of 10 acre-feet over the entire course of BESS Facility construction. As allowed by the County, recycled water would be used in place of domestic water during construction. The construction contractor will also have access to the existing groundwater well located on the adjacent golf course property to

use for construction water needs. All feasible attempts to minimize the use of potable water during construction will be made.

Raw materials required for construction will include gravel for drive aisles; concrete, sand and cement for foundations; and water for concrete installation, dust control and erosion control. The heavy equipment listed in Table 1 may be used during construction activities.

**Table 1  
Construction Equipment and Workforce Typically Required for a BESS Facility**

<b>Construction Activity</b>	<b>Workforce</b>	<b>Typical Construction Equipment</b>
Construction Management	2	Pickup and small vehicles
Demolition, Grading, foundations and underground electrical work	10	Dozer, grader, excavator or drill rig, crane, concrete pump trucks, concrete trucks, pickup trucks with trailers, all terrain forklifts, water trucks, dump trucks, compactors, generators, welders, pile drivers
Fence Construction	6	Forklift, backhoe, pickup trucks
Roads/Pad construction	10	Dozer, grader, front end loaders, compactor, roller, pickup trucks, water trucks, dump trucks, compactors, scrapers
Battery Installation	6	Crane, forklift, pickup trucks
Skilled Laborers	16	Pickup trucks
Owner Representatives	2	Pickup trucks
Battery Manufacturer/Supplier	8	Pickup trucks

Note: It should be noted that the total number of workers provided is through Project construction. It is expected that on average there will be 25-35 workers on site with a peak daily work force of approximately 45 workers.

### **BESS Facility Decommissioning and End-of-Lifecycle Recycling**

At the end of the BESS Facility useful life, the BESS equipment will either be replaced or decommissioned. Decommissioning will involve the removal of the Project equipment from the BESS Facility site and the restoration of the BESS Facility site to pre-construction (or better) conditions. Decommissioning activities will require similar activities and a similar equipment mix as the BESS Facility construction phase.

The BESS Facility master supply agreements typically address battery recycling obligations. In addition, the BESS Facility has master service agreements with multiple third-parties that specialize in recycling lithium-ion batteries.

### **1.2.2 Design Review and Use Permit for Fence Height and Lot Coverage Exceedances**

As proposed, the BESS Facility will exceed the maximum 50% lot coverage limitation for the K zoning district. Section 26-10-040(K) of the County Zoning Code allows for development to exceed this lot coverage limitation, provided the BESS Facility does not exceed the maximum allowed building intensity. Calculation will be provided to the County to verify that the BESS Facility complies with Section 26-10-040(K) of the County Zoning Code.

In addition, the approximately six- to eight-foot-tall fence that will bound and secure the BESS Facility will require a use permit because it may exceed height limits placed upon fences in the K zoning district by Section 26-88-030 of County Zoning Code.

### **1.2.3 Final Resolution Finding No Conflict with the COSE’S Values**

Modification of the COSE is not required for the BESS Facility, as it will not conflict with the aesthetic and environmental values in the COSE. The COSE allows for the County Board Of Supervisors to adopt a final resolution finding that the BESS Facility does not conflict with the aesthetic and environmental values intended in the existing COSE on the Project Site. The Applicant is providing additional justification to the County for this finding under separate cover.

## **2 LAND USE PLAN, POLICIES AND REGULATIONS**

### **2.1 Sonoma County General Plan 2020**

The Project Site is designated ‘Recreation and Visitor Serving Commercial’ (RVSC) in the General Plan. “Public utility facilities” with a conditional use permit (as discussed below) are allowed in the RVSC zone in the General Plan with a use permit. Thus, the BESS use is consistent with the RVSC land use designation. The BESS Facility is consistent with several applicable General Plan Goals, Policies and Objectives, as outlined in Table 2.

