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4.0 ENVIRONMENTAL INFORMATION

This chapter contains 20 individual sections representing the 20 environmental, public health and safety, and local impact assessment disciplines required to be analyzed under the California Environmental Quality Act (CEQA). This chapter also incorporates all 16 disciplines for which the California Energy Commission (CEC) Energy Facilities Siting Regulations (Title 20, California Code of Regulations, Section 1704, Appendix B) require information in an Opt-in Application. Table 4.0-1 identifies the specific resource sections associated with the CEC guidelines (if any) that are addressed in each of the 20 CEQA resource sections utilized in this chapter. Note that several of the CEC guidelines resource sections (shown in bold font) are split among two or three of the CEQA resources.

Table 4.0-1. CEQA and CEC Application Resource Crosswalk

Chapter 4 Section	CEQA Resource Addressed	CEC Application Resource(s) Addressed
4.1	Aesthetics	Visual Resources
4.2	Agriculture and Forestry Resources	**Land Use** **Soils and Agricultural Resources**
4.3	Air Quality	**Air Quality** Public Health
4.4	Biological Resources	Biological Resources
4.5	Cultural Resources	**Cultural Resources**
4.6	Energy	N/A
4.7	Geology, Soils, and Paleontological Resources	**Geological Hazards and Resources** Paleontological Resources **Soils and Agricultural Resources**
4.8	Greenhouse Gas Emissions	**Air Quality**
4.9	Hazards and Hazardous Materials	Hazardous Materials Handling Worker Health and Safety
4.10	Hydrology/Water Quality	Water Resources
4.11	Land Use and Planning	**Land Use**
4.12	Mineral Resources	**Geological Hazards and Resources**
4.13	Noise	Noise
4.14	Population/Housing	**Socioeconomics**
4.15	Public Services	**Socioeconomics**
4.16	Recreation	**Land Use**
4.17	Transportation	Traffic and Transportation
4.18	Tribal Cultural Resources	**Cultural Resources**
4.19	Utilities and Service Systems	**Socioeconomics** Waste Management
4.20	Wildfire	Wildfire

Notes:
N/A = Not Applicable
Bold CEC Resource Sections are addressed within two or more CEQA Resources.

Each of the 20 resource sections analyzed in this chapter utilize a standardized format, including the following subheadings:

- California Environmental Quality Act Checklist
- Affected Environment
- Environmental Analysis
- Cumulative Effects
- Mitigation Measures
- Laws, Ordinances, Regulations, and Standards
- Agencies and Agency Contacts
- Required Permits and Permitting Schedule
- References

An introduction precedes the subheadings above to summarize the subject matter and organization of the section. The introduction is followed by the California Environmental Quality Act Checklist subsection, which provides a table identifying the level of potential impact for each of the items in the CEQA Appendix G checklist. The Affected Environment subsection includes relevant background information about the Project's environmental and social settings and may also include some information on the project's regulatory setting. The Environmental Analysis subsection analyzes the potential environmental impacts of the construction, operation, and decommissioning (as needed) of the Project. The Cumulative Effects subsection discusses potential effects of the Project that are not significant adverse impacts, but that could reach significance cumulatively in combination with other projects. The Mitigation Measures subsection describes any mitigation measures necessary to reduce potential impacts to less than significant. The Laws, Ordinances, Regulations, and Standards (LORS) subsection discusses the LORS that pertain to the Project for a given discipline. The Agencies and Agency Contacts subsection is a list of federal agencies with permitting authority over the Project, and state and local regulatory agencies that would have such permitting authority, but for the exclusive purview of the CEC to license thermal power plants greater than 50 megawatts in capacity in California. This section also contains a list of regulatory agency staff and their contact information. The Required Permits and Permit Schedule subsection lists the applicable permits and their schedules. Lastly, the References subsection provides any references cited within the resource section.

4.1 Aesthetics

This section identifies and evaluates issues related to aesthetic resources in the context of the Corby Battery Energy Storage System Project (Project), in accordance with California Energy Commission (CEC) guidelines while simultaneously addressing considerations under the California Environmental Quality Act. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

A separate Visual Impact Assessment was prepared for the Project and is provided as Appendix 4.1-A of this application. The following discussion includes summaries and provides specific discussions of results and conclusions.

4.1.1 California Environmental Quality Act Checklist

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
1.	Have a substantial adverse effect on a scenic vista?			X	
2.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
3.	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point)? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
4.	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

4.1.2 Affected Environment[1, 2, 3]

4.1.2.1 Existing Site Conditions

Regional Character

The Vacaville urban area is surrounded by the Vaca Mountains to the south and to the west, and largely agricultural uses to the north and to the east.

Nearby Visual Resources and Scenic Vistas

As described in more detail in the Visual Impact Assessment (Appendix 4.1-A) and shown on Figure 4.1-1 (figures are grouped at the end of this section), while no specific views are identified, the County's General Plan states that the "county's agricultural landscapes, the delta and marshlands, and the oak and grass covered hills offer an abundance of scenic vistas (Solano County 2008). There are no state scenic

[1] Appendix B (g) (1)
[2] Appendix B (g) (6) (A)
[3] Appendix B (g) (6) (A) (ii)

highways in the vicinity of the Project. There are two designated County scenic roadways in the Project vicinity (Solano County 2008): Interstate 80 (I-80), located approximately 0.6 mile to the west and State Road 113, located approximately 5 miles to the east of the Project site.

The County has created the General Plan Agricultural Reserve Overlay to contribute to the preservation of valued agricultural landscapes that exist in the areas, including those between Vacaville and Dixon, by encouraging private landowners to voluntarily participate in land conservation. The Agricultural Reserve Overlay will help facilitate the County's various farmland protection goals identified in the Agriculture chapter of the Overlay and will help maintain scenic resources along the I-80 corridor. The Vacaville-Dixon Greenbelt is located approximately 0.7 mile northeast of the Project site.

Local Setting

The proposed Project site is currently used as agricultural land for row crops. The terrain on the Project site and the immediate area is relatively flat.

The Project parcel is bound on all sides by existing agricultural lands, with rural residences located across Kilkenny Road directly to the north. Agricultural uses include orchards and row crops. Additional rural residences also exist in the project vicinity, to the east, south and west of the Project site. Energy-related uses are found near to the Project site, including Pacific Gas and Electric's (PG&E) Vaca-Dixon Substation to the northwest and 500 kilovolt transmission towers and lines to the west and southwest of the Project site.

In general, the types of viewers present within the viewshed of the Project are classified as: local travelers/motorists commuting on the surrounding county roads; and regional travelers, which include travelers/motorists on I-80, and visitors to the Sacramento Valley National Cemetery.

Based on the above and preliminary discussions with CEC Staff, six Key Observation Points (KOP) were selected for analysis (Figure 4.1-2)[4]. KOP selection was also coordinated with Solano County in 2023, prior to the Applicant withdrawing its Conditional Use Permit application from Solano County review.

KOPs and Existing Visual Character[5,6,7]

KOP 1

KOP 1 is located on Kilkenny Road, adjacent to I-80, approximately 0.8 mile west of the Project site. This KOP depicts views oriented east toward the Project site, with Kilkenny Road on the left side of the view. As shown in Figure 4.1-3, the existing landscape setting is characterized by agricultural land with flat terrain. Orchards are located along the north side of Kilkenny Road from the foreground to the middle ground, with a transmission tower in the middle ground. An irrigation canal and row crops are located along the south side of Kilkenny Road from the foreground to the middle ground. A transmission tower, its associated lines, and ornamental trees are in the middle ground at the west end of the view. Dominant colors in the landscape are tans, browns, and greens, while the structures are gray, white, and rust-red. The vegetation consists of irregular, organic forms: grasses and row

[4] Appendix B (g) (6) (C) (i)
[5] Appendix B (g) (6) (C) (iii)
[6] Appendix b (g) (6) (C) (v)
[7] Appendix b (g) (6) (C) (vi)

crops are continuous with irregular-shaped ruderal vegetation and trees. The trees are planted in uniform linear rows. The linear and horizontal lines associated with the built features are visible and prominent from this viewpoint.

Overall, there is little contrast in both vegetation cover and coloration on the Project site and in the surrounding area. Although the humanmade modifications provide variety, they are a discordant contrast in this otherwise rural landscape.

This view was selected to represent views from I-80 and Kilkenny Road as seen by regional and local motorists, respectively. Views will be of short duration for regional motorists on I-80 due to likelihood of traveling at a high rate of speed, paralleling the Project site for a limited time, and intervening vegetation; and for local motorists, due to limited roadway of approximately 1 mile and intervening vegetation. Considering the short duration of viewing, viewers will have a low exposure to the visual changes in the Project area.

KOP 2

For fuller coverage of the Project site, two views from KOP 2 were analyzed.

KOP 2a

KOP 2a is located on Byrnes Road, at the intersection with Kilkenny Road, adjacent to the northeast corner of the Project site. This KOP depicts views oriented southward toward the Project site. As shown in Figure 4.1-3, the existing landscape setting is characterized by agricultural land with flat terrain and mountainous terrain in the distant background. Row crops and utility poles and line are located along the east side of Byrnes Road from the foreground to the middle ground, with an agricultural building and ornamental trees in the middle ground. A vacant field with low vegetation is located along the west side of Byrnes Road from the foreground to the middle ground with orchard and ornamental trees and transmission towers in the middle ground. Dominant colors in the landscape are tans and greens while the structures are gray, brown, and white. The vegetation consists of irregular, organic forms: grasses and row crops are continuous with irregular-shaped ruderal vegetation and trees. The linear and horizontal lines associated with the built features are visible and prominent from this viewpoint.

Overall, there is little contrast in both vegetation cover and coloration on the Project site and in the surrounding area. Although the humanmade modifications provide variety, they are a discordant contrast in this otherwise rural landscape.

This view was selected to represent views from Byrnes Road as seen by local motorists traveling south. Views will be of short duration for motorists approaching the Project site, as views of the site north of Kilkenny Road are partially or fully blocked. The intervening vegetation, structures, and motorists will parallel the Project site for a limited time. Considering the short duration of viewing, viewers will have a low exposure to the visual changes in the Project area.

KOP 2b

KOP 2b is located on Byrnes Road, at the intersection with Kilkenny Road, adjacent to the northeast corner of the Project site. This KOP depicts views oriented southwest toward the Project site. As

shown in Figure 4.1-4, the existing landscape setting is characterized by agricultural land with flat terrain in the foreground and middleground and mountainous terrain in the distant background.

A vacant field with low vegetation, Byrnes Road, and a dirt road are located from the foreground to the middle ground with orchard and ornamental trees and transmission towers in the middle ground. Dominant colors in the landscape are tans and greens while the structures are gray. The vegetation consists of irregular, organic forms: grasses and row crops are continuous with irregular-shaped ruderal vegetation and trees. The linear and horizontal lines associated with the built features are visible and prominent from this viewpoint.

While the distant hills provide visual interest, their subtle color variations and muted tones illustrate the common nature of these features. There is little contrast in both vegetation cover and coloration on the Project site and in the surrounding area. Although the humanmade modifications provide variety, they are a discordant contrast in this otherwise rural landscape.

This view was selected to represent views from Byrnes Road as seen by local motorists traveling south. Views will be of short duration for motorists approaching the Project site, as views of the site north of Kilkenny Road are partially or fully blocked. The intervening vegetation, structure, and motorists will parallel the Project site for a limited time. Considering the short duration of viewing, viewers will have a low exposure to the visual changes in the Project area.

KOP 3

KOP 3 is located on Byrnes Road approximately 0.12 mile south of the Project site. This KOP depicts views oriented to the northwest toward the Project site. As shown in Figure 4.1-4, the existing landscape setting is characterized by agricultural land with flat terrain and hilly terrain in the background. A vacant field with low vegetation and Byrnes Road are visible extending from the foreground into the middle ground with orchard and ornamental trees and transmission towers in the middle ground. Dominant colors in the landscape are tans and greens while the structures are gray and white. The vegetation consists of irregular, organic forms: grasses and row crops are continuous with irregular-shaped ruderal vegetation and trees. The linear and horizontal lines associated with the built features are visible and prominent from this viewpoint.

While the distant hills provide visual interest, their subtle color variations and muted tones illustrate the common nature of these features. There is little contrast in both vegetation cover and coloration on the Project site and in the surrounding area. Although the humanmade modifications provide variety, they are a discordant contrast in this otherwise rural landscape.

This view was selected to represent views from Byrnes Road as seen by local motorists traveling north. Views will be of short duration for motorists approaching the Project site, as views of the site north prior to paralleling the Project site are blocked. The intervening vegetation and motorists will parallel the Project site for a limited time. Considering the short duration of viewing, viewers will have a low exposure to the visual changes in the Project area.

KOP 4

KOP 4 is located on Weber Road, an I-80 overpass, approximately 0.65 mile northwest of the Project site. This KOP depicts views oriented southwest toward the Project generation tie (gen-tie) line. As

shown in Figure 4.1-5, the existing landscape setting is characterized by the freeway and agricultural land with flat terrain to hilly and mountainous terrain in the background. I-80 dominates the view from the foreground to the background. Transmission towers are seen on both sides of I-80 with transmission lines crossing the highway. Orchards and ornamental trees are seen on the east side of the highway. A landscaped median runs down the center of I-80. Grasses and numerous, large ornamental trees are seen on the west side of the highway. The dominant colors in the landscape are tan and green while the structures are gray and white. The vegetation consists of irregular-shaped, organic forms of grasses. The linear and horizontal lines associated with the structures are visible and prominent from this viewpoint.

The distant hills and variation in vegetation cover and coloration provide visual interest; however, the view is dominated by humanmade modifications strongly contrasting with the scenery.

This view was selected to represent views from I-80 as seen by regional motorists. Views will be of short duration for regional motorists on I-80 due to likelihood of traveling at a high rate of speed. Considering the short duration of viewing, viewers will have a low exposure to the visual changes in the Project area.

KOP 5

KOP 5 is located on Lewis Road, approximately 1.2 miles northeast of the Project site, and adjacent to the Vacaville-Dixon Greenbelt to the east. This KOP depicts views oriented southwest toward the Project site. As shown in Figure 4.1-5, the existing landscape setting is characterized by agricultural land with flat terrain and hilly terrain in the background. An agricultural field with mowed vegetation is located from the foreground to the middle ground with orchard and ornamental trees, residential and agricultural structures, and transmission towers in the middle ground. Dominant colors in the landscape are tans and greens while the structures are gray, white, and red. The vegetation consists of irregular, organic forms: grasses are continuous with irregular-shaped ruderal vegetation. The linear and horizontal lines associated with the structures are visible from this viewpoint.

While the distant hills provide visual interest, their subtle color variations and muted tones illustrate the common nature of these features. There is little contrast in both vegetation cover and coloration on the Project site and in the surrounding area. Although the humanmade modifications provide variety, they are a discordant contrast in this otherwise rural landscape.

This view was selected to represent views from Lewis Road and the Vacaville-Dixon Greenbelt as seen by local motorists. Views of the Project will be in the middle ground and limited by intervening structures and vegetation, and motorists will be focused on the immediate foreground; therefore, viewers will have a low exposure to the visual changes in the Project area.

KOP 6

KOP 6 is located at the Sacramento Valley National Cemetery, approximately 1.6 miles northeast of the Project site. This KOP depicts views oriented southwest toward the Project site. As shown in Figure 4.1-6, the existing landscape setting is characterized by undeveloped portions of the cemetery and agricultural land with flat and hilly terrain in the background. The undeveloped portions of the cemetery and the agricultural field with mowed vegetation is located from the foreground to the middle ground with orchard and ornamental trees, agricultural structures, and transmission towers in

the middle ground. Dominant colors in the landscape are tans and greens while the structures are gray. The vegetation consists of irregular, organic forms: grasses are continuous with irregular-shaped ruderal vegetation and trees. The linear and horizontal lines associated with the built features are visible from this viewpoint.

While the distant hills provide visual interest, their subtle color variations and muted tones illustrate the common nature of these features. There is little contrast in both vegetation cover and coloration on the Project site and in the surrounding area. Although the humanmade modifications provide variety, they are a discordant contrast in this otherwise rural landscape.

This view was selected to represent views from Sacramento Valley National Cemetery as seen by visitors. Views of the Project will be in the middle ground and limited by intervening structures and vegetation and visitors will be focused on the immediate foreground; therefore, viewers will have a low exposure to the visual changes in the Project area.

Existing Light and Glare

The light and glare sources found in the surrounding agricultural lands are limited. The main sources of nighttime light in the Project vicinity are light from the windows of residential and agricultural structures and traffic headlights. Glare sources in the Project vicinity will be associated with flat building surfaces, which include glass and reflective metal surfaces.

4.1.3 Environmental Analysis

4.1.3.1 Visual Impact Criteria[8]

For this analysis, the significance criteria outlined in Appendix G of the CEQA Guidelines, as amended, are applied to determine the Project's impact to existing visual resources. The CEQA-defined aesthetic issues of concern are:

- Would the proposed project cause substantial, adverse effects on a scenic vista?
- Would the proposed project cause substantial damage to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway?
- In non-urbanized areas, would the proposed project substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point)? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
- Would the proposed project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

[8] Appendix B (g) (6) (C) (ii)

4.1.3.2 Aesthetics Concepts and Methodology[9]

The Visual Impact Assessment (see Appendix 4.1-A) focused on the existing visual conditions of the Project site and surrounding area and assesses the extent to which the Project has potential to alter the area's aesthetic resources. Visual or aesthetic resources are the natural and cultural features of the landscape that can be seen and that contribute to the public's appreciative enjoyment of the environment. Visual impacts are generally defined in terms of a project's physical characteristics and potential visibility, as well as the extent to which the project's presence would change the perceived visual character and quality of the environment in which it would be located. The Visual Impact Assessment followed methodology used by the Bureau of Land Management (BLM; 1986, 2010).

Visual Character

Existing landscape is defined by the visual characteristics (form, line, color, and texture) associated with the landform (including water), vegetation, and existing development.

Specific terminology used in describing the existing visual character of the environment is provided below.

- Contrast: opposition or unlikeness of different forms, lines, colors, or textures in a landscape.
- Contrast rating: a method of analyzing the potential visual impacts of proposed management activities.
- Color: the hues, variety, contrast, and harmony of colors in the visual environment.
- Form: the mass or shape of landforms or structures.
- KOP: one or a series of publicly accessible points on a travel route or at a use area or potential use area where the view of a management activity would be representative of viewers within the area and be most revealing.
- Landscape visibility: perception of details (e.g., form, line, color, and texture) diminishes with increasing distance. The distance zone is dependent on the location of the observer relative to the Project. These distance zones are:
    - Foreground: 0 to 0.5 mile from point of interest
    - Middle ground: 0.5 to 5 miles from point of interest
    - Background: over 5 miles from the point of interest
- Scenic quality: a measure of the visual appeal of a tract of land. In the visual resource inventory process, the apparent scenic quality is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.
- Sensitivity level: a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern.
- Sensitive viewers: specific user groups associated with various land uses that have a sensitivity to landscape change, and therefore could be adversely affected by the construction and operation of a project.

[9] Appendix B (g) (6) (C) (ii)

- Simulation: a realistic visual portrayal that demonstrates the perceivable changes in landscape features caused by a proposed management activity. This is done using photography, artwork, computer graphics, and other such techniques.
- Texture: the visual manifestations of the interplay of light and shadow created by the variations in the surface of an object or landscape.
- Viewshed: the area within the Project's vicinity where viewers would theoretically have visibility toward part or all of the Project components.
- Visual quality: the relative worth of a landscape from a visual perception point of view.
- Visual resource: the visible physical features on a landscape (for example, land, water, vegetation, animals, structures, and other features).

