To:	Deputy Director of Planning, Permit & Resource Management Department, Sonoma County
From:	Borealis ESS, LLC
Date:	December 14th, 2023 [Update from November 1, 2023]
Re:	Request for Applicant-Prepared Environmental Review for Borealis Energy Storage Project, Updated with Response to Staff Comments issued November 15th, 2023.

The following information is provided in accordance with the requirements of Policy and Procedure 8-0-7 for Applicant preparation of an environmental impact report for the Borealis Energy Storage Project (Project).

1. The project description.

Project Site and Location

The Project is a utility-scale battery energy storage system ("BESS") for the storage of electrical energy from California's electrical grid. BESS are an essential part of California's plan to meet a zero-carbon future by the year 2045. BESS facilities help integrate renewable energy into the electric grid by storing renewable electricity when supply is high and demand is low and delivering electricity back to the grid when supply is low and demand is high. As California transitions to 100 percent clean renewable energy, BESS projects will play a key role in harnessing the value of carbon-free resources and reducing the greenhouse gas emissions that are driving climate change. California urgently needs such storage and has issued mandates to utilities to procure tens of thousands of megawatts of battery storage throughout the state.

The project is proposed to be located on a 16-acre Project site, part of a larger 137.52-acre parcel (APN 017-130-008) located at 3571 Old Adobe Road, in unincorporated Sonoma County, California. The total project permanent impact area, including the project site, off-site access routes, gen-tie and other utility rights of way is 18 acres and temporary construction lay-down and construction access routes is 6 acres. The Project site and the surrounding area is dominated by major high-voltage transmission lines and PG&E's Lakeville Substation. High-voltage transmission lines run adjacent to the Project site and its access road. The site is not currently being cultivated, but it was planted in 2021 with pumpkins and potatoes. Because it has been used for agricultural production of row crops, it is heavily disturbed and contains little to no native vegetation. There are no structures currently on the Project site. No protected, heritage, landmark, or valley oak trees or riparian vegetation are on the Project site. No protected, heritage, landmark, or valley oak trees and no riparian vegetation will be removed or impacted by the Project during construction or operations.

The Project site is located on the western portion of the parcel in an area of the Property that the landowner identifies as underutilized and less productive for crop cultivation. Approximately 11 acres of the 16-acre Project site will be fenced to include the energy storage equipment and structures and approximately 1 acre will be the separately fenced Project substation facilities, with the balance of the acreage used primarily for the construction of berms, grading, drainage, access and transmission corridors, and temporary construction use.

The Applicant has executed a long-term lease agreement for 20 acres, which includes the Project site and laydown area, with the owner, Oxfoot Associates, LLC (Oxfoot). The lease of the 16-acre Project site and 4-acre temporary laydown area is not subject to the Subdivision Map Act pursuant to Government Code Section 66412(n). That section, signed into law by the Governor on August 29, 2022, excludes from the Act "the leasing of, or the granting of an easement to, a parcel of land, or any portion or portions thereof, in conjunction with the financing, erection, and sale or lease of an electrical energy storage system on the land, if the project is subject to discretionary action by the advisory agency or legislative body." The proposed Project would be subject to the County's discretionary

review through the issuance of a CUP. The Project will not impede the ongoing use of the remainder of the Property for agricultural production.

The approximate Project site centroid is 38.257°N, -122.580°W on the Glen Ellen U.S. Geological Survey (USGS) 7.5-minute quadrangle. The site generally is flat with a gentle slope southward toward Old Adobe Road. The Project site is bounded by Old Adobe Road and PG&E's Lakeville Substation to the south, with agricultural fields on the remainder of the Property to the south, north, and east; Petaluma Adobe State Historic Park to the southwest; and Adobe Creek and private residences to the west. Project site access will be from Old Adobe Road via an existing farm road that would be shared by the Project and the farm. The existing farm road will be improved to meet applicable building and fire safety design standards for site access. A new driveway with a staging and turnaround area and a gate will be extended from the existing farm access road to serve the Project site. The distance to the nearest private residence is more than 670 feet west of the Project site. The Project design will maintain the existing overall drainage patterns and limit runoff to less than or equal to the existing discharge rate.

The Project site is not encumbered by any agricultural, open space, or conservation easements, Williamson Act contracts, or any other title limitations that might restrict or prohibit the use of the site for the Project. A 200-foot building setback from Old Adobe Road is shown on title documents at the location of the site entrance. In addition, there are two PG&E utility (gas) rights-of-way running through the Project site. Crossing permits will be obtained from the associated utilities prior to construction. Both rights-of-way and the overlapping building setback corridor are located within the area that will be used for site access and transmission infrastructure only.

Project Overview

The Project will be capable of charging and discharging approximately 300 MW of electricity supply and grid ancillary services for a 4-hour duration or longer. The major components of the Project are described in the following subsections, with additional detail provided in Table 1. Project battery and equipment suppliers will not be selected until after the Project is entitled and the Project equipment's exact dimensions, specifications, and site layout will depend on the technology selected. As such, the Project design assumptions provided herein are intended to establish the maximum Project site footprint and environmental impacts that will allow for flexibility in final Project manufacturer selection, design, specifications, and equipment layout. Project equipment, design, and the layout selected will be permitted, constructed, and operated pursuant to applicable federal, state, and local codes and regulations.