**Table 2**  
**General Plan Consistency**

General Plan Goals, Policies and Objectives	Consistency with Goal or Policy
<p><b>Policy OSRC-4a:</b> Requires all new development projects utilize light fixtures that shield the light source so that light is cast downward and that are no more than the minimum height and power necessary to adequately light the proposed use.</p>	<p><b>Consistent:</b> All light fixtures will be downcast and no light from the BESS Facility will leave the BESS site.</p>
<p><b>Goal OSRC-15:</b> Contribute to the supply of energy in the County primarily by increased reliance on renewable energy sources.</p>	<p><b>Consistent:</b> The BESS Facility allows for the storage of energy when there is excess supply on the electrical grid, storing this energy until it is later needed to be discharged back onto the grid during times of high demand. Typically, the times of the day when there is excess supply is a result of solar and wind energy generation, which tends to be highly productive during the daylight hours when the sun is shining and the wind is blowing. Thus, it can be assumed that a meaningful percentage of the energy stored in the BESS Facility is derived from renewable generation sources.</p> <p>In addition, during times of higher demand (typically the late afternoon and evening hours and during heat waves), instead of having to rely on fossil fuel-powered power plants to increase the energy supply on the electrical grid, the grid operator can direct the BESS Facility to send stored energy back onto the electrical grid. Therefore, not only can the BESS Facility store renewable energy and prevent it from being curtailed during times of lower demand, but the BESS Facility can help decrease the need to use natural gas peaker plants during periods of higher energy demand.</p>
<p><b>Policy OSRC-15b:</b> Encourage and promote the development of renewable energy and distributed energy systems and facilities for County operations.</p>	<p><b>Consistent:</b> The BESS Facility allows for the storage of energy when there is excess supply on the electrical grid, storing this energy until it is later needed to be discharged back onto the grid during times of high demand. As previously described, it is expected that a meaningful percentage of the energy stored in the BESS Facility is derived from renewable generation sources. Once this energy is discharged back onto the electrical grid, this energy will be made available to all end users, including County and other important public facilities.</p>
<p><b>Goal PF-2:</b> Assure that park recreation, public education, fire suppression and emergency medical, and solid waste services, and public utility sites are available to meet the future needs of Sonoma County residents.</p>	<p><b>Consistent:</b> The BESS will reinforce the regional power network while the State transitions away from fossil fuels. The BESS Facility has the energy capacity to provide power for approximately 200,000 existing homes and business in the region. As a local electricity resource, the facility will provide reliable on-demand power every day of the year for peak needs and renewable integration. With the increase in wildfires, mudslides and high wind events that can cause a loss in power, the BESS Facility can be used to ensure electric reliability. Additionally, during PSPS events, the BESS Facility will be available to continue to provide power in the Sonoma County area.</p>

<p><b>Objective PF-2.10:</b> Locate and design public utility transmission, distribution, and maintenance facilities to minimize adverse effects on natural and scenic resources.</p>	<p><b>Consistent:</b> As outlined above, the BESS Facility is consistent with the aesthetic and open spaces values in the COSE. The BESS site has been previously disturbed because of the prior golf course development activities, which included a substantial amount of heavy earthwork.</p> <p>A biological resources assessment conducted for the BESS Facility site found that the site does not provide habitat for special-status plant and wildlife species and determined that the BESS facility will not impact sensitive plant communities, jurisdictional waters and wetlands, or wildlife linkages.</p>
<p><b>Policy PF-2t:</b> Review proposals for new transmission lines or acquisitions of easements for new transmission lines for consistency with GP 2020 policies. Request whenever feasible that such facilities not be located within designated Community Separators or biotic resource areas. Give priority to use of existing utility corridors over new corridors.</p>	<p><b>Consistent:</b> While the BESS Facility will include a short gen-tie line that connects the facility to the immediately adjacent PG&amp;E Lakeville substation, this transmission line will be constructed both adjacent to and within the existing substation footprint, which already contains similar (and even larger/taller) transmissions lines, power poles and utility towers. Thus, the inclusion of the BESS Facility’s short gen-tie line is consistent with the existing uses and aesthetics already found in this area. In addition, the BESS facility nor its short gen-tie line are not located in a designated Community Separator or biotic resources areas. Further, the BESS Facility reduces the need for future transmission lines in the area.</p>
<p><b>Policy PF-2v:</b> Consider requiring the undergrounding of new electrical transmission and distribution lines where appropriate in Community Separators, Scenic Landscape units, along Scenic Corridors in selected urban areas. Where feasible and under the Public Utility Commission (PUC) rules, convert existing overhead lines to underground facilities in urban areas.</p>	<p><b>Consistent:</b> The BESS Facility’s short gen-tie line will be constructed both adjacent to and within the existing Lakeville substation footprint, which already contains similar (and even larger/taller) transmissions lines, power poles and utility towers. By siting this facility on a parcel that is adjacent to the Lakeville substation, the electric transmission line has the most direct and least disruptive route to the substation possible. The BESS Facility has requested that the gen-tie line be ‘undergrounded’ however PG&amp;E holds ultimate discretion over this decision.</p>

## 2.2 Sonoma Mountain Area Plan (SMAP)

The County adopted the SMAP in 1978 and has revised the SMAP several times with the most recent revision in October 2012. The SMAP covers a 65-square mile study area located within the southeasterly quadrant of the County. The major land uses within the SMAP area are agriculture (dairying, grazing, forage crop production) and residential.

