



HUMIDOR BATTERY ENERGY STORAGE SYSTEM PROJECT DESCRIPTION

April 18, 2022

Hecate Grid Humidor Storage 1 LLC (Hecate) proposes to develop the Hecate Grid Humidor Storage 1 LLC Battery Energy Storage System (BESS) Project on approximately 15 acres located adjacent to W. Carson Mesa Road to the west and Angeles Forest Highway N-3 to the east in unincorporated Antelope Valley of Los Angeles County, California (the Project). The Project site is located entirely on two privately owned parcels (3056004058, 3056004044) that total 25.6 acres, with portions currently developed with paved, gravel areas and a paintball facility and truck parking and staging. The Project includes the development of a 400-megawatt (MW) BESS system capable of meeting a minimum 4-hour duration. The Project proposes to interconnect to the existing Southern California Edison (SCE) 230-kV Vincent Substation, located approximately 3,400 feet to the south of Vincent View Road and W. Carson Mesa Road.

Land Use and Zoning

The Project site is located near the Antelope Valley Highway 14 and Mountain Springs Road. The Project site is located within the unincorporated area of Antelope Valley of Los Angeles County and is within the City of Palmdale's Sphere of Influence. The Project site is zoned Light Manufacturing (M-1) subject to standards as presented in Tables 1 and 2 below. Surrounding land uses and zoning are presented in Table 3 (Los Angeles County 2009).

Table 1. M-1 Zone Development Standards

Dimensional Standard	M-1 Zone
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Minimum Required Area	No minimum required area.
Maximum Height Limit	13 times buildable area, except as otherwise provided in community standards district (22.110.060)
Minimum Required Parking	<ul style="list-style-type: none"> Industrial uses require one space for each company vehicle plus one space for each two persons employed on the largest shift, or one space for each 500 square feet. of floor area, whichever is greater. One space for each 1000 square feet. of warehouse if 80% or more of building is used for warehouse (22.112.060A). For other uses, see applicable use— Chapter 22.112: Parking.
Building Setback	No building setback required.

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Dimensional Standard	M-1 Zone
Maximum Lot Coverage	<ul style="list-style-type: none"> For C-M and permitted A-1 uses, see 22.22.030.C. Other uses, no requirement.
Dimensional Standard	<ul style="list-style-type: none"> M-1 Zone

Table 3. Surrounding Zoning and Land Uses

Direction/ Parcel	General Plan Land Use	Zoning	Description
West 3056-004-901	Public/Utilities	A-2-20	Railroad
South 3056-004-838	RL-5 Rural Land	A-2-2	Vacant
East 3056-007-007	RL-5 Rural Land	A-2-2	Vacant
North 3056-004-060	Light Industrial	A-2-2	Industrial

Project Components

The Project would likely consist of several battery storage cabinet series. Each series would consist of bi-directional inverters, a transformer, and a battery enclosure or an interconnected series of cabinets. Each container would be self-enclosed, housing batteries, fire detection and suppression systems, controls, and cooling units.

The Project will store and deliver electricity to the grid through a Generator Interconnection Agreement (GIA) with SCE. Hecate will lease the land, then build and commission the Project. The Project will be owned and operated by Hecate.

Major equipment or Project components would include:

- battery modules assembled in racks inside enclosures monitored by a Battery Management System (BMS)
- bi-directional inverters
- battery chiller units
- fire detection/ suppression systems
- gas detection
- electrical switching equipment and auxiliary power panels
- computer and telecommunications equipment
- transformers

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- switchgear or medium-voltage outdoor circuit breakers
- security lighting and signage
- perimeter wall or fence

The preliminary configuration for the BESS facility layout is shown in Attachment 6, Site Plan. Project components are summarized in Table 4.

Table 4. Project Components Summary

Project Component	Approximate Dimensions (each)
Battery Cabinets	10'8" H x 131'6" L x 8'1" W
Inverter	14'9" H x 12'3" L x 7' W
Generator Set-up Transformer	12' H x 7'8" L x 6'10" W
Overall Facility Area	Approximately 15 Acres

The proposed BESS facility would be unmanned and would not include restrooms. Limited water required during the construction phase would be trucked in, as necessary. Police and fire services would be provided by the County Sheriff and Fire Departments.

Access to the Project is planned to be provided via the existing W Carson Mesa Road.

Interconnection Design

The proposed 230 kV Overhead or Underground Generation Tie lines from SCE's Vincent Substation will be installed on the proposed Humidor BESS site in the general route shown on the HMB-D-TU02-00 Overall Map.

