

DOCKETED

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5.5 Visual Resources

This section describes the visual resources present in the vicinity of the Vaca Dixon Power Center Project (Project) as well as the potential impacts to visual resources that may result from construction and operation of the Project. Section 5.5.1 describes the existing environment that could be affected, including regional and local visual resources. Section 5.5.2 provides an overview of the regulatory setting related to visual resources. Section 5.5.3 identifies potential environmental impacts that may result from Project construction, operation, and maintenance, as well as mitigation measures that should be considered during Project construction, operation, and maintenance. Section 5.5.4 discusses cumulative effects. Section 5.5.5 presents laws, ordinances, regulations, and standards (LORS) applicable to visual resources. Section 5.5.6 identifies regulatory agency contacts and Section 5.5.7 describes permits required for the Project related to visual resources. Section 5.5.8 provides references used to develop this section.

5.5.1 Environmental Setting

5.5.1.1 Regional Setting

The City of Vacaville is located in northeastern Solano County, California, approximately 35 miles southwest of Sacramento and 55 miles northeast of San Francisco. Situated on the western edge of the Sacramento Valley and adjacent to the Vaca Mountains, Vacaville encompasses approximately 30 square miles and lies along Interstate 80 (I-80), a regional transportation corridor connecting the Bay Area to the Central Valley. Solano County, which extends from San Pablo Bay in the west to the Central Valley in the east, covers approximately 910 square miles—830 square miles of land and 80 square miles of water. Approximately 128 square miles, or 14 percent of the county's total area, falls within the boundaries of seven incorporated cities: Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo (County of Solano 2008).

Scenic resources within the City of Vacaville include areas of open space, natural resources, and agricultural uses, including riparian corridors and views of rural and undeveloped lands and hillsides (City of Vacaville 2015).

The Project Site vicinity is characterized by agricultural lands and rural residential development. The Project location and scenic resources surrounding the Project Site are discussed more in depth in Section 5.5.1.2, below.

5.5.1.2 Project Site and Vicinity

The Project includes components located within the City of Vacaville and unincorporated Solano County. The battery energy storage system (BESS) Project Area is located within the City of Vacaville, on an approximately 10-acre parcel identified as Assessor Parcel Number (APN) 0133-060-060, situated immediately south of I-80. The BESS Project Area would accommodate two BESS components: the Vaca Dixon 57 MWh BESS, occupying approximately 4.25 acres in the southern portion of the site, and the Arges 400 MWh BESS, occupying approximately 5.75 acres in the northern portion of the site. The proposed transmission intertie (gen-tie) line would cross over I-80 into unincorporated Solano County and connect to the existing Pacific Gas and Electric (PG&E) Vaca-Dixon Substation, facilitating interconnection of the BESS components to the regional transmission grid.

The BESS Project Area is currently used for agriculture, specifically as an orchard, with additional orchards surrounding the site to the southeast. Surrounding land uses include I-80 and Caltrans-managed rights-of-way to the north and west; a PG&E transmission line easement and agricultural land within Vacaville city limits to the east; and Kilkenny Road and agricultural land within unincorporated Solano County to the south. The Project gen-tie would extend to the north over I-80 onto a PG&E-owned parcel (APN 0133-060-070), designated as Public/Quasi-Public under the Solano County General Plan. The PG&E parcel is currently developed with PG&E's Vaca-Dixon Substation and the CalPeak Power Vaca Dixon Peaker Plant and multiple overhead transmission lines.

Adjacent land uses along the gen-tie route within unincorporated Solano County include a commercial auto body shop and pond to the southwest (Urban Commercial land use designation), and undeveloped land and residential backyards along Mills Lane to the west and northwest (designated Urban Residential, Public Open Space, and Public/Institutional). Beyond the one-mile radius of the Project Site, surrounding land uses include residential neighborhoods to the west; a mix of agricultural, residential, and commercial uses to the east; agricultural and residential areas to the south; and agricultural and renewable energy facilities to the north. The broader area encompasses portions of both the Vacaville city limits and unincorporated Solano County.