The subject parcel’s land use designation in the Sonoma Mountain Area Plan is Recreation and Visitor Serving (RVSC), which corresponds to “sites for both outdoor recreation uses and the commercial service needs of visitors and travelers.” (SMAP, p. 15.)

The SMAP has no special policies regarding public utilities or lands with RVSC designations. There is little information in the SMAP that is relevant to either the BESS Facility or the Project

as a whole. The existing scenic views from existing residential development looking northeast would be preserved, and the existing riparian corridor along Adobe Creek would continue to be protected.

### **2.3 Sonoma County Zoning Code**

The BESS Facility is proposed to be built on APN 017-140-011, which is in the K zoning district (Recreation and Visitor Serving Uses District), with a VOH Combining District overlay (Valley Oak Habitat Combining District). Section 26-10-030 of the Sonoma County Code allows public utility facilities with a conditional use permit.

The Sonoma County Code defines “public utility facilities” as:

*A permanent structure or facility providing a utility service to the general public.*

- 1. Includes: Electricity generating plants; electric substations; solid waste collection, treatment and disposal; water reservoirs, storage, and pumping stations; water or wastewater treatment plants, and similar facilities.*
- 2. Excludes: electrical distribution lines, underground water/sewer lines, and telecommunication facilities. (Sonoma County Code, Sec. 26-30-100.)*

The BESS Facility meets this definition because it is an energy storage facility, which is similar in both physical and operational character to an electricity generating plant and an electric substation use.

Sonoma County Code section 26-10-040 contains development standards for the K zoning district. The standard maximum height for this zoning district is 35 feet. Design of the BESS Facility complies with this maximum height requirement, as well as all other development standards set forth by Sonoma County, including those pertaining to minimum setbacks and maximum lot coverages.

The VOH Combining District’s purpose is to protect and enhance valley oaks and valley oak woodlands and to implement the provisions of Section 5.1 of the general plan resource conservation element. All uses permitted in the underlying district are allowed, except the overlay requires special mitigations for cutting down or removing valley oaks. A portion of the adjacent tree windrow will need to be removed to accommodate the gen-tie line with the PG&E-mandated safety setbacks. Depending on the exact route of the gen-tie line, which PG&E will ultimately select, it is estimated that approximately eight to twelve existing trees within the existing windrow will be removed.



In addition to the trees within the adjacent windrow, there are existing trees located on-site that are within the footprint of the BESS Facility that will need to be removed. Upon buildout of the BESS Facility, it is estimated that approximately 20 existing on-site trees of varying species, dimension and health will be removed. Regardless of the final number of trees to be removed, any removal of trees will be subject to the Sonoma County Tree Preservation Ordinance and every effort will be made to avoid removal of any and all healthy County-protected tree species, including valley oaks.

## **2.4 Subdivision Map Act**

Pursuant to Assembly Bill 2652, which was signed into law on August 29, 2022, energy storage projects are excluded from the state’s Subdivision Map Act’s provisions related to leases and easements. Assembly Bill 2652, which was codified as Government Code Section 66412(n), clarifies that leases and easements for the financing, erection and sale of energy storage projects are, like leases and easements for qualifying wind and solar projects, not subject to the Subdivision Map Act. As such, a new legal parcel for the BESS Facility is not a mandatory requirement for implementation of the BESS Facility.

## **2.5 Comprehensive Airport Land Use Plan (CALUP)**

The western portion of the Project Site is located in the Outer Safety Zone (OSZ). In addition, a small section of the northernmost portion of Project Site likely falls within the Traffic Pattern Zone (TPZ). As a result, the Project will be reviewed by the Airport Land Use Commission (ALUC) staff for compatibility with the CALUP.