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Description:	This section discusses alternatives to the Project. These include the “no project” alternative, a technology alternative, as well as a discussion of the site selection criteria employed. This discussion focuses on alternatives that could feasibly accomplish the basic objectives of the Project and could avoid or substantially lessen one or more of the potential impacts.
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6 Alternatives

This chapter discusses alternatives to the proposed Vaca Dixon Power Center Project (Project), as well as a discussion of the site selection criteria employed by Vaca Dixon BESS LLC and Arges BESS LLC (Applicants). Alternatives addressed include the "No Project" Alternative, the Quinn Road site, and Alternatives Considered but Eliminated. As detailed in Chapter 5, *Environmental Analysis*, no Project impacts have been identified that would be Significant and Unavoidable. Environmental impacts all fall into the following categories: No Impact, Less than Significant, or Less than Significant with Mitigation. Consequently, the alternatives analysis in this chapter considers alternatives to the project that would feasibly obtain most of the Project basic objectives and evaluates if the alternative would avoid or minimize potentially significant effects. Resource areas that could have potential significant impacts and are considered in this alternatives analysis include cultural and tribal cultural resources, land use, socioeconomics, biological resources and paleontological resources.

Section 6.1 lists the objectives of the Project as described in Chapter 2, *Project Description*. Section 6.2 evaluates the No Project Alternative. Section 6.3 describes site selection for an alternative site and Section 6.4 provides a comparative analysis of the Quinn Road site and the potential for this alternative to reduce the potential impacts of the Project. Section 6.5 describes the alternatives considered but eliminated, including additional alternative sites, gen-tie alternatives, and alternative technologies.

6.1 Project Objectives

As described in Chapter 2, *Project Description*, the Project would provide energy storage to support California's current need for additional electrical supply capacity during peak load demand time periods, reduce greenhouse gas emissions, and help balance electricity generation from renewable sources by storing excess energy generation and delivering it back to the grid when demand exceeds real-time generation supply. The Vaca Dixon 57 MWh BESS Project would modify the existing CalPeak Power - Vaca Dixon Peaker Plant (VDPP) generating facility by providing battery energy storage capabilities in combination with the existing generating technology. This would provide the Pacific Gas & Electric (PG&E)/California Independent System Operator (CAISO) grid system with a new energy storage capability. The Applicant has developed the following objectives for the Project:

- Construct and operate economically viable, and commercially financeable BESS facilities providing up to 457 MWh in Solano County.
- Obtain site control of a parcel at least 10 acres in size to provide adequate space to allow design flexibility for the Project, including batteries, switchyards, inverters, transformers, stormwater control, access routes, and fencing.
- Develop electricity storage facilities at energy facilities located on a dedicated parcel in the direct vicinity of the VDPP and PG&E Vaca-Dixon Substation, to utilize existing infrastructure and assets while also minimizing potential environmental impacts, including the avoidance and minimization of potential impacts from new transmission lines.
- Offer energy storage to curtail dispatch and displace the need for additional fossil fuel based generating stations needed to serve peak demand periods when intermittent renewable sources may be inadequate or unavailable and allow for the deferral or avoidance of regional transmission facilities.

- Support California's current need for additional electrical supply capacity during peak load demand time periods and assist California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035.
- Balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation and delivering it back to the grid when demand exceeds real-time generation supply.
- For the Vaca Dixon BESS, take advantage of existing interconnection capacity and integrate BESS operations with the natural gas-fueled VDPP to optimize project operations and afford the opportunity to avoid and minimize natural gas operations where feasible.
- For the Arges BESS, utilize the transmission interconnection capacity available to the BESS at the PG&E Vaca-Dixon Substation.
- Enhance electricity reliability without requiring the construction of new regional transmission infrastructure or substantial network upgrades.
- Locate near existing roadways and related infrastructure where available and feasible for construction and O&M access.
- On a system-wide basis, reduce the need for additional fossil fuel-based generating stations required to serve peak demand periods when renewable sources may be inadequate or unavailable.
- Assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program and Senate Bills 100 and 1020, which require renewable energy sources and zero-carbon resources to supply 60 percent of all retail sales of electricity to California end-use customers by December 31, 2030, 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035, 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040, and 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045.
- Assist California utilities in meeting obligations under the California Public Utility Commission's (CPUC's) Mid-Term Reliability Procurement Requirements.
- Create prevailing wage construction jobs, facilitating local community benefits, and resulting in economic benefits to the City of Vacaville and Solano County through construction and operation of the Project.

6.2 Alternatives Considered and Rejected

CEQA requires the selection of a range of reasonable alternatives, including those that could feasibly accomplish most of the basic Project objectives and could avoid or substantially lessen one or more of the Project's significant effects. Furthermore, CEQA requires identification of any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process (CEQA Guidelines, section 15126.6(c)). The following alternatives were considered but rejected, either on the grounds that they were deemed infeasible or that they were unlikely to avoid or minimize one or more of the Project's potentially significant effects.

6.2.1 Alternative Site Facility Locations

The City of Vacaville hosted a community meeting on October 22, 2025, to discuss the Draft Ordinance for BESS Citywide. During this meeting, the City of Vacaville identified three areas as potential locations for BESS facilities (City of Vacaville 2025a), as shown in Figure 6-1.