Table 1. Project Equipment Details
Borealis Energy Storage Project

Equipment	Description	Number of Units/Size of Footprint in Acres	Height
Battery Enclosures	Integrated battery, battery controls, and ancillary equipment with HVAC	Contained within the approximately 11-acre BESS site and meeting lot coverage requirements	Up to 10 feet
Power Conversion System (PCS) Skid	Skid containing PCS equipment (combined inverters, chargers, and LV-MV Transformer) or similar configuration equipment	Contained within the approximately 11-acre BESS site and meeting lot	Up to 10 feet

Table 1. Project Equipment Details

Borealis Energy Storage Project

Equipment	Description	Number of Units/Size of Footprint in Acres	Height
		coverage requirements	
Acoustic Panels	Acoustic panels adjacent to battery enclosures and/or PCS, if necessary	Contained within the approximately 11-acre BESS site, as may be required, and meeting lot coverage requirements	Up to 15 feet
Power Distribution Center (PDC)	Power Distribution Center - substation controls building	1 to 2; contained within the approximately 1-acre Project substation area and meeting lot coverage requirements	Up to 20 feet
Modular Office &, Equipment Storage Enclosures	Modular enclosures for equipment/tool storage and office/restroom use by visiting O&M personnel	1 or 2 40-ft x 10-ft modular enclosures	Up to 20 feet
Water Tanks and/or Fire Hydrants	Aboveground water storage tanks for fire water use and irrigation for landscaping	1 to 5 tanks contained within Project site, with a total volume of up to 60,000 gallons	Up to 15 feet
Main Power Transformer	Main power high-voltage transformer, also known as generator step-up transformer.	1 to 2 MPT; contained within the approximately 1-acre Project substation area and meeting lot coverage requirements	MPT up to 30 feet; fire wall up to 35 feet (if required)
Auxiliary Transformers	Medium Voltage-Low Voltage auxiliary transformers for equipment back-feed power	Up to 10; contained within the approximately 10-acre BESS site and meeting lot coverage requirements	Up to 10 feet

Table 1. Project Equipment Details

Borealis Energy Storage Project

Equipment	Description	Number of Units/Size of Footprint in Acres	Height
Transmission Towers/Poles and static masts	Steel monopole or wood pole electrical transmission towers/ poles and static masts.	Approximately 10 transmission towers, depending on interconnection conditions, and up to 8 static masts located at the Project substation	Transmission poles up to 120 feet depending on interconnection and line crossing conditions, Static masts up to 100 feet.
Other lighting, electrical, safety, communications, and security equipment	Various	Not applicable	Switchgear cabinets and power distribution panels up to 10 feet; junction boxes and telephony equipment up to 8 feet
Perimeter Site Security Wall/ Fence and Substation Partitioning Fence	An 8- to-10-foot concrete masonry unit, composite or similar perimeter wall with noise attenuation features, chain link fence, and project gates surrounding the BESS site and Project Substation and internal to the BESS site and Project Substation	Approximately 3,500 linear feet.	Between 8 and 10 feet

Battery Enclosures

The Project will comprise lithium-based battery modules installed in racks and housed within purpose-built outdoor enclosures. A typical battery enclosure will house hundreds of battery modules, where each enclosure typically is capable of storing between 0.4 and 7.0 megawatt hours (MWh) of energy.

Each individual module within an enclosure is monitored and controlled to ensure safe and efficient operations, and every enclosure is equipped with integrated operational management systems and fire and safety systems such as heating, ventilation, and air conditioning (HVAC); gas, heat, and smoke detection; and alarms to ensure safe and efficient operations. The Project and its systems will be designed, constructed, and operated pursuant to the current California and local building code and California Fire Code requirements. The modules within each enclosure are accessed for maintenance from the outside via cabinet doors.

The dimensions of a typical BESS enclosure vary between manufacturers and are arranged in repeated "blocks" across the site. System blocks may consist of a single enclosure, or several smaller enclosures set side-by-side to create banks of batteries with similar overall dimensions. Smaller enclosures typically are closely spaced or physically attached at the time of construction, and larger enclosures are placed in smaller groupings or individually. An enclosure grouping typically consists of 2 to 30 enclosures measuring up to 100 feet long by 8 feet wide or up 70 feet long and up to 16 feet wide with heights ranging from approximately 10 to 20 feet. Smaller

enclosures may be as small as 3.5 feet long by 5 feet wide by 8 feet tall, while larger enclosures may measure more than 50 feet long by 12 feet wide with a height of up to 20 feet. However, the number, size, layout, and capabilities of each enclosure will vary depending on the battery, enclosure manufacturer design, and BESS system manufacturer selected for the Project. Enclosures greater than 10 feet in height are not proposed for the Project. Regardless of the system manufacturer, the Project's developed footprint and overall capability will remain substantially the same. In some instances, the battery enclosures may contain inverters that convert low-voltage direct current (DC) to alternating current (AC) (and vice versa when charging).

Fire and Thermal Runaway Safety Equipment and Design Features

The facility will be designed and equipped with Underwriter's Laboratories (UL)-compliant operation energy and safety management equipment and integrated fire protection systems designed to manage and prevent the risk of fire or thermal runaway events. In the unlikely situation that a fire event does occur, the facility equipment, systems, and operational procedures are designed so that such an event does not propagate to surrounding batteries, cabinets, or neighboring areas.

The Project will comply with all County and state codes and regulations related to health, fire, and safety. Specifically, the Project will be required to comply with Chapter 1207 of the California Fire Code in effect at the time of receipt of construction permits. Chapter 1207 of the California Fire Code applies to stationary electric energy storage systems and addresses development standards for design, installation, commission, operation, maintenance, and decommissioning of these systems, including the following elements:

- Fire and safety equipment requirements to be approved by the Fire Code officials having jurisdiction over the Project with established performance standards for approval.
- Equipment and system fire testing in accordance with nationally adopted UL standards.
- Stringent standards for commissioning, operation and maintenance, ongoing inspection and testing, decommissioning, seismic and structural design, signage, security installations, fire detection and suppression systems, vegetation control, and minimum setbacks from lot lines, roads, and adjacent buildings.

Compliance with these advanced, nationally adopted standards is designed to ensure the safety of the site installation and operation of battery storage systems for operators, first responders, and the neighboring community. As a result of the implementation of these advanced standards, BESS projects today operate safely and efficiently throughout the state.