Viewshed

The viewshed is generally the area that is visible from an observer's viewpoint and includes the screening effects of intervening vegetation and/or physical structures. Although some portion of the Project site may be visible from a relatively large area, the degree of visibility would depend on distance and view angle. Generally, the Project site will be most visible from viewpoints within 0.5 mile, while site visibility will diminish as distance increases and view angle decreases. Air quality, including dust and other visible particulates, can affect visibility in the area. Distance is only one of the factors that determine visibility of a site from a viewpoint. Terrain, vegetation, and structural features can obscure views that might otherwise be available at a certain distance.

Key Observation Points

Based on the identification of publicly accessible routes and viewpoints, potential KOPs were identified and further assessed during the field assessment. KOPs were identified based on locations from which the Project infrastructure would potentially be visible and noticeable to the casual observer. The "casual observer" is considered to be an observer who is not actively looking or searching for the Project, but who is engaged in activities at locations with potential views of the Project, such as hiking or driving along a scenic road. If the Project infrastructure is not noticeable to the casual observer, visual impacts can be considered minor to negligible.

Six KOPs were selected as representative public vantage points in the landscape that offer views of the proposed Project site (Figure 4.1-2) from publicly accessible areas.

Factors considered in the selection of KOPs included locations with sensitive viewers and potential for the Project site to be visible (e.g., distance and view angle). The KOPs were selected to capture representative vantages for local travelers/motorists commuting on the surrounding county roads; and regional travelers, which include travelers/motorists on I-80 and visitors to the Sacramento Valley National Cemetery.

Digital photographs were taken from the selected KOP locations to support the discussion on existing visual setting and the analysis of potential visual impacts associated with the proposed Project site (Figures Figure 4.1-3 through Figure 4.1-6). Photographs of existing conditions were taken on June 26, 2024, using a full-frame, digital single-lens reflex Canon EOS R5 camera.

Visual Simulations

Three-dimensional visual simulations were rendered using representative photographs from four of the six KOPs to approximate the visual conditions resulting with Project implementation. These KOPs were selected for simulation for the following reasons:

- KOP 1: Figure 4.1-7 – Represents best view from the County scenic highway I-80.
- KOP 2a and KOP 2b: Figure 4.1-8 Figure 4.1-9 – Represent nearest location to the Project site while driving south in Byrnes Road. Simulations from two different views at this location were created for fuller coverage of the Project facilities.
- KOP 3: Figure 4.1-10 – Represents next-nearest location to the Project site and a different view direction while driving north on Byrnes Road.
- KOP 6: Figure 4.1-11a and 4.1-11b – Represents views from areas located further from the Project site, where there is potential Project visibility by sensitive users at the Sacramento Valley National Cemetery. Due to intervening vegetation and distance, views of the Project from these locations are limited to the Project gen-tie line. To aid in review of this document, the simulation was prepared with and without Project location indication arrows (Figure 4.1-11a and 4.1-11b, respectively).

Simulations were not produced for KOP 4 and KOP 5. In preliminary discussions with CEC Staff to discuss potential KOP locations, it was determined that a simulation would not be necessary for KOP 4, as the views of the Project will be limited to the Project gen-tie and views of the gen-tie will not attract attention due to the numerous existing transmission lines in the area. Simulations were not created for KOP 5 due to intervening vegetation and any views of the Project from KOP will be similar to KOP 6.

Simulation production used selected photographs acquired at each applicable KOP. A three-dimensional physical massing model was created that incorporated the Project scale model, then placed in configurations as shown in Figure 1-3 in Section 1.0, *Executive Summary*. The model was then georeferenced and placed on global positioning system-controlled, site-specific photographs to create simulations that demonstrate visual changes from the Project.

Visual Impact Criteria

The assessment of visual impacts evaluates changes to any existing scenic resources, the anticipated changes in contrast that will result from the Project (both positive and negative), and the sensitivity of typical viewers to the change and the view duration.

The Project will be evaluated as to the level of contrast Project elements exhibit to the existing visual character of the Project site and area, as shown in Table 4.1-1.

Table 4.1-1. Degree of Contrast Rating System

Degree of Contrast	Rating Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Source: BLM Manual Visual Resources Inventory, 2010

Contrast ratings for the expected condition with the Project were prepared for each representative viewpoint using a form adapted from BLM's Visual Contrast Rating Worksheet (Form 8400-4); the results are included in Appendix 4.1-A, Attachment A.

4.1.3.3 Project Appearance[10]

Project Appearance and Dimensions

The Project facilities are described in detail in Chapter 2.0, *Project Description*. Figure 2-1 shows the general arrangement and layout of the proposed Project features on the site, and Figures 2-2a and 2-2b provide typical elevation views of the battery energy storage system (BESS) array. Project substation site plan detail and elevation drawings are provided in Figures 3-5a through 3-5c in Section 3.0, *Electrical Transmission*. Table 4.1-2 summarizes the dimensions, finishes, and materials of the generating facility's major features.

Table 4.1-2. Approximate Dimensions, Color, Materials, and Finishes of the Major Project Features[11]

Feature	Length (feet)	Width (feet)	Height (feet)	Color	Materials	Finish
BESS Array Components						
Batteries and battery enclosures	20	8	9.5	Traffic Gray RAL 7042	Prefabricated Metal Building	Semi-gloss
Inverters	22	7	7	Gray/Dark gray	Electrical Equipment	NA
Auxiliary transformers	7	6.5	8	Munsell Green 7GY 3.29/1.5	Electrical Equipment	NA
Auxiliary switchboard	10	3	7.5	ANSI 61 Gray	Electrical Equipment	Textured powder coat
Project Substation Components						
Generator step-up transformers	22	28	26	Painted steel – ANSI 61 Gray	Electrical Equipment	NA
Switchgear	8	12	28	No paint - Steel/Galvanized steel	Electrical Equipment	NA
Busbar structures	274	275	28	No paint - Galvanized steel	Electrical Equipment	NA
Riser structures	-	-	65	No paint/gray	Steel	NA

[10] Appendix B (g) (6) (D) (ii)
[11] Appendix b (g) (6) (D) (i)

Feature	Length (feet)	Width (feet)	Height (feet)	Color	Materials	Finish
Substation control house	60	14	10.5	Gray	Concrete, Steel, Metal alloys, Electrical Equipment	NA
Shield Poles	NA	NA	70	No paint/gray	Steel	NA
Other Project Components						
Generation tie line (above ground portion)			90 - 130 (Monopole, H-Frame, and 3-Pole Tubular Steel Pole [TSP])	No paint/gray	Steel	NA
Perimeter Fence (Substation)	1,230	-	6	No paint/gray	Steel	NA
Perimeter Fence (BESS array)	2,977	-	6	No paint/gray	Steel	NA
Sound Barrier	785	-	15	Gray	Blend of wood shavings and cement	NA
Signage	NA	8	4	various	Steel/plastic	NA

BESS=battery energy storage system

The exteriors of all major Project components will be treated with a neutral earthtone finish in colors including white, gray, green, and light brown. This combination of darker and lighter colors is intended to optimize their visual integration with the surrounding environment.

Lighting

Low-elevation (i.e., less than 14-foot), controlled security lighting will be installed at primary access gates and the onsite substation. The lighting will only switch on when personnel enter the area (through either motion sensor or manual activation [i.e., switch]). Lighting features will only be installed in areas where it is required for safety, security, or operations. All lighting will be directed onsite and will include shielding as necessary to direct light downward and minimize illumination of the night sky or potential impacts to surrounding viewers.

Perimeter Fence

The perimeter of the BESS array and Project substation will be enclosed by a 6-foot-tall chain-link fence above-grade topped with 1 foot of three-strand barbed wire to prevent unauthorized access to the site. Access to the Project site will be controlled through entry/egress gates located along Byrnes Road.

Sound Barrier

A sound barrier will be used to reduce the sound levels at the nearby residential receivers north of the Project site. An approximately 15-foot-high by 785-foot-long sound barrier will be installed along the northern edge of the Project parcel to attenuate sound levels (see Figure 1-3).

Signage

A sign no larger than 8 feet by 4 feet will be installed at the main entrance to identify the Project site. In addition, required safety signs (e.g., to identify high voltage) as well as information for emergency services will be installed on the fence near the entrance gate and within the premises, as required.

Site Drainage and Retention Basins

The Project design incorporates onsite stormwater facilities, including two retention basins to capture the increase in runoff. The retention basins will be located east of the Project substation and southeast of the BESS array within the Project parcel (Figure 1-3), and onsite stormwater flows will be conveyed to the proposed retention basins via overland flow and a perimeter ditch.

Except for equipment enclosures and potentially asphalt-paved site maintenance roads, most of the Project site will be surfaced with crushed rock, allowing infiltration.

Landscaping

A 36-foot-wide landscape strip will be planted along Kilkenny Road and Byrnes Road bordering the full length of the northern and eastern Project site boundaries, as requested by Solano County (Landscape Plan can be found in Appendix 4.1-B). Drought-tolerant and native vegetation will be used, and all landscaping will comply with the California Department of Water Resources Water Efficient Landscape requirements. The vegetation will include trees, shrubs, and herbaceous ground cover. Within the BESS yard and Project substation, the ground will be covered with gravel. Outside of the BESS yard, Project substation, and the 36-foot-wide landscape strip, the land will be planted with short-cover vegetation to provide soil stabilization and noxious weed control.

4.1.3.4 CEQA Impact Analysis[12, 13, 14]

IMPACT 4.1-1: Would the project have substantial adverse effect on a scenic vista? (Less than Significant Impact)

As noted previously, the County's General Plan states that the "county's agricultural landscapes, the delta and marshlands, and the oak and grass covered hills offer an abundance of scenic vistas," however, no specific views or vistas are identified (Solano County 2008).

The Project site is agricultural in character with a wide variety of visual encroachments, including scattered ranch structures, agricultural buildings and infrastructure, fencing, local electrical distribution lines and high-voltage transmission lines, and roadways. There are no delta, marshlands, or oak- and grass- covered hills in the surrounding area. The Project will add energy storage facilities and infrastructure and reduce the amount of land under agricultural production. The Project facilities will have a consistent visual character with the existing local electrical distribution lines, high-voltage transmission lines, and the nearby Vaca-Dixon Substation.

Due to the orchards and residential and agricultural structures in the surrounding area, views of the Project from surrounding roadways will be limited to a short distance.

[12] Appendix B (g) (1)
[13] Appendix B (g) (6) (A) (i) (d.)
[14] Appendix B (g) (6) (C)

Goals of the General Plan Agricultural Reserve Overlay seek to maintain scenic agricultural landscapes resources along the I-80 corridor within the Agricultural Reserve Overlay areas. The Vacaville-Dixon Greenbelt is located approximately 0.7 mile northeast of the Project site (see Figure 4.1-1). Due to intervening vegetation and structures, most of the Project will not be visible from this area. If the Project gen-tie line can be seen, it will not attract attention of the casual viewer and will be consistent with the other transmission lines in the area. Therefore, less than significant impacts to scenic vistas are expected.

IMPACT 4.1-2: Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (Less than Significant Impact)

There are no officially designated or eligible state scenic highways near the Project site (Figure 4.1-1). I-80, located approximately 0.6 mile to the west and State Road 113, located approximately 5 miles to the east of the Project site, are designated as County scenic roadways (Solano County 2008). Due to the orchards and residential and agricultural structures in the surrounding area, the Project BESS facility will not be substantially visible, if visible at all, from these roadway corridors, and the Project gen-tie line will be consistent in appearance with the existing transmission line (see Figure 4.1-7). The Project will not involve damage to scenic resources, such as trees, rock outcroppings, and historic buildings. Based on general lack of visibility of the Project site, less than significant impacts to a scenic highway are expected.

IMPACT 4.1-3: In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point)? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations of governing scenic quality? (Less than Significant Impact)

Construction

The Project will involve both temporary and permanent changes to the visual character of the site. Temporary changes are associated with construction activities, including construction equipment, staging, and Project construction. These visual impacts will be short term in nature and are considered to be less than significant.

Operation[15,16,17,18]

The Project will involve adherence of existing policies and regulations in the Solano County General Plan Scenic Resources (see Section 4.1.6.3) to reduce any visual impacts associated with the Project. See Table 4.1-3 below.

[15] Appendix B (g) (6) (C) (iii)
[16] Appendix B (g) (6) (C) (iv)
[17] Appendix B (g) (6) (C) (v)
[18] Appendix B (g) (6) (C) (vi)

Table 4.1-3. Application of Solano County and City of Vacaville Policies

No.	Policy / Regulation	Application
Solano County		
RS.P-35	Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.	There are no hills, ridgelines, wetlands, and water bodies. within the Project site.
RS.P-36	Support and encourage practices that reduce light pollution and preserve views of the night sky.	Project lighting will be designed to provide the minimum illumination needed to achieve safety and security and will be downward-facing and shielded to focus illumination in the immediate area. All lighting associated with the Project will comply with Solano County requirements.
RS.P-37	Protect the visual character of designated scenic roadways.	Due to the orchards and residential and agricultural structures in the surrounding area, the Project battery energy storage system facility will not be substantially visible, if visible at all, from County scenic roadways Interstate 80 and State Route 113, and the Project generation tie line will be consistent in appearance with existing transmission lines.
RS.I-20	Amend the Zoning Ordinance to: • Include the area, policies and programs of the Tri-City and County Cooperative Plan for Agriculture and Open Space Preservation. • Direct the use of lighting fixtures that reduce glare and light pollution. The ordinance should provide standards for the type and location of lighting fixtures in development projects.	• Due to intervening vegetation and structures, most of the Project will not be visible from the Vacaville-Dixon Greenbelt. If the Project generation tie line can be seen, it will not attract attention of the casual viewer and will be consistent with the other transmission lines in the area. • See RS P-36.
RS.I-21	Preserve the visual character of scenic roadways as shown in Figure RS-5 through design review, designating alternate routes for faster traffic, regulating off-site advertising, limiting grading in the view corridor through the grading ordinance, limiting travel speeds, and providing pullover areas with trash and recycling receptacles.	See RS P-37.
RS.I-22	In new developments, require the use of fixtures that direct light toward target areas and shield it from spillage.	See RS P-36..
City of Vacaville		
COS-P8.1	Preserve scenic features and the feel of a city surrounded by open space, and preserve view corridors to the hills and other significant natural areas.	Due to intervening vegetation and structures, most of the Project will not be visible from the Vacaville. If the Project generation tie line can be seen, it will not attract attention of the casual viewer and will be consistent with the other transmission lines in the area.
COS-P8.2	Retain major ridgelines and hillsides as open space.	The Project does not involve any ridgelines or open space.

KOP 1

The Project gen-tie line and similar Project substation shield poles will be the only proposed components visible from this location and it will not likely be noticed by a casual observer (see Figure 4.1-7). Dominant visual elements will include the existing orchards and row crops, irrigation canal, and transmission tower and lines. The gen-tie line will introduce gray colors and horizontal and vertical lines into the landscape setting. The regular horizontal and vertical lines associated with the gen-tie line will result in a visual contrast with the irregular, organic forms of the existing vegetation but will be consistent with the horizontal lines associated with the orchards and row crops. In

addition, existing structures in the vicinity possess horizontal and vertical lines and gray colors (roadway and transmission towers and lines).

While the gen-tie line and shield poles will be visible, they will blend in with the existing transmission lines and will not attract attention, resulting in a weak contrast. In addition, the existing Project site and adjacent properties landscape settings do not contain any unique scenic features and include a wide variety of visual encroachments.

This view was selected to represent views from I-80 and Kilkenny Road as seen by regional and local motorists, respectively. Views will be of short duration for regional motorists on I-80 due to likelihood of traveling at a high rate of speed, paralleling the Project site for a limited time, and intervening vegetation; and for local motorists, due to limited roadway, approximately 1 mile and intervening vegetation.

Therefore, due to the limited visibility and view duration, weak contrast, and lack of existing unique scenic features, impacts are considered to be less than significant.

KOP 2a

The Project BESS facility and fencing will be visible on the west side of Byrnes Road, replacing vacant field. Views will include existing row crops and utility poles and line located along the east side of Byrnes Road from the foreground to the middle ground, orchard and ornamental trees and transmission towers in the middle ground, and mountainous terrain in the distant background. The Project will introduce gray colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The battery storage enclosures and fencing are predominately gray. The Project will be visible from this location by a casual observer (see Figure 4.1-8). The regular geometric forms and horizontal and vertical lines associated with the battery storage enclosures, fencing, and associated infrastructure will result in a visual contrast with the irregular, organic forms of the existing vegetation but will be consistent with the horizontal lines associated with the row crops and orchards. In addition, existing structures in the vicinity possess horizontal and vertical lines and gray colors (roadway, agricultural structure, and transmission towers and lines).

This view was selected to represent views from Byrnes Road as seen by local motorists traveling south. Appearing as new and visible features, the Project energy storage facilities will contrast with the undeveloped agricultural land but will be consistent with the horizontal and vertical lines and geometric shapes visible and colors of other man-made structures throughout the landscape. The Project will demand attention of the casual viewer and co-dominate the landscape setting, introducing a strong contrast.

While the Project will introduce a strong contrast, the existing Project site and adjacent properties' landscape settings do not contain any unique scenic features and include a wide variety of visual encroachments. In addition, views for local motorists will be of short duration due to partial or full blockage of views by vegetation and structures prior to approaching the Project site, limiting view accessibility of the Project.

Proposed Project landscaping (Project Design Measure **PD AES-01**) will soften the contrast between the agricultural land and the Project energy storage facilities. Project landscaping, shown in Figure

4.1-8, is after 1 year of growth. In approximately 5 years, as shown in Figure 4.1-12, trees will be approximately 9 to 13 feet tall and shrubs will be approximately 5 to 9 feet tall, depending on species. With the additional height and filling out, the landscaping will largely obscure the Project, reducing the contrast with agricultural land.

Therefore, due to the limited visibility and view duration, lack of existing unique scenic features, and reduction of contrast through landscaping, impacts are considered to be less than significant.

KOP 2b

The Project sound barrier, substation, BESS facility, and fencing will be visible in the foreground, replacing vacant field. Views will include existing trees and transmission towers in the middle ground, and mountainous terrain in the distant background will be partially blocked. The Project will introduce gray colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project substation, battery storage enclosures, fencing, and sound barrier are predominately gray. The Project will be visible from this location by a casual observer (see Figure 4.1-9). The regular geometric forms and horizontal and vertical lines associated with the battery storage enclosures, fencing, and associated infrastructure will result in a visual contrast with the irregular, organic forms of the existing vegetation but will be consistent with the horizontal lines associated with the row crops and orchards. In addition, existing structures in the vicinity possess horizontal and vertical lines and gray colors (roadway, agricultural structure, and transmission towers and lines).

This view was selected to represent views from Byrnes Road as seen by local motorists traveling south. As with the view from KOP 2a, appearing as new and visible features, the Project energy storage facilities will contrast with the undeveloped agricultural land but will be consistent with the horizontal and vertical lines and geometric shapes visible and colors of other man-made structures throughout the landscape. The Project sound barrier will partially block views in the middle ground of adjacent agricultural fields and in the background of mountains. The Project will demand attention of the casual viewer and dominate the landscape setting, introducing a strong contrast.

While the Project will introduce a strong contrast, the existing Project site and adjacent properties' landscape settings do not contain any unique scenic features and include a wide variety of visual encroachments. In addition, views for local motorists will be of short duration due to partial or full blockage of views by vegetation and structures prior to approaching the Project site, limiting view accessibility of the Project.

Proposed Project landscaping (Project Design Measure **PD AES-01** will soften the contrast between the agricultural land and the Project energy storage facilities. Project landscaping, shown in Figure 4.1-9, is after one year of growth. In approximately 5 years, as shown in Figure 4.1-13, trees will be approximately 9 to 13 feet tall and shrubs will be approximately 5 to 9 feet tall, depending on species. With the additional height and filling out, the landscaping will largely obscure the Project, reducing the contrast with agricultural land.

Therefore, due to the limited visibility and view duration, lack of existing unique scenic features, and reduction of contrast through landscaping, impacts are considered to be less than significant.