Figure 6-1 City of Vacaville Preferred BESS Locations

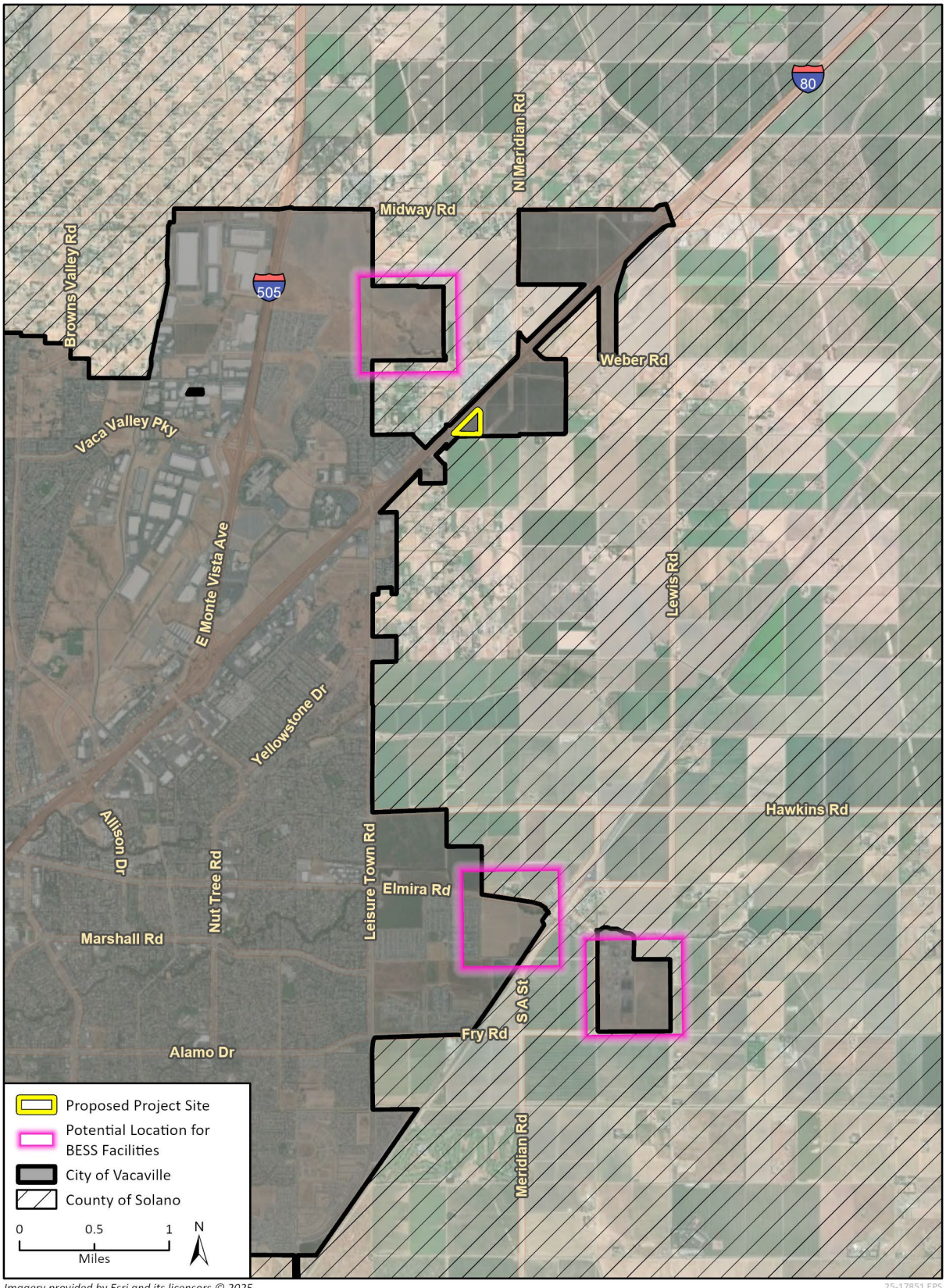

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Fig X Site Alternatives

The ability to gain site control of these identified parcels is uncertain, making them potentially infeasible. These three areas were nevertheless preliminarily discussed for their potential to be project alternatives. Two of the locations identified during the community meeting are located approximately 3.5 miles south of the PG&E Vaca-Dixon Substation and would not be feasible to accomplish the Project objectives without a substantial increase in the length of gen-tie lines, estimated to be up to 4 miles. These alternative locations were eliminated from consideration for this reason. One location, APN 0106280020, is located approximately 1,000 feet to the northwest of the PG&E Vaca-Dixon Substation and VDPP, at a similar distance as the proposed Project site (See Figure 6-2). APN 0106280020 was preliminarily assessed to determine feasibility to meet project objectives and ability to avoid or reduce impacts compared to the proposed Project. Based on a preliminary review of APN 0106280020, resource areas with the potential to result in different impacts than the proposed Project site include biological resources, water resources, land use, and agriculture. These resources are discussed below.

APN 0106280020 consists of undeveloped, grassy open space with Gibson Canyon Creek and associated riparian habitat running east to west diagonally through the site. Additionally, there are existing subtransmission lines running along the southern site boundary and east to west through roughly the middle of the site. APN 0106280020 is surrounded by a mix of residential, agricultural, and solar field uses to the north, agriculture to the east, residential uses to the south, and Leisure Town Road to the west beyond which is undeveloped land.

APN 0106280020 contains wetland and riparian habitat, as well as artificial freshwater ponds, associated with Gibson Canyon Creek (U.S. Fish and Wildlife Service 2025). The California Department of Fish and Wildlife (CDFW) has also mapped an essential habitat connectivity area in the northern portion of APN 0106280020 that extends to the north adjacent to the site. Essential habitat connectivity areas support native biodiversity and are essential for ecological connectivity between habitats (CDFW 2023). APN 0106280020 is undeveloped, contains sensitive wetland and riparian habitat, is identified as a wildlife connectivity area, and is not regularly disturbed by human activities. Therefore, development of BESS facilities on the alternative site would be anticipated to pose greater potential impacts to biological resources than the proposed Project.

Additionally, given that the alternative site contains a surface water feature, construction and operation of BESS facilities on APN 0106280020 would result in impacts to water resources. These impacts would include the risk of contamination of Gibson Canyon Creek during construction activities, the alteration of drainage and flows on the site, and the risk of release of pollutants due to flooding. According to the Federal Emergency Management Agency, Gibson Canyon Creek is a regulatory floodway, and the majority of APN 0106280020 is within a flood hazard zone (Federal Emergency Management Agency 2009 and 2012). Therefore, development of BESS facilities at APN 0106280020 would be expected to result in greater impacts than the proposed Project site.

APN 0106280020 is zoned with a mix of Public Facilities (PF) in the southeast, North Village Specific Plan Open Space (NVSP OS) in the middle, and North Village Specific Plan Residential Low Density (NVSP R1-5.5) in the north of the site. BESS facilities are not currently listed as permitted or conditionally permitted uses in these zoning districts; however, the CEC's exclusive siting authority under AB 205 would allow it to approve the Project regardless of local zoning conflicts. Nonetheless, the greater proximity and density of residential land uses adjacent to APN 0106280020 in comparison to the proposed Project site would potentially result in greater impacts related to land use conflicts.