The Applicant has introduced the Project to, and initiated design consultation with, the Rancho Adobe Fire Protection District (RAFPD), which is the fire authority having jurisdiction (FAHJ) over the Project. Battalion Chief Andy Taylor has indicated that there are multiple fire stations near the Project site, which include RAFPD, Petaluma Fire District, and California Department of Forestry and Fire Protection (CAL FIRE) stations. According to Chief Taylor, the Project site would likely be serviced by the RAFPD Station 91-2, located at 11000 Main Street, Penngrove, California; RAFPD Station 91-3, located at 99 Liberty Road, Liberty Valley, California; and Petaluma Fire Department Station 3, located at South McDowell Boulevard, Petaluma, California. Petaluma Fire Department Station 3 is the closest station to the Project site, approximately 3 miles away.

O&M Office and Storage Enclosure

The Project will install one or two modular enclosures on the Project site that will be used as office space, a restroom, and for tool and equipment storage. These modular enclosures typically are 20 feet to 40 feet long, by 8 feet to 10 feet wide, by 10 feet to 20 feet tall. These enclosures will support O&M personnel that will visit the site periodically. Project-related batteries are not proposed to be stored within these enclosures. However, these may contain end-consumer battery equipment such as cellular phones and other communications devices, laptops, computers, uninterruptable power supplies (UPS's) and similar equipment.

Power Conversion System

Low-voltage DC cables will connect the battery enclosures to low profile, pad-mounted power conversion system (PCS) inverter-transformers located adjacent to each enclosure. Inverters within the PCS convert electricity from low-voltage DC to low-voltage AC when power is being taken (discharged) from the battery into the grid. The opposite occurs when charging the battery from the grid. A medium-voltage transformer within the PCS is used to convert the low-voltage AC current to medium-voltage AC current and vice versa.

Medium-Voltage Transformers

As stated previously, in some instances the inverter is contained within the battery enclosures and a standalone transformer is used instead of a PCS. In this instance, the medium-voltage (MV) transformer equipment is connected directly to the battery enclosures via low-voltage AC wiring.

Outdoor Electrical Equipment

MV transformers and other additional electrical equipment such as electrical cabinets and panels will be installed outside the BESS enclosures within the facility site. This equipment is smaller in size than the equipment already mentioned and is distributed throughout the site as needed based on the design parameters of the battery and power conversion equipment chosen. In addition, buried cable will be placed throughout the site to connect power and communications to individual components and to the Project substation. All outside electrical equipment will be housed in the appropriate National Electrical Manufacturers Association (NEMA)-rated enclosures.

Power Distribution Center

The Project will include one or more PDC enclosures to house and protect critical low- and medium-voltage electrical, life-safety, communications, command equipment, computers and related equipment. Typically, the PDC is located near the main step-up transformer within the onsite substation area.

Project Substation

The Project's onsite substation will be a secure, separately fenced (chain link security fencing) area where high-voltage electrical equipment, switchgear cabinets, auxiliary transformers, meters, communications equipment, and safety equipment and structures (including static masts and block fire walls) are located, including the Power Distribution Center (PDC) and one or two main step-up transformers (also referred to as the battery step-up transformer or generator step-up transformer), which step up the medium voltage from the PCS to the high-voltage level of the transmission system and vice-versa, where it then is interconnected with the CAISO electric grid at the Point of Interconnect (POI) via the Project gen-tie line. The Project POI is an existing or future bay position at PG&E 115 kV Lakeville Substation.

Generation Tie Line and interconnection to the PG&E Lakeville Substation

An approximately 0.5 to 1.0-mile, aboveground and/or underground, high-voltage (115 kV) generation tie line and fiber optic cables will be constructed from the onsite Project substation, head southwest on the property just west of and parallel to the existing PG&E 230 kV transmission lines located on the property, then across Old Adobe Road, onto a vacant portion of the property owned by PG&E, into the area currently utilized as a PG&E equipment laydown yard, and then into the PG&E's Lakeville Substation property to the Project's POI. The ultimate length of the line will depend on final engineering and alignment of the line by PG&E.

Generation-Tie Line Route: The portion of the line located on the Project Site is anticipated to be between 1,000 and 2,000 feet and supported by between 6 to 12 poles, each up to 120 feet in height. The line will then continue across Old Adobe Road and onto PG&E's existing property (PG&E Laydown Yard), located west of and outside the PG&E Lakeville substation fence-line. Crossing Old Adobe Road will require a crossing easement and/or encroachment permit from Sonoma County. After crossing Old Adobe Road, the Gen-Tie line will travel through

the vacant portion of PG&E's property for up to 520 ft before traveling through the PG&E Laydown Yard for up to 2,600 ft (depending on PG&E's requirements) and require 4 to 14 poles before entering the PG&E Lakeville Substation fence-line and interconnecting at the POI, described in further detail below. The gen-tie line will also travel up to 1,000 ft within the existing fence-line of the PG&E Lakeville substation to the POI and is anticipated to require up to an additional 5 poles. Certain portions of the Gen-Tie route through PG&E property may require undergrounding, trenching and/or boring. Precise routing of the gen-tie line within the PG&E property, as described above, will be determined during PG&E's engineering phase of the interconnection process but is anticipated to be consistent the envelope of development described above and within the designated EIR study area.

PG&E will interconnect the project's 115kV kV generation tie-line into a 115kV bay position located in the middle of PG&E's Lakeville Substation. Final design and location of the PG&E-owned interconnection facilities will be determined by PG&E's during the engineering phase of PG&E Large Generator Interconnection Agreement (LGIA) interconnection process. It is anticipated that PG&E's interconnection work will involve upgrades to the substation, and potentially include the installation of a new bay position, the relocation of existing bay positions, the installation of new breakers, disconnects and other equipment either within the existing substation or on PG&E Laydown Yard property immediately adjacent to the existing substation. The work may also involve the minor relocation of existing high-voltage transmission poles and conductors, and/or installation of new poles and conductors on PG&E property, immediately adjacent to or within the footprint of the Lakeville Substation. Equipment required to perform the work may include, but would not be limited to, cranes, blading equipment, backhoes, boring equipment, boom trucks, hydraulic tensioning machines, wire reel stringing trailers, drum pulling machines and other equipment. PG&E's interconnection work will occur within the construction timeframe identified for the Project.