KOP 3

The Project BESS facility and fencing, substation, and sound barrier will be visible on the west side of Byrnes Road, replacing vacant field. Views will include existing orchard and ornamental trees and transmission towers in the middle ground, and mountainous terrain in the background. The Project will introduce gray colors, geometric shapes, and horizontal and vertical lines into the landscape setting. The Project substation, battery storage enclosures, fencing, sound barrier, and gen-tie line are predominately gray. The Project will be visible from this location by a casual observer (see Figure 4.1-10). The regular geometric forms and horizontal and vertical lines associated with the Project substation, battery storage enclosures, fencing, gen-tie line, sound barrier, and associated infrastructure will result in a visual contrast with the irregular, organic forms of the existing vegetation, but will be consistent with the horizontal lines associated with the row crops and orchards. In addition, existing structures in the vicinity possess horizontal and vertical lines and gray colors (roadway, utility poles and lines, agricultural and residential buildings, and transmission towers and lines).

This view was selected to represent views from Byrnes Road as seen by local motorists traveling north. Similar to views from KOP 2a, the Project energy storage facilities will contrast with the undeveloped agricultural land but will be consistent with the horizontal and vertical lines and geometric shapes visible and colors of other man-made structures throughout the landscape. The Project will attract the attention of the casual viewer and co-dominate the landscape setting, introducing a moderate contrast.

While the Project will introduce a moderate contrast, the existing Project site and adjacent properties' landscape settings do not contain any unique scenic features and include a wide variety of visual encroachments. In addition, views for local motorists will be of short duration due to partial or full blockage of views by vegetation and structures prior to approaching the Project site, limiting view accessibility of the Project. And as previously discussed, proposed Project landscaping (Project Design Measure **PD AES-01**) will soften the contrast between the agricultural land and the Project energy storage facilities. Therefore, due to the limited visibility and view duration, lack of existing unique scenic features, and reduction of contrast through landscaping, impacts are considered to be less than significant.

KOP 4

The Project gen-tie line will be visible from this location; however, it will introduce colors and lines similar to the numerous existing transmission lines in the area. Dominant visual elements will include the existing freeway, transmission towers and lines, and orchards and ornamental trees. While the gen-tie line will be visible, it will blend in with the existing transmission lines and will not attract attention, resulting in a weak contrast.

This viewpoint reflects the views of drivers traveling along I-80, likely traveling at a high rate of speed. These visual impacts will be short term for travelers because they will only be approaching the Project site for a limited time and their focus will be on the road ahead. Therefore, due to the limited view duration and weak contrast, the impacts will be less than significant.

KOP 5

The Project gen-tie line will be barely visible from this location; however, it will introduce colors and lines similar to the existing transmission lines in the area. Dominant visual elements will include the agricultural field in the foreground to the middle ground with orchard and ornamental trees in the middle ground. While the gen-tie line will be visible, due to distance it will blend in with the existing transmission lines and will not attract attention, resulting in a weak contrast.

This view was selected to represent views from Lewis Road and the Vacaville-Dixon Greenbelt as seen by local motorists. Views of the Project gen-tie line will be in the middle ground and limited by intervening structures and vegetation, and motorists will be focused on the immediate foreground. Therefore, due to limited views, distance, and weak contrast, impacts are considered to be less than significant.

KOP 6

The Project gen-tie line will be barely visible from this location; however, it will introduce colors and lines similar to the existing transmission lines in the area (see Figures 4.1-11a and 4.1-11b). Dominant visual elements will include the undeveloped portions of the cemetery and agricultural field in the foreground to the middle ground, orchard and ornamental trees in the middle ground, and mountainous terrain in the background. While the gen-tie line will be visible, due to distance, it will blend in with the existing transmission lines and will not attract attention, resulting in a weak contrast.

This view was selected to represent views from Sacramento Valley National Cemetery as seen by visitors. Views of the Project site are limited by the surrounding orchards. Therefore, due to limited views, distance, and weak contrast, impacts are considered to be less than significant.

IMPACT 4.3-4: Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Less Than Significant Impact)

The Project is not expected to create a substantial new source of nighttime lighting or daytime glare. The Project will provide external safety lighting for both normal and emergency conditions at the primary access points. Lighting will be designed to provide the minimum illumination needed to achieve safety and security and will be downward-facing and shielded to focus illumination in the immediate area. All lighting associated with the Project will comply with Solano County requirements. With the application of anti-reflective coatings, the Project will display overall low reflectivity. Therefore, the Project will have a less than significant impact associated with lighting and glare.

4.1.3.5 PG&E Facilities

To accommodate the Project, PG&E will be responsible for siting, design, and construction of the 230-kilovolt gen-tie line from the point of change of ownership (POCO) to their substation, including new interconnection facilities. The Applicant will design, construct, own, and operate the southern 0.9-mile portion of the gen-tie line from the Project substation to the POCO within the gen-tie corridor south of I-80. PG&E will be responsible for the 0.2-mile-long gen-tie line between the POCO and the point of interconnection at the PG&E Vaca-Dixon Substation, including the final five structures, the I-

80 crossing, and the New Corby Bay, as shown in Figure 1-3 of Section 1, *Executive Summary*. The gen-tie line is described in further detail in Section 3.0, *Electrical Transmission*.

As discussed for the Project gen-tie line, the PG&E gen-tie line between the POCO and the point of interconnection at the PG&E Vaca-Dixon Substation will not result in significant visual impacts. The gen-tie line will be most visible at the I-80 crossing for the views of drivers traveling along I-80. While the gen-tie line will be visible, it will blend in with the existing transmission lines and will not attract attention, resulting in a weak contrast. This viewpoint reflects the views of drivers traveling along I-80, likely traveling at a high rate of speed. These impacts will be short term for travelers because they will only be approaching the gen-tie line for a limited time and their focus will be on the road ahead. Therefore, due to the limited view duration and weak contrast, the impacts will be less than significant.

The PG&E improvements will increase infrastructure within the existing PG&E Vaca-Dixon Substation; these elements will appear similar and consistent with the existing infrastructure and result in little noticeable change from existing conditions. Therefore, visual character and visual quality will be similar to existing conditions. Construction, operation, maintenance, and decommissioning of the PG&E interconnection infrastructure will result in a less than significant impact relating to the potential for a substantial adverse effect on a scenic vista, a substantial degradation of the character or visual quality of views from publicly accessible vantage points (i.e., any of the KOPs), or to substantially damage scenic resources within a state scenic highway. Similarly, because the new infrastructure will not include substantial new sources of light or glare, the Project-proposed construction and modifications of PG&E infrastructure will have a less than significant impact. No mitigation is required.

4.1.4 Cumulative Effects[19]

Impacts will be less than significant with respect to scenic resources within state scenic highways or scenic vistas because no specific views or vistas are identified near the Project site, views of the Project from surrounding roadways will be mostly limited to a short distance due to intervening vegetation or structures, and where visible will not attract attention of the casual viewer. Due to the limited views of the Project, the Project's less than significant impact related to scenic resources within state scenic highways or scenic vistas cannot combine with impacts from other facilities and will not cause or contribute to a significant adverse cumulative impact.

Additionally, due to the Project location and surrounding orchards and site-specific nature in which light and glare is experienced, the Project's less than significant impact related to light and glare cannot combine with impacts from other facilities. Therefore, the Project's impact to visual resources resulting from light and glare will not cause or contribute to a significant adverse cumulative impact.

The Cumulative Projects list, provided in Table 4.11-3, *Cumulative Impacts Project List*, in Section 4.11, *Land Use and Planning*, identified numerous projects within the study area of the Corby Battery Energy Storage System Project, including industrial, commercial, and residential building projects. These projects will contribute to the urban appearance of the area, increasing the contrast with the agricultural landscape. When the neutral to less than significant impacts expected from the Project are

[19] Appendix B (g) (1)

added to the impacts of the existing and future projects, adverse cumulative impacts will increase. However, the contribution of this Project to overall cumulative effects will be negligible and less than significant due to the limited visibility and view duration, weak contrast, and lack of existing unique scenic feature.

4.1.5 Mitigation Measures[20, 21]

Project visual impacts are less than significant and adherence to existing policies in the Solano County General Plan Scenic Resources Element will further reduce visual impacts associated with the Project (see Table 4.1-3). No mitigation measures related to aesthetics impacts are proposed because the following Project Design Measure is incorporated into the design of the Project.

PD AES-01: A landscape strip will be planted along Kilkenny Road and Byrnes Road. Drought-tolerant and native vegetation will be used, and all landscaping will comply with the California Department of Water Resources Water Efficient Landscape requirements. The vegetation will include trees, shrubs, and herbaceous ground cover.

4.1.6 Laws, Ordinances, Regulations, and Standards[22]

4.1.6.1 Federal

National Scenic Byways Program

The National Scenic Byways Program, a part of the Federal Highway Administration, recognizes, preserves, and enhances selected roads throughout the United States as All-American Roads or National Scenic Byways based on one or more archaeological, cultural, historic, natural, recreational, and scenic qualities. There are no officially designated National Scenic Byways in the vicinity of the Project site (Federal Highway Administration 2024; Caltrans 2024).

4.1.6.2 State

California Department of Transportation Scenic Highway Program

State scenic highways are those that are either officially designated as state scenic highways by the California Department of Transportation or are eligible for such designation. The scenic designation is based on the amount of natural landscape visible by motorists, the scenic quality of the landscape, and the extent to which development intrudes on the motorist's enjoyment of the view.

The nearest officially designated state scenic highway is State Road 128, approximately 9.5 miles northwest of the Project site (Caltrans 2024).

[20] Appendix B (g) (1)
[21] Appendix B (g) (6) (D) (iii)
[22] Appendix B (i) (1) (A)

4.1.6.3 Local

Solano County

Solano County General Plan Resources Element
Scenic Resources

Policy RS.P-35: Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.

Policy RS.P-36: Support and encourage practices that reduce light pollution and preserve views of the night sky.

Policy RS.P-37: Protect the visual character of designated scenic roadways.

Implementation Program RS.I-22: In new developments, require the use of fixtures that direct light toward target areas and shield it from spillage.

City of Vacaville

City of Vacaville General Plan Conservation and Open Space Element
Scenic Resources

Policy COS-P8.1: Preserve scenic features and the feel of a city surrounded by open space, and preserve view corridors to the hills and other significant natural areas.

4.1.7 Agencies and Agency Contacts

No contacts related to scenic resources were made.

4.1.8 Required Permits and Permitting Schedule

No permits related to scenic resources are required.

4.1.9 References

BLM (Bureau of Land Management). 1986. Manual 8431 - Visual Resource Contrast Rating. January 17. https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_H8431.pdf (accessed July 2024).

BLM. 2010. Visual Resource Inventory. BLM Manual Handbook H-8410-1. November 11. https://www.nrc.gov/docs/ML1127/ML112710288.pdf (accessed July 2024).

Caltrans (California Department of Transportation). 2024. California Scenic Highway System Map. https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa (accessed July 2024).

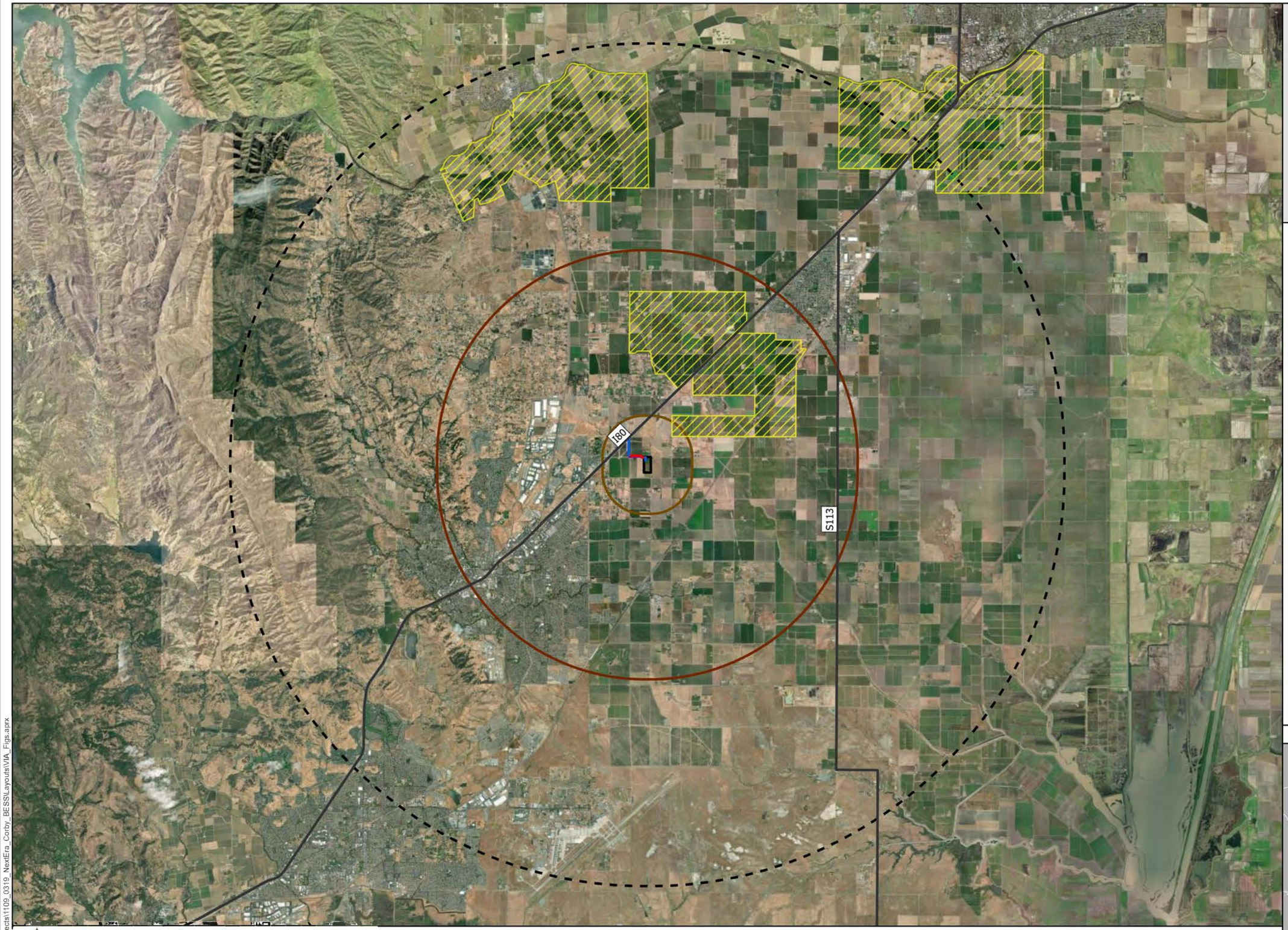
Federal Highway Administration. 2024. America's Byways, California, Central Valley Section Map, https://www.fhwa.dot.gov/byways/states/CA/maps/Central_Valley (accessed July 2024).

Solano County. 2008. Solano County General Plan. Chapter 4, Resources. August 5, 2008. https://www.solanocounty.com/depts/rm/planning/general_plan.asp (accessed July 2024).

NextEra Energy Corby Battery Energy Storage System Project

Figure 4.1-1 Scenic Resources

Solano County, CA



- County Scenic Highway
- Buffer (1-mile)
- Buffer (5-mile)
- Study Area (10-mile)

Proposed Features

- Gen-tie (Overhead)
- Gen-tie (Underground; Option 1)
- Gen-tie (Underground; Option 2)
- Project Site

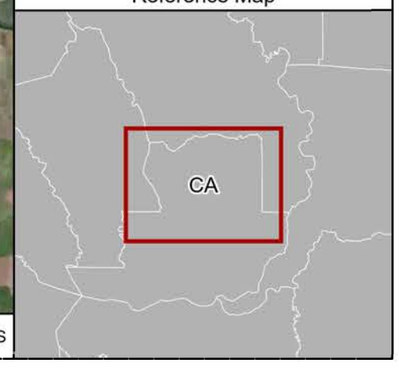
Solano County Plan

- Agricultural Reserve Overlay

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map



1:140,000 NAD 1983 StatePlane California II FIPS 0402 Feet

0 3 6 Miles

Source: ESRI, USDA NAIP, US CENSUS, BTS

Z:\Projects\11109_0319_NextEra_Corby_BESS\Layouts\VIA_Figs.aprx

NextEra Energy
Corby Battery Energy Storage System Project

Figure 4.1-2
KOP Locations

Solano County, CA

- KOP Location

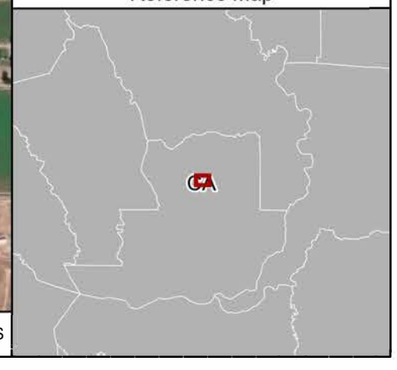
Proposed Features

- Gen-tie (Overhead)
- Gen-tie (Underground; Option 1)
- Gen-tie (Underground; Option 2)
- Project Site

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map



1:12,000 NAD 1983 StatePlane California II FIPS 0402 Feet

0 0.25 0.5 Miles

Source: ESRI, USDA NAIP, US CENSUS, BTS

Z:\Projects\1109_0319_NextEra_Corby_BESS\Layouts\VIA_Figs.aprx

Figure 4.1-3. KOP 1 and KOP 2a Existing Conditions

Figure 4.1-4. KOP 2b and KOP 3 Existing Conditions

Figure 4.1-5. KOP 4 and KOP 5 Existing Conditions

Figure 4.1-6. KOP 6 Existing Conditions

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-7
KOP 1
Simulation Conditions

Kilkenny Road, adjacent to I-80

VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	4:02 PM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	EAST
LATITIUDE:	38.39513450°
LONGITUDE:	-121.92421902°
DISTANCE TO BESS:	.87 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

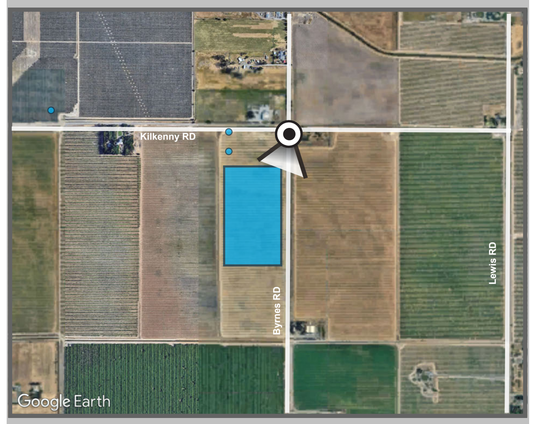
Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-8
KOP 2a
Simulation Conditions

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

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DATE:	06/26/2024
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LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

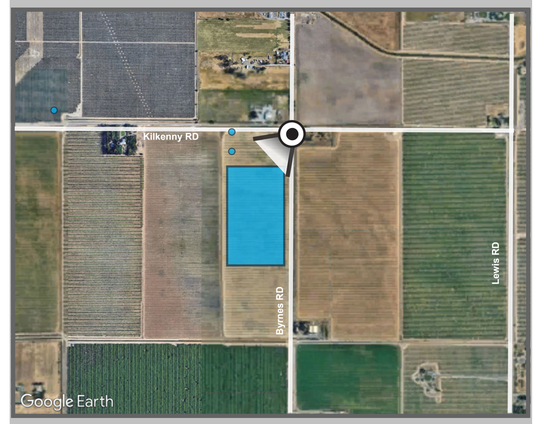
Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-9
KOP 2b
Simulation Conditions

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

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WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHEAST
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