Figure 6-2 Alternative BESS Facility Location

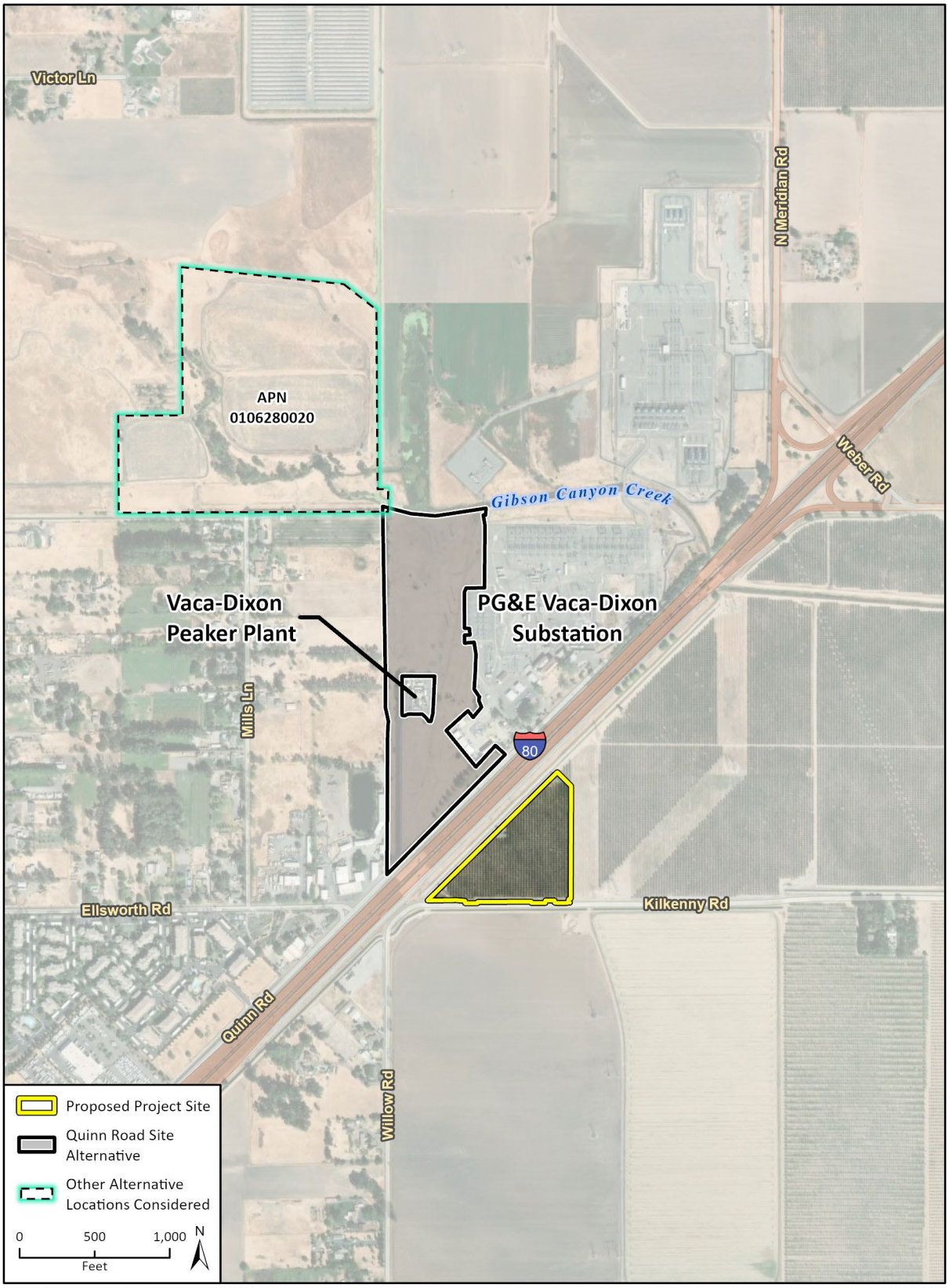

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Fig X Other Alternative Locations Considered

APN 0106280020 is identified as Grazing Land by the California Department of Conservation Important Farmland Finder (California Department of Conservation 2025). APN 0106280020 is undeveloped and is not currently used for agricultural production. Therefore, development of BESS facilities on APN 0106280020 would result in reduced impacts to agricultural resources in comparison to the proposed Project, which would result in less than significant impacts with mitigation measure AG-1 incorporated.

Although development of APN 0106280020 would result in reduced impacts to agricultural resources, there would be a substantial anticipated increase in biological and water resources impacts, as well as land use conflicts. As such, APN 0106280020 was eliminated from in-depth consideration as an alternative site. Therefore, no alternative locations beyond the Quinn Road site are considered in this chapter, as such locations would either be unlikely to avoid or substantially lessen any potential environmental effects of the Project or would be located too far away from the PG&E Vaca-Dixon Substation to be feasible.

6.2.2 Transmission Line Alternatives

Only locations that would avoid or substantially lessen any of the significant effects of the Project must be considered for analysis pursuant to CEQA (CEQA Guidelines, section 15126.6(f)(2)(a)). As discussed in Section 6.1, *Project Site Selection*, the Project site has been selected primarily for its proximity to existing electrical interconnection infrastructure. Project design incorporated the most direct feasible electrical infrastructure route, including the collocation of both 13.8 kV and 115 kV conductors on shared transmission structures for the majority of the electrical transmission line length. This design was intended to effectively minimize the length of linear electrical infrastructure, reducing the need to transmit electricity over long distances. In addition, the proposed route also avoids or minimizes conflicts with existing transmission lines and limits the number of parcels encumbered by the gen-tie line. For these reasons, transmission routing alternatives were not considered feasible as a part of this analysis as they would not avoid or minimize potential effects.

6.2.3 Technology Alternatives

Preferred Technology Alternative

The Project is designed to supply reliable supplemental energy during peak demand intervals. The Project battery energy storage system would utilize commercially advanced lithium-ion technology, characterized by high round-trip efficiency, rapid response times, and optimized performance for grid peak demand requirements. Lithium iron phosphate batteries were selected based on their safety and reliability, as they are less prone to overheating and thermal runaway when compared to nickel manganese cobalt lithium batteries. The Applicant also selected the battery design based on conformance with the California Fire Code and its referenced installation standards: National Fire Protection Association (NFPA) 69 standards, NFPA 69 code, NFPA 855 standards, and Underwriters Laboratories (UL) 9540 standards. Therefore, because the battery energy storage provides optimal energy density, efficiency, and responsiveness to peak demand requirements, and meets the applicable safety standards while accomplishing all Project objectives, it is the preferred technology for the Project. Nonetheless, in addition to site alternatives, several technology alternatives for energy storage were also considered for the Project, including compressed air energy storage (CAES), flow battery energy storage systems, flywheel battery energy storage systems, and hydrogen storage. The Project includes the use of lithium-ion batteries to store and release energy as needed; the following subsections describe other energy storage technologies listed above and

compares each technology to the Project. The technologies were compared against the Project based on the following factors:

- **Energy Density:** Would the technology require a greater, smaller, or similar footprint to the Project?
- **Efficiency:** Would the technology be more, less or similarly efficient when compared to the Project?
- **Response Time:** Would the technology respond more, less, or similarly to the Project when electricity is needed?
- **Storage Duration:** Would the technology have improved storage duration over the Project?
- **Cost:** Would the technology be more, less, or similarly cost effective when compared to the Project?
- **Potential Environmental Impacts:** Would the technology's potential environmental impacts be greater, less than, or similar to the Project?