As a result of the above PG&E improvements, up to 6 acres may be disturbed on a temporary or permanent basis. This includes up to 1 acre of temporary disturbance and 400 square feet of permanent disturbance in the area outside the existing fenced areas for transmission poles and another approximately 5 acres of temporary and permanent disturbance for construction withing PG&E's existing laydown area, as well as the construction of a 0.6-acre permanent future bay position. The future, new bay position, if required, would require PG&E to expand the fence-line of the substation on PG&E Property to expand the substation into an area currently being used as laydown.

PG&E upgrades to allow for interconnection of the Project will be under the jurisdiction of the California Public Utilities Commission.

Site Security

The Project site will include an interior perimeter access route within the fenced interior of the Project facilities. The site access route, interior roads, gates, and other security features will be fully compliant with all local and state building codes for fire and emergency response.

Wall and Landscaping

The Project will employ a combination of drought-tolerant, native landscaping, earthen berms between 3ft and 12ft tall and 12 and 40 feet wide depending on the adjacent topography, on both southern and western sound boundaries. On top of the earthen berms, a 10-foot-tall concrete masonry unit, composite or similar wall with a stone façade finish will be installed on the northwest and southwest sides with design features to address visual and noise objective for the project. A chain link fence is planned for the remaining site boundary and internally between the BESS and Substation Project areas.

Other Site Design Features

The Project will include other design features to ensure safety and efficiency as well as compliance with all building, fire, and health and safety regulations, including aboveground and below ground electrical duct banks; electrical systems, meters, communications systems, and security systems; yard lighting; fencing enclosures, barriers and walls, including noise attenuation devices and structures; and fire, and O&M access roads within the facility. Appropriate setbacks and separation between equipment and other features will be accounted for in the overall Project design.

Stormwater Drainage

An engineered stormwater drainage system will be constructed on the Project site to reroute offsite flows from the adjacent farm fields that flow onto the Project site and to collect onsite stormwater flows. The stormwater drainage system will include drainage swales and a stormwater retention basin near the southeast corner of the site, where the majority of stormwater currently exits the area. Because the Project will increase impervious areas, increased runoff is anticipated during storm events. Increases in stormwater will be detained in the retention basin to maintain or reduce the flow rate exiting the site at the existing discharge point. The stormwater drainage system will comply with all local requirements and is proposed near the area where flows currently exit the site.

Lighting

Security and safety lighting will be incorporated into the Project design. Onsite lighting will be turned on only for motion-activated security, emergency, and maintenance purposes; the Project site will not be lighted during normal operations. The lights will be shielded and directed downward per local building code requirements. Should nighttime maintenance activities be required, maintenance personnel will bring temporary, portable maintenance lighting as needed to the specific area under maintenance. A Project lighting plan is underway and will be provided for evaluation in the EIR.

Sewer/Septic Service

The Project plans include an onsite office and storage enclosure that includes a restroom and potable water supply. Sanitary sewer service may be secured from the municipal sewer service lines located in Old Adobe Road, a new onsite leach field, or holding tanks from which the waste will be periodically pumped and trucked offsite by a licensed septic pumping service. Final design of the sewer, leach field, or tank sewer system will be approved during the building permit process.

Water Service

The following section summarized the Project's water demand and proposed supply during construction and operation. During the anticipated one-year construction period, the Project will need up to 15 acre-feet (AF) of water for construction-related activities, including grading activities, concrete installation, dust control, and erosion control activities. Water usage during decommissioning is anticipated to also require up to 15 AF.

During operations, total onsite annual water use will be no more than 1 AF per year, primarily for landscaping irrigation. Landscaping will comprise a combination of drought-tolerant and native plantings that will minimize water demand. Potable water demand for domestic use and restroom facilities for workers during operations is up to 0.02 AF (5,200 gallons/ of water annually. The Project will also include one or more water tanks that will hold approximately 30,000 gallons of water for emergency fire water supply. One or more new fire hydrants may be installed to support the Project as well, and these would connect to the existing water supply line in Old Adobe Road.

Water supplies during construction, operations, and decommissioning are discussed below: Water Supply for Construction

The Project proposes the following options for construction water supply.

- Trucked-in recycled water supply: The primary source of water for construction purposes will be trucked in water. Sources of trucked in water will include one or more of the following suppliers: the City of Petaluma Ellis Creek Water Recycling Facility, the Sonoma Water Recycled Water Trucking Program ("Sonoma Water") and/or private, third-party water providers specializing in supplying water for construction needs. The City of Petaluma has indicated an ability to serve the Project with recycled water to be picked up from one of its Ellis Creek facility pick-up locations. Sonoma County also has Recycled Water Trucking Program for construction uses, where tertiary-treated recycled water can be picked up at the Sonoma Valley County Sanitation District (SVCSD) at 22675 8th St. East, Sonoma, CA 95476 (10 miles from the Project site). Sonoma County has informed Terra-Gen that they consider the City of Petaluma's Ellis Creek Facility as the primary source for a Project at our location, but that they could supply the Project if that facility were unable to provide supply. Alternatively, a private third-party water provider may be contracted to provide non-potable water for construction. Generally, these private suppliers source their non-potable water from sources already available to them already such as private wells. Ability to serve commitments from sources will be provided and Terra-Gen will provide ability include the environmental impacts of all potential supply options in its EIR analysis.