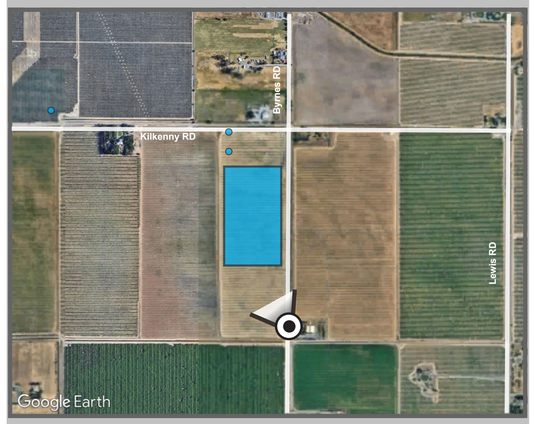
Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-10
KOP 3
Simulation Conditions

View North on Byrnes Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	12:06 PM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTH
LATITIUDE:	38.3879916°
LONGITUDE:	-121.905764°
DISTANCE TO BESS:	.24 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-11a
KOP 6
Simulation Conditions

Sacramento Valley National Cemetery

VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:31 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHWEST
LATITIUDE:	38.4113211°
LONGITUDE:	-121.881903°
DISTANCE TO BESS:	1.82 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-11b
KOP 6

Simulation Conditions With Indicators

Sacramento Valley National Cemetery

VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:31 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHWEST
LATITIUDE:	38.4113211°
LONGITUDE:	-121.881903°
DISTANCE TO BESS:	1.82 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

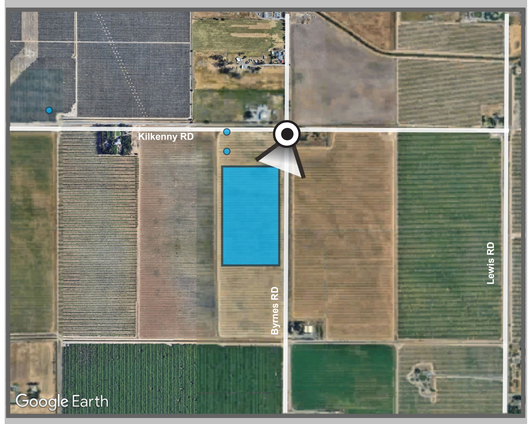
Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-12
KOP 2a
Simulation Conditions With Landscaping After 5 Years

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:59 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTH
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

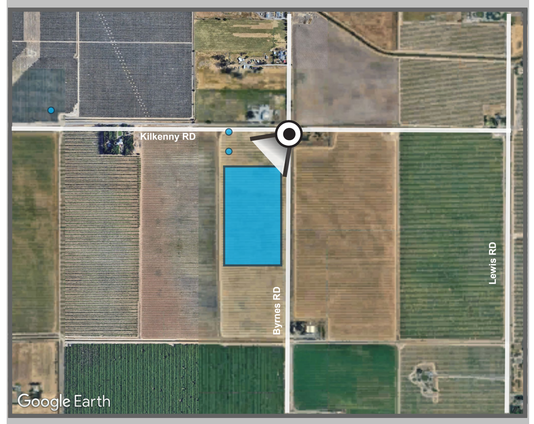
Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 4.1-13
KOP 2b
Simulation Conditions With Landscaping After 5 Years

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:59 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHEAST
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

4.2 Agriculture and Forestry Resources

This section identifies and evaluates issues related to agriculture and forestry resources in the context of the Corby Battery Energy Storage System Project (Project), in accordance with California Energy Commission (CEC) guidelines while simultaneously addressing considerations under the California Environmental Quality Act (CEQA). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

4.2.1 California Environmental Quality Act Checklist

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
1.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
2.	Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	
3.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland-zoned Timberland Production (as defined by Government Code Section 51104(g))?				X
4.	Result in the loss of forest land or conversion of forest land to non-forest use?				X
5.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?			X	

4.2.2 Affected Environment[1, 2]

4.2.2.1 Agricultural Resources[3]

The Project site, initial portion of the generation tie (gen-tie) line south of Kilkenny Road, and Pacific Gas and Electric (PG&E) Vaca-Dixon Substation parcel lie within unincorporated Solano County (County) and land uses are governed by the Solano County General Plan and Zoning Ordinance (refer to Section 4.11.6 of this application). The Project site and initial gen-tie line portion have an Agriculture (AG) land use designation per the County General Plan and an Exclusive Agriculture (A-40) zone designation per the County Zoning Ordinance. The portion of the gen-tie line located between Kilkenny Road and Interstate 80 (I-80) is within the City of Vacaville's (City) jurisdiction in which land uses are governed by the City of Vacaville General Plan and City Zoning Ordinance. This portion of the

[1] Appendix B (g) (1)
[2] Appendix B (g) (3) (A)
[3] Appendix B (g) (3) (D), and (i) and (ii)

gen-tie line is both zoned and designated as Business Park and Residential High Density in the City's Zoning Ordinance and General Plan. The portion of the gen-tie line located north of I-80 on the PG&E Vaca-Dixon Substation parcel is designated as Public Quasi-Public in the County General Plan and zoned A-20 in the County Zoning Ordinance.

According to the Solano County General Plan, the Project site and initial gen-tie line section south of Kilkenny Road are classified as Elmira/Maine Prairie agricultural region, which borders the city of Vacaville to the west and Jepson Prairie and Dixon Ridge to the south and north, respectively. The region is primarily planted with field crops such as alfalfa, corn, and wheat, which are primarily sold to dairies throughout the region (Solano County 2008). The gen-tie section between Kilkenny Road and I-80 is within the Vacaville city limits and does not fall under any County agricultural regions. The PG&E Vaca-Dixon Substation and the northern section of the gen-tie line that crosses over I-80 are located within the Dixon Ridge agricultural region. The Dixon Ridge region is known for producing field crops such as tomatoes, alfalfa, and safflower. The Project site and gen-tie corridor south of I-80 are classified as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) whereas the gen-tie corridor north of I-80 is classified as Urban and Built Up Land, as shown in Figure 4.2-1 (DOC 2024a). The Project site and gen-tie corridor are surrounded by land that is also classified as Grazing Land, Other Land, and Urban and Built Up Land (DOC 2024a). Definitions of the Department of Conservation's (DOC) farmland designations are explained in Section 4.2.6, *Laws, Ordinances, Regulations, and Standards*.

The Project site and all of the gen-tie corridor are not included in a California Land Conservation Act of 1965 (Williamson Act, Government Code §51200 et seq.) contract as shown in Figure 4.2-2 (DOC 2024b).

4.2.2.2 Forestry Resources

The Project site and gen-tie corridor do not contain any land defined as forest land (as defined by Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or land zoned-Timberland Production (as defined by Government Code §51104(g)).

NextEra Energy Corby Battery Energy Storage System Project

Figure 4.2-1 Important Farmland

Solano County, CA

Proposed Features
- Gen-tie (Overhead)
- Gen-tie (Underground; Option 1)
- Gen-tie (Underground; Option 2)
- Project Site

PG&E Features
- Gen-tie (Overhead; PG&E)

Important Farmland
- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Grazing Land (G)
- Other Land (X)
- Urban and Built-Up Land (D)

Transportation
- Interstate Highway

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map

1:24,000 NAD 1983 StatePlane California II FIPS 0402 Feet

0 0.25 0.5 Miles

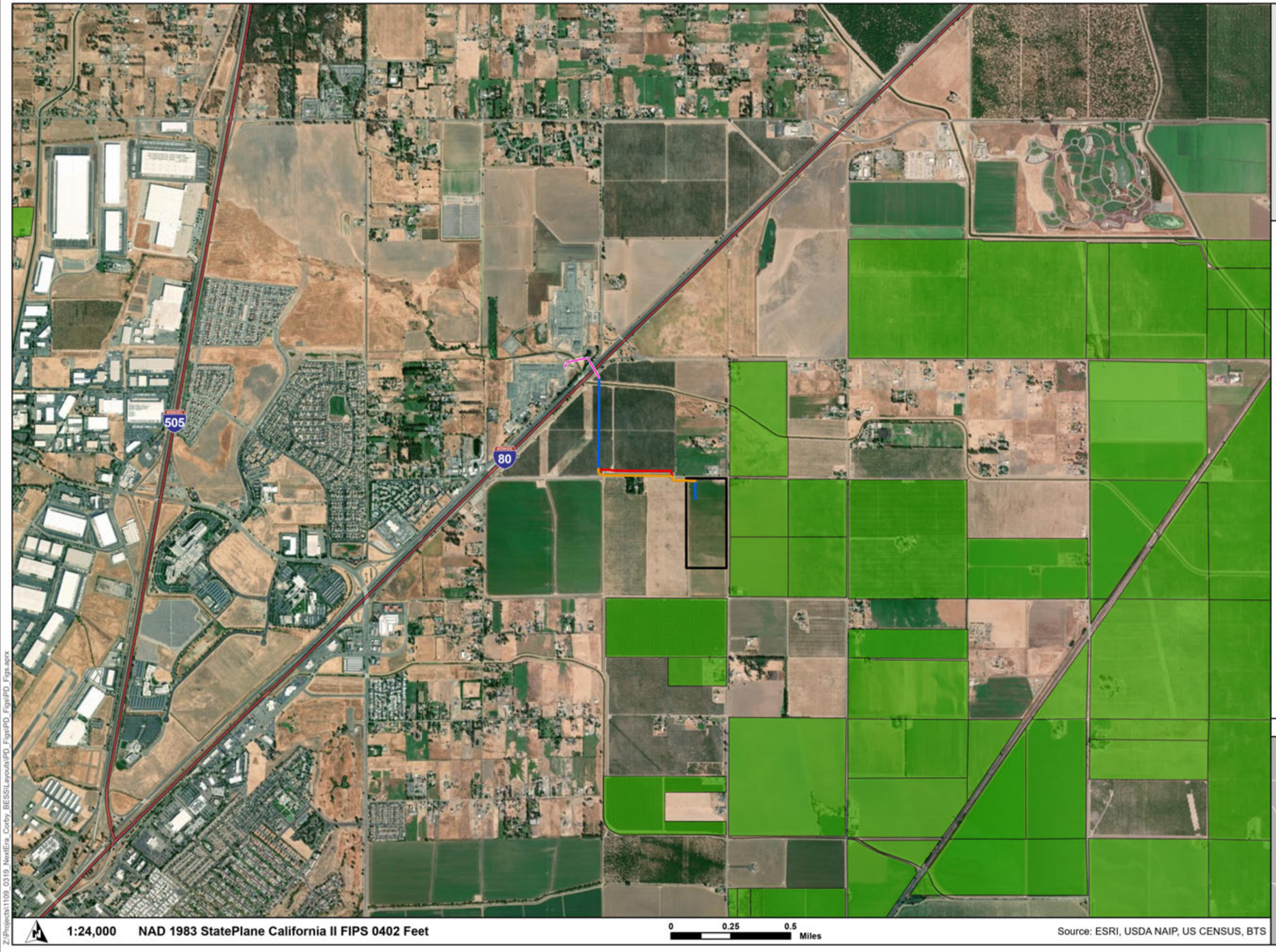
Source: ESRI, USDA NAIP, US CENSUS, BTS

Z:\Projects\11109_0319_NextEra_Corby_BESS\Layouts\PD_Figs\PD_Figs\PD_Figs.aprx

NextEra Energy Corby Battery Energy Storage System Project

Figure 4.2-2 Williamson Act Contract Lands

Solano County, CA



Williamson Act Contract Lands

Proposed Features

- Gen-tie (Overhead)
- Gen-tie (Underground; Option 1)
- Gen-tie (Underground; Option 2)
- Project Site

PG&E Features

- Gen-tie (Overhead; PG&E)

Transportation

- Interstate Highway

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map

1:24,000 NAD 1983 StatePlane California II FIPS 0402 Feet

0 0.25 0.5 Miles

Source: ESRI, USDA NAIP, US CENSUS, BTS

Z:\Projects\1109_0319_NextEra_Corby_BESS\Layouts\PD_Figs\PD_Figs\PD_Figs.aprx

4.2.3 Environmental Analysis[4, 5]

4.2.3.1 CEQA Impact Analysis

To assess potential impacts on agriculture and farmland, site-specific zoning and mapping available pursuant to the FMMP of the California Resources Agency have been considered. To assess potential impacts on forest resources, site zoning, site-specific environmental characteristics, and applicable definitions set forth in state law have been considered.

IMPACT 4.2-1: Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (Less than Significant Impact)

The section of gen-tie line north of I-80 is located within Urban and Built-Up Land as pursuant to the Farmland Mapping and Monitoring Program of California DOC (DOC 2024a) and would not involve any farmland conversion. The portions of the gen-tie line south of I-80 are designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. As discussed in the agricultural mitigation plan (Appendix 4.2-A) developed for the Project, the installation of electrical infrastructure on agricultural lands does not appear to be considered within the Farmland Mapping and Monitoring Program. As also discussed in Section 4.11, *Land Use and Planning*, the portion of the gen-tie line located within the City's jurisdiction would not be considered development in kind with the uses regulated by the City's zoning ordinance because transmission lines or similar types of linear facilities are not included as a specific use type within the City's Municipal Code. Additionally, there are no use classifications defined in the City's Municipal Code that would be substantially similar to the development of a gen-tie transmission line. There are also multiple instances of existing high-voltage transmission lines in the city of Vacaville that are not located within separately delineated zoning districts, and some cross through residential zoning districts. Based on preliminary consultation with the City (Morris 2024), the City's Municipal Code does not address transmission line siting or other public utilities due to the infrequent need to address new linear utilities as independent approvals. Accordingly, high-voltage transmission lines such as the proposed gen-tie line do not appear to be considered development and, therefore, the installation of the portion of the gen-tie line within the City's jurisdiction would not be considered a conversion of agricultural lands.

The Project site is designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. As such, the Project site will require the conversion Prime Farmland, Unique Farmland, or Farmland of Statewide Important to non-agricultural use.

To ensure that the potentially significant impacts related to agricultural land conversions are quantitatively considered in the environmental analysis, a California Land Evaluation and Site Assessment (LESA) was completed (Appendix 4.2-B). The California LESA Model evaluates measures of soil resource quality, a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. The factors are rated, weighted, and combined, resulting

[4] Appendix B (g) (1)
[5] Appendix B ((g) (3) (D) (iii)

in a single numeric score specific to the Project, which becomes the basis for determining the Project's potential significance. The total LESA score given for the Project is 58.99. According to the California LESA Model Scoring Thresholds, the Project's score is considered significant, as the Land Evaluation subscores are both greater than 20 points. The Applicant has developed an agricultural mitigation plan (Appendix 4.2-A) that has been incorporated into the Project description as Project Design Measure **PD AG-01** to reduce impacts associated with converting Prime Farmland, Unique Farmland, and Farmland of Statewide Importance and is consistent with the Solano County General Plan policies AG.P-4 and AG.I-1 listed in Section 4.2.6.4, *Local*. Per the parameters stated in the Mitigation Plan, the Applicant will secure at least 60.5 acres of agricultural mitigation within the same agricultural region as the Project and with similar agricultural quality to the lands being converted. Mitigation for the loss of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within the Project site to non-agricultural use would be consistent with Solano County General Plan policies, therefore impacts would be less than significant with implementation of this Project Design Measure.

IMPACT 4.2-2: Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? (Less Than Significant Impact)

The Project site and the initial portion of the gen-tie line south of Kilkenny Road are located within the County's Exclusive Agriculture (A-40) zoning district, and the portion of the gen-tie line located north of I-80 is located within PG&E's Vaca-Dixon Substation parcel zoned A-20. Pursuant to Section 28.21.11 of the Solano County Zoning Ordinance, agricultural districts are established to promote and preserve agriculture within the County, including allowing agricultural-related support uses, excluding incompatible uses, and protecting the viability of the family farm. Although the County's Zoning Ordinance does not currently contain criteria specifically for battery energy storage system facilities, Section 28.21.20 of the Solano County Zoning Ordinance allows for battery energy storage system facilities within the A-40 zoning district with a Use Permit as "Utility facilities or infrastructure, outside of right-of-way". Accordingly, the Project and portions of the gen-tie line within Solano County will not conflict with the existing zoning for agricultural use and impacts will be less than significant.

As discussed previously in Section 4.2.2.1, *Agricultural Resources*, the Project site is not under a Williamson Act contract. Therefore, the Project will not conflict with an existing Williamson Act contract.

The portion of the gen-tie line located between Kilkenny Road and I-80 is within the City's jurisdiction and is both zoned and designated as Business Park and High Density Residential. Although orchards currently exist within this portion of the gen-tie corridor, these parcels are not zoned for agricultural use nor are they subject to any Williamson Act contracts. Accordingly, the portion of the gen-tie line within the City's jurisdiction will not conflict with existing agricultural zoning or Williamson Act contracts and impacts will be less than significant.

Overall, the Project will not conflict with existing zoning for agricultural use within either the City or within the County and will not conflict with any existing Williamson Act contracts. Therefore, impacts will be less than significant.

IMPACT 4.2-3: Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resource Code section 4526), or timberland-zoned Timberland Production (as defined by Government Code section 51104(g))? (No Impact)

The Project site and gen-tie corridor are not within any areas designated as forest land (as defined by Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or land zoned for Timberland Production (as defined by Government Code §51104(g)). The Project will not conflict with existing zoning for or cause rezoning of forest land, timberland or timberland-zoned Timberland Production. Therefore, there will be no impact.

IMPACT 4.2-4: Would the project result in loss of forest land or conversion of forest land to non-forest use? (No Impact)

As stated previously for Impact 4.2-3, forest land is not present within the Project site. The Project will not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, there will be no impact.

IMPACT 4.2-5: Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? (Less than Significant Impact)

The Project will not result in impacts to adjacent agricultural lands that could occur with the conversion of the Project site from agricultural uses to non-agricultural uses. The Project will not cause compatibility issues with adjacent agricultural land still in production. Compatibility issues that could potentially result in conversion of farmland include nuisance effects to a site from noise, dust, odors, and drift of agricultural chemicals. Incompatible uses could impact the adjacent agriculture due to restrictions on agricultural chemicals, complaints regarding noise and dust, and vandalism and pilfering of crops. These conflicts could potentially result in increased costs to the agricultural operation and encourage conversion of additional agricultural lands to urban uses. The Project will not result in these types of indirect impacts as the Project operations and maintenance (O&M) staff will be based out of a regional O&M facility and will perform periodic inspections and maintenance as needed to complete O&M activities. Additionally, battery storage projects do not typically attract other development associated with residential populations. Operation of the Project will not result in an increase in employment that would require the construction of new housing development and, therefore, will not result in new residents on or near the Project site. As there are no forest land surrounding the Project site, there will be no potential conversion of forest land to non-forest use. The Project will be compatible with the adjacent agricultural uses and is not expected to affect the agricultural use of the surrounding parcels. The Project would not cause changes in the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore impacts would be less than significant.

4.2.3.2 PG&E Facilities

To accommodate the Project, PG&E will be responsible for siting, design, and construction of the 230-kilovolt gen-tie line from the point of change of ownership (POCO) to their substation, including new interconnection facilities. The Applicant will design, construct, own, and operate the southern 0.9-

mile portion of the gen-tie from the Project substation to the POCO within the gen-tie corridor south of I-80. PG&E will be responsible for the 0.2-mile-long gen-tie between the POCO and the point of interconnection at the PG&E Vaca-Dixon Substation, including the final five structures, the I-80 crossing, and the New Corby Bay, as shown in Figure 1-3 of Section 1, *Executive Summary*. The gen-tie line is described in further detail in Section 3.0, *Electrical Transmission*.

A small portion of the PG&E gen-tie line where the POCO is located is designated as Unique Farmland. As described in Impact 4.2-1, the installation of the gen-tie line would not be considered a conversion of agricultural lands. The PG&E gen-tie is not located on land included in a Williamson Act contract as depicted in Figure 4.2-2; thus, the Williamson Act will not apply. Further, pursuant to Section 28.78.20(B)(9), the "utility facilities or infrastructure, outside of right-of-way" use includes structures for the transmission of electricity, and this use is permitted in any district. As such, PG&E development of this portion of the gen-tie will be consistent with the County's A-20 zoning of the PG&E Vaca-Dixon Substation parcel. Regarding the POCO tower, which is located within the City's jurisdiction, this parcel is zoned and designated Business Park in the City's Zoning Ordinance and General Plan. Accordingly, PG&E's construction of the POCO tower would not conflict with existing zoning for agricultural use. Finally, no forest land or timber land will be impacted, as there is none present within the boundaries of the area.