Compressed Air Energy Storage

CAES stores energy by using electricity to compress air into a storage vessel, typically at high pressure. When excess electricity is available, it powers compressors that fill the storage system with pressurized air. When electricity is needed, the compressed air is released and expanded through a turbine connected to a generator to produce power. Heat is usually added during expansion to improve efficiency. CAES systems can store large amounts of energy for long periods, exceeding the capabilities of battery systems, but they require suitable underground formations or large engineered vessels for air storage (PNNL 2023; University of Calgary 2018). Unlike battery systems, CAES needs additional energy input in the form of heat and requires more physical space for compressors, turbines, and storage facilities. Because the geology near the Vaca-Dixon Substation is not suitable for underground air storage and the footprint needed to meet the 457 MWh objective would be substantially larger than the Project, CAES was not considered a feasible alternative.

Flow Battery Energy Storage

Flow battery energy storage works by storing energy in liquid solutions called electrolytes, which are stored in large external tanks. When the system charges, these liquids are pumped through a unit where a chemical reaction stores the energy. When electricity is needed, the process is reversed, and the chemical energy is converted back into electricity. Because energy is stored in tanks rather than compact cells like lithium-ion batteries, increasing storage capacity means adding larger or additional tanks, which requires more space and results in a larger footprint for the same amount of stored energy. In addition, the pumps and fluid handling results in energy losses and adds complexity compared to lithium-ion battery systems. Based on the pumping process, flow battery systems are slower to respond than lithium-ion battery systems, making them less suitable for fast-response needs. Although flow battery systems use a non-flammable electrolyte that would reduce fire risk, the technology is not as commercially advanced as lithium-ion batteries, as a result they often cost more per megawatt-hour. Based on the larger footprint, slower response time, and higher cost, flow batteries would not meet the Project's objective to provide commercially financeable storage for peak demand periods, although they could support California's long-duration storage goals as technology advances (California Energy Commission 2021; U.S. Department of Energy 2023; International Energy Agency 2022a).

Flywheel Battery Storage Systems

Flywheel energy storage uses surplus energy to spin a large, heavy rotor inside a sealed chamber, storing the energy as rotational, kinetic motion. When electricity is needed, the rotor is slowed, and its stored kinetic energy is converted back into electricity through a generator. These systems have quick response times, and are designed for frequent charging and discharging, but they only provide energy for short periods of time (typically seconds to minutes). Although their efficiency is similar to battery systems, flywheel systems are limited by rotor size and lose energy over time due to friction and drag. Therefore, flywheel storage is suitable for short duration grid services, such as frequency regulation, but not for energy shifting over multiple hours. Based on the limited storage duration and capacity, flywheel systems would not meet the Project's objective to provide reliable energy storage to support peak demand periods (California Energy Commission 2019; U.S. Department of Energy 2013; Erksine 2021; MDPI 2020; International Energy Agency 2022b).

Hydrogen Storage

Hydrogen energy storage converts surplus electricity into hydrogen through electrolysis, a process that splits water into hydrogen and oxygen. Generated hydrogen gas is compressed and stored in tanks or underground storage facilities at high pressure or in a liquified form depending on the storage method. When demand requires energy, hydrogen is recombined with oxygen to produce electricity (and water as a byproduct). These systems are able to store large amounts of energy for extended periods beyond the capabilities of battery storage, although the process of electrolysis and conversion of hydrogen back into electricity results in energy losses, reducing the overall efficiency compared to battery storage systems. Hydrogen storage systems also have slower response times due to the conversion processes required, thereby making them less suitable for peak demand response than battery energy systems. Based on the slower response times, Hydrogen storage would not meet the Project's objective to support California's current need for additional electrical capacity during peak load demand times. Further, the low density and high reactivity of hydrogen storage presents safety risks associated with production, storage, and distribution (FCHEA 2023; Headley and Schoenung 2020; OEERE 2023).

6.3 "No Project" Alternative

The California Environmental Quality Act (CEQA) requires an evaluation of a "No Project" Alternative so that decision-makers can compare the impacts of approving the Project with the impacts of not approving the Project (CEQA Guidelines, section 15126.6[e]). Under the No Project Alternative, the Project would not be constructed. Construction and operation of the BESS facilities, as described in Chapter 2, *Project Description*, would not occur. It is assumed that the approximately 10-acre Project BESS site would remain in its current condition as an orchard. If future development were to occur on the Project BESS site under this alternative, it would occur in accordance with the underlying covenants, zoning, and land use regulations governing development of the site. In addition, the associated gen-tie lines including those crossing Interstate 80 (I-80) and on the PG&E parcel to the north would not be constructed.

If the Project were not constructed, none of the Project objectives would be met, and the associated environmental, economic, and policy benefits would not be realized. The Project would support California's current need for additional electrical supply capacity during peak load demand time periods and assist California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035. Additionally, the Project would

help balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation and delivering it back to the grid when demand exceeds real-time generation supply, thus reducing the need to operate the natural gas-fueled Vaca Dixon Peaker Plant (VDPP) and displace the need for additional fossil fuel-based generating stations required to serve peak demand periods when renewable sources may be inadequate or unavailable.

The Project would assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program, Senate Bills 100 and 1020, and obligations under the CPUC's Mid-Term Reliability Procurement Requirements. Developing electricity storage facilities at energy facilities located on a dedicated parcel adjacent to the PG&E Vaca-Dixon Substation, a utility grid-connected substation with existing capacity available for interconnection, allows the State to contribute towards meeting legislative goals while minimizing environmental impacts. This would simultaneously provide the PG&E system with a new energy storage capability and create prevailing wage construction jobs, facilitating local community benefits, and resulting in economic benefits to Solano County and the City of Vacaville through construction and operation of the Project. Under the No Project alternative, this significant contribution would not occur. Furthermore, the No Project alternative would have compounding deleterious effects on the ability to meet the State's carbon-free energy goals, as the new 457 MWh of BESS facilities in the northern Sacramento Valley portion of the Central Valley proposed under the Project would not be constructed for future generators to use.

The No Project Alternative could result in greater fossil fuel consumption, greenhouse gas emissions, air pollution, climate change, and other environmental impacts in the State because the Project would not be constructed to augment the State's energy storage and work towards meeting the State's electric utilities obligations under California's Renewable Portfolio Standard Program, Senate Bills 100 and 1020, and obligations under the CPUC's Mid-Term Reliability Procurement Requirements. It would also not facilitate the same local economic or community benefits as implementing the Project. For these reasons, the No Project Alternative would not meet the Project objectives and would fail to deliver environmental benefits, particularly relating to energy, air quality, and greenhouse gas emissions.

