DOCKETED	
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1.0 INTRODUCTION

Pecho LD Energy Storage, LLC proposes to construct, own, and operate the 400-megawatt (MW), 3,200 MW-hour (MWh) Pecho Energy Storage Center (PESC or Pecho), an advanced compressed air energy storage (A-CAES) facility capable of charging and discharging daily. The PESC will be located in unincorporated San Luis Obispo (SLO) County. The Project will deploy Hydrostor technology consisting of four (4) all-electric air compressor trains and four (4) associated 100-MW air-driven power turbine generators, underground compressed air storage cavern, miscellaneous aboveground support facilities, and a 3.4-mile interconnection to the Pacific Gas and Electric Company (PG&E) Morro Bay Switching Station. The main elements of the Pecho project are further summarized in Section 1.3 below. Section 2, Project Description provides project details for this Application for Certification (AFC). Pecho provides unique operation and reliability characteristics that neither other conventional or renewable power plant technologies nor batteries can provide on their own. Figure 1-1 is a depiction of the existing project site, and Figure 1-2 provides an architectural rendering of the same area after the construction of the PESC.

1.1 Project Objectives

Pecho's primary goal is to be a state-of-the-art energy storage and reliability resource. Pecho has been designed to deliver energy and reliability services with no fossil fuel combustion or related air quality impacts. The project will be one of the first commercial applications of Hydrostor's A-CAES technology at this scale. Pecho will combine dispatchable, operationally flexible, and efficient energy generation with state-of-the-art A-CAES technology to facilitate the integration of variable renewable energy on the grid and to meet California and regional needs for reliability services.

The Pecho project's objectives are as follows:

- Provide 400 MW of quick-starting, flexible, controllable generation with the ability to ramp up and down through a wide range of electrical output to facilitate the integration of the renewable energy into the electrical grid in satisfaction of California's Renewable Portfolio Standard (RPS) and climate objectives, by displacing older and less efficient generation.
- Interconnect the project to CAISO-controlled Morro Bay Switching Station or Diablo Canyon Substation, both major substations in the central California coastal region, provided adequate interconnection capacity exists at a feasible cost, to help offset the loss of generation from Diablo Canyon Nuclear Power Plant decommissioning, and to facilitate the integration of onshore and offshore renewable energy development.
- Implement a proven sustainable energy storage technology that provides improved technological diversity, non-combustible energy storage, minimal residual hazardous waste at asset retirement, long term commercial lifespan of 30 years or greater and non-degrading energy storage.
- Use advanced compressed air energy storage (A-CAES) technology to provide dispatchable long-duration storage and energy delivery for a minimum 8 hours, fossil fuel and greenhouse gas emissions-free operation, flexible capacity with minimal response time, peaking energy for local contingencies, voltage support and primary frequency response including synchronous power output to support grid resiliency without the need for fossil fuel, superior transient response attributes including synchronous power output, and superior round trip thermodynamic efficiency.

- Locate on a site with adequate geologic characteristics for the underground facilities for compressed air storage, including, suitable overburden characteristics (limited thickness, constructable soil type); deep subsurface geological formation of sufficient quality and definition at the required depth for construction of the excavated storage cavern; ultra low hydraulic conductivity and permeability in deep subsurface geological formation to retain water and air under pressure within the excavated storage cavern; and competent geological structural integrity to sustain an excavated storage cavern at depth intact indefinitely, allowing for repeated compressed air injection and discharge cycles over the life of the project without eroding or collapsing.
- Site the project in close proximity to an adequate fresh water supply.
- Site the project on flat land and with adequate access and size for construction of aboveground facilities, at least 60 acres.
- Identify a site that is available to provide adequate site control, through long-term lease or purchase.
- Minimize additional supporting infrastructure needs and reduce potential environmental impacts by locating the facility near existing and planned infrastructure, including access to an existing substation with available transmission capacity and avoiding lengthy generation tie lines.
- Create jobs in San Luis Obispo County and the State of California through both construction and operation of the facility.
- Assist the County of San Luis Obispo meet its long-term energy objectives as outlined in the Board of Supervisors Resolution adopted unanimously in 2021; the Resolution reads in part:

  > ***NOW, THEREFORE, BE IT RESOLVED AND ORDERED*** *that the Board of Supervisors of the County of San Luis Obispo, State of California, support Federal and State initiatives aimed at developing wind, energy storage and other forms of renewable energy needed to offset the loss of the Diablo Canyon Nuclear Power Plant, and advocate for state and federal funding to advance feasibility studies for locating a clean energy port and supporting infrastructure in SLO County for the development of offshore wind energy as may be planned by the Federal Government and the State of California that includes an analysis of the economic impact to the commercial fishing industry.* (Resolution 2021 – 134).

- Be a good corporate citizen and respected member of the community through the lifecycle of the project.

Figure 1-1 KOP1 (Cerro Cabrillo) Existing Conditions
Pecho Energy Storage Center

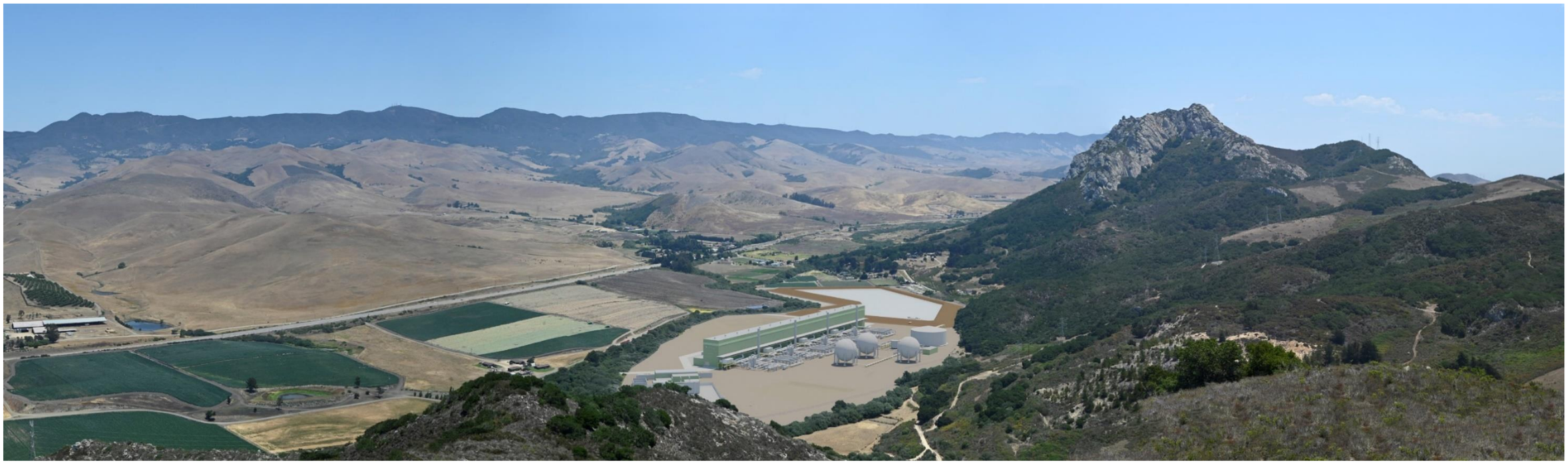


Figure 1-2 KOP1 (Cerro Cabrillo) Project Simulation

Pecho Energy Storage Center

1.2 Project Location

The Pecho project will be located on an approximately 80-acre project site in unincorporated SLO County, approximately 1.4 miles east of the City of Morro Bay, California (Figure 1-3).