The topography in the vicinity of the Project Site is relatively flat and offers open, expansive views of distant hills and mountains that frame the valley. Figure 5.5-2 shows the location of three representative photograph locations and Figure 5.5-3 shows existing views from these locations; the *Visual Setting and Representative Views* section below describes the representative views that document existing visual conditions in the Project vicinity.

Project Visibility and Viewshed

The Project viewshed is defined as the general area from which the Project would be visible. For the purpose of describing a Project's visual setting and assessing potential visual impacts, the viewshed can be divided into distance zones of foreground, middle ground, and background views. The foreground is defined as the distance between the viewer and 0.25 to 0.5 mile; landscape detail is most noticeable, and objects generally appear most prominent when seen in the foreground. The middle ground is 0.5 to 3 miles from the viewer, and the background extends beyond 3 to 5 miles from the viewer.

In the analysis of the Project, emphasis is placed on the potential effects on foreground viewshed conditions, although consideration is also given to the potential effects on the more distant views. Project visibility is available from locations along nearby roads and highways.

Existing Utilities

PG&E's Vaca-Dixon Substation is located approximately 0.2-mile north of the BESS Project Area; thus, numerous overhead power lines leading to the substation exist in the Project vicinity. Existing utility lines are strung across rows of existing lattice steel towers to the north and west of the Project Site, parallel to I-80, and to the east of the Project area, parallel to the eastern property line. Additional lines cross I-80 from the south and east into the Vaca-Dixon Substation. See Section 2, Project Description, for a visual representation of the described overhead components (Figure 2-10).

Scenic Highways, Vistas, and Resources

There are no designated or eligible state scenic highways which partially or fully intersect the Project Site (California Department of Transportation [Caltrans] 2018). The nearest designated state scenic highway is State Route 160 which is located approximately 16 miles east of the Project Site (Caltrans 2018). The Solano County General Plan designates I-80, which is immediately adjacent to the Project Site, as a locally scenic roadway; additionally, I-80 is also designated as scenic by the County and is located within five miles of the Project Site (County of Solano 2008).

The Solano County General Plan also identifies local agricultural landscapes, the delta and marshlands, and the oak and grass covered hills as scenic resources and offering scenic vistas (County of Solano 2008). The Vacaville General Plan indicates that scenic resources within the City of Vacaville include areas of open space, natural resources, and agricultural uses; specifically, riparian corridors and views of rural and undeveloped lands and hillsides (City of Vacaville 2015).

There are no County-designated agricultural reserves, greenbelts, or resource conservation areas located within one mile of the Project site; however, these scenic resources are present within five miles of the Project Site. Scenic highways and resources within five miles of the Project Site are shown in Figure 5.5-1.

Lighting and Glare

No street lighting exists along local roadways or along I-80 in the vicinity of the Project. Headlights from vehicles on the roadway are the primary source of temporary light in the Project vicinity. South of I-80, additional sources of light are provided by scattered residences along Kilkenny Road and Willow Road; commercial and substation facilities adjacent to the Project gen-tie also provide sources of light on the north side of I-80.