However, because the No Project Alternative is a CEQA-required alternative, a more detailed discussion of potential environmental impacts of the No Project Alternative relative to the Project, as well as a discussion of whether the alternative avoids or reduces any significant impacts of the Project are provided in the sections that follow. Because CEQA requires the discussion of alternatives to focus on alternatives that could reduce or eliminate the significant impacts of the Vaca Dixon Power Center project, the discussion below includes only those resource areas and impact evaluation criteria where a potentially significant impact has been identified for the Project. Although the Project does not include any potentially significant impacts related to socioeconomics, the discussion below also considers socioeconomic impacts associated with the No Project Alternative in accordance with Appendix B Section(f)(2).

6.3.1 Cultural Resources and Tribal Cultural Resources

Construction

As described in Section 5.1, *Cultural Resources and Tribal Cultural Resources*, impacts to cultural tribal cultural resources associated with Project construction would be less than significant with incorporation of Mitigation Measures CUL-1 through CUL-5, which require a worker's environmental awareness program, archaeological monitoring, and measures for the unanticipated discovery of

archaeological resources during construction. The Project would comply with state regulations and measures in the event that human remains are found, including the State of California Health and Safety Code Section 7050.5 which states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98.

Under the No Project Alternative, no construction or ground disturbing activities associated with the Project would occur. The Project site would remain in its current agricultural use, consisting of an orchard with no buildings or agricultural services infrastructure. Therefore, Mitigation Measures (CUL-1 through CUL-5) that would reduce potential impacts to cultural resources to less than significant level would not be required under the No Project Alternative. Nevertheless, ground-disturbing activities, such as those related to business development, could still occur over time consistent with the underlying zoning, regulations, and covenants governing land use on the site. Potential future development may occur within archaeologically sensitive sediments that underlie portions of the Project site. It is assumed that under the No Project Alternative, future development of the site would presumably occur in a more fragmented manner and future projects would undergo the appropriate level of project-specific environmental review. For this reason, impacts to cultural and tribal cultural resources under the No Project Alternative would be expected to also be less than significant and similar relative to the Project.

Operation

Operation of the Project would result in no impacts to cultural and tribal resources. Since the No Project Alternative would not involve construction or operation of the Project, it would not result in impacts to cultural and tribal cultural resources, similar to the Project. Therefore, potential operational impacts under the No Project Alternative would be comparable to those of the Project.

6.3.2 Land Use

Overall Project

As detailed in Section 5.2, Land Use, the Project would have a potentially significant impact due to the permanent conversion of land designated as Unique Farmland and Farmland of Statewide Importance to non-agricultural use for BESS development. The Solano County portion of the overall project where the gen-tie lines are located on the PG&E parcel contains no agricultural land or activity. Although the Project is proceeding under the Assembly Bill 205 Opt-In process, which grants the California Energy Commission exclusive siting authority, Vacaville's farmland mitigation policies remain relevant for CEQA analysis and mitigation planning. These impacts are potentially significant and require mitigation consistent with local and state policies. Mitigation Measure AG-1 would be implemented, requiring the Applicant to preserve farmland of equal acreage and comparable productivity through approved mechanisms.

Under the No Project Alternative, no construction or operation associated with the Project would occur. The Project site would remain in its current agricultural use, consisting of an active orchard with no buildings or agricultural service infrastructure. However, future development could still occur over time consistent with underlying zoning, regulations, and covenants governing land use on the site. Compared to the Project, this alternative would reduce land use impacts.

6.3.3 Socioeconomics

Overall Project

As described in Section 5.6, *Socioeconomics*, the Project would result in no impacts to socioeconomics. Specifically, the Project would not induce unplanned population growth, displace existing housing or residents, adversely affect regional employment, or reduce income for local businesses.

Under the No Project Alternative, no construction or operational activities associated with the Project would occur. As a result, temporary construction-related changes to community character, such as minor increases in traffic and workforce presence, would not occur. However, the potential benefits from the Project operation including increased electric grid reliability, an increase in the local job supply, and community investment through a Community Benefits Agreement would not occur under the No Project Alternative. Therefore, the No Project Alternative would result in no significant impacts on socioeconomics but would also forgo the beneficial effects associated with the Project.

6.3.4 Biological Resources

Overall Project

As described in Section 5.12, *Biological Resources*, the Project could, without mitigation and avoidance measures, result in a potentially significant impact due to the potential for construction and operation of Project components to affect species identified as candidates, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Specifically, Project components could directly or indirectly impact the following special-status species: Crotch's bumble bee, vernal pool fairy shrimp, Swainson's hawk, White-tailed kite, and Northern harrier. Project components may also impact common bird species protected under the Migratory Bird Treaty Act and California Fish and Game Code. All potentially significant Project impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures BIO-1 through BIO-6, which include completion of Worker Environmental Awareness Training, construction best management practices, nest surveys and avoidance buffers, focused biological surveys, various species-specific avoidance measures, and measures for jurisdictional waters and wetlands.

Under the No Project alternative, no construction, development, or ground disturbing activities associated with the Project would occur. The Project site would remain in its current agricultural use, consisting of an orchard with no buildings or agricultural services infrastructure. Agricultural land uses on the Project site would continue and impacts to special-status species would remain consistent with those occurring under baseline conditions. Therefore, the mitigation measures (BIO-1 through BIO-6) required for the Project to reduce potential impacts to biological resources to a less than significant level would not be required under the No Project Alternative.

6.3.5 Paleontological Resources

Construction

As described in Section 5.15, *Paleontological Resources*, Project construction could result in potentially significant impacts to paleontological resources due to ground-disturbing activities in previously undisturbed sediments with high paleontological sensitivity. These impacts would be

reduced to a less-than-significant level by implementation of Mitigation Measures PAL-1 through PAL-8, by requiring full-time paleontological monitoring during earth moving work exceeding two feet below the surface and ensuring that previously unrecorded paleontological resources within the project site are salvaged by qualified personnel and curated in an appropriate facility

Under the No Project Alternative, no construction or ground disturbing activities associated with the Project would occur. The Project site would remain in its current agricultural use, consisting of an orchard with no buildings or agricultural services infrastructure. Therefore, the mitigation measures (PAL-1 through PAL-8) required for the Project to reduce potential impacts to paleontological resources to a less than significant level would not be required under the No Project Alternative. Nevertheless, ground-disturbing activities, such as those related to business development, could still occur over time consistent with the underlying zoning, regulations, and covenants governing land use on the site. Potential future development may occur within paleontologically sensitive sediments that underlie portions of the Project site. It is assumed that under the No Project Alternative, future development of the site would presumably occur in a more fragmented manner and future projects would undergo the appropriate level of project-specific environmental review. For this reason, impacts to paleontological resources under the No Project Alternative would be less than significant and similar relative to the Project.