Accordingly, PG&E's construction of the gen-tie from the POCO to their substation, including new interconnection facilities, will have no significant impacts related to agricultural and forestry resources (Impacts 4.2-1 through 4.2-5 above). No mitigation measures will be required.

4.2.4 Cumulative Effects[6, 7]

The cumulative projects list, provided in Table 4.11-4, *Cumulative Impacts Project List*, in Section 4.11, *Land Use and Planning*, was developed by reviewing publicly available lists of active projects (under review, approved, and under construction) within the study area, which includes portions of Solano County and the City of Vacaville.

With the implementation of Project Design Measure **PD AG-01**, the Project will result in less than significant impacts associated with the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. It is anticipated that any cumulative Projects that may involve the conversion of important farmlands to non-agricultural use would also be required to meet the mitigation criteria outlined in either the Solano County General Plan policies or the City of Vacaville policies, reducing impacts to less than significant. The Project will not conflict with existing zoning for forest land or timberland. The Project is not anticipated to induce non-agriculture land use development in the area and will therefore have a less than significant indirect impact related to potential conversion of adjacent, off-site farmland to non-agricultural use. Therefore, the Project, in combination with cumulative projects, will not cause or contribute to any potential significant cumulative impact to these resource areas.

[6] Appendix B (g) (1)
[7] Appendix B (g) (3) (D) (iii)

4.2.5 Mitigation Measures[8]

No mitigation measures for agriculture and forestry are proposed because the following Project Design Measure is incorporated into the design of the Project:

PD AG-1: Prior to the issuance of building permits, the Project Applicant would secure at least 60.5 acres of agricultural mitigation land in order to meet the mitigation criteria outlined in the Solano County General Plan policies. The basic parameters of the required mitigation outlined in the County policies are as followed:

- Mitigation at a ratio of 1.5:1 (1.5 acres of farmland protected through mitigation for each acre of farmland converted).
- Mitigation within the same agricultural region 9 as the proposed development project.
- Mitigation lands of similar agricultural quality to the lands being converted.

Additionally, the Applicant will enter to into an Initial Screening Agreement with Solano Land Trust and will advance through Solano Land Trust's process ending in Acceptance and Execution of a mitigation agreement. Alternatively, if Solano County implements an agricultural mitigation program in the near future, or if other mitigation providers become available, the Applicant may elect to participate in those programs, if approved by CEC.

4.2.6 Laws, Ordinances, Regulations, and Standards[10]

4.2.6.1 Federal

No federal regulations pertain to the Project.

4.2.6.2 State

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act, Government Code §51200 et seq.) prevents farmland from conversion to other uses by offering owners of agricultural land a property tax incentive to maintain their land in agricultural use. The Williamson Act is a state program implemented at the county level that allows agricultural landowners to voluntarily and contractually agree to retain land included in an agricultural preserve[11] in agricultural or open space uses for a period of at least 10 years and, in return, to pay reduced property taxes. The term of the contract automatically renews each year, such that unless it is specifically nonrenewed or canceled, the contract always has a 10-year-period horizon.

The Project site is not under a Williamson Act contract.

[8] Appendix B (g) (1)
[9] The Project is located within the Elmira/Maine Prairie agricultural region in the Solano County General Plan. https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=6493
[10] Appendix B (i) (1) (A)
[11] An agricultural preserve defines the boundary of an area within which a city or county would be willing to enter into Williamson Act contracts with landowners: The boundary is designated by resolution of the city council or board of supervisors with jurisdiction over the property. Agricultural preserves generally must be at least 100 acres in size.

4.2.6.3 Farmland Mapping and Monitoring Program

The DOC's FMMP, administered by the Division of Land Resource Conservation, is responsible for mapping and monitoring Important Farmlands for most of the State's agricultural areas. The FMMP updates its farmland maps every 2 years based on information from local agencies. FMMP maps show five categories of agricultural lands and three categories of non-agricultural lands, which are described in the following subsections.

Agricultural Lands

Following are descriptions of the farmland mapping categories used by the FMMP. The minimum mapping unit for all agricultural land categories is 10 acres, except for Grazing Land where the minimum mapping unit is 40 acres.

Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are considered especially important agricultural resources. They are often referred to collectively as "important farmland." Grazing Land may also qualify as important farmland where grazing is a key component of the local economy.

Prime Farmland

Prime Farmland is defined by the State as farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date (DOC 2024c).

Farmland of Statewide Importance

Farmland of Statewide Importance is defined as "irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops." However, this land has minor shortcomings, such as steeper slopes or less ability to store soil moisture than Prime Farmland. For land to be designated as Farmland of Statewide Importance, it must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date (DOC 2024c).

Unique Farmland

Unique Farmland is considered to consist of lower-quality soils but, nonetheless, is used for production of the State's leading agricultural crops. Unique Farmland is usually irrigated but may include non-irrigated orchards or vineyards in some climatic zones. To qualify for this designation, land must have been used for crops at some time during the 4 years prior to the mapping date (DOC 2024c).

Farmland of Local Importance

Farmland of Local Importance is land identified as important to the local agricultural economy by each county's board of supervisors and a local advisory committee (DOC 2024c).

Grazing Land

Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities (DOC 2024c).

Non-agricultural Lands

Following are descriptions of the non-agricultural land mapping categories used by the FMMP. Mapping units for non-agricultural lands vary, as described below.

Urban and Built-up Lands

Urban and Built-up Lands consist of land occupied by structures with a building density of at least one structure to 1.5 acres, or approximately six structures to a 10-acre parcel. This type of land is used for residential, industrial, commercial, construction, institutional, and public administration purposes; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed purposes (DOC 2024c).

Other Land

Other Land is land not included in any other mapping category. Examples also include low-density rural developments and brush, timber, wetland, and riparian areas not suitable for livestock grazing. This category also includes vacant and non-agricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. Rural Residential Land is included in the Other Land category (DOC 2024c).

4.2.6.4 Local

Solano County General Plan

The Solano County General Plan Agriculture Chapter contains goals, policies, and programs related to agriculture resources (Solano County 2008). The agricultural region the Project site is designated as Elmira/Maine Prairie. The general uses of the Elmira/Maine Prairie designation includes agricultural production, agricultural processing facilities, and agricultural services. The following are goals, policies, and implementation measures that are applicable to the Project:

> ***Goal AR.G-2:*** *Preserve and protect the county's agricultural lands as irreplaceable resources for present and future generations.*
>
> ***Goal AR.G-5:*** *Reduce conflict between agricultural and nonagricultural uses in Agriculture-designated areas.*
>
> ***Goal AR.G-6:*** *Recognize, support, and sustain agricultural water resources for farmlands.*
>
> ***Policy AG.P-4:*** *Require farmland conversion mitigation for either of the following actions:*
>
> a. *a General Plan amendment that changes the designation of any land from an agricultural to a nonagricultural use or*

b. *an application for a development permit that changes the use of land from production agriculture to a nonagricultural use, regardless of the General Plan designation.*

Policy AG.P-8: *Maintain water resource quality and quantity for the irrigation of productive farmland so as to prevent the loss of agriculture related to competition from urban water consumption internal or external to the county.*

Policy AG.P-9: *Promote efficient management and use of agricultural water resources.*

Implementation Program AG.I-1: *Create and adopt a farmland conversion mitigation program and ordinance. Require compensation for loss of agricultural land. Establish appropriate mitigation ratios for the program or utilize a graduated mitigation mechanism. The mitigation ratio shall be a minimum of 1.5:1 (1.5 acres of farmland protected through mitigation for each acre of farmland converted). The program shall not present regulatory barriers to agritourism, agricultural services, and agricultural processing in regions and within land use designations where such uses are permitted and encouraged. The program shall also establish mitigation within the same agricultural region as the proposed development project, or within the Agricultural Reserve Overlay district, as a preferred strategy. The program shall incorporate a fee option, and shall provide an exemption for farmworker housing. Mitigation lands shall be of similar agricultural quality to the lands being converted.*

Implementation Program AG.I-23: *Work with the Solano County Water Agency, irrigation districts, reclamation districts, adjacent counties and the resource conservation districts to ensure adequate future water supply and delivery. Examine agricultural trends in surrounding communities and cooperate with adjacent counties in marketing and agricultural preservation practices. Review development proposals and require necessary studies, as appropriate, and water conservation and mitigation measures to ensure adequate water service. Examine the potential impact of water transfers from farmland to urban uses internal or external to the county and the implications for agriculture in the county. Create educational programs for farmers and ranchers that teach efficient water resource management. Explore options for expanding the county's irrigated areas. Working with the Solano County Water Agency, irrigation districts, reclamation districts, and the resource conservation districts, promote sustainable management and efficient use of agricultural water resources.*

Solano County Code

Zoning Ordinance

The Project site and the PG&E Vaca-Dixon Substation have an Exclusive Agriculture zoning designation; however, the Project site is within the A-40 district and the substation is within the A-20 district. Pursuant to Section 28.21.10 of the Solano County Zoning Ordinance, agriculture is the major industry in the County generating the majority of the tax revenue in the unincorporated County. Agriculture is also the largest single zone district classification on the County zoning map. Therefore, the Board of Supervisors has determined that the promotion and preservation of agriculture is of vital interest to the County. However, Section 28.21.20 of the Solano County Zoning Ordinance states that utility facility or infrastructure, outside of the right of way, is authorized with a Use Permit.

Right to Farm Ordinance

Solano County's "right-to-farm" ordinance is defined in Chapter 2.2 of the Solano County Code. This ordinance is designed to protect farm operations from nuisance complaints associated with residential used located next to active agricultural operations (Solano County 2008). The Right-to-Farm ordinance guarantees the right to continue agricultural operations, including but not limited to, cultivating and tilling the soil, burning agricultural by-products, irrigating, raising crops and/or livestock, and applying approved chemicals in a proper manner to fields and farmlands. This ordinance limits the circumstances under which agriculture may be considered a nuisance. To prevent future conflicts, notice of this ordinance will be given to purchasers of real property in the county.

City of Vacaville General Plan

The City of Vacaville General Plan Land Use Element and Conservation Element contain goals, policies, and actions related to agricultural resources (City of Vacaville 2015). As the western portion of the gen-tie corridor lies within the City of Vacaville's jurisdiction, the following goals and policies are applicable to the Project:

> ***Goal LU-2:*** *Carefully plan for new development in undeveloped portions of Vacaville*
>
> ***Policy LU-P2.4:*** *Require that development on any prime farmland, farmland of statewide importance, or unique farmland (as classified by the California Department of Conservation) purchase conservation easements to permanently protect agricultural land of equal or greater value at a ratio of 1 acre of conserved agricultural land per 1 acre of developed agricultural land.*

Vacaville Municipal Code

The portion of the gen-tie line between Kilkenny Road and I-80 is located within the City's jurisdiction and is within parcels zoned Business Park and High Density Residential. Refer to Section 4.11, *Land Use and Planning*, for an analysis of the Project's consistency with the City of Vacaville Municipal Code. Specifically, refer to Section 4.11.2.3 for a discussion on the City's zoning and land use designations as related to the portion of the gen-tie line located within the City's jurisdiction.

4.2.7 Agencies and Agency Contacts

No contacts were made related to agriculture and forestry resources.

4.2.8 Required Permits and Permitting Schedule

Other than certification by the CEC, no state, federal, or local permits are required for management of agricultural and forestry resources.

4.2.9 References[12]

City of Vacaville. 2015. City of Vacaville General Plan. Available online at: https://www.cityofvacaville.gov/government/community-development/general-plan/general-plan-documents-4408 (accessed August 2024).

[12] Appendix B (g) (1)

DOC (Department of Conservation). 2024a. Farmland Mapping & Monitoring Program. Available online at: https://www.conservation.ca.gov/dlrp/fmmp/ (accessed August 2024).

DOC. 2024b. Williamson Act Program. Available online at: https://www.conservation.ca.gov/dlrp/lca (accessed August 2024).

DOC. 2024c. Important Farmland Categories. Available online at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx (accessed August 2024).

Solano County. 2008. Solano County General Plan Agriculture Chapter. Available online at: https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=6493 (accessed August 2024).

4.3 Air Quality

This section identifies and evaluates issues related to air quality and public health in the context of the Corby Battery Energy Storage System Project (Project), in accordance with California Energy Commission guidelines while simultaneously addressing considerations under the California Environmental Quality Act (CEQA). It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

This section also contains the methodology and results of the human health risk assessment (HRA) for the Project. The purpose of the HRA is to evaluate potential public health impacts from exposure to the pollutant emissions associated with the construction, operation, and maintenance of the Project.

4.3.1 California Environmental Quality Act Checklist

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
1.	Conflict with or obstruct implementation of the applicable air quality plan?			X	
2.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
3.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
4.	Expose sensitive receptors to substantial pollutant concentrations?			X	
5.	Create objectionable odors affecting a substantial number of people?			X	

4.3.2 Affected Environment[1, 2]

4.3.2.1 Existing Site Conditions[1]

Climate and Topography

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project is located in the Sacramento Valley Air Basin (SVAB), which includes all of Shasta, Tehama, Glenn, Colusa, Butte, Sutter, Yuba, Sacramento, and Yolo Counties; the westernmost portion of Placer County; and the northeastern half of Solano County.

The SVAB is bounded by the North Coast Ranges on the west and Northern Sierra Nevada Mountains on the east. The intervening terrain is relatively flat. The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest

[1] Appendix B (g) (1)
[2] Appendix B (g) (9) (C)

frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells collect over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with temperature inversions that trap pollutants near the ground.

The SVAB is characterized by a Mediterranean climate with hot, dry summers and mild rainy winters. Temperatures range from 20 to 115 degrees Fahrenheit. Average annual precipitation is about 20 inches. The prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north (YSAQMD 2007).

Pollutants and Effects

The potential for high pollutant concentrations at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind and the ability of the atmosphere to disperse the contaminated air. Topographic and climatological factors influence the atmospheric pollution potential of an area. The potential for air pollution is a function of emissions sources, wind flow patterns, inversions, solar radiation, and topography.

Air pollution in any location also depends on the quantity emissions in the surrounding area, including pollutants transported from other areas. Air emissions are generally highest in areas that have high population densities, high motor vehicle use, and/or industrialization.

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants. The USEPA calls these “criteria” air pollutants because it regulates them by developing health-based (primary) or environmentally based (secondary) standards. Criteria pollutants include nitrogen oxides (NO_X), ozone, particulate matter (particulate matter less than 10 microns in diameter [PM_{10}] and less than 2.5 microns in diameter [$PM_{2.5}$]), carbon monoxide (CO), sulfur dioxide (SO_2), and lead. In addition, reactive organic gases (ROG) and NO_X are regulated as precursors to ozone. These pollutants are summarized below.

Ozone (O_3) is a secondary pollutant that is formed from the reaction of nitrogen oxides and volatile organic compounds (also called ROG) in the presence of sunlight. Ozone exists naturally in the stratosphere, shielding earth from harmful ultraviolet radiation. However, at ground-level, ozone causes adverse health effects and is a major component of smog. High concentrations have been tied to respiratory ailments and cardiovascular disease, as well as damage to natural ecosystems, agricultural crops, and materials such as rubber, paint, and plastics. The main sources of NO_X and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines), the evaporation of solvents, paints, and fuels, and biogenic sources. Ozone levels usually build up during the day and peak in the afternoon hours. Ozone levels are usually highest on hot, windless summer afternoons, especially in inland valleys.

ROG are composed of hydrocarbon compounds that contribute to the formation of smog through atmospheric chemical reactions. The primary sources of ROG include mobile sources, consumer products, petroleum marketing (e.g., gas dispensing), coatings and solvents, and agricultural related

activities (YSAQMD 2007). Compounds that make up ROG are often evaluated as part of a toxic risk assessment under Assembly Bill (AB) 2588 provisions.

NO_X are a family of gaseous nitrogen compounds that result primarily from the combustion of fossil fuels. Nitrogen dioxide (NO_2) is regulated directly under the NAAQS and California Ambient Air Quality Standards (CAAQS) and as a precursor to the formation of ozone and particulate matter. In addition to its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. The main sources of NO_X emissions in the region are on-road and off-road motor vehicle fuel combustion (YSAQMD 2007).

PM comprises solid particles and liquid droplets, including smoke, dust, organic compounds, soil particles, and aerosols. Particles that are 10 micrometers in diameter or smaller (also called respirable particles) are a potential human health concern because they can enter the lungs, which can affect the heart and cause adverse health effects. They can be emitted directly to the atmosphere as well as be formed in the atmosphere by chemical reactions among precursors. Particulate matter can be categorized based on their size:

- Inhalable coarse particles ($PM_{2.5}$ to PM_{10}) are between 2.5 and 10 micrometers in diameter. Sources include roads, farming activities, windblown dust, and combustion sources.
- Fine particles ($PM_{2.5}$) are 2.5 micrometers in diameter or smaller, and generally emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning.

CO is an odorless, colorless gas formed by the incomplete combustion of fuels emitted into the air. The largest source of CO in the SFBAAB is motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen to the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death. CO problems tend to be localized with nonattainment areas designated in urban areas rather than the entire basin. With the introduction of new automotive emission controls and fleet turnover, emissions from motor vehicles have been declining.

SO_2 is a colorless gas formed by the combustion of fossil fuels that contain sulfur. It has potential to damage materials and can have health effects at high concentrations. SO_2 can irritate lung tissue and increase the risk of acute and chronic respiratory disease. The County is in attainment of both the federal and California standards for SO_2. The use of low-sulfur fuel has minimized problems with this pollutant.

Available Public Health Studies

Per California Energy Commission siting regulation Appendix B (g)(9)(C), a search of available health studies concerning the potentially affected populations within a 6-mile radius is required. The California Department of Public Health prepared the County Health Status Profiles, which provides a comparison of public health data against national standards and populations of similar composition

(CDPH 2023). This statewide report contains data from the years 2015 to 2021. The following findings were identified for Solano County:

- Deaths due to all cancers: Solano County does not meet the Healthy People 2030 National Objective C-01 of no more than 122.7 age-adjusted deaths due to all cancers per 100,000 population.
- Deaths due to Coronary Heart Disease: Solano County meets the Healthy People 2030 National Objective HDS-02 of no more than 71.1 age-adjusted deaths due to coronary heart disease per 100,000 population.
- Deaths due to Influenza and Pneumonia: A Healthy People 2030 National Objective for deaths due to influenza and pneumonia has not been established. The age-adjusted death rate for these diseases in Solano County was within 11.6 to 14.3 per 100,000 population, which exceeds the California average (11.5 per 100,000) population.
- Deaths due to Chronic Lower Respiratory Disease: A Healthy People 2030 National Objective for deaths due to chronic lower respiratory disease has not been established. The age-adjusted death rate for these diseases in Solano County was within 26.3 to 38.2 per 100,000 population, which exceeds the California average (26.2 per 100,000) population.

Sensitive Receptors

Sensitive receptors are defined as groups of individuals that may be more susceptible to poor air quality or the health risks associated with chemical exposure and include children, the elderly, and those with preexisting health problems. Schools (public and private), day care facilities, parks, convalescent homes, hospitals, and residential communities are of particular concern. Sensitive receptors identified in the vicinity of the Project include assisted living facilities, a nursing home, a daycare center, and private educational institution.

The Project site is surrounded on all sides by existing agricultural lands, with sparsely located residences within its vicinity. The nearest residences include one located across Kilkenny Road directly to the north. Additional rural residences also exist in the Project vicinity, both to the south and west of the Project site. For the purpose of conducting the HRA, worker receptors were also identified, with the closest one located 0.1 mile to the southeast of the Project.