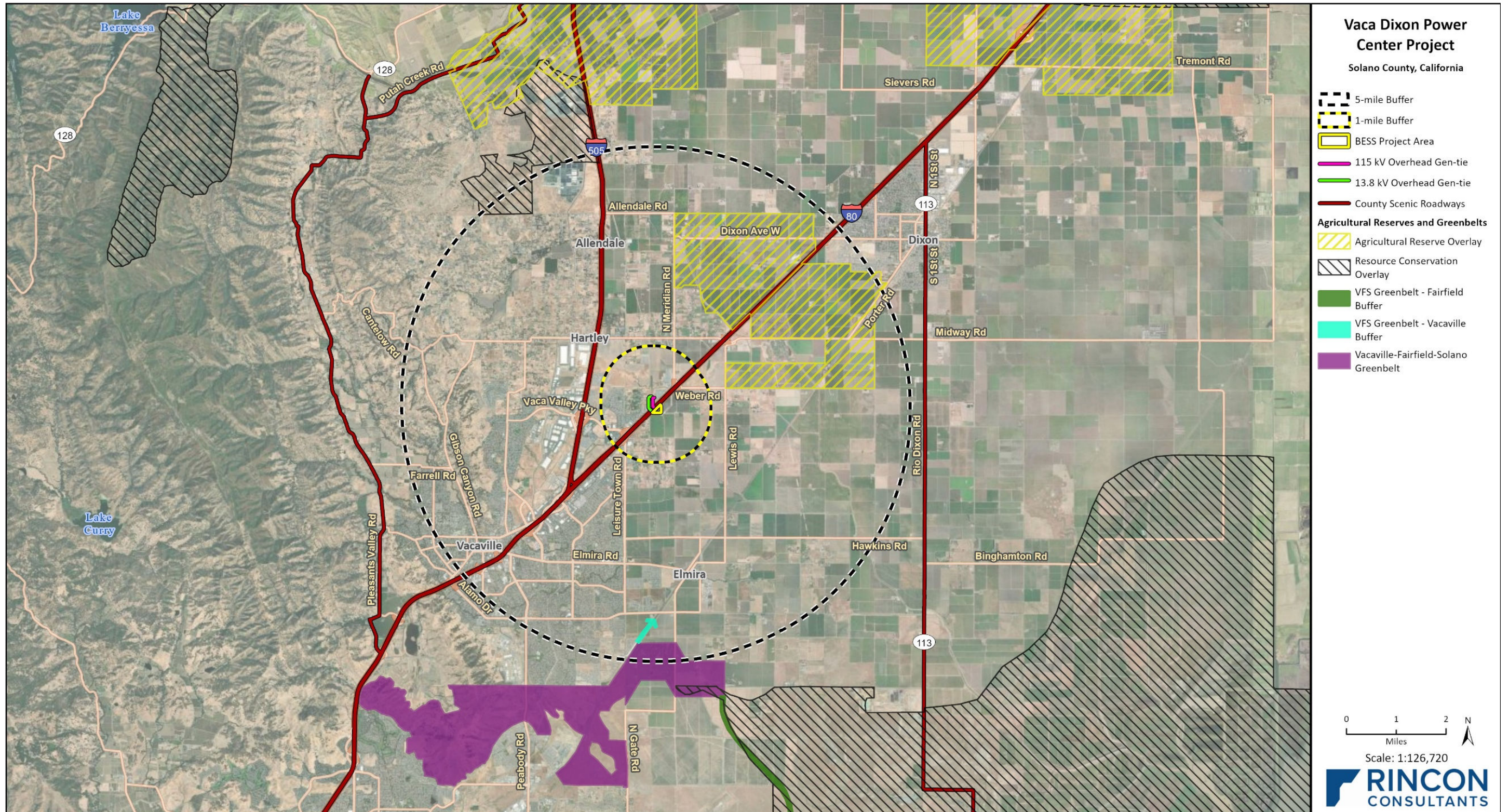
Existing sources of glare in the Project area include reflections from car and building windows and refracted light from metallic finishes consistent with industrial and agricultural equipment and utility infrastructure.

Visual Setting and Representative Views

The following subsections include images that document representative views of the Project Site and vicinity and describe the visual character found therein. The viewpoint locations are shown in Figure 5.5-2 and the accompanying photographs are included in Figure 5.5-3.

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Figure 5.5-1 Scenic Highways and Resources within 5 Miles



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 Additional data provided by Solano County, 2026.

25-17851.EPS
 Fig X Scenic Resources

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Figure 5.5-2 Viewpoint Locations Overview

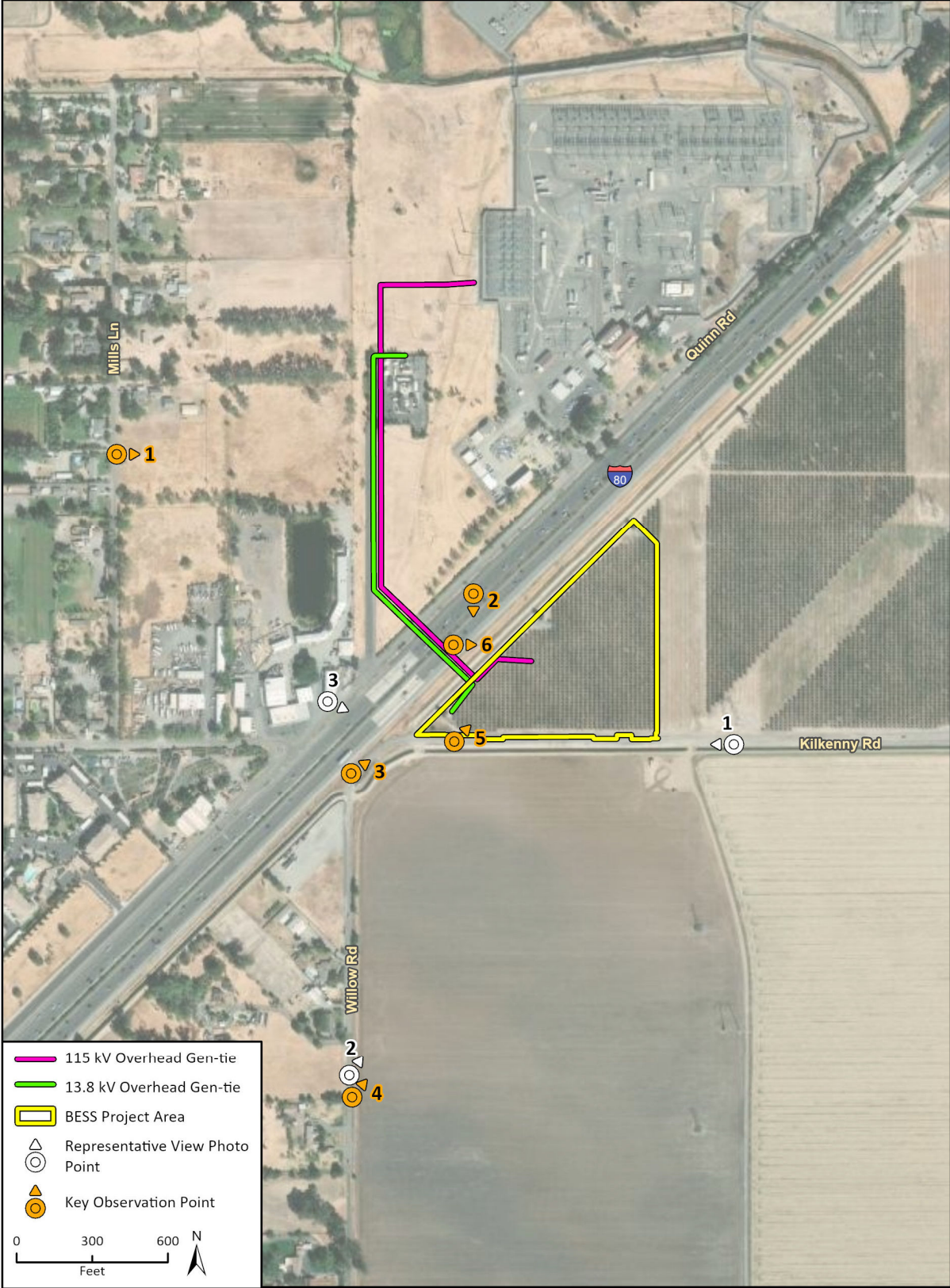


Figure 5.5-3 Public Views Near the Project Site



View 1: Existing view looking west along Kilkenny Road. The Project Site and existing transmission infrastructure are visible on the right-hand side of the foreground with distant views of the Vaca Mountains in the background.



View 2: Existing view looking northeast along Willow Road. Agricultural land to the south of the BESS Project Area is visible in the foreground on the right side of the image, with the BESS Project Area in the middleground. Neighboring residences along Willow Road are shown on the left side of the image.



View 3: Existing view looking southeast along Quinn Road with I-80 in the foreground. The BESS Project Area is located on the far (south) side of I-80, and is obscured by vegetation. This image shows the existing transmission infrastructure surrounding and crossing over I-80 and proximate local roadways.

5.5.2 Regulatory Setting

Federal, state, and local LORS related to visual resources were reviewed for applicability to the Project. These are detailed in Section 5.5.5, Laws, Ordinances, Regulations, and Standards.

5.5.3 Impact Analysis

5.5.3.1 Methodology

Photographic Survey

Representative Photographic Survey

Photographs used to assess existing conditions for representative photographs (see Figure 5.5-3) were taken on August 14, 2025, using a digital single-lens reflex camera with standard 50-millimeter lens equivalent, which represents an approximately 40-degree horizontal view angle. Weather conditions were clear and sunny.

Key Observation Point Simulation Photographic Survey

Photographs used to create simulated views of the Project were taken by Rincon Consultants Inc. staff on January 22, 2025 and August 14, 2025, using a digital single-lens reflex, full-frame camera (Canon Rebel T8i) set to a 50-millimeter (mm) equivalent focal length. Weather conditions were a combination of overcast and sunny with scattered cloud cover, and a series of photographs were taken from each key observation point (KOP). This 50mm equivalent image can be printed as an 11x17 image to be consistent with the view perceived by the human eye (Landscape Institute 2019). The 50mm lens equivalent existing condition photos are shown in Figure 5.5-4a, Figure 5.5-5a, Figure 5.5-6a, and Figure 5.5-7a and included in Appendix O and Appendix P.

Viewers and Exposure

The primary viewer groups that would potentially be affected by the Project include motorists on I-80 and along local roadways and residents located within viewing distance of the Project along Kilkenny Road and Willow Road. These viewers experience the Project area within the context of a visual setting that currently includes I-80 and related transportation infrastructure, existing transmission and distribution facilities, equipment and facilities typical of the agricultural character of the area, and other dispersed developments and facilities.

Motorists

Motorists constitute the viewer group with the highest number of viewers and include both local and regional travelers who are familiar with the visual setting, as well as those using the roads on a less regular basis. Motorists traveling on I-80 would experience one location where the proposed gen-tie line would cross over the roadway. Motorists on Kilkenny Road and Willow Road would view the gen-tie line and BESS containers on the Project Site. Motorists on Mills Lane would also view the gen-tie line as it connects to the PG&E substation east of Mills Lane.

Viewer sensitivity for motorists would range from low and brief when views are at highway speed (i.e., proposed gen-tie line crossing of I-80) to moderately high when views are for a longer duration or a lower speed (such as the proposed gen-tie views from Mills Lane and the gen-tie and BESS container views from Kilkenny and Willow Road).

Residents

Rural residential properties are located along Willow Road and Mills Lane in the Project vicinity. The nearest residence to the Project is located on Willow Road, approximately 0.2 mile southwest of the Project Site.

Existing overhead transmission infrastructure is visible from the residences, and views of the Project Site would be seen within the context of a predominantly agricultural and vegetated landscape. Depending on the proximity to the Project Site, residential viewers tend to have high viewer exposure and awareness; therefore, the sensitivity of this viewer group is considered high.

Key Observation Points (KOPs)

During the January and August 2025 site visits, the Project Site was evaluated from a variety of locations and viewing distances. KOPs were established to provide a representative cross-section of affected landscapes in the visual study area for which visual simulations (views of the existing landscape with Project components added) would be prepared. These locations were selected based on the Project's viewshed, visual exposure, and viewer group. This analysis focuses on the largest viewer groups that would be exposed to Project views, which include motorists and residents.

As shown in Figure 5.5-2, six KOPs were ultimately selected for preparing visual simulations of the Project. KOP 1 is located on Mills Lane, looking east, representing views from residences on Mills Lane. KOP 2 is located on westbound I-80, looking south, representing I-80 motorist views. KOP 3 is located on eastbound I-80, looking northeast, representing I-80 motorists views. KOP 4 is located on Willow Road, looking northeast, representing views from residences on Willow Road as well as local motorists. KOP 5 is located on Kilkenny Road near its intersection with Willow Road, looking northeast, representing foreground views from residences along Willow and Kilkenny Road as well as local motorists. KOP 6 is located along eastbound I-80, looking east, representing foreground views for motorists on I-80.

Simulation Modeling

To provide a basis for evaluating the visual effect of the Project on these views, visual simulations of the Project were produced to illustrate the "after" visual conditions from each of the six KOPs. The Project facilities were modeled based on preliminary Project components, BESS enclosures, gen-tie, switchyards, and step-up substation components.

The simulations were produced from photography of the Project Site vicinity and 3D modeling of each Project component using 3D computer simulation software. The perspective and lighting of each KOP view was matched to the 3D model and the proposed views were rendered. Foreground elements in the photographs were masked out and the 3D rendering was composited with the background. Atmosphere, noise, and blur were added to the 3D rendering to match the photography.

Simulated views for each KOP using a 50mm lens equivalent view are shown in Figure 5.5-4b and Figure 5.5-4c (KOP 1), Figure 5.5-5b and Figure 5.5-5c (KOP 2), Figure 5.5-6b and Figure 5.5-6c (KOP 3), Figure 5.5-7b and Figure 5.5-7c (KOP 4), Figure 5.5-8b (KOP 5), and Figure 5.5-9b (KOP 6).

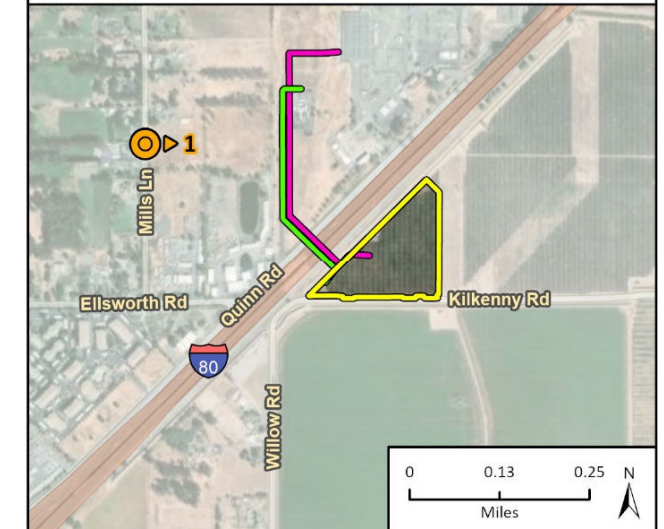
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Figure 5.5-4a KOP 1 – Existing View



**Vaca Dixon Power
Center Project**

**KOP 1 - Existing View looking east
from Mills Lane**



Imagery provided by ESRI and its licensors © 2025.

- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- ▶ Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	01/22/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	EAST
LATITUDE:	38.398385
LONGITUDE:	-121.927903
DISTANCE TO PROJECT COMPONENT:	0.19 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM



25-17851 EPS
File V WFD Admin Control

Figure 5.5-4b KOP 1 – Simulated Project View with 1 Year Landscape Growth



Vaca Dixon Power Center Project

KOP 1b - Simulated project view looking east from Mills Lane (1-year-old landscape)

Imagery provided by ESRI and its licensors © 2026.