Overhead construction would consist of installing large diameter concrete drilled piers to estimated depths of 25 to 35 feet using a track or truck mount digger derrick. Spoils and any required drilling fluids would be processed through large baker tanks. Drilling fluids would be captured for reuse and spoils either utilized on-site for the civil construction or hauled off-site. Steel monopoles on the order of 85 to 110 feet would be assembled on the ground or in the air and slipped together using line trucks and cranes to lift pole sections into place. Pulling and Tensioning equipment and conductor reel trailers would be used to string conductors into place on the poles.

Underground construction would use tracked excavators to construct roughly 6' wide by 8' deep open trenching and shoring. Roughly half of the spoils removed from the trenched excavations would need to be hauled off in dump trailers and can be utilized on the BESS site as part of the civil construction. Schedule 40 PVC duct lines would be assembled off the bottom of the excavation and encased in concrete using concrete trucks to convey concrete from a nearby plant. The concrete encasements would be covered with well graded select soil backfill compacted to meet existing grades and material course requirements at groundline. Large diameter cable reels, trailers, cable pullers and cranes would be stationed at the riser pole location on the BESS property to pull the XLPE cables through the duct bank. A crane would be used to lift the cables and tie them up to the termination locations for final splicing and termination activities. Large, tented scaffolding would be erected around the riser pole up to the termination arm levels to assist with termination of the cables in the air on the arms by cable splicing crews.

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Project Operations

The long-term operational workforce would entail Hecate employed and contracted staff who would maintain the facility over the project life. The Project would require a maximum four-person crew for maintenance visits once every month to two months, on average. The crew would normally consist of one operator, one contracted field engineer, and two mechanical or electrical technicians. The Project would be primarily operated remotely.

Planned maintenance would typically be developed and scheduled a few months in advance. Typical maintenance intervals for major project components would include:

- Fire protection system – twice a year
- HVAC and chiller units – twice a year
- Battery enclosure – twice a year
- Relay protection – once a year
- Project performance testing – once a year
- Project HV substation – once a year

The Project would be designed with multiple automatic and manual power-down/safety mechanisms including active fire suppression systems built into each enclosure. Electrical and fire systems would be designed to open breakers automatically during fault conditions. Each fire protection system would have a signal that would trigger power-down during fire, electrical fire, overheating, etc. The entire Project power-down would occur automatically during electrical fault conditions (e.g., high-voltage, high-frequency, ground fault etc.). In addition, the Project would be equipped with breakers that could be opened manually to power-down different equipment or the Project as a whole.

The Project would be designed to be in operation for a minimum of 20 years, with the option to be reassessed for continued operation through 35 years. After completion of operations, most of the Project's electrical equipment (breakers, transformers, inverters) would be removed and recycled. Project batteries and associated equipment would be removed and recycled as feasible and in accordance with local laws and regulations. Equipment foundations and pads would be demolished and removed unless the landowner elects to maintain some of the installed infrastructure.

PRELIMINARY ENVIRONMENTAL ANALYSIS

Aesthetics – The Project is located adjacent to several highways (Angeles Forest Highway, as well as Sierra Highway and State Route 14 – Antelope Valley Freeway), the Vincent Grade Acton Metrolink Station, as well as some residential and industrial areas. However, the Project would have a relatively low profile and would be consistent with the surrounding area, the majority of which has been previously developed and is presently occupied by commercial developments, including a Metrolink station U-Haul dealership/rental facility, SCE transmission infrastructure, residential single-family residence, as well as a laydown yard owned by SCE. The Project design will be reviewed as part of the County's permit process.

Agricultural Resources – The Project site is located in an urban area paved and gravel with commercial development and would not impact any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), including any Williamson Act contract, or any forest land or timberland.

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Air Quality and Greenhouse Gas – Since the proposed Project would consist of enclosed battery storage containers and would have little or no air operational emissions associated with it, except for emissions from HVAC units, no significant operational impact to air quality and greenhouse gases is anticipated. Therefore, no equipment or operational permits will be required from the Antelope Valley Air Quality Management District (AVAQMD). Emissions of criteria pollutants and greenhouse gases from mobile sources associated with construction activities are also anticipated to be minimal. The Project would be required to comply with AVAQMD Rule 403 (Fugitive Dust) by implementing standard Best Management Practices in construction and operation activities.

Cultural Resources – An archaeological investigation was completed in February 2021 which consisted of an archival records search of the entire Project Area and a surrounding ½-mile Study Area, an intensive pedestrian survey of the entire Project Area, as well as a Sacred Lands file search with the Native American Heritage Commission in Sacramento. Two recorded historic period trash scatters were relocated, and an additional trash scatter was observed and recorded; however, no potentially significant cultural resources were encountered during the course of the study, and no further archaeological studies are recommended at this time. Based on the findings in this study, the proposed Project will not cause a substantial adverse change to the significance of cultural resources as defined in Section 15064.5.