Sensitive receptors, residences, and worker receptors are depicted on Figure C-1, Attachment C of Appendix 4.3-A.[3]

The greatest potential for exposure to air pollutants will occur during construction, when the ground will be disturbed from grading and delivery of materials. The construction emissions presented in this analysis are based on worst-case conditions, assuming maximum construction activity would occur. In reality, exposure to emissions will vary substantially throughout construction and will depend on the staging of the work being conducted, location of work relative to receptors, and weather conditions.

[3] Appendix B (g) (9) (D)

Valley Fever

Valley fever is an infection caused by inhalation of *Coccidioides immitis* (*C. immitis*) fungal spores. The fungus grows in soil in areas of California and the southwestern United States. Valley fever infection is highest during under conditions of high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils. Fungal spores lie dormant in the soil until they are disturbed by wind, vehicles, or other ground-disturbing activities and become airborne. Agricultural workers, construction workers, and other people who are exposed to wind and dust outdoors are most prone to contracting Valley fever. Infections can result in mild influenza-like symptoms, such as fever, cough, chest pain, muscle or joint aches, night sweats, and rash. Rarely, in more serious cases, it can infect the brain, joints, bone, skin or other organs, or cause death. Approximately 60 percent of people exposed to fungal spores are asymptomatic and show no signs of infection (CDC 2022). Infection rates of Valley fever in Solano County are relatively low compared to those in other California counties (CDPH 2024).

4.3.2.2 Overview of Air Quality Standards[4]

The USEPA has established NAAQS for the following seven pollutants, termed criteria pollutants: ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and airborne lead. Similarly, the CARB has established CAAQS for the seven pollutants listed above and for visibility-reducing particles (VRP), sulfates, hydrogen sulfide, and vinyl chloride. Unique meteorological conditions in California and differences of opinion by medical panels established by the CARB and USEPA cause considerable diversity between state and federal standards currently in effect in California. In general, the CAAQS are more stringent than the corresponding NAAQS. The standards currently in effect in California are shown in Table 4.3-1, *State and Federal Ambient Air Quality Standards*.

Table 4.3-1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1/]		Federal Standards[2/]		
		Concentration[3/]	Method[4/]	Primary[3/, 5/]	Secondary[3/, 6/]	Method[7/]
Ozone	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter ($PM_{2.5}$)[8/]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	9.0 µg/m³	15 µg/m³	
Carbon Monoxide	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	

[4]Appendix B (g) (9) (D)

Pollutant	Averaging Time	California Standards[1/]		Federal Standards[2/]		
		Concentration[3/]	Method[4/]	Primary[3/, 5/]	Secondary[3/, 6/]	Method[7/]
Nitrogen Dioxide[9/]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10/]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)[9]	—	
	Annual Arithmetic Mean	—		0.30 ppm (for certain areas)[9]	—	
Lead[11/, 12/]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[9/]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles[13/]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	24 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10/]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, updated 05/04/16), USEPA (http://www.epa.gov/air/criteria.html, accessed September 2024)
µg/m^3 – microgram per cubic meter; ppb – part per billion; ppm – part per million
1/ California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM_{10} and $PM_{2.5}$) and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2/ National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once per year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard. Contact the USEPA for further clarification and current national policies.
3/ Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. The torr (symbol: Torr) is a non-SI unit of pressure with the ratio of 760 to 1 standard atmosphere, chosen to be approximately equal to the fluid pressure exerted by one millimeter of mercury (Hg), i.e., a pressure of 1 Torr is approximately equal to 1 millimeter of Hg. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4/ Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5/ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect public health.
6/ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7/ Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.
8/ Revised effective May 6, 2024 (89 FR 16202, Reconsideration of the National Ambient Air Quality Standards for Particulate Matter).
9/ To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
10/ On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard. However, in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
11/ The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects that are determined. These actions allow implementing control measures at levels below the ambient concentrations specified for these pollutants.

12/ The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard. However, in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
13/ In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

4.3.2.3 Existing Regional and Local Air Quality Conditions

Sacramento Valley Air Basin Attainment Status

In an effort to protect human health and welfare, the CARB and USEPA have established ambient air quality standards. Areas are considered in "attainment" if standards are met and "nonattainment" if they are not met. For ozone, nonattainment status is further classified as marginal, moderate, serious, severe, or extreme. Table 4.3-2, *SVAB Attainment Status (Solano County)*, contains the attainment status for each pollutant in the SVAB.

Table 4.3-2. SVAB Attainment Status (Solano County)

Pollutant	State of California Attainment Status	Federal Attainment Status
Ozone (1-hour)	Nonattainment/Severe	No Federal Standard
Ozone (8-hour)	Nonattainment	Nonattainment/Severe (2008); Serious (2015)
Suspended Particulate Matter (PM_{10})	Nonattainment	Attainment/Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment (moderate)
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment	Attainment/Unclassified
Lead	Attainment	Attainment/Unclassified
Sulfur Dioxide	Attainment	Attainment/Unclassified
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

Sources: USEPA (2024a) and CARB (2022a)

Local Ambient Air Quality

An extensive air monitoring network operated by the Yolo Solano Air Quality Management District (YSAQMD), CARB, and the U.S. National Park Service measures concentrations for major pollutants to determine attainment status as well as generate air quality forecasts.

YSAQMD monitors ambient air quality for ozone, PM_{10}, and $PM_{2.5}$. The closest monitor measuring ozone concentrations is the Vacaville-Ulatis Drive monitoring station, located approximately 3 miles southwest of the Project site. For PM_{10}, the closest monitor is the Vacaville-Merchant Street monitoring station located approximately 5 miles southwest of the Project site. Finally, for $PM_{2.5}$, the closest monitor is the Woodland-Gibson Road monitoring station located approximately 18 miles northwest of the Project site. For the purposes of this analysis, these monitoring locations were considered representative of the air quality experienced in the vicinity of the Project. Table 4.3-3, *Local Ambient Air Quality Monitoring Data for the Years 2021 to 2023,* summarizes the most recent air quality data from 2021 through 2023 with the number of days exceeding the ambient air quality standards.

Table 4.3-3. Local Ambient Air Quality Monitoring Data for the Years 2021 to 2023[5]

Averaging Period	2019	2020	2021
Ozone – Vacaville-Ulatis, California Monitoring Station (AQS Site ID: 06-095-3003)			
1-hour Maximum Concentration (ppm)	0.095	0.086	0.075
Number of days exceeding CAAQS – **0.09 ppm**	1	0	0
8-hour Maximum Concentration	0.078	0.068	0.069
Number of days exceeding CAAQS – **0.070 ppm**	2	0	0
Number of days exceeding NAAQS – **0.070 ppm**	2	0	0
Coarse Particulate Matter (PM_{10}) – Vacaville-Merchant Street, California Monitoring Station (AQS Site ID: (06-095-3001)			
24-hour Maximum Concentration (µg/m^3)	50.0	33.4	37.6
Number of days exceeding CAAQS – **50 µg/m^3**	0	0	0
Number of days exceeding NAAQS – **150 µg/m^3**	0	0	0
Annual Average Concentration (state method) (µg/m^3) (**20 µg/m^3**)	*	12.3	*
Fine Particulate Matter ($PM_{2.5}$) – Woodland-Gibson Road, California Monitoring Station (AQS Site ID: 06-113-1003)			
24-hour Maximum Concentration (µg/m^3)	33.8	34.8	37.0
Number of days exceeding NAAQS – **35 µg/m^3**	0	0	1
Annual Average Concentration (µg/m^3) (**12 µg/m^3**)1/	8.8	8.3	7.4

Notes: µg/m^3 – microgram per cubic meter; CAAQS – California ambient air quality standards; NAAQS – National Ambient Air Quality Standards; ppb – parts per billion; ppm – parts per million

1/ Applicable standard for years 2021- 2023. This has since been revised to 9 µg/m3 effective May 6, 2024 (89 FR 16202, Reconsideration of the National Ambient Air Quality Standards for Particulate Matter).

Sources: CARB (2024b) and USEPA (2024b)

4.3.3 Environmental Analysis[6, 7, 8]

This section describes the potential impacts to air quality and public health risks associated with the construction phase and the operations and maintenance phase of the Project. The methodology for the air quality analysis and the HRA, as well as the results of both analyses, are discussed.

4.3.3.1 Air Quality Methodology

Construction and operation of the Project will generate air contaminant emissions, including ROG, NO_x, PM_{10}, $PM_{2.5}$, CO, SO_2, and greenhouse gases (GHG). The Project will also result in toxic air contaminant (TAC) emissions, such as diesel particulate matter (DPM)[9] and odors. The methods and tools used to estimate emissions from the Project are described in the following subsections.

Air pollutant emissions associated with the Project will occur over the short term from construction-related activities (14 months), including equipment exhaust, vehicle travel on paved and unpaved roads, and fugitive dust from soil disturbance activities. Construction activities will produce combustion emissions from construction equipment engines and motor vehicles transporting the construction crew, equipment, and materials. Exhaust emissions from construction activities will vary daily as activity levels change. The associated air contaminants include ROG, NO_x, PM_{10}, $PM_{2.5}$, CO, SO_2, and GHGs. Emissions quantification related to construction activities is necessary for comparison to YSAQMD significance thresholds. In addition, the emissions documentation must include the

[5] Appendix B (g) (8) (G)
[6] Appendix B (g) (1)
[7] Appendix B (g)(8)(A)
[8] Appendix B (g) (8) (I), Appendix B (g) (8) (I) (ii)
[9] DPM has been estimated as PM_{10} emitted from the exhaust of on-site diesel-fueled construction equipment.

quantification methodology used, including emission factors, emission factors sources, assumptions, and sample calculations where necessary. Construction emissions were estimated using the emission calculation tool California Emissions Estimator Model (CalEEMod) Version 2022.1.1.21(CAPCOA 2022). Since CalEEMod was used, the emissions calculation assumption section presents the general assumptions for the specific inputs and settings used for the air quality analysis.

Once constructed, operational control will be from an off-site control room through the supervisory control and data acquisition (SCADA) system and operational staff will perform inspections and maintenance as necessary. In addition to this, the Project will require up to six workers to support onsite and offsite operations and maintenance (O&M) and administrative support functions.

Construction

During all phases of construction, the Project will comply with applicable fugitive construction dust mitigation measures stated in the *Handbook for Assessing and Mitigating Air Quality Impacts* (YSAQMD 2007).

Project construction will result in exhaust emissions (from fuel combustion in off-road construction equipment, generators, and vehicles) and fugitive dust emissions (from earth-moving activities and vehicle travel on paved and unpaved roads).

Construction emissions modeled include those from the following sources:

- Exhaust emissions of ROG, NO_X, CO, SO_2, PM_{10}, $PM_{2.5}$, and GHGs from off-road construction equipment and stationary generators;
- Exhaust emissions of ROG, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ from on-road vehicle trips, including worker commutes, vendor trips, and haul truck trips; and
- Fugitive dust emissions of PM_{10} and $PM_{2.5}$ from onsite earth-moving activities and offsite vehicle travel.

Project-specific assumptions for the construction schedule, equipment types, and daily usage rates for each activity used in the CalEEMod modeling are provided in Table 4.3-4, *Construction Schedule*. Default settings in CalEEMod were used when Project-specific information was not available.

Table 4.3-4. Construction Schedule

Construction Activities	No. of Work Days	Equipment	Quantity/Day	Usage Hours
Site Preparation	40	Rubber Tired Loaders	1	8
		Skid Steer Loaders	1	4
		Tractors/Loaders/	1	4
Grading	20	Graders	1	8
		Plate Compactors	1	6
		Rollers	1	6
		Rubber Tired Loaders	1	6
		Skid Steer Loaders	1	6
		Tractors/Loaders/	1	8
		Onsite water trucks	1	8
	20	Cranes	2	8

Construction Activities	No. of Work Days	Equipment	Quantity/Day	Usage Hours
Battery/ Container Installation		Air Compressors	2	6
		Excavators	2	8
		Plate Compactors	2	4
		Generator Sets	2	8
		Rollers	1	8
		Rough Terrain Forklifts	1	8
		Skid Steer Loaders	2	6
		Tractors/Loaders/	2	6
Gen tie Site Prep (Orchard Removal)	10	Dozers	2	8
		Excavators	1	8
		Stump Grinder	1	8
Substation Installation	60	Air Compressors	1	8
		Aerial Lifts	4	4
		Bore/Drill Rigs	1	2
		Cranes	1	4
		Excavators	1	8
		Generator Sets	1	4
		Rollers	1	6
		Rough Terrain Forklifts	1	6
		Rubber Tired Dozers	1	8
		Tractors/Loaders/ Backhoes	1	6
		Trenchers	2	8
		Skid Steer Loaders	1	6
Gen-tie Foundations, Tower Erection, and Underground Installation	140	Air Compressors	2	6
		Cranes	1	8
		Forklifts	1	6
		Pumps	2	4
		Welders	2	8
		Bore/Drill Rigs	1	4
		Excavators	1	6
		On-site water trucks	1	8
Gen-tie Stringing and Pulling	80	Aerial Lifts	2	6
		Tractors/Loaders/	2	6
Commissioning	5	N/A	N/A	N/A
Generator Only Phase- Construction	60	Generator Sets	2	8

Note: Construction activities and equipment data were provided by the Applicant.
BESS – battery energy storage system

A summary of on-road vehicle trips is provided in Table 4.3-5, *On-Road Vehicle Trips*.

Table 4.3-5. On-road Vehicle Trips

Construction Activities	One-way Vehicle Trips							
	Daily Worker Trips[1/]	Daily Vendor Trips[1/]	Daily Haul Truck Trips[1/]	Daily Onsite Truck Trips[1/]	Trip Length Worker (miles)	Trip Length Vendor (miles)	Trip Length Hauling (miles)	Trip Length Onsite truck (miles)
Site Preparation	16	8	20	8	12.4	7.29	20	1.25
Grading	80	16	87[2/]	40	12.4	7.29	50	1.25
Battery/ Container Installation	120	30	30	10	12.4	7.29	20	1.25
Gen tie Site Prep (Orchard Removal)	10	0	13	2	12.4	7.29	50	1.25
Substation Installation	80	40	20	0	12.4	7.29	20	1.25
Gen-tie Foundations, Tower Erection, and Underground Installation	80	16	46[2/]	10	12.4	7.29	20	1.25
Gen-tie Stringing and Pulling	80	16	20	10	12.4	7.29	20	1.25
Commissioning	150	40	0	20	12.4	7.29	20	1.25
Generator Only Phase-Construction	0	0	0	0	--	--	--	--

Notes:
1/ Number reflects daily one-way trips.
2/ Number includes water truck and import fill trips

Emission Calculation Assumptions

On-road Equipment Assumptions:

- Exhaust emissions for on-road equipment were calculated using CalEEMod for years 2026 and 2027.
- All on-road construction equipment emissions were determined using on-road emission factors; none were estimated using off-road emission factors (onsite trucks were modeled as on-road vehicles).
- Fugitive dust emissions were estimated for both paved roads and unpaved roads, where applicable.

Off-road Equipment Assumptions

- Exhaust emissions for off-road equipment were calculated using the CalEEMod for years 2026 and 2027.
- Fugitive dust emissions were estimated for grading activities and truck loading using CalEEMod.

Construction Information and Assumptions

Construction-related emissions are based on the following:

- Material imported: 35,243 cubic yards
- Material exported: 10,693 cubic yards

Combustion

Combustion emissions during construction will result from:

- Exhaust from the onsite diesel construction equipment;
- Exhaust from onsite water trucks used to control construction dust emissions;
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the Project site;
- Exhaust from diesel trucks used to deliver equipment and materials; and
- Exhaust from automobiles used by workers to commute to and from the Project site.

Fugitive Dust

Fugitive dust emissions during construction will result from:

- Earth-moving activities; and
- Vehicle travel on paved and unpaved surfaces.

Operation

Emissions from Project operations were estimated using CalEEMod. Based on available information, the operational year 2027 was used for estimating emissions for the following sources in CalEEMod:

- Mobile sources: O&M of the Project will need up to six workers per day to support onsite and offsite O&M and administrative support functions. On intermittent occasions, additional workers may be required for repairs or replacement of equipment or other specialized maintenance.
- Area sources: As a battery energy storage facility, no hearths, consumer products, architectural coating, or landscape equipment usage will be needed for facility operation.
- Energy use: Operation of the Project will rely on electricity from Pacific Gas and Electric (PG&E). Indirect GHG emissions associated with power generation to support the energy consumption at the facility were based on the anticipated power demand of the facility and CalEEMod default emission factors for PG&E. Energy consumption of the facility was estimated using design data for the proposed thermal management system to account for the electricity needs for battery cooling.
- Water and wastewater: The Project will not have operations or emissions associated with water and wastewater.
- Solid waste: The Project will not have operations or emissions associated with solid waste.
- Stationary sources: The Project will not have operations or emissions associated with stationary sources, such as emergency generators, fire pumps, or boilers.

4.3.3.2 HRA Analysis[10, 11]

Construction Phase Emissions

During construction, the Project will use heavy-duty construction equipment, haul trucks, and construction worker vehicles. These vehicles and equipment will generate PM from diesel combustion or DPM, which is a TAC. DPM emissions from the Project will occur in a localized area (such as near locations with multiple pieces of heavy construction equipment working close by) for a short period of time.

Operations and Maintenance Phase Emissions

As stated previously, the Project will require up to six workers per day to support onsite and offsite O&M and administrative support functions. With the small number of O&M staff, Project operation will have minimal emissions of air pollutants, including TACs, and will not expose sensitive receptors to substantial pollutant concentrations. Although additional workers may be required for repairs or replacement of equipment or other specialized maintenance, these repairs will be infrequent, and are not expected to generate substantial additional pollutant emissions. One major maintenance inspection will also take place annually, requiring approximately 20 personnel for approximately one week. In addition, approximately every 2 to 3 years the Project will require battery augmentation to maintain Project capacity; a crew of approximately 20 additional workers will be onsite for approximately 3 months to install and connect additional batteries.

Approach to Assessing Public Health Impacts

In order to determine whether the Project would expose sensitive receptors to substantial TAC emissions from equipment and vehicles during construction, an HRA was performed. DPM was the only TAC evaluated in the HRA for construction equipment.

This screening HRA was conducted following the Office of Environmental Health Hazard Assessment's (OEHHA) Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015) and based on three general steps to estimate health impacts:

- Identification and quantification of project-related TAC emissions:
  - DPM was assumed to be best represented by the PM_{10} emitted during diesel fuel combustion. Therefore, the exhaust PM_{10} emissions estimated for Project construction were used in the HRA.
- Evaluation of pollutant transport using air dispersion modeling:
  - Dispersion of the DPM emitted from the construction equipment and on-site vehicles was modeled using the American Meteorological Society/Environmental Protection Agency Regulatory Model (or AERMOD) (Version 23132) air dispersion model to estimate ground-level DPM concentrations at each modeled receptor and at sensitive receptor locations.
  - Emissions were simulated as three area sources covering the Project areas associated with the BESS, substation, and generation tie (gen-tie) line corridor.

[10] Appendix B (g) (9) (A) and (B)
[11] Appendix B (g) (9) (E) (ii) and (iii)

- Five years of meteorological data (2017–2021) comprising Vacaville, California, surface observations with concurrent upper air data from Oakland, California, were obtained from CARB in AERMOD-ready processed format. This meteorological data set was used to estimate the maximum concentrations by the refined AERMOD modeling to best represent a maximum predicted concentration that can occur considering varying hourly meteorology over a 5-year period.
- The area sources were characterized to have a release height of 2.55 meters with an initial vertical dimension of 2.37 meters (USEPA 2012). Annual mitigated construction equipment emissions were determined from CalEEMod and assigned to the area source. The HROFDAY factor in AERMOD was used to reflect the construction schedule (7:00 a.m.–7:00 p.m. Monday through Friday).
- Receptors were placed along the property fence line at 20-meter intervals. A nested grid of receptors was developed using the following spacing: 100-meter spacing out to 2,000 meters, and 1,000-meter spacing out to 20,000 meters in accordance with the OEHHA (2015) Air Toxics Hot Spots Program Risk Assessment Guidance. Additionally, discrete receptors were placed to capture DPM concentrations at select points of interest. These include residences, off-site worker locations, and sensitive receptors.
- Receptor elevations were determined by using the National Elevation Data processed with the AERMAP v18181 terrain preprocessor.
- The modeled output (in terms of maximum ground-level pollutant concentrations) was used for the exposure assessment.

- Exposure and risk assessment:
  - Cancer risks and the noncancer health risks associated with the modeled exposure concentrations at each receptor were calculated using the HARP2 model to convert the modeled ground level DPM concentrations to health risk values.

Model Input Parameters

To conduct the HRA, DPM concentrations from AERMOD corresponding to the nearest residences, workers, and other sensitive receptors were input into HARP2. Additionally, the maximum predicted concentration was input to determine the health risk value at the point of maximum impact (PMI). HARP2 is a software suite used to assist with the requirements of the Air Toxics "Hot Spots" Program (Assembly Bill [AB] 2588) and incorporates the requirements of the latest version of OEHHA (2015).

Calculation of Health Effects and Significance Criteria

The risk categories evaluated in HRAs include individual excess lifetime cancer risk and noncancer health effects from chronic (long-term) exposure. Noncancer acute health risks were not estimated because, currently, no acute risk values are developed for DPM (OEHHA 2015). Details of the screening HRA methodology and results are provided in Appendix 4.3-A.[12]

[12] Appendix B (g)(8)(H), (g) (8)(H)(ii)

If emissions of TACs exceed any of the *Thresholds of Significance* listed below, the Project would result in a significant impact:

- Probability of contracting cancer for the maximally exposed individual (MEI) equals or exceeds 10 in 1 million people.
- Ground level concentrations of non-carcinogenic TACs would result in a hazard index equal to 1 for the MEI or greater.

Based on above thresholds, the risks were evaluated at specific types of MEIs - maximum exposed individual resident (MEIR) and maximum exposed individual worker (MEIW). In addition to this, the analysis also includes estimation of risk at the point of maximum impact (PMI) and sensitive receptors (SR).

Estimated Lifetime Cancer Risk

Cancer risk is presented as the probability of developing cancer if a person is exposed continuously to a toxic air pollutant over an extended period. A cancer risk of 1 in 1 million means that in an exposed population of 1 million people, not more than 1 additional person would be expected to develop cancer as the result of the exposure to the toxic air pollutant.

Cancer risk was conservatively assessed based on a 1-year exposure period of Project construction. The total cancer risk from the Project construction at the identified receptors was estimated to be less than 10 in 1 million.

Estimated Chronic and Acute Total Hazard Indices

The noncancer health effects associated with chronic exposures are expressed as chronic hazard index (HIC), which is the ratio of expected exposure levels to acceptable chronic reference exposure levels. Reference exposure levels (REL) are concentrations of a chemical at or below which adverse noncancer health effects are not anticipated to occur for a specified exposure duration.

Maximum noncancer chronic risk for Project construction at identified receptors was estimated to be less than 1 (Table 4.3-13).

Assumptions Used in the Public Health Impact Assessment

Although Project construction would occur over a 14-month period, the HRA was based on a 1-year consecutive exposure to evaluate the cancer and noncancer chronic risks. Exhaust PM_{10} emissions resulting from construction equipment and onsite trucks were modeled as multiple area sources with release height of 2.55 meters and an initial vertical dimension of 2.37 meters (USEPA 2012). The OEHHA default values for fraction at home, breathing rates, etc., were used for exposure calculations in HARP2 for MEIRs and SRs. However, for the MEIWs and PMI, 8-hour breathing rates and the OEHHA recommended start age of 16 years were incorporated.

Criteria Pollutants

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort,

repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

The federal and California CAA require USEPA to set NAAQS for pollutants that are common in outdoor air and considered harmful to public health and the environment. The NAAQS and CAAQS presented in Table 4.3-1 are the standards for criteria pollutants. The following sections evaluate criteria pollutant emissions from the Project against regional air quality thresholds.

4.3.3.3 CEQA Impact Analysis

CEQA

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA *Guidelines* (California Code of Regulations, Title 14, Division 6, Article 1, Chapter 3, Section 15000 et seq.), which indicate that a project has significant air quality impact if the following occurs:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; and
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Under CEQA, project proponents are required to identify any significant environmental impacts that would occur as a result of their actions. CEQA also requires that project proponents avoid or mitigate any impacts to the extent feasible.

YSAQMD

The YSAQMD has adopted thresholds that lead agencies can use to determine the significance of a development project's short-term construction and long-term operational pollutant emissions. The district's thresholds of significance for criteria pollutant and precursors are shown in Table 4.3-6, *YSAQMD Air Quality Thresholds of Significance – Criteria Pollutants* (YSAQMD 2007).

Table 4.3-6. YSAQMD Air Quality Thresholds of Significance – Criteria Pollutants

Pollutant	Thresholds of Significance
ROG	10 tons/year
NO_X	10 tons/year
PM_{10}	80 lbs/day
CO	Violation of a state ambient air quality standard for CO

Source: YSAQMD 2007
lb/day – pound(s) per day; CO – carbon monoxide; NOx – nitrogen oxides; PM_{10} – particulate matter less than 10 microns in diameter; ROG – reactive organic gas

Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. If emissions of TACs or $PM_{2.5}$ exceed any of the *Thresholds of Significance* listed in Section 4.3.3.2, the Project would result in a significant impact.

IMPACT 4.3-1: Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant Impact)

Specific rules and regulations adopted by the YSAQMD limit the emissions that can be generated by various activities and, in some cases, identify specific pollution reduction measures that must be implemented. The Project will comply with applicable YSAQMD rules and regulations, such as particulate matter and dust control requirements in Regulation II. It will not result in a long-term increase in the number of trips or increase the overall vehicle miles traveled (VMT) in the area. Haul truck, vendor truck, and worker vehicle trips will be generated during the proposed construction activities but will cease after construction is completed. Unmitigated emissions during construction will not exceed the YSAQMD significance thresholds. The Project will also implement best management practices for controlling fugitive dust emissions in accordance with HS.I-54 in the Solano County General Plan (Solano County 2008).

During the longer-term operational phase, mobile emissions from employee trips and infrequent routine inspection and maintenance activities will result in small net increases in emissions; however, the increases in emissions will not exceed any significance threshold or violate any YSAQMD rule or regulation.

Therefore, impacts will be less than significant.

IMPACT 4.3-2: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? (Less Than Significant Impact)

The Project site is non-attainment for the CAAQS for 1-hour ozone, 8-hour ozone, PM_{10}, and $PM_{2.5,}$ and the NAAQS for 8-hour ozone and $PM_{2.5}$. The Project will generate criteria pollutants in the short term during construction and over the long term during O&M. The estimated emissions and air quality impacts of the Project construction and operation were analyzed using methods consistent with the CEQA *Guidelines* (YSAQMD 2007), and results have been compared with the YSAQMD CEQA criteria and thresholds.

Construction Emissions

The Project's temporary construction emissions were estimated using CalEEMod as described in Section 4.3.3.1. Table 4.3-7, *Maximum Daily Construction Emissions and Comparisons to YSAQMD Thresholds – Criteria Pollutants*, presents the estimated maximum daily construction emissions of criteria pollutants and O_3 precursors. Table 4.3-8, *Maximum Annual Construction Emissions and Comparisons to YSAQMD Thresholds – Criteria Pollutants*, presents the estimated maximum annual construction emissions of criteria pollutants and O_3 precursors, which will occur in 2026. The results are presented as the anticipated maximum daily emissions in pounds per day, and total annual emissions during Project construction, and the estimated emissions are compared to the applicable YSAQMD CEQA thresholds. Appendix 4.3-A provides details of the CalEEMod modeling results.

Construction dust mitigation measures required by the YSAQMD will reduce dust emissions. Based on these recommended thresholds, the Project will not result in a significant contribution to localized ambient air quality.

Table 4.3-7. Maximum Daily Construction Emissions and Comparisons to YSAQMD Thresholds – Criteria Pollutants

Project Emissions	Criteria Pollutants (lb/day)									
	ROG	NO_x	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
No Reductions	8.12	70.21	131.67	0.20	99.20	2.13	100.76	10.99	1.99	12.85
Dust Control Reductions	8.12	70.21	131.67	0.20	30.05	2.13	31.61	4.09	1.99	5.94
YSAQMD Thresholds	--	--	--	--	--	--	80	--	--	--
Exceed Threshold?	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	N/A	N/A

YSAQMD – Yolo Solano Air Quality Management District; BMP – best management practice; CO – carbon monoxide; N/A – not applicable; NO_x – nitrogen oxide; ROG – reactive organic gases; SO_2 – sulfur dioxide; $PM_{2.5}$ – particulate matter less 2.5 microns in diameter; PM_{10} – particulate matter less than 10 microns in diameter

Table 4.3-8. Maximum Annual Construction Emissions and Comparisons to YSAQMD Thresholds – Criteria Pollutants

Project Emissions	Criteria Pollutants (tpy)									
	ROG	NO_x	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
No Reductions	0.65	5.92	10.84	0.02	5.74	0.18	5.92	0.66	0.17	0.83
Dust Control Reductions	0.65	5.92	10.84	0.02	1.84	0.18	2.02	0.27	0.17	0.44
YSAQMD Thresholds	10	10	--	--	--	--	--	--	--	--
Exceed Threshold?	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

YSAQMD – Yolo Solano Air Quality Management District; BMP – best management practice; CO – carbon monoxide; N/A – not applicable; NO_x – nitrogen oxide; ROG – reactive organic gases; SO_2 – sulfur dioxide; $PM_{2.5}$ – particulate matter less 2.5 microns in diameter; PM_{10} – particulate matter less than 10 microns in diameter

As shown in and Table 4.3-8, construction emissions of criteria pollutants from Project construction are below the applicable YSAQMD criteria pollutant significance thresholds. The Project will comply with the state and YSAQMD regulations to avoid or minimize the construction emissions; additionally, the Project will implement the basic construction dust mitigation measures recommended by the YSAQMD to minimize and reduce fugitive dust (YSAQMD 2007). These measures include the following:

- All active construction sites shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite shall be covered.
- All inactive storage piles shall be covered.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control

measure in California Code of Regulations [CCR] Title 13, Section 2485). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Additionally, based on the ambient air quality modeling, predicted impacts for construction CO emissions are below the CAAQS (Table 4.3-9, *Construction CO Impacts*).

Table 4.3-9. Construction CO Impacts

Concentration	Modeled Impact (ppm)	
	1 hour	8 hour
Project CO	2.19	0.46
Background 1/	2.3	1.6
Total	4.49	2.06
CAAQS (ppm)	20	9
Above the CAAQS?	**No**	**No**

CAAQS – California Ambient Air Quality Standards; CO – carbon monoxide; ppm – parts per million
1/ Obtained from 100 Bercut Drive, Sacramento; CA Monitoring station (AQS ID- 060670015)

Therefore, the Project construction emissions will be below the YSAQMD thresholds, and the Project will not violate any NAAQS or CAAQS or contribute substantially to an existing or projected air quality violation. The construction-related emissions impact will be less than significant.

Operational Emissions

Unmitigated emissions from the Project's long-term O&M were estimated using CalEEMod as described in the methodology in Section 4.3.3.1. Direct emissions from employee vehicles or equipment activities during Project operation will be negligible. Indirect emissions will be associated with the energy consumption for Project operation. Table 4.3-10, *Annual Operational Emissions and Comparisons to YSAQMD Thresholds*, shows the annual unmitigated emissions from Project operations in tons per year.

Table 4.3-10. Annual Operational Emissions and Comparisons to YSAQMD Thresholds

Emission Source	Criteria Pollutants (tons per year)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area, Mobile, Stationary and Offroad	0.44	0.01	0.37	<0.01	0.02	<0.001
YSAQMD Thresholds	10	10	--	--	--	--
Exceed Threshold?	No	No	N/A	N/A	N/A	N/A

YSAQMD – Yolo Solano Air Quality Management District; CO – carbon monoxide; NO_x – nitrogen oxide; ROG – reactive organic gases; SO_2 – sulfur dioxide; $PM_{2.5}$ – particulate matter less 2.5 microns in diameter; PM_{10} – particulate matter less than 10 microns in diameter

Table 4.3-11, *Daily Operational Emissions and Comparisons to YSAQMD Thresholds,* shows the daily unmitigated emissions from Project operations in pounds per day.

Table 4.3-11. Daily Operational Emissions and Comparisons to YSAQMD Thresholds

Emission Source	Criteria Pollutants(lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area, Mobile, Stationary and Offroad	2.88	0.09	4.24	<0.001	0.02	0.01
YSAQMD Thresholds	--	--	--	--	*80*	--
Exceed Threshold?	N/A	N/A	N/A	N/A	No	N/A

YSAQMD – Yolo Solano Air Quality Management District; CO – carbon monoxide; NO_x – nitrogen oxide; ROG – reactive organic gases; SO_2 – sulfur dioxide; $PM_{2.5}$ – particulate matter less 2.5 microns in diameter; PM_{10} – particulate matter less than 10 microns in diameter; lbs/day – pounds/day.

Based on the ambient air quality modeling, predicted impacts for operations CO emissions are also below the CAAQS (Table 4.3-12).

Table 4.3-12. Operations CO Impacts

Concentration	Modeled Impact (ppm)	
	1 hour	8 hour
Project CO	0.03	0.01
Background [1/]	2.3	1.6
Total	2.33	1.61
CAAQS (ppm)	20	9
Above the CAAQS?	**No**	**No**

CAAQS – California Ambient Air Quality Standards; CO – carbon monoxide; ppm – parts per million
1/ Obtained from 100 Bercut Drive, Sacramento; CA Monitoring station (AQS ID- 060670015)

All estimated unmitigated criteria pollutant and precursor emissions associated with long-term O&M are significantly lower than the YSAQMD thresholds; therefore, the Project's operational activities will not violate any NAAQS or CAAQS or contribute substantially to an existing or projected air quality violation. The impact associated with operational emissions will be less than significant.

IMPACT 4.3-3: Would the project result in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard? (Less Than Significant Impact)

As discussed previously, the Project will result in an increase in short-term emissions related to construction and an increase in long-term operational emissions for those pollutants and precursors (ROG and NO_X) for which the YSAQMD is in nonattainment (O_3 and $PM_{2.5}$). However, the cumulative emissions associated with the Project will not be considerable because the emissions will be less than YSAQMD thresholds. Under this condition, the Project will not make a cumulatively considerable contribution during construction or operations. Therefore, impacts will be less than significant.

IMPACT 4.3-4: Would the project expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant Impact)

Sensitive receptors for air quality include facilities or land uses that serve or house members of the population that are particularly sensitive to the effects of air pollutants (such as children, the elderly, and people with illnesses). Examples of sensitive receptors include schools, hospitals, and residential areas.

According to Section 39655 of the *California Health and Safety Code*, a TAC is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." TACs consist of a variety of compounds, including metals, minerals, soot, and hydrocarbon-based chemicals. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust.

Impacts to sensitive receptors are typically evaluated by analyzing the potential for health effects to result from exposure to project-related TACs. In addition, the analysis evaluates the potential for Project construction to result in exposure of workers and other receptors to the dust-borne spores that cause Valley fever. The following describes the analysis conducted for air contaminant emissions from construction and operation of the Project.

Construction Emissions

During construction, the Project will use heavy-duty construction equipment, haul trucks, and construction worker vehicles. These vehicles and equipment will generate PM from diesel combustion or DPM, which is a TAC. DPM emissions from the Project will occur in a localized area (such as near locations with multiple pieces of heavy construction equipment working close by) for a short period of time.

In order to determine whether the Project would expose sensitive receptors to substantial TAC emissions from equipment and vehicles during construction, an HRA was performed. DPM was the only TAC evaluated in the HRA for construction equipment and vehicle emissions.

The HRA was conducted based on three general steps to estimate health impacts:

1. Identification and quantification of project-related TAC emissions:

   DPM was assumed to be best represented by the PM_{10} emitted during diesel fuel combustion. Therefore, the exhaust PM_{10} emissions estimated for Project construction were used in the HRA.

2. Evaluation of pollutant transport using air dispersion modeling:

   Dispersion of the DPM emitted from the construction equipment and vehicles was modeled using the AERMOD (Version 23132) air dispersion model to estimate ground-level DPM concentrations at each modeled receptor and at sensitive receptor locations. The modeled output (in terms of maximum ground-level pollutant concentrations) was used for the exposure assessment.

3. Exposure and risk assessment:

   Cancer risks and the noncancer health risks associated with the modeled exposure concentrations at each receptor were calculated using HARP2 to convert the modeled ground-level DPM concentrations to health risk values.

The risk categories evaluated in HRAs include individual excess lifetime cancer risk and noncancer health effects from chronic (long-term) exposure. Noncancer acute health risks were not estimated

because, currently, no acute risk values are developed for DPM (OEHHA 2015). Details of the screening HRA methodology and results are provided in Section 4.3.2.2 and Appendix 4.3-A.

Table 4.3-13, *Health Risks for Exposure to Construction Emissions of DPM at the Maximally Exposed Residential, Workplace and Sensitive Receptors*, presents the results of the screening HRA for Project construction DPM emissions. The estimated cancer risks and HIC at the PMI, MEIR, MEIW, and SR were compared with the YSAQMD health risk thresholds to determine the significance of the predicted health impacts. The risk results in Table 4.3-13 show that the cancer risks at the PMI and closest MEIRs, MEIWs, and SRs are less than the YSAQMD's significance thresholds of 10 in 1 million. The closest MEIR is located across Kilkenny Road directly to the north, about 0.03 mile from the Project site. The closest MEIW is located 0.1 mile to the southeast of the Project site. The closest SR is located 0.8 mile from the Project site. The estimated HIC values are less than the YSAQMD threshold of 1. Cancer risks and HIC values at other identified receptors are provided in Appendix 4.3-A.

Table 4.3-13. Health Risks for Exposure to Construction Emissions of DPM at the Maximally Exposed Residential, Workplace and Sensitive Receptors

Receptor Type	PMI*	MEIR	MEIW	SR	YSAQMD Threshold
Cancer Risk Impact (in 1 million)	0.77	7.92	0.08	0.003	10
Noncancer HIC	0.060	0.009	0.006	<0.001	1

*Point of maximum impact (PMI) occurs at Project boundary.

Since the estimated health risks are below YSAQMD CEQA thresholds, the results of screening-level assessment indicate that Project construction will not expose sensitive or workplace receptors to substantial pollutant concentrations.

Operation Emissions

The Project will require up to six workers to perform onsite and offsite O&M and administrative functions. With the small number of O&M staff, Project operation will have minimal emissions of air pollutants, including TACs, and will not expose sensitive receptors to substantial pollutant concentrations.

Valley Fever

In some areas of California, construction activities that disturb soil have the potential to generate fugitive dust and suspend the fungal spores (*C. immitis*) that may be inhaled and cause Valley fever. In 2019, Safety Training on Valley Fever AB 203 added Section 6709 to the Labor Code and requires employers to provide effective Valley fever awareness and prevention training for all construction employees at risk of prolonged exposure to dust in Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties annually and again before an employee begins work that is reasonably anticipated to cause exposure to substantial dust disturbance.

There are currently no recommended thresholds for significance for Valley fever. Construction activities, including site preparation and grading, will have the potential to make *C. immitis* fungal spores airborne. The California Department of Public Health recommends that employers in areas with endemic *Coccidioides* should implement infection prevention measures and protect workers who

are at risk for exposure to *Coccidioides*. Infection risk can be decreased by using dust-control measures and appropriate personal protective equipment at work.

The Project is not expected to result in significant Valley fever-related impacts because the site is not located in an endemic area and best management practices (BMPs) for fugitive dust control, such as twice-daily watering of exposed surfaces and disturbed areas, will be implemented to reduce dust and minimize potential for exposure of workers and other receptors to *Coccidioides* spores. Infection rates of Valley fever in Solano County are relatively low compared to other California counties. A Valley fever plan is not required for construction in Solano County due to the relatively low incidence rate for Valley fever (CDPH 2024).

IMPACT 4.3-5: Would the project create objectionable odors affecting a substantial number of people? (Less Than Significant Impact)

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; distance from the odor source; and the sensitivity of the affected receptor. Offensive odors do not typically result in physical harm, but they can create a nuisance and may result in complaints from the affected public.

During Project-related construction activities, various diesel- and gasoline-powered vehicles and equipment could create minor odors. These odors are not likely to be noticeable beyond the immediate vicinity and will be temporary and short-lived. Given the temporary and intermittent nature of odor-generating construction activities, and the dispersion of emissions compared to the limited proximity and low number of potential receptors, construction of the Project will not expose people to objectionable odors for an extended period or lead to odorous emissions that would adversely affect substantial numbers of people. Impacts associated with odors during construction will be less than significant.

Long-term odors are associated typically with industrial projects involving use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes. Odors are also associated with such uses as sewage treatment facilities and landfills. The Project is an energy storage facility which involves no elements related to these types of uses. Therefore, no long-term odor impacts are expected from Project operations.

4.3.3.4 PG&E Facilities

To accommodate the Project, PG&E will be responsible for siting, design, and construction of the 230-kilovolt gen-tie line from the point of change of ownership (POCO) to their substation, including new interconnection facilities. The Applicant will design, construct, own, and operate the southern 0.9-mile portion of the gen-tie from the Project substation to the POCO within the gen-tie corridor south of Interstate 80. PG&E will be responsible for the 0.2-mile-long gen-tie between the POCO and the point of interconnection at the PG&E Vaca-Dixon Substation, including the final five structures, the Interstate 80 crossing, and the New Corby Bay, as shown in Figure 1-3 of Section 1, *Executive Summary*. The gen-tie line is described in further detail in Section 3.0, *Electrical Transmission*.

These improvements are included in the analysis above, such that they will not be significant to the environment. The improvements will also not affect any plan, policy, or regulation regarding the reduction of GHG emissions. No mitigation will be required.

4.3.4 Cumulative Effects[13, 14]

4.3.4.1 Air Quality

The SVAB is considered an area of cumulative effects, and it is currently nonattainment for the CAAQS for 1-hour ozone, 8-hour ozone, PM_{10}, and $PM_{2.5,}$ and the NAAQS for 8-hour ozone and $PM_{2.5}$. Therefore, there is an existing adverse cumulative impact in SVAB relative to these pollutants.

By its very nature, air pollution is largely a cumulative impact. Most projects are not likely to result in nonattainment of ambient air quality standards in the SVAB when considered individually. The contribution of a project's individual air emissions to regional air quality impacts is a cumulative effect due to the collective nature of the air quality resource. Emissions from past, present, and future projects in the region also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions.

In developing thresholds of significance for criteria pollutants and precursors, YSAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact.

As discussed in Section 4.3.6, emissions of air pollutants are less than significance thresholds, consistent with the YSAQMD applicable air plan, and the Project's incremental contribution to the cumulative impact in the region will not be considered cumulatively considerable. Additionally, as discussed above, the Project, with BMPs incorporated, will not conflict with or obstruct implementation of air quality plans. Therefore, the Project construction will not result in a cumulatively considerable increase in emissions of non-attainment pollutants.

As per the *Handbook for Assessing and Mitigating Air Quality Impacts* (YSAQMD 2007), CO impacts are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects (i.e., background concentration) will exceed air quality standards. As shown in Table 4.3-9 and Table 4.3-12, AERMOD-predicted Project CO emissions were added to the ambient background concentrations to compare with the applicable CAAQS. Both construction and operation of the Project will not result in an exceedance. Therefore, the Project's contribution to regional air quality will be less than cumulatively considerable, and the cumulative impacts will be less than significant.

[13] Appendix B (g) (1)
[14] Appendix B (g) (8) (I), Appendix B (g) (8) (I) (iii)

Project emissions of pollutants for which the SVAB is in attainment for state and federal air quality standards also will not lead to a cumulative impact because the individual Project emissions will be well below the thresholds in an area that does not experience violations of these standards.

Lastly, for evaluating cumulative impacts from odor, the YSAQMD recommends using the distance between an odor source and a receptor to be the primary factor in determining the significance of an odor impact while considering the prevailing wind direction. As stated earlier, the Project will have less than significant impact with respect to odor. Therefore, cumulative impacts will be less than significant.

4.3.4.2 Public Health

Health risks from the proposed Project have been evaluated and compared to the applicable health risk significance criteria. YSAQMD's *Handbook for Assessing and Mitigating Air Quality Impacts* (YSAQMD 2007) requires consideration of cumulative impacts. As stated earlier, any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact. An impact analysis for the Project's emissions of criteria pollutants and TACs was conducted and is discussed in Impact 4.3-3 and Impact 4.3-4. Results of the impact analyses do not show any cumulatively considerable impacts from the Project alone. Therefore, cumulative public health impacts from the Project alone will be less than significant.

As per the YSAQMD, cumulative analysis of TACs can also be accomplished by evaluating other past, present, and reasonably foreseeable future projects whose impacts, when considered together with the Project, are significant or cumulatively considerable. No other nearby sources have been identified that could have cumulatively considerable impacts with the Project.

4.3.5 Mitigation Measures[15]

4.3.5.1 Public Health

Since the estimated health risks are below the YSAQMD CEQA thresholds, the results of the HRA indicate that Project construction will not expose sensitive, residential, or workplace receptors to substantial pollutant concentrations. No additional mitigation measures are needed. Accordingly, no monitoring plans to verify the effectiveness of the mitigation are required.

4.3.5.2 Air Quality – Construction

No mitigation measures for construction-related air quality impacts are proposed because the Project incorporates BMPs into the Project design. These BMPs are identified in Section 4.3.3.3 under Impact 4.3-2. Accordingly, no monitoring plans to verify the effectiveness of the mitigation are required.

4.3.5.3 Air Quality – Operations

As presented in Section 4.3.3, unmitigated, negligible (e.g., less than applicable YSAQMD thresholds) emissions during Project O&M will result from vehicles or equipment activities. As a result, no mitigation measures are required for operations-related air quality impacts from the Project. Accordingly, no monitoring plans to verify the effectiveness of the mitigation are required.

[15] Appendix B (g) (1)

4.3.6 Laws, Ordinances, Regulations, and Standards[16]

Ambient air quality standards are the levels of air quality considered safe, with an adequate margin of safety, to protect public health and safety. They are designed to protect those people most susceptible to respiratory distress (i.e., sensitive receptors), such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research suggests, however, that long-term exposure to air pollution at levels that meet air quality standards may have adverse health effects. For example, ozone exposure even at levels close to the ambient air quality standard may lead to adverse respiratory health.

The following discussion describes the regulatory authority of the federal, state, and local jurisdictions. The federal CAA, the California CAA, and the most recent air quality plans, prepared and adopted by the YSAQMD regulate air quality in the SVAB. Federal and state standards are shown in Table 4.3-14, *Laws, Ordinances, Regulations, and Standards for Air Quality and Public Health*.

Table 4.3-14. Laws, Ordinances, Regulations, and Standards for Air Quality and Public Health

LORS	Requirements/Applicability	Administering Agency	Opt-in Application Section Explaining Conformance
Federal			
42 United States Code [U.S.C.] Section 7401 to 7671q	**Criteria Air Pollutants** The federal CAA is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources and requires the adoption of the NAAQS to protect public health and welfare from the effects of air pollution. The federal CAA Amendments of 1990 required that the USEPA review all NAAQS with respect to health impacts and propose modifications or new rules as appropriate. In addition, the amendments of the 1990 federal CAA are associated with the attainment and maintenance of air quality standards, permits and enforcement, TACs, acid deposition, stratospheric ozone protection, and motor vehicles and fuels. Current NAAQS are assigned to SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and lead. These pollutants are designated criteria pollutants. **Hazardous Air Pollutants** The 1977 federal CAA amendments required the USEPA to identify national emission standards for hazardous air pollutants (HAP) to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. The 1990 federal CAA Amendments, which expanded the control program for HAPs, identified 189 substances and chemical families as HAPs. Over the years, the list has been modified. Currently, there are 187 federally regulated HAPs.	Yolo Solano Air Quality Management District	Section 4.3.3.3, Impacts 4.3-1 and 4.3-2 No federal HAP sources associated with the Project

[16] Appendix B (i) (1)(A)

LORS	Requirements/Applicability	Administering Agency	Opt-in Application Section Explaining Conformance
State			
Health and Safety Code Sections 25500 to 25542	Establishes inventory, reporting, business, and area planning requirements with respect to hazardous and acutely hazardous materials in accordance with the federal Emergency Planning and Community Right-to-Know Act of 1986. Requires preparation of risk management and prevention plans where acutely hazardous materials are used and requires development and implementation of a business plan for emergency responses to a release or threatened release of a hazardous material or mixture.	Solano Public Health Administration	Not Applicable to Project
Health and Safety Code § 39650 et seq, Clean Air Act	Requires that the California Air Resources Board (CARB) and the state establish safe exposure limits for toxic air contaminants and identify pertinent best available methods for their control. Also requires that the new source review (NSR) rule for each air pollution control district include regulations that require new or modified procedures for controlling the emissions of toxic air contaminants (TACs). According to this authority, CARB has developed cancer potency estimates for several carcinogenic pollutants to use in assessing the carcinogenic risk associated with exposure to these pollutants	Yolo Solano Air Quality Management District	Section 4.3.3.3, Impact 4.3-4
Health and Safety Code, Part 6, § 44300 et seq.	Requires facilities that emit large quantities of a criteria pollutant and that emit any quantity of a toxic contaminant provide the local air pollution control district an inventory of toxic emissions. Such facilities may also be required to prepare a quantitative HRA.	Yolo Solano Air Quality Management District	Not Applicable to the Project
Health and Safety Code, Division 26	The California Clean Air Act (CCAA), passed by the California Legislature and signed into law by the Governor in 1988, assigns state-specific ambient air quality standards. The California standards are, in most cases, more stringent than federal standards. The goal of the CCAA is to attain state air quality standards by the earliest practical date. Since California established ambient air quality standards several years before the federal action and due to unique air quality problems introduced by the restrictive dispersion meteorology in much of California, there can be a considerable difference between state and national clean air standards. The standards currently in effect in California are shown in Table 4.3-1. The CCAA requires each air pollution control district of an air basin that is designated as nonattainment of state ambient air quality standards to prepare and submit a plan for attaining and maintaining state standards.	Yolo Solano Air Quality Management District	Section 4.3.3.3, and Impacts 4.3-1 and 4.3-2
Health and Safety Code, Division 26, Chapter 3.5	The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, for which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information	Yolo Solano Air Quality Management District	Section 4.3.3.3 and Impact 4.3-4

LORS	Requirements/Applicability	Administering Agency	Opt-in Application Section Explaining Conformance
	and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, facilities are required to communicate the results to the public in the form of notices and public meetings. In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80-percent decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. In 2020, the CARB adopted the Advanced Clean Truck Regulations, which requires truck manufacturers to transition from diesel trucks and vans to electric zero-emission vehicles beginning in 2024. By 2045, every new truck and van sold in California will be zero emission. Additional regulations apply to new trucks and diesel fuel, including the On-road Heavy Duty Diesel Vehicle (In-use) Regulation, On-road Heavy Duty (New) Vehicle Program, In-use Off-road Diesel Vehicle Regulation, and New Off-road Compression-ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures reduce diesel emissions, including In-use Off-road Diesel-fueled Fleets (13 CCR 2449 et seq.) and In-use On-road Diesel-fueled Vehicles (13 CCR 2025).		
California Health and Safety Code Section 41700	Section 41700 of the California Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.	Yolo Solano Air Quality Management District	Section 4.3.3.3 and Impacts 4.3-1, 4.3-2, 4.3-3, 4.3-4, and 4.3-5
Labor Code Section 6709	In 2019, Safety Training on Valley Fever AB 203 added Section 6709 to the Labor Code. It requires employers to provide effective Valley fever awareness and prevention training for all construction employees at risk of prolonged exposure to dust in Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties annually and again before an employee begins work that is reasonably anticipated to cause exposure to substantial dust disturbance. This training is not required in Solano County in AB 203.	Solano Public Health Administration	Section 4.3.3.3 and Impact 4.3-4

4.3.6.1 Local Regulations

Yolo Solano Air Quality Management District

The YSAQMD manages air quality within the northeastern portion of Solano County within the SVAB for attainment and permitting purposes. YSAQMD is included in the Sacramento Federal Non-attainment Area (SFNA) by the USEPA. The SFNA includes Sacramento and Yolo Counties, the western portion of El Dorado and Placer Counties, the southern portion of Sutter County, and the northeastern portion of Solano County.

YSAQMD regulations include permit requirements, emissions limits for specific source categories, requirements for open burning, and air toxics control measures for several source categories, including stationary compression ignition engines. There are no stationary sources proposed for the Project.

Rules and Regulations

The following YSAQMD regulations generally apply to land use development projects:

Regulation II. Prohibition, Exceptions – Requirements

- *Rule 2.1. Control of Emissions. The purpose of this rule is to control the emission of material which may be the cause of air pollution.*
- *Rule 2.5. Nuisance. This rule prohibits the discharge of air contaminants or other materials in quantities that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of any such person or the public.*
- *Rule 2.11. Particulate Matter Concentrations. This rule prohibits the release or discharge into the atmosphere from any single source operation, dust, fumes, or total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions.*

No other YSAQMD rules are applicable to the Project.

The District has developed the following plans to attain state and federal standards for ozone and particulate matter:

- **1-Hour Ozone**. The SFNA was designated as “severe” nonattainment for the now-revoked 1979 1-hour ozone NAAQS. On October 18, 2012, USEPA made a finding that the SFNA attained the revoked 1-hour ozone NAAQS (77 *Federal Register* [FR] 64036). The Sacramento Metropolitan Air Quality Management District (SMAQMD) initially submitted a 1-hour Ozone Attainment Determination Request to the USEPA in April 2010 (SMAQMD 2010). After issuing its proposed determination for public comment (76 FR 28696), USEPA requested additional information which was provided in August 2012. The USEPA did not act on the request and asked the SMQAMD to update the request under the redesignation substitution request guidelines adopted for the 2008 ozone NAAQS (80 FR 12264). On August 24, 2017, SMAQMD submitted the Sacramento Federal Ozone Nonattainment Area Redesignation Substitution Request for the 1979 1-Hour Ozone Standard in response to the request.

- **8-Hour Ozone**. The USEPA promulgated 8-hour ozone NAAQS in 1997, 2008, and 2015, with each successive rule promulgating more stringent NAAQS. The applicable plan is the Sacramento Regional 2015 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan, which was prepared by the SMAQMD staff from the Monitoring, Plan, and Rules Division as a joint project with the YSAQMD and neighboring air districts. The SFNA is classified as a "serious" nonattainment area for the 2015 standard. However, the SFNA has made great strides reducing ozone concentrations as it progresses to meeting its clean air goals and is currently expected to demonstrate attainment by the end of 2032 (SMAQMD 2023). On August 9, 2020, the District published the "Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) Analysis for the 2015 Federal Ozone Standard" (YSAQMD 2020). The CAA requires certain categories of emission sources in ozone nonattainment areas to implement control methods that meet RACT (YSAQMD 2020).
- **$PM_{2.5}$.** The Sacramento region was able to show that the 24-hour $PM_{2.5}$ standard had been achieved during the 2009-2011 period, thereby demonstrating compliance for three consecutive years. Following this, the YSAQMD and the other air districts of the region subsequently prepared the Proposed $PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request for Sacramento $PM_{2.5}$ Nonattainment Area (SMAQMD 2013). However, there were some $PM_{2.5}$ exceedances that occurred in late 2012 before the plan was forwarded to USEPA. On May 10, 2017, the USEPA found that the area attained the 2006 $PM_{2.5}$ standard by the attainment date of December 31, 2015 (82 FR 21711). This finding was based on complete, quality-assured and certified $PM_{2.5}$ monitoring data for 2013 to 2015. The $PM_{2.5}$ Maintenance Plan and Redesignation Request will be updated and submitted in the future based on the clean data finding made by the USEPA. The YSAQMD and the rest of the Sacramento Region are consistently below the 2012 annual standard for $PM_{2.5}$. The promulgation of the 2024 NAAQS will eventually require the USEPA to designate the attainment status within 2 years (i.e., by May 2026).

Solano County General Plan

The County's General Plan specifies a number of policies or actions to address concerns related to air quality. The specific policies and implementation programs of the General Plan are provided below (Solano County 2008):

Land Use Element

> ***Goal LU.G-4:*** *Encourage land use development patterns and circulation and transportation systems that promote health and wellness and minimize adverse effects on agriculture and natural resources, energy consumption, and air quality.*

Health and Safety Element

> ***Goal HS.G-2****: Improve air quality in Solano County, and by doing so; contribute to improved air quality in the region.*

Policy HS.P-44: *Minimize health impacts from sources of toxic air contaminants, both stationary (e.g., refineries, manufacturing plants) as well as mobile sources (e.g., freeways, rail yards, commercial trucking operations).*

Implementation Program HS.I-52: *Require that when development proposals introduce new significant sources of toxic air pollutants, they prepare a health risk assessment as required under the Air Toxics "Hot Spots" Act (AB 2588, 1987) and, based on the results of the assessment, establish appropriate land use buffer zones around those areas posing substantial health risks.*

Implementation Program HS.I-54: *Require the implementation of best management practices to reduce air pollutant emissions associated with the construction of all development and infrastructure projects.*

Implementation Program HS.I-59: *Assess air quality impacts using the latest version of the California Environmental Quality Act Guidelines and guidelines prepared by the applicable Air Quality Management District.*

City of Vacaville General Plan

The City's General Plan specifies a number of policies or actions to address concerns related to air quality. The specific policies and implementation programs of the General Plan are provided below (City of Vacaville 2015):

Transportation Element

Goal TR-12: *Improve air quality from transportation sources to protect human and environmental health and to minimize impacts on sensitive populations.*

Conservation and Open Space Element

Goal COS-12: *Maintain and improve air quality.*

Policy COS-P12.3: *Encourage project designs that protect and improve air quality and minimize direct and indirect air pollutant emissions by including components that reduce vehicle trips and promote energy efficiency.*

Policy COS-P12.5: *Require that development projects implement best management practices and Best Available Control Technologies to reduce air pollutant emissions associated with the construction and operation of the project.*

4.3.7 Agencies and Agency Contacts[17]

Table 4.3-15. Agencies and Agency Contacts

Agency/Address	Contact/Telephone	Permits/Reasons for Involvement
Solano Public Health Administration	275 Beck Avenue Fairfield, CA 94533 Main line: (707) 784-8600	Public exposure to acutely hazardous air pollutants and Valley Fever
Yolo Solano Air Quality Management District	1947 Galileo Ct., Suite 103 Davis, CA 95618 Main line: (530) 757-3650	Determination of Compliance
California Air Resources Board	1001 I Street Sacramento, CA 95814 Carol Carlson: (279) 208-7304	Portable Equipment Registration Program

4.3.8 Required Permits and Permitting Schedule[18]

The construction contractor should have a CARB Portable Equipment Registration for generators to support construction activities. No permit requirements are anticipated.

4.3.9 References

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CARB. 2022a. 2022 Area Designations for State Ambient Air Quality Standards. Available online at: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations

CARB. 2024b. iAdam Air Quality Data Statistics- Top 4 Summary. Available online at: https://www.arb.ca.gov/adam/topfour/topfour1.php

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[17] Appendix B (i) (1) (B), Appendix B (i)(2)
[18] Appendix B (i) (3)

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