- Piped-in water from City of Petaluma Recycled Water Program: The Project site is located within the City of Petaluma's Recycled Water Program Service Area Boundary. If recycled water becomes available from this source, the Project will rely on this water in lieu of trucked in water. The City has approved an extension of its Recycled Water Program recycled water supply lines to Adobe Road, accessible from the Project site from the southeast. The Project has initiated discussions with the Petaluma Public Works and Utilities Department to use recycled water for the Project's construction, irrigation, fire water supply and any other uses allowed for reclaimed water supply, from this expanded system. Once this recycled water line is in place and is accessible and it is feasible to connect to the Project, piped recycled water would replace trucked in recycled water as the primary water source for the Project for non-potable uses.
- Existing on-site wells: Several existing wells are within the Project footprint that Green String Farms, the property owner, has used these wells for agricultural irrigation and other farm uses. The Project is in discussions with the property owner on the possible use of well water for the Project construction needs.
- Potable Water During Construction: Water coolers and bottled water sourced offsite will be utilized for construction personnel and other potable water needs until another potable water source listed below is constructed.

Water for Operations including Irrigation, Fire Suppression, Drinking, and Restroom Use

The Project will require up to 1AF/year of reclaimed water supply to support operations, primarily the irrigation of the Project's landscaping plan. The Project will truck in recycled water for irrigation purposes until piped recycled water becomes available. When and if that occurs, the project will use piped recycled water for irrigation purposes and for other uses where allowed, such as for Restroom Use. A third possible source of water for irrigation are existing on-site wells pumped by Green Strings farms for agricultural purposes.

The Project will also require up to 0.02AF/year of potable water supply to support operations and maintenance activities on the Site. Potable water will either be trucked in and stored on site in separate tanks or, if available, the Project will use City of Petaluma potable water supply: The City of Petaluma has an existing potable water supply line that serves the parcel today. The Project has initiated discussions with the City's Public Works and Utilities Department regarding the continued use of the City's potable water supply via the existing supply line for the 0.02AF/year of water needed for restrooms and domestic purposes.

For purposes of fire suppression, the Project will maintain a 30,000 gallon tank of emergency water on-site. These tanks will be filled with recycled water trucked onto the site and will be maintained full at all times. A separate tank, up to 30,000 gallons in size, may be constructed for irrigation water. Alternatively, a larger tank may be utilized to include both emergency water and water for irrigation purposes, but will be maintained at a minimum volume of 30,000 gallons. If piped recycled water becomes available, the tank will be filled through these recycled water pipelines. These tanks will be included in the EIR analysis. The Project proposes to use trucked water as the primary source of water during operations with piped in water as the preferred option if it becomes available.

None of these sources of water would require or result in the relocation or construction of new or expanded water facilities that are not already contemplated or planned. Use of recycled water for construction, the largest source of demand for the Project, would use existing sources of water produced by existing facilities. Connecting to the Recycled Water Program pipeline may require the construction of an approximately 0.25 mile recycled water line from Adobe Road to the Project entrance. This length of new recycled water line would be within disturbed areas under existing drive isles, will be evaluated in the EIR analysis, and is expected to result in no significant environmental effects. Additional recycled water lines may be extended within the site to server construction and irrigation needs within disturbance areas already accounted for.

Site Access and Traffic

The southernmost approximately 1,000 feet of the existing two-lane farm access road from Old Adobe Road to the proposed Project site entrance will be improved to two separate one-way 12-foot-wide gravel roads for operations and emergency vehicle access. The existing portion of this access road will be shared with the farm operations during operations of the Project. An approximately 300-foot-long, 24-foot-wide new access route linking the Project site to the existing farm road will be constructed and will comply with applicable local and County regulations to provide all-weather access to operational, fire department, and emergency vehicles. A new automatic gate will be installed at the access road intersection with Old Adobe Road for the joint use of Green String Farms and the Project. A second automatic gate exists at the Project site entrance preventing unauthorized personnel from entering the farm and Project site. In addition, the Project's temporary laydown and parking area will be used as a secondary construction access route so that construction traffic does not interfere with ongoing farming operations. The construction access route will be returned to its original condition after construction.

Construction of the Project will generate additional traffic in the surrounding area. Construction traffic relates to the traffic generated from construction vehicles, which consist primarily of heavy-duty trucks, smaller vendor trucks, and worker vehicles. Construction activities will include clearing and grubbing, grading, earthwork, trenching, and facility equipment installation.

When construction has been completed, the Project will be operated remotely 24 hours per day, 7 days per week. It will be unstaffed during normal operations. It is estimated that maintenance will include two to four staff members performing maintenance visits biweekly. The Project will not require specific parking stalls since there are no occupied structures on the site and the facility will be closed to the public. As such, the Project will generate virtually no traffic upon construction completion.

Temporary Laydown and Parking Area

One temporary laydown area will be located on the property, consisting of approximately 4 acres adjacent to the gen-tie line, for construction management facilities (office trailers), materials and equipment storage, worker parking, and secondary construction access to the site. Vehicle parking, equipment laydown, and vehicle access routes will be clearly marked and limited to areas away from any sensitive cultural resources and habitat. Upon completion of construction, the laydown area will be removed and restored to pre-Project conditions.

Construction Activities

Project construction is expected to include the following activities:

- Site preparation including installation of construction stormwater runoff controls and best management practices (BMP's)
- Laydown grading and surfacing
- Installation of drainage swales and a drainage detention basin and site grading
- Installation of concrete foundations and supports and/or driven pile foundations
- Installation of deep foundations
- Underground trenching for electrical cable and telecommunications, wiring, and electrical system installation, including grounding
- Installation of shallow foundations
- Installations of batteries and other electrical equipment, structures and buildings
- Assembly and connection of the accessory components, including inverter-transformers and generation step-up transformers
- Installation of HVAC equipment
- Substation and gen-tie installation for connection to the PG&E Lakeville Substation
- Addition of finished surfacing materials and landscaping
- Commissioning of the project

The Project is expected to require approximately 50,000 cubic yards of earthwork, including up to 15,000 cubic yards of imported engineered materials (primarily aggregates). Required fill would be trucked to the site from a source determined by the construction contractor and it is expected to be located within 50 miles of the Project site. Raw materials required for construction would include gravel for onsite roads; concrete, sand, and cement for foundations; and water for concrete, dust control, and erosion controls; and landscaping materials. The anticipated workforce and heavy equipment, listed in Table 2, would be used during construction activities. Equipment utilized for construction would primarily run on diesel fuel.