Flood Plains – The Project site is located within Zone D, an area with possible but undetermined flood hazards, and the transmission line will transect through Zone A, an area with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30 year-mortgage (FEMA 2020).

Geology/Topography – The Project site is located at an elevation of approximately 3,000 feet above sea level. There are no active faults in the Project site (CGS 2015). The Project site is not located within a landslide or liquefaction zone, however, approximately 600 feet of the interconnection into the Southern California Edison Vincent Substation will run through a liquefaction zone (CGS 2019).

Hazardous Substances and Petroleum Products – No hazardous materials or waste sites or facilities were identified on the Project site. A site-specific Phase I Environmental Site Assessment (ESA) was conducted in January 2021 to evaluate the potential for any recognized environmental conditions (e.g., prior release of petroleum products or hazardous materials) associated with the Project site. No hazardous substances or petroleum products were identified.

Noise – The area surrounding the Project includes both undeveloped and developed areas including commercial developments as well as residential single-family homes. Existing ambient noise is likely dominated by vehicular traffic on nearby roads and highways (e.g., Angeles Forest Highway, Sierra Highway, and W. Carson Mesa Road to the west and Los Angeles Forest Highway N-3 to the east) as well as the Metrolink station and Paintball USA facility. The nearest sensitive receptors are residential homes located approximately 500 to 600 feet to the east of the Project site and immediately adjacent to the Angeles Forest Highway. Moderate levels of noise would be expected during construction from the operation of heavy equipment. However, these impacts would be short-term and limited given that, consistent with Los Angeles County Code (Section 12.08.440), no construction activities would occur in a residential area between 7:00 p.m. and 7:00 a.m. on weekdays and Saturdays, and all day on Sundays and holidays. If construction needed to occur outside of the specified hours, a variance would need to be obtained. The Project is not expected to generate significant amounts of noise during operation.

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Special-Status Species and Critical Habitat – Special-status wildlife and plant species with potential to occur in the project area include: Northern California legless lizard (*Anniella pulchra*); California glossy snake (*Arizona elegans occidentalis*); Coast horned lizard (*Phrynosoma blainvillii*); Le Conte's thrasher (*Toxostoma lecontei*); Prairie falcon (*Falco mexicanus*); and short-joint beavertail (*Opuntia basilaris Engelm*). The Project site is not located near or within any areas designated as critical habitat. Due to the disturbed nature of the Project site, it is unlikely to contain suitable habitat for common and special-status plant and wildlife species. There is a potential for nesting birds (nesting and foraging) which are protected by the Migratory Bird Treaty Act. Although the Project is located in proximity of the Santa Clara Significant Ecological Area (SEA) boundary, the Project will avoid development within the SEA. The interconnection will be located along the County Right-of-Way, following the Angeles Forest Highway, entering Vincent Substation from the southeast corner and would therefore avoid crossing into the SEA.

Water Quality/Runoff – Given the current size of the Project site which is over one acre, a Stormwater Construction General Permit and preparation of a Stormwater Prevention Pollution Plan may be required. The Project would be required to meet all applicable water quality standards or waste discharge requirements thereby avoiding violation of such standards or requirements.

Minimal water may be needed for fire suppression during Project operations. It is assumed that no wastewater would be generated during Project operations and therefore no wastewater services would be required. Please refer to the attached Preliminary Drainage Plan/Hydrology Report for additional information.

Wetlands and Jurisdictional Waters – No potential jurisdictional aquatic features appear to be present within the Project site.

COMMUNITY BENEFITS

The Project would benefit the community and area by providing local area capacity for electrical system reliability, resiliency and flexibility. Battery-based energy storage provides flexibility to the electrical grid by storing energy produced during periods of oversupply and discharging to the electrical grid during periods of high demand. A battery system can provide instantaneous response, as compared to a slower ramping rate of a traditional gas-fired generation resource and can provide response repeatedly in all hours. Energy storage speed of response serves to reduce the total amount of reserve power needed to manage the grid effectively, providing savings and reliability benefits. By building the proposed project, a clean, sustainable, reliable resource would be gained to help integrate renewables, reduce dependence on gas-fired generation, reduce freshwater consumption, and reduce greenhouse gas and criteria air pollutant emissions. In addition, the site will no longer be utilized for commercial truck staging thereby reducing the local pollution and particulate matter that comes with the current site use.

Hecate is currently operating a similar BESS facility in Santa Ana, California, and has successfully constructed five additional BESS facilities in Ontario, Canada. Additional information can be provided upon request.