The Pecho site is located on the southern portion of an approximately 300-acre parcel with Assessor's Parcel Number (APN) 073-171-009, with a street address of 2284 Adobe Road, San Luis Obispo County, CA. The main 300-acre parcel is bisected by Chorro Creek and bounded on the north by State Route (SR) 1 (also known as the Cabrillo Highway), on the west by San Bernardo Creek Road and San Bernardo Creek, on the south by a PG&E transmission corridor and hilly terrain, and the east by agricultural properties. The approximately 80-acre Pecho site is bordered on the north and west by Chorro Creek, on the south by hilly terrain, and on the east by agricultural properties. The project site is located about 0.25-mile west of the Morro Bay State Park boundary and Cerro Cabrillo peak. The site is located on a portion of the former Rancho San Bernardo (Canet) Land Grant and is not technically within a designated Section, Township, Range. Section 33 of Township 29 South, Range 11 East, and Section 4 of Township 30 South, Range 11 East lie are directly south of the site.

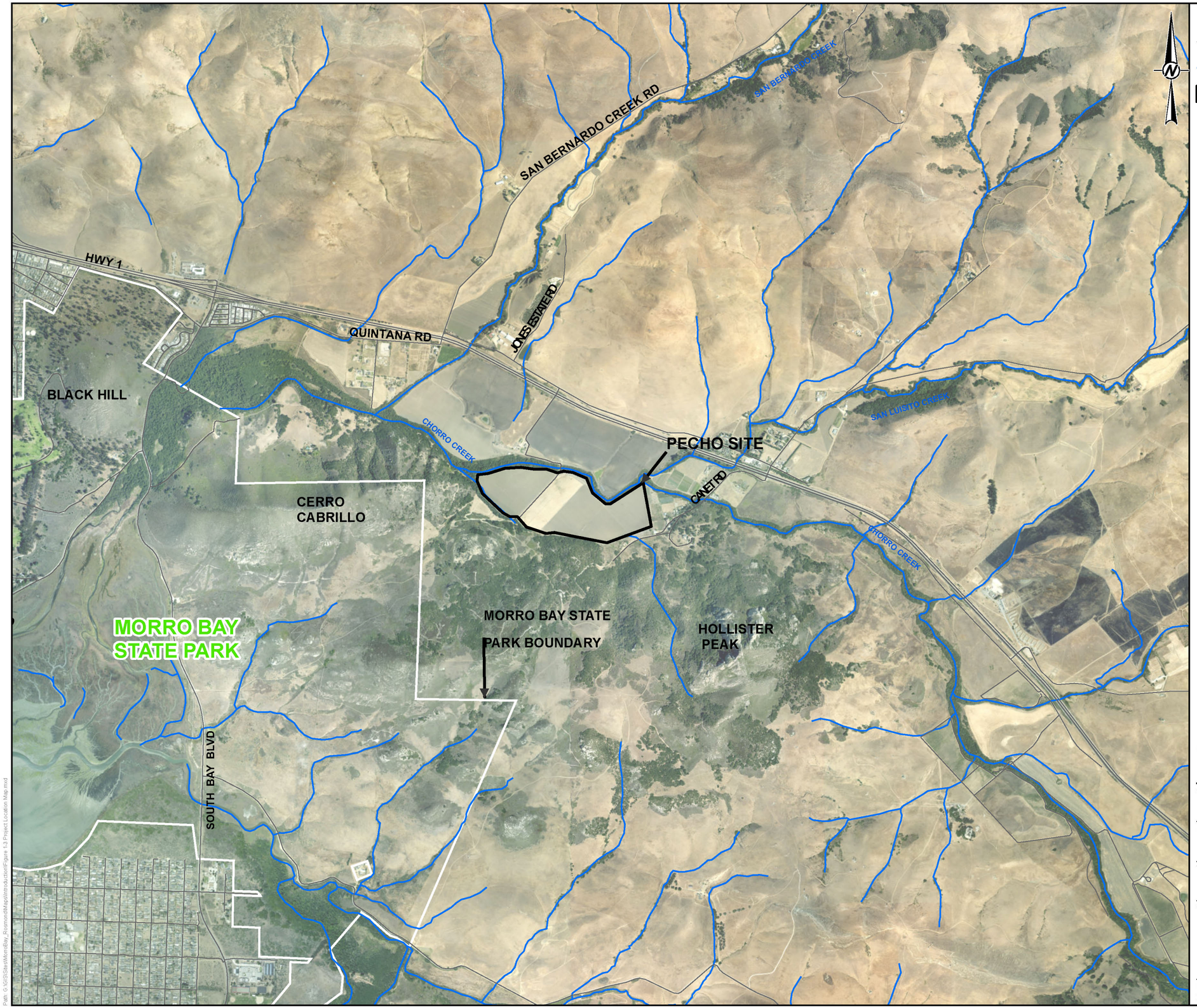
The site is currently leased for agricultural operations and is designated prime agricultural land located in the agricultural zone within the Coastal Zone. The site is under a Williamson Act Contract.

Appendix 1A contains a copy of the Assessor's Parcel Map for the site parcel. A list of the owners of property within 1,000 feet of the Pecho project and 500 feet of the linear facilities is provided in Appendix 1B.

1.3 Project Elements

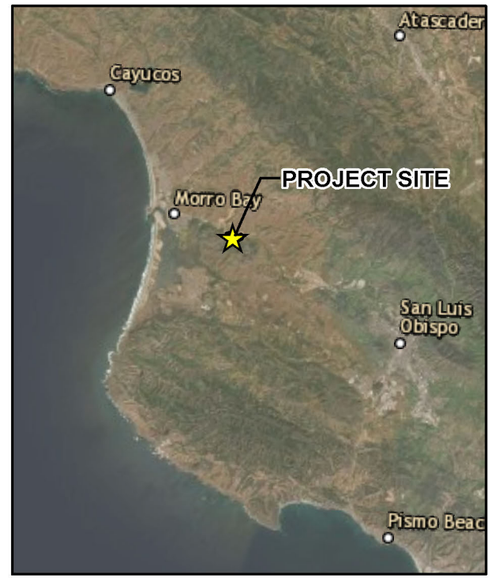
Figure 1-4 shows the Pecho project location and linear facilities. The main project elements, including linear facilities and construction laydown areas, are as follows:

- Four all-electric air compressor trains and four 100-MW power turbine generators housed inside 100 feet tall by 65 feet wide by 1,075 feet long main Turbine Hall and compressor building.
- Underground (approximately 2,000 feet deep) purpose-built compressed air storage cavern. To build the cavern, approximately 880,000 cubic yards of rock will be excavated using conventional mining techniques, 50 percent of the material will be used onsite, and the remaining 50 percent will be hauled off-site, by truck to the Lehigh Hanson Santa Margarita quarry as the preferred alternative located approximately 24 miles northeast of the site where it will be recycled for commercial aggregate use.
- An approximately 27-acre by 40 feet deep (average) hydrostatic compensation surface reservoir with approximate 50-foot-high earthen berms and approximately 500 acre-feet capacity with a floating cover to reduce evaporative loss.
- Air conduit (sealed) to facilitate cyclic injection/storage of compressed air and release of compressed air for power generation.



LEGEND

- ROADS
- COASTAL CREEKS
- PECHO SITE



1:24,000

3,000 0 3,000 Feet

REFERENCE

COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET

CLIENT
HYDROSTOR, INC.

PROJECT
PECHO ENERGY STORAGE CENTER (PESCO)

TITLE
PROJECT LOCATION MAP

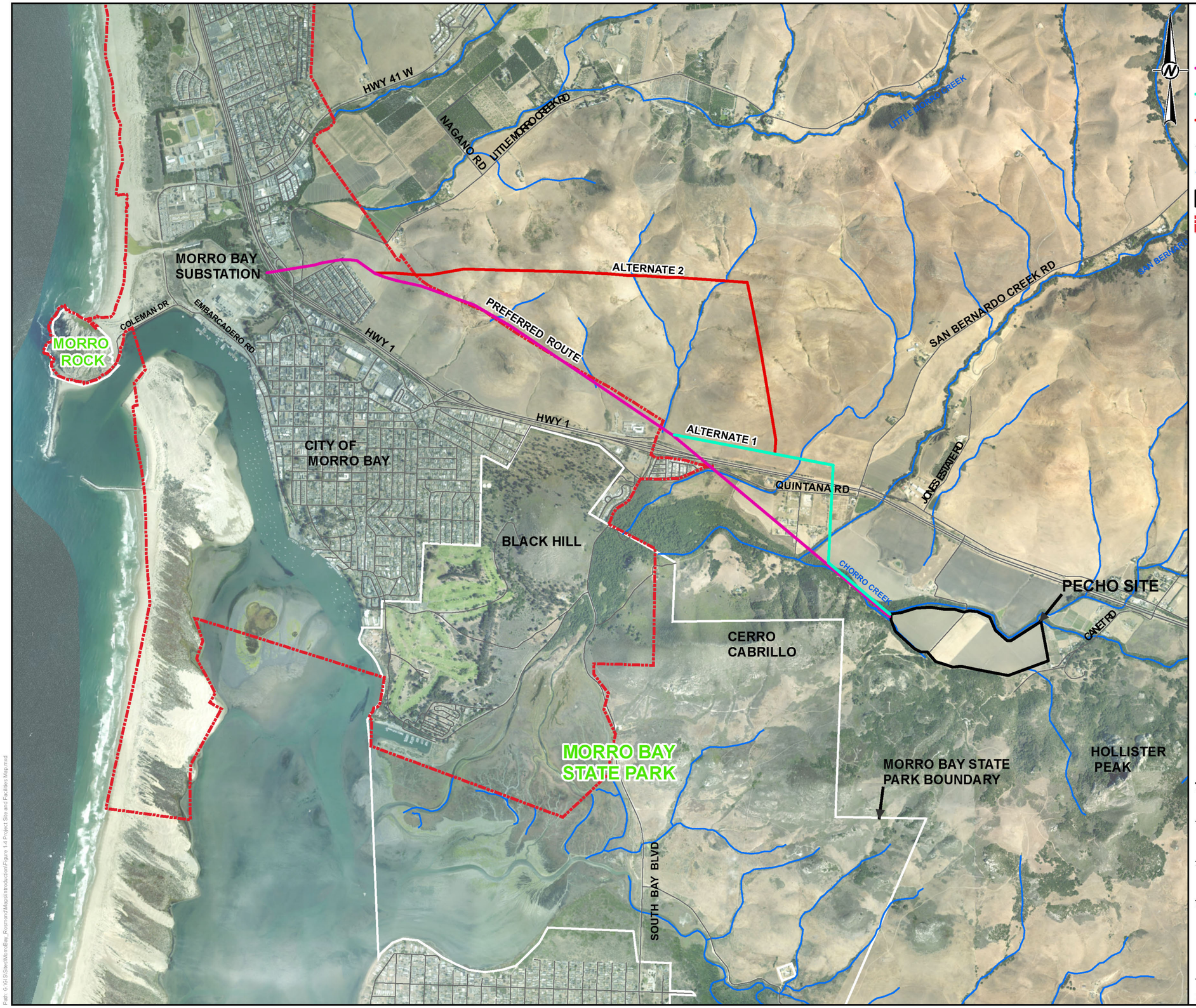
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-09-10
PREPARED	XX
DESIGN	XX
REVIEW	XX
APPROVED	XX

PROJECT No.	CONTROL	Rev.	FIGURE
21465954	---	---	**1-3**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM: ANSI B

Path: G:\GIS\Sites\MorroBay, Rosmond\Maps\Introduction\Figure 1-3 Project Location Map.mxd



LEGEND

ROUTE_NAME

- PREFERRED ROUTE
- ALTERNATE 1
- ALTERNATE 2
- ROADS
- COASTAL CREEKS
- PECHO SITE
- MORRO BAY CITY BOUNDARY

1:26,500

3,000 0 3,000 Feet

REFERENCE

COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET

CLIENT
HYDROSTOR, INC.

PROJECT
PECHO ENERGY STORAGE CENTER (PESCO)

TITLE
PROJECT SITE AND FACILITIES MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-10-07
PREPARED	XX
DESIGN	XX
REVIEW	XX
APPROVED	XX

PROJECT No.	CONTROL	Rev.	FIGURE
21465954	---	---	**1-4**

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Path: G:\GIS\Sites\MorroBay, Rosmond\Maps\Introduction\Figure 1-4 Project Site and Facilities Map.mxd

- Water conduit (sealed) to facilitate inflow/outflow of hydrostatically compensating water to/from the surface reservoir and underground storage cavern.
- Above ground heat exchangers and thermal storage equipment (including three approximately 85 feet diameter by 90 feet tall spherical tanks).
- Control house (40 feet high by 60 feet wide), electrical gallery (28 feet high by 45 feet wide), and maintenance building (70 feet high by 52 feet wide) connected to the Turbine Hall.
- Two groundwater extraction wells (one primary, one backup) to provide facility water (basin water rights will be contracted with a third-party water rights holder), with the primary water use being the initial filling and subsequent water makeup for the compensating surface reservoir. Onsite groundwater for the initial reservoir filling may be supplemented with water supplied and trucked to the site from local water purveyors.
- Two diesel-fired emergency black start capable backup generators up to 5 MW each to support critical facility load in the event of a power interruption (not normally operated except for monthly reliability testing).
- Secure perimeter chain link fencing with two site access points, the main entrance gate, and a secondary entrance, both south of Chorro Creek.
- New 0.6-mile access road with an improved bridge crossing at Chorro Creek.
- A Gas Insulated Switchgear (GIS) Building (70 feet high by 85 feet wide by 130 feet long) and 230 kilovolt (kV) onsite switchyard.
- An approximately 3.4-mile 230 kV transmission line interconnected at PG&E's Morro Bay Switching Station.
- Two zero discharge stormwater retention ponds, a south pond (1.2 acres) and a north pond (2.7 acres), served by perimeter stormwater culverts to manage stormwater onsite.
- Industrial wastewater will be treated and recycled onsite with a very small quantity directed to one of the stormwater ponds. Any process wastewater collected during maintenance activities will be collected in a holding tank and periodically removed by a licensed hauler.
- Approximately 40-acre temporary construction laydown and parking facilities located across (on the north side of) Chorro Creek from the project site on the northern portion of the parcel.

Section 2, Project Description of this AFC provides detailed elements of the project.

1.4 Project Benefits

The Pecho project will provide the following key environmental and economic benefits:

- The Pecho project site is located strategically to provide enhanced integration of variable renewable energy resources expected to be located in the Central California Coastal Area and to meet California and regional grid reliability needs.
- Uses Hydrostor A-CAES technology that provides the following:
  - Fossil fuel emissions-free spinning reserve
  - Flexible capacity with minimal start time

  - Peaking energy for local contingencies
  - Voltage support and primary frequency response without burning fossil fuel
  - Superior transient response attributes
  - Superior round-trip thermodynamic efficiency
- Minimized Land Use Impacts: Pecho is sited on a large parcel in a sparsely populated area that would be rezoned to establish compatible use.
- Key Project for Integrating Renewables: Pecho will provide rapid-response delivery of energy and synchronous condenser voltage support services that are essential to provide reliability support and stability to the grid and facilitate the integration of intermittent renewable energy sources into the electrical grid.
- Substantial Construction Jobs: Pecho will provide approximately 200 to 450 construction jobs (average to peak) with an expected construction payroll of between $450-500 million over the 54-month construction and commissioning period.
- Permanent Local Jobs: Pecho will provide between 30-50 full-time jobs for facility operation.
- Substantial Property Tax Revenue to San Luis Obispo County. With its sizeable capital cost (estimated to range between $800-900 million), Pecho will generate significant income in the form of annual property tax payments, and therefore, will provide a robust boost to the San Luis Obispo County economy.
- Local Economic Benefits: In addition to the direct employment benefit, the Pecho project will require and use the services of local or regional firms for major maintenance and overhauls, plant supplies, and other support services throughout the life of the Pecho facility. The Pecho project will not significantly impact local housing, educational, or emergency response resources.
- Supportive Community Participant: Pecho LD Energy Storage, LLC is committed to working collaboratively with the local community and the County to be a beneficial contributor to community programs and to earn recognition as an active and supportive community participant.

1.5 Project Operation

The Pecho project will be designed to operate on a 24 hour per day basis, 365 days per year with an expected annual capacity factor of up to 85 percent. The facility will typically cycle between Charging Mode (compression/energy storage) lasting up to 14 hours and Discharging Mode (decompression/power production) lasting up to 8 hours at nameplate capacity. During Charging Mode power will be drawn from the electrical grid (typically off-peak) to run five all-electric air compressors. Compressed air will be injected into a water-filled subterranean cavern displacing the cavern water upward into the hydrostatically compensating reservoir. The heat generated during the compression process will be recovered to heat water in a closed-loop thermal storage system, with the hot water stored in aboveground spherical tanks. Upon completion of the charging cycle, the system will be available to generate electricity. During the Discharge Mode, water from the hydrostatically compensating reservoir will be allowed to flow down into the subterranean cavern, displacing the stored compressed air which will be expanded in power turbines to generate electricity for up to 8 or more hours. Hot water recovered and stored in the aboveground spherical tanks during the charging cycle will be used to reheat the expanding air at intermediate turbine stages to facilitate higher efficiency power generation. During the compression process, water vapor entrained in the compressed air will be condensed and recycled. Dry air exiting

the power turbines will be discharged to the atmosphere through four stacks, one serving each power generation train. Fossil fuel will not be required to operate the Pecho project during normal operation.

1.6 Project Ownership

- **Project Applicant, Owner and Operator**

Pecho LD Energy Storage, LLC is the applicant, owner, and operator of the Pecho project including all aboveground and underground power plant facilities, the onsite substation, and the interconnecting transmission line. Pecho LD Energy Storage, LLC will be jointly owned by Hydrostor, Inc. and Meridiam Infrastructure Partners (Meridiam) or their designated wholly owned subsidiaries.

Hydrostor is a private company based in Toronto, Canada, and is the world's leading developer of utility-scale energy storage facilities deploying its Advanced Compressed Air Energy Storage (A-CAES) product.

Meridiam is an international developer, financier and manager of sustainable infrastructure projects based in Paris, New York, Toronto, and other cities around the world, including a California presence.

- **Project Site Owner**

The Pecho project will be located on an approximately 80-acre site consisting of the southern portion of an approximately 300-acre parcel assigned APN 073-171-009 that is owned by Morro Bay Ranch Limited Partnership (MBRLP). Pecho LD Energy Storage, LLC is negotiating a long-term lease with MBRLP for the use of the Pecho project site.

1.7 Project Schedule

Pecho LD Energy Storage LLC is filing this AFC under the California Energy Commission's 12-month licensing process. Construction of the Pecho project is expected to begin no later than 2nd Quarter of 2023. Pre-operational testing of the power plant is expected to begin by 3rd Quarter 2027, and full-scale commercial operation is expected to begin by 4th Quarter 2027.

1.8 Persons Who Prepared the AFC

Appendix 1C contains a listing of the persons involved in the preparation of the AFC including their roles and responsibilities.