Table 2. Construction Workforce and Equipment Required for a Typical Battery Storage Facility
Borealis Energy Storage Project

Construction Activity	Workforce	Typical Construction Equipment
Office Staff/ Management	5	Pickup trucks and small vehicles
Grading, foundations, and/or driven piles and underground electrical work	12	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 and Wall Construction	10	Forklift, backhoe, pickup trucks
Roads/Pad Construction	12	Dozer, grader, front end loaders, compactor, roller, pickup trucks, water trucks, dump trucks, compactors, scrapers

Table 2. Construction Workforce and Equipment Required for a Typical Battery Storage Facility
Borealis Energy Storage Project

Construction Activity	Workforce	Typical Construction Equipment
Battery Placement	10	Crane, forklift, pickup trucks
Laborers	30	Pickup trucks
Owner Representatives	5	Pickup trucks
Battery Supplier	30	Pickup trucks
Total Number of Workers[a]	***114***	

Notes:

[a] The total number of workers provided is throughout Project construction. It is expected that on average 40 to 50 workers will be onsite daily with a peak daily workforce of approximately 60 to 80.

Construction Schedule

The proposed construction schedule is 12 months to conduct grading activities, install facility equipment, and interconnect to PG&E Lakeville Substation. Seasonal constraints are not anticipated to preclude construction from occurring in accordance with this schedule (refer to Table 3). Construction activities would occur in a manner consistent with County requirements for workdays and hours. Construction activities will occur in a manner consistent with County requirements for workdays and hours.

Table 3. Construction Schedule
Borealis Energy Storage Project

Timeframe	Construction Activity
Month 1	Commence Grading Activities
Months 2-11	BESS Equipment Construction (trenching, foundations, etc.)
Months 3-11	Installation of Equipment and Commercial Delivery
Month 12	Reclamation Complete

The sequence of construction activities for the BESS facility generally would occur as follows:

1. Stage and mobilize equipment.
2. Install construction stormwater controls and best management practices (BMP's) and temporary fencing
3. Prepare the site and perform mass grading and compaction.
4. Trench for electrical cables, wires, and conduits.
5. Install deep foundations, belowground conduit banks, and conduit and backfill of trenching.
6. Prepare earthwork for equipment foundations.

7. Pour cast-in-place concrete footings, pad foundations, and/or piers and install driven pilings.
8. Perform foundation backfill and site compaction (as necessary).
9. Install PCS, power distribution systems, BESS, and pad-mounted transformers.
10. Pull cables and connect equipment.
11. Install aboveground utilities.
12. Place finished surface material.
13. Install safety features, permanent fencing, and security lighting.
14. Perform commissioning.
15. Completed site cleanup and restoration.

In addition, the installation of a Project substation and gen-tie to the PG&E Lakeville Substation would occur and overlap with these activities. This would entail installation of power poles; stringing of electrical wire/cable; installation of the main power transformer, circuit breakers, lightning protection static mast, and grounding; and installation of the control house.

Operations and Maintenance

The Project will be operated and monitored 24 hours per day, 7 days per week from an offsite control center. Maintenance staff, typically in crews of two to four staff members, are expected to visit the site biweekly and as needed for Project maintenance. During maintenance, crews will circulate among the equipment within the site and will not require specific parking locations since there are no occupied structures on the site and the facility site will be closed to the general public.

In addition to regularly scheduled maintenance and as part of Project operations, augmentation of batteries and battery enclosures will be required during the life of the Project. Depending on technology selection, augmentation could include replacement of batteries within enclosures and/or the phased installation of additional BESS enclosures throughout the life of the Project, beyond what will be installed during initial construction. The Project described and evaluated in this Mitigated Negative Declaration and to be covered by the CUP includes the full buildout of proposed BESS enclosures.

Decommissioning

At the end of the Project's operational term, the Project applicant/proponent may determine that the site should be decommissioned and deconstructed, or it may seek an extension of its CUP.

The Project has an anticipated operational life of up to approximately 30 years, after which the Project applicant/proponent may choose to update site technology and recommission, or to decommission the site and remove the systems and their components. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, state, and County regulations. If any portion of the project site is decommissioned, it could be converted to other uses in accordance with the applicable land use regulations in effect at that time.

It is anticipated that during project decommissioning, project structures would be removed from the ground on the site. Aboveground equipment that would be removed would include pads, module posts and support structures, on-site transmission poles that are not shared with third parties, inverters, transformers, electrical

wiring, battery storage equipment, and equipment on the inverter pads. The substations would be removed if they are owned by the Project applicant/proponent; however, if a public or private utility assumes ownership of the substations, the equipment may remain on-site to be used as part of the utility service to supply other applications.

Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site to be recycled or disposed of at an appropriately licensed disposal facility. Removal of the battery modules would include discharging battery cells, removing the containers in which the batteries are enclosed, and transporting them offsite to another facility or to a recycling or disposal facility. Once the containers have been removed, the foundations on which they sit would be removed to grade level. Other equipment would be disassembled and removed. Site infrastructure would be removed, including fencing and masonry walls. Inverters, transformers, and concrete posts would be removed to grade level. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. The fencing and gates would be removed, and all materials would be recycled to the extent feasible. Project roads would be restored to their preconstruction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The area would be thoroughly cleaned, and all debris removed. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

2. The proposed project objectives to be incorporated.

The purpose of the Project is to provide grid reliability and resiliency services to the local region and to help integrate renewable energy into the grid. The Project, with its interconnection to PG&E's 115 kV Lakeville Substation, is strategically located at one of the most important substations in northern California and the single most important substation in Sonoma County. The Project objectives are:

- Improve local grid reliability and resiliency for Sonoma County during power outages by providing up to 300 MW of reliable energy services to the region.
- Contribute to CAISO's efforts to minimize and mitigate the impacts of PSPS events that frequently impact the North Bay region.
- Assist in the integration of renewable energy into the grid by allowing renewable energy to be stored in periods of lower demand and released during periods of higher demand.
- Support California's goal to provide reliable energy supplies and meet its goal of a zero-carbon future by 2045.
- Reduce dependence on costly, high-fire risk transmission infrastructure by placing electric energy supplies close to the communities they serve.
- Create jobs and tax revenues for Sonoma County.
- Construct and operate a financially feasible project.

3. The proposed approach to each potential impact area, including the scope of each proposed study and the contractor that will be utilized.

For all impact *areas, the Applicant-prepared EIR will cover the topic areas of the latest CEQA Initial Study checklist 2022 and all other current applicable federal, state, and local regulations, including relevant portions of Sonoma County General Plan 2020, the Sonoma County Municipal Code and County guidelines regarding traffic, noise and visual impacts. The approach for each resource in the Appendix G checklist* is provided below; completed and proposed technical studies are noted.

Aesthetics.

- The visual impact analysis will be based on the CEQA checklist and thresholds of significance specified in the County's Visual Assessment Guidelines. Water tankage required for the Project (estimated at 30,000 gallons of 1 – 5 storage tanks, will be included in the visual analysis. The assessment of aesthetic impacts would be done using existing condition photographs and visual simulations of the Project at 10 years post-installation when landscape vegetation is established but is not mature. A visual impact analysis and technical report (*Borealis Energy Storage Project, Visual Impact Analysis*) were completed in December 2022 and include visual simulations from nine Key Observation Points (KOPs) in the surrounding area that offer public views to the Project from a variety of publicly accessible locations, viewing angles, and site proximities. The KOPs were selected in coordination with Sonoma County. The report was prepared by Jacobs Engineering Group Inc. (Jacobs) in conjunction with Westwood Professional Services, Inc. (Westwood), the engineering design firm for the Project.

- **Agriculture and Forestry Resources**. The assessment of impacts to agriculture and forestry resources would be based on the applicable CEQA thresholds of significance. The Project will use reconnaissance site visits to confirm existing land uses on the site and surrounding areas, satellite imagery, maps from California's Farmland Mapping and Monitoring Program, farmland classifications per the USDA Natural Resources Conservation Service, and calculations of areas affected using GIS.

- **Air Quality.** We would quantify criteria pollutant emissions associated with temporary construction activity (average daily emissions) and with Project operations (average daily and maximum annual emissions) using the California Emissions Estimator Model (CalEEMod; Version 2022) and compare them to significance thresholds. Jacobs prepared *the Borealis Energy Storage Project, Air Quality and Greenhouse Gas Emissions Technical Report* in December 2022 and revised it in March 2023 to support the analysis. An updated GHG study will utilize the latest Bay Area Air Quality thresholds of significance (2022). Any necessary updates to the currentl GHG study will be incorporated, including operational impacts and impacts from construction.

- **Biological Resources.** For the impact analysis to biological resources, we would use desktop reviews of existing data, such as California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants; habitat assessment surveys; and an aquatic resources delineation survey per U.S. Army Corps of Engineers (USACE) guidelines. Jacobs prepared a biological resources technical report (*Borealis Energy Storage Project, Biological Resources Technical Report*) in December 2022 to document biological resources potentially present and potential impacts to those resources.

- **Cultural Resources**. The approach to evaluating impacts to cultural resources must be done with sensitivity; it would include a records search of the Northwest Information Center of the California Historical Resources Information System (CHRIS), the online sources from the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), and California Points of Historical Interest. Intensive pedestrian surveys would also be completed. Jacobs prepared the confidential report Borealis Energy Storage Project, Sonoma County, California Cultural Resources Study in December 2022. Jacobs also prepared the report Borealis Energy Storage Project and its Consistency with the Sonoma Mountain Area Plan's Policy

Regarding the Petaluma Adobe Historic State Landmark. The latter includes an acoustical assessment of the Petaluma Adobe Historic Park. These reports document the results of the analysis. In addition, a subsurface survey of the site should be completed, in consultation with local tribes. The County previously initiated AB52 consultation through distribution of letters to the Native American tribes provided by the Native American Heritage Commission (NAHC) on January 21, 2016. The Project consultant, Jacobs, will utilize Alta Environmental/NV5 as the subconsultants to prepare the Cultural and Tribal Cultural Resource impact assessment based on the testing plan submitted by the Project to Permit Sonoma.

- **Energy.** The energy analysis is based on projected demand associated with electricity and fuel use, which is contained in the *Borealis Energy Storage Project Air Quality and Greenhouse Gas Technical Report*, as well as an evaluation of the project components relative to energy conservation through the wise and efficient use of energy Operational energy use, including air conditioning, cooling, lighting, and ongoing monitoring will be included in the analysis and the analysis will demonstrate compliance with CEQA checklist for efficient use and identify applicable thresholds for the impacts assessment.

- **Geology and Soils.** Information needed to determine impacts associated with geology would be obtained primarily from the geotechnical report prepared for the Project, *Borealis Energy Storage Project, Geotechnical Investigation Report*, by Westwood in November 2022. The geotechnical investigation included testing of samples taken from six soil borings at depths of up to 40 feet. For analysis of impacts to paleontological resources, a brief records review would be conducted using the online PaleoBiology Database and the University of California, Berkeley, Museum of Paleontology (UCMP) online database.