Operation

Operation of the Project would result in no impacts to paleontological resources. Since the No Project Alternative would not involve construction or operation of the Project, it would not result in impacts to paleontological resources, similar to the Project. Therefore, potential operational impacts under the No Project Alternative would be comparable to those of the Project.

6.4 Project Site Selection

Potential Project sites were evaluated based on minimum site requirements and additional screening criteria to assess site feasibility. Minimum site requirements included the following:

- **Parcel size:** A parcel must be at least 10 acres to provide adequate space and to allow design flexibility for the Project that includes batteries, switchyards, inverters, transformers, stormwater control, access routes, and fencing.
- **Distance from existing electrical interconnection infrastructure:** A parcel must be in close proximity of the Vaca Dixon Peaker Plant and the Vaca-Dixon Substation to minimize the length of gen-tie lines.
- **Availability of Infrastructure.** The parcel should be located near existing roadways and related infrastructure where available and feasible for construction and O&M access.

After consideration of the minimum site requirements above, additional screening criteria were established to assess site feasibility. These screening criteria relate to economic, environmental, legal, social, or technological factors that influence whether the Project could be successfully accomplished. The screening criteria used for the purpose of site selection also included consideration of parcel general plan land use designations, existing and surrounding development, and the feasibility of securing site control.

6.4.1 Vaca Dixon Power Center Project Site

The Vaca Dixon Power Center Project site is located on approximately 10 acres in Vacaville, California, directly south of the existing CalPeak Power - VDPP and the California Independent System Operator-controlled grid at the PG&E-owned Vaca-Dixon 115 kV Substation. The Vaca Dixon 57 MWh BESS would interconnect to the PG&E Vaca-Dixon Substation through the existing VDPP switchyard, allowing for hybridized operation of the Vaca Dixon 57 MWh BESS and the VDPP. Similarly, the Arges 400 MWh BESS would also directly interconnect to the PG&E Vaca-Dixon Substation via a short extension to the collocated transmission line shared with the Vaca Dixon 57 MWh project. The BESS Project site is designated by the City of Vacaville General Plan as Business Park. Accordingly, the Project site meets the site requirements described above and all of the Project objectives described in Sections 2 and 6.

The Project site was selected primarily due to its proximity to existing electrical interconnection infrastructure, and the site requirements described above. As detailed in Chapter 2, *Project Description*, the Project area is located in an area of growing electrical demand and adjacent to existing electrical infrastructure that supports efficient Project operation and service and minimizes the required length of gen-tie lines. The Project site is accessible by I-80 and an existing access road that connects the VDPP to Quinn Road to the south for gen-tie access. The area surrounding the Project site also includes existing generation and transmission facilities that would be similar in form and visual character to the Project facilities.

6.4.2 The Quinn Road Site Alternative

The “Quinn Road” Alternative is located north of Quinn Road in unincorporated Solano County on an approximately 11-acre area within an 87.73 acre parcel (APN 133-060-070) owned by PG&E, located northwest of the Vaca Dixon Power Center BESS Project site (see Figure 6-1). Given site hydrology and wetland areas present on the Quinn Road site, it is assumed that the Vaca Dixon 57 MWh BESS would be located on approximately 3.5 acres in the southwestern portion of the Quinn Road site, plus an additional 1.0 acre for secondary emergency/fire access along the northern site perimeter, originating at the northeast corner and extending to a gate and turnaround at the northwest corner. Similarly, it is assumed that the Arges 400 MWh BESS component would be located on approximately 6.5 acres in the northern and southeastern portions of the Quinn Road site. The Quinn Road site is designated by the Solano County General Plan as Public Quasi-Public land within the Agricultural “A” Zone. The Quinn Road site would require new local road construction for access and is regionally accessible by I-80. The area surrounding the Quinn Road site also includes existing generation and transmission facilities that would be similar in form and visual character to the Vaca Dixon Power Center Project facilities.

The Quinn Road site would satisfy the Project site selection requirements outlined above and some but not all of the Project objectives described in Sections 2 and 6. In addition, the Quinn Road site is located in the direct vicinity of the VDPP and the Vaca-Dixon 115 kV Substation. Under the Quinn Road site, gen-tie lines would be reduced in length and would not need to cross I-80 to interconnect with the VDPP. The Applicants have attempted to gain site control; however, at the time of the submittal of this application, such attempts have been unsuccessful. Because the Site Alternative meets some of the basic project objectives, a detailed discussion of the potential environmental impacts under the Quinn Road site relative to the Project including whether the alternative avoids or reduces significant impacts of the Project, is provided in 6.5, *Quinn Road site Comparative Analysis.*

6.5 Quinn Road Site Comparative Analysis

The Quinn Road site would result in many of the same environmental, economic, and impacts and benefits as the Project site. CEQA requires the alternatives analysis to focus on alternatives that could avoid or minimize potentially significant effects of a proposed project. Therefore, the discussion below includes only resource area and impact evaluation criteria where a potentially significant impact without mitigation has been identified for the Project. Although the Project does not include any potentially significant impacts related to socioeconomics, the discussion below also considers socioeconomic impacts associated with the Quinn Road site in accordance with Appendix B Section(f)(2).

The Quinn Road site location and project components are shown in Figure 6-3. The Proposed Project location and components are include for reference in Figure 6-4.

6.5.1 Cultural Resources and Tribal Cultural Resources

As described in Section 5.1, *Cultural Resources and Tribal Cultural Resources*, potential impacts to cultural and tribal cultural resources associated with Project construction would be less than significant with incorporation of Mitigation Measures CUL-1 through CUL-5, which require a worker's environmental awareness program, archaeological monitoring, and measures for the unanticipated discovery of archaeological resources during construction. The Project would also comply with state regulations and measures in the event that human remains are found, including the State of California Health and Safety Code Section 7050.5 which states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98.

Construction, ground disturbance, and operational activities under the Quinn Road site would be similar in nature and extent to those of the Project. As with the Project, construction activities could encounter previously unknown cultural or archaeological resources due to excavation in sensitive areas. Similar to the Project, Mitigation Measures CUL-1 through CUL-5 would be required under the Quinn Road site to reduce potential cultural resource impacts to a less than significant level. Consistent with the Project, operational activities under the Quinn Road site are not expected to affect cultural or tribal cultural resources. Therefore, impacts to cultural and tribal cultural resources under the Quinn Road site would be similar to those of the Project and would be less than significant with mitigation incorporated.

6.5.2 Land Use

As detailed in Section 5.2, Land Use, the Project would have a potentially significant impact due to the permanent conversion of land designated as Unique Farmland and Farmland of Statewide Importance to non-agricultural use for BESS development. The Solano County portion of the Project where the gen-tie routes are proposed contains no agricultural land or activity. Although the Project is proceeding under the Assembly Bill 205 Opt-In process, which grants the California Energy Commission exclusive siting authority, Vacaville's farmland mitigation policies remain relevant for CEQA analysis and mitigation planning. The Project would convert farmland in Vacaville that is zoned Business Park to industrial use. These impacts are potentially significant and require mitigation consistent with local and state policies. Mitigation Measure AG-1 would be implemented, requiring the Applicant to preserve farmland of equal acreage and comparable productivity through approved mechanisms.

Figure 6-3 Quinn Road Site Components

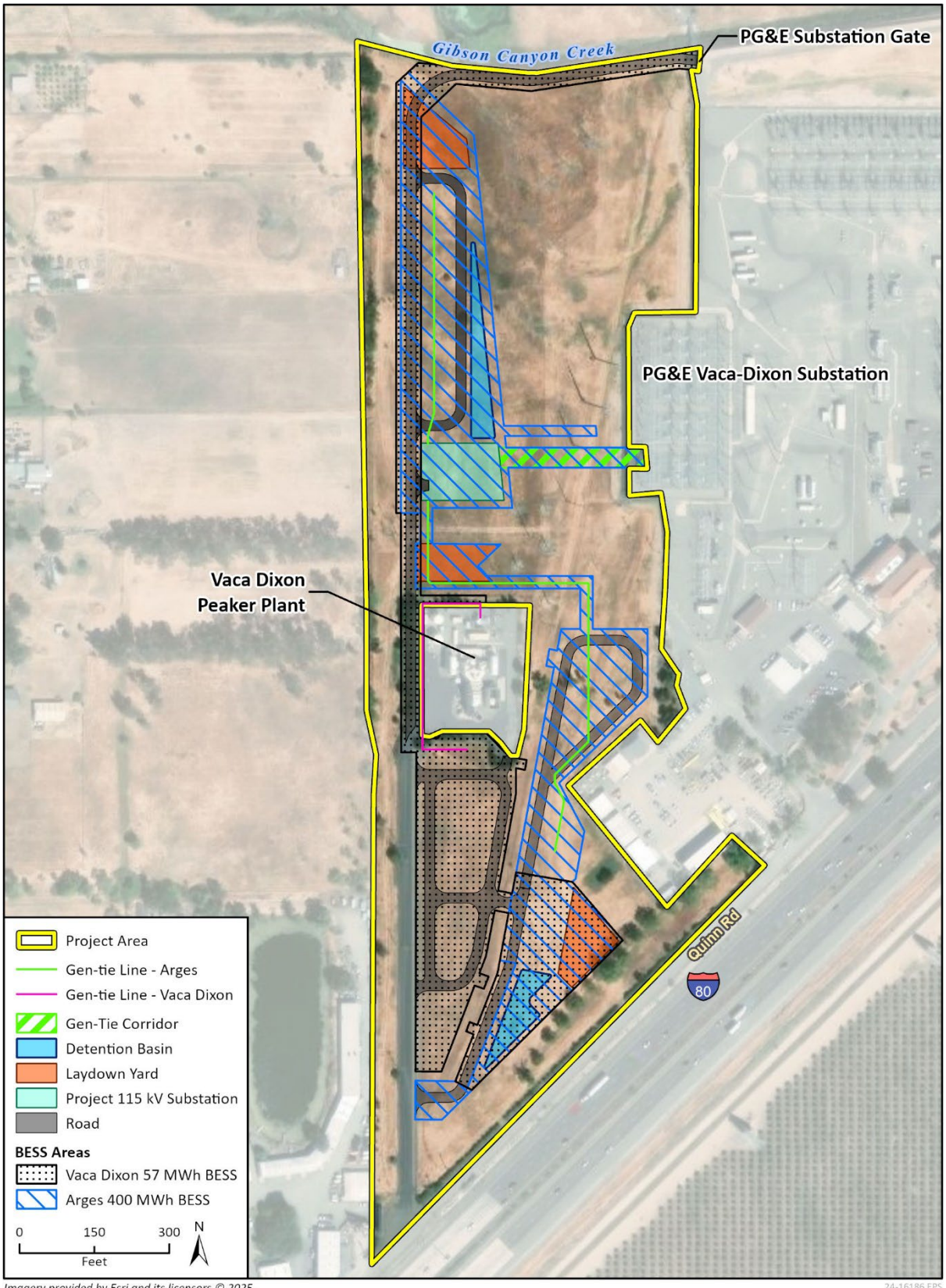

Figure 6-4 Project Area and Components

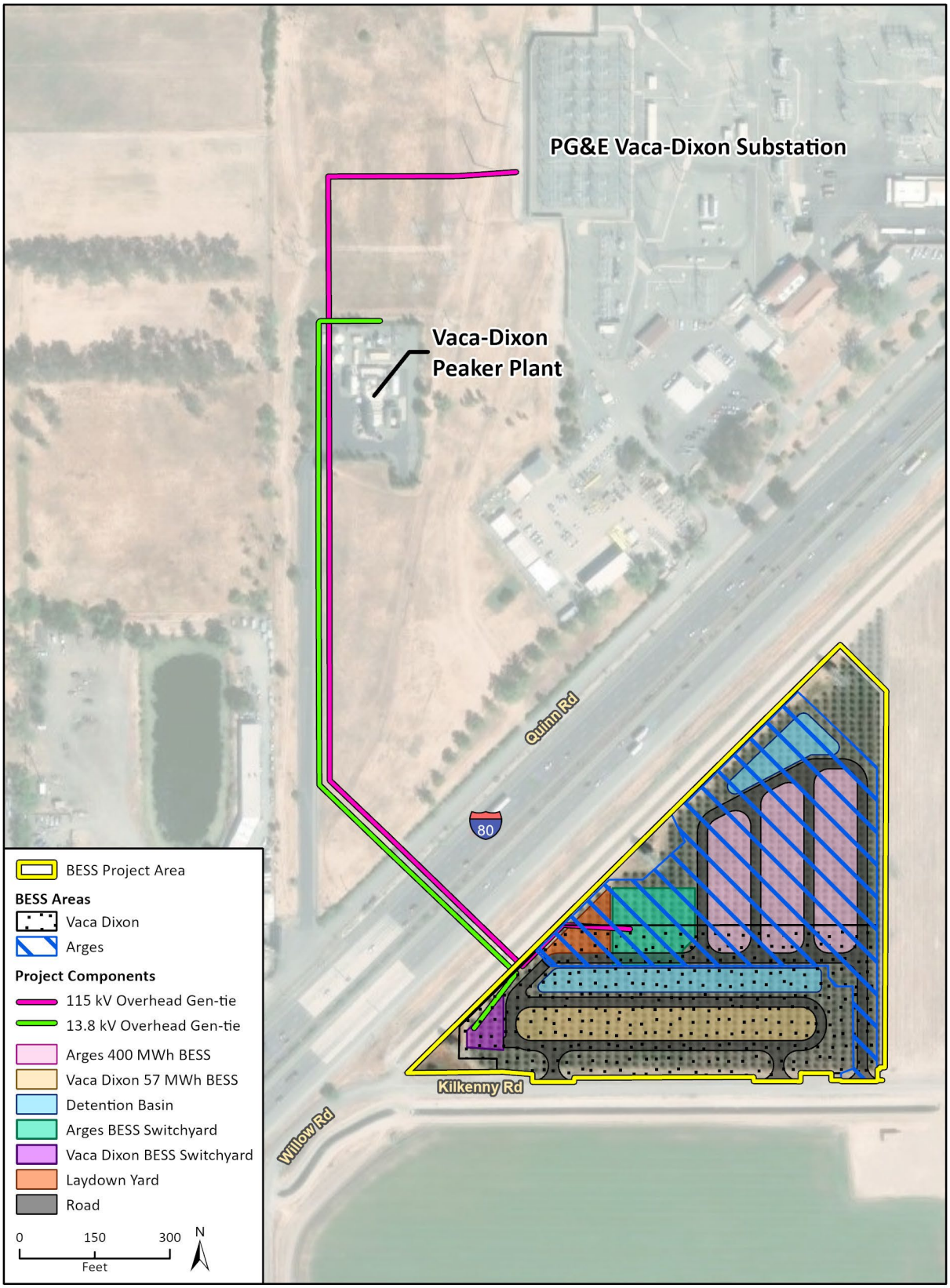

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Fig X Project Site and Components_Labels_Portrait

The Quinn Road site is zoned as Exclusive Agriculture; however, the Quinn Road site is located on land with no active agricultural operations, and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. As a result, the Quinn Road site would not convert farmland to non-agricultural use or conflict with local land use policies intended to protect agricultural resources. The Quinn Road site and Vaca Dixon Power Center project would both result in less than significant impacts.

6.5.3 Socioeconomics

As described in Section 5.6, *Socioeconomics*, the Project would result in no significant impacts to socioeconomics. Specifically, the Project would not induce unplanned population growth, displace existing housing or residents, adversely affect regional employment, or reduce income for local businesses.

The Quinn Road site is located within the general vicinity and same socioeconomic region as the Project. In addition, the construction and operational activities would be similar in nature and extent to the Project. Therefore, temporary construction-related changes to community character, such as minor increases in traffic and workforce presence, would be similar. The Quinn Road site would provide similar potential benefits of increased electric grid reliability and community investment through a Community Benefits Agreement as the Project. The socioeconomic impact of the Project and the Quinn Road site would be similar and would have no adverse impact relative to Socioeconomics.

6.5.4 Biological Resources

As described in Section 5.12, *Biological Resources*, the Project could without mitigation and avoidance result in a potentially significant impacts due to the potential for construction and operation of Project components to affect species identified as candidates, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Specifically, Project components could directly or indirectly impact the following special-status species: Crotch's bumble bee (*Bonbus crotchii*), vernal pool fairy shrimp (*Branchinecta lynchi*), Swainson's hawk (*Buteo swainsoni*), White-tailed kite (*Elanus luecurus*) and Northern harrier (*Circus hudsonius*). Project components may also impact common bird species protected under the Migratory Bird Treaty Act and California Fish and Game Code. All impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures BIO-1 through BIO-6, which include completion of Worker Environmental Awareness Training, construction best management practices, nest surveys and avoidance buffers, focused biological surveys, various species-specific avoidance measures, and measures for jurisdictional waters and wetlands.

With the Quinn Road site, the potential impacts to species identified as candidates, sensitive, or special-status species would be similar to that of the Project. The Quinn Road site contains potentially suitable habitat for vernal pool fairy shrimp, which are assumed to harbor fairy shrimp based on the inconclusive results of the dry season sampling. The Quinn Road site would result in both direct and indirect impacts to these potential habitats. The Vaca Dixon Power Center Project would not result in any direct impacts to vernal pool fairy shrimp habitat and indirect impacts would be reduced.

As with the Project, Mitigation Measures BIO-1 through BIO-6 would be required, in addition to species-specific mitigation to reduce potential impacts to species that do not occur under the Vaca Dixon Power Center Project to a less than significant level. Therefore, impacts to biological resources under the Quinn Road site would be less than significant with mitigation incorporated and would be similar to but greater than the Vaca Dixon Power Center Project.

Significantly, the Quinn Road site would result in direct impacts to waters of the State, which would be avoided under the Vaca Dixon Power Center Project. Eight jurisdictional aquatic features would be located within the limits of disturbance of the Quinn Road site, including an ephemeral swale and seven seasonal wetlands. The Quinn Road site would result in direct and indirect impacts to these features. The Vaca Dixon Power Center Project would result in indirect impacts to aquatic resources; however, these impacts would be reduced to less than significant under Mitigation Measure BIO-2 and BIO-6. Therefore, the Quinn Road site would result in an increased level of impacts compared to the Vaca Dixon Power Center Project.

6.5.5 Paleontological Resources

As described in Section 5.15, *Paleontological Resources*, Project construction activities would result in potentially significant impacts to paleontological resources due to the potential ground-disturbing activities in previously undisturbed sediments with high paleontological sensitivity. These impacts would be reduced to a less-than-significant level by implementation of Mitigation Measures PAL-1 through PAL-3, by requiring full-time paleontological monitoring during earth moving work exceeding two feet below the surface and ensuring that previously unrecorded paleontological resources within the Project site are salvaged by qualified personnel and curated in an appropriate facility.

The Quinn Road site is located within the same geological region as the Vaca Dixon Power Center Project (Graymer et al. 2002). Construction and ground disturbing activities, as well as the footprint of the Quinn Road site would be similar in nature and size to the Project. Due to the necessary ground disturbance associated with the Project, the potential exists for construction activities to impact previously undisturbed portions of high-sensitivity sediments. As with the Project, Mitigation Measures PAL-1 through PAL-4 would be required. Therefore, impacts to paleontological resources under the Quinn Road site would be less than significant with mitigation incorporated and would be similar to the Vaca Dixon Power Center Project.

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