- **Greenhouse Gas Emissions.** The analysis would be based primarily on estimates of the Project's construction- and operation-related greenhouse gas (GHG) emissions, which would be quantified using CalEEMod. The methodology and analysis are contained in the *Borealis Energy Storage Project Air Quality and Greenhouse Gas Technical Report*.

- **Hazards and Hazardous Materials.** The impact analysis associated with hazardous and hazardous materials would be based on review of publicly available information about existing land uses, airports, wildfire hazard zones, and known soil and groundwater contamination sites within and near the Project site. The analysis will address the CEQA checklist and fire and building codes, and any other feasible mitigation measures necessary to reduce risk and it will identify the thresholds of significance for fire safety and potential for hazardous materials.

- **Hydrology and Water Quality.** In December 2022 Westwood completed the *Preliminary Stormwater Management Report, Borealis Battery Energy Storage System Project*, which contains stormwater runoff modeling and proposed stormwater management for the Project. Westwood also completed calculations of operational water use, as summarized in their December 2022 memorandum *Borealis BESS Project: Preliminary Operational Water Usage*. Desktop review of additional information such as the San Francisco Bay Regional Water Quality Control Board Basin Plan, California Department of Water Resources data, the Project's geotechnical report, and other sources would also be done.

- **Land Use.** The analysis would be based on a desktop review of applicable land use goals, policies, and objectives, including applicable zoning regulations and combining district zoning overlays, as well as Project site design and surrounding land uses as visible on satellite imagery.

- **Minerals.** Information on mineral resources would be obtained from desktop review of local plans and maps as well as Division of Mine Reclamation's (DMR's) maps. It is anticipated that no mineral resources are present on the Project site.

- **Noise.** An acoustical noise assessment of the Project, *Borealis Energy Storage Project, Acoustical Assessment*, was completed by Jacobs in March 2023. The predicted noise levels in the assessment would be used to determine potential impacts, including potential impacts to the Petaluma Adobe Historic Landmark. The noise assessment would be conducted in accordance with the CEQA guidelines and the County's Guidelines for preparing Noise Assessments, including any potential noise resulting from pile driving and other construction activities.

- **Population and Housing.** The analysis would be based on a desktop review of local plans and policies and expected numbers of Project construction and operation workers.

- **Public Services.** The analysis primarily would be based on a desktop review of information about services such as fire and police. The EIR analysis will address whether fire services are sufficient to manage potential fire risk and whether there are feasible measures to mitigate impacts and confirm any other public services required for the use.

- **Recreation.** The analysis would be based on a desktop study and review of applicable plans and policies to identify existing recreation and park facilities and on consideration of how and whether the Project's design and construction would affect existing park and recreational facility usage levels.

- **Transportation.** Based on the construction activities, number of construction workers, and number of operations workers, we would estimate numbers of daily trips. We anticipate this will be less than 110 trips per day, which per the Office of Planning and Research (OPR) Technical Advisory is assumed to have a less-than-significant impact on transportation. We also would complete a desk review of applicable plans and policies and Project design features to identify any hazardous conditions or changes to emergency access. The EIR analysis will address the CEQA checklist and the County's Traffic Study Guidelines in addition to VMT screening criteria, including construction traffic management.

- **Tribal and Cultural Resources.** The analysis would be similar to that described for cultural resources.

- **Utilities and Service Systems.** The analysis would be based on a desktop review of available information on water, wastewater, stormwater, electric power, telecommunication, and solid waste utilities and services. Information from the memorandum *Borealis BESS Project: Preliminary Operational Water Usage* would also be used. The EIR analysis will address the adequacy of water supply for domestic use, irrigation, and fire flow, and address any applicable thresholds consistent with the revised project description of water supply.

- **Wildfire.** The analysis would be based on the B*orealis Energy Storage Project Fire Hazard Severity Report* prepared by Jacobs in April 2023; the relevant local and state regulatory framework; desktop review of existing information with the California Department of Forestry and Fire Protection (CAL FIRE); input from the Rancho Adobe Fire Protection District; and reconnaissance field surveys.

- **Cumulative Impacts.** We expect to use the list approach of planned and permitted projects to evaluate the incremental impact of the Project when added to the impacts of other closely related past, present, or reasonably foreseeable future projects. We would work with Sonoma County to determine the list of projects. We expect that the geographic scope for cumulative impacts would vary by resource topic.

4. The proposed significance thresholds.

The proposed significance thresholds consist of the checklist criteria in Appendix G to the California Environmental Quality Act Guidelines. In addition, we would use the following criteria:

- Criteria in the Sonoma County Permit and Resource Management Department Visual Assessment Guidelines for evaluation of impacts to visual character and public views.
- Bay Area Air Quality Management District (BAAQMD) CEQA Thresholds of Significance for air quality impacts.
- South Coast Air Quality Management District's (SCAQMD) significance threshold for GHG emissions, except for diesel-fired emergency generator emissions, which would be compared to the BAAQMD's stationary source significance threshold.
- Applicable noise thresholds in the Sonoma County General Plan Noise Element.

5. The proposed project alternatives

Three alternatives are expected to be carried forward for evaluation:

- The No Project alternative
- A reduced-size alternative on the same site. This alternative would consist of a BESS with less energy storage capacity than the proposed Project and would therefore have a smaller footprint but less capacity.
- An alternative location. This alternative would consist of roughly the same size BESS but in a different location in Sonoma County near a sufficiently large existing substation. We anticipate that this alternative will be site adjacent or near to the PG&E Fulton Substation.

Several potential alternatives to the Project were identified but were found to be infeasible. In addition, other potential alternatives would meet few to no Project objectives. These alternatives and the reasons they were considered but rejected would be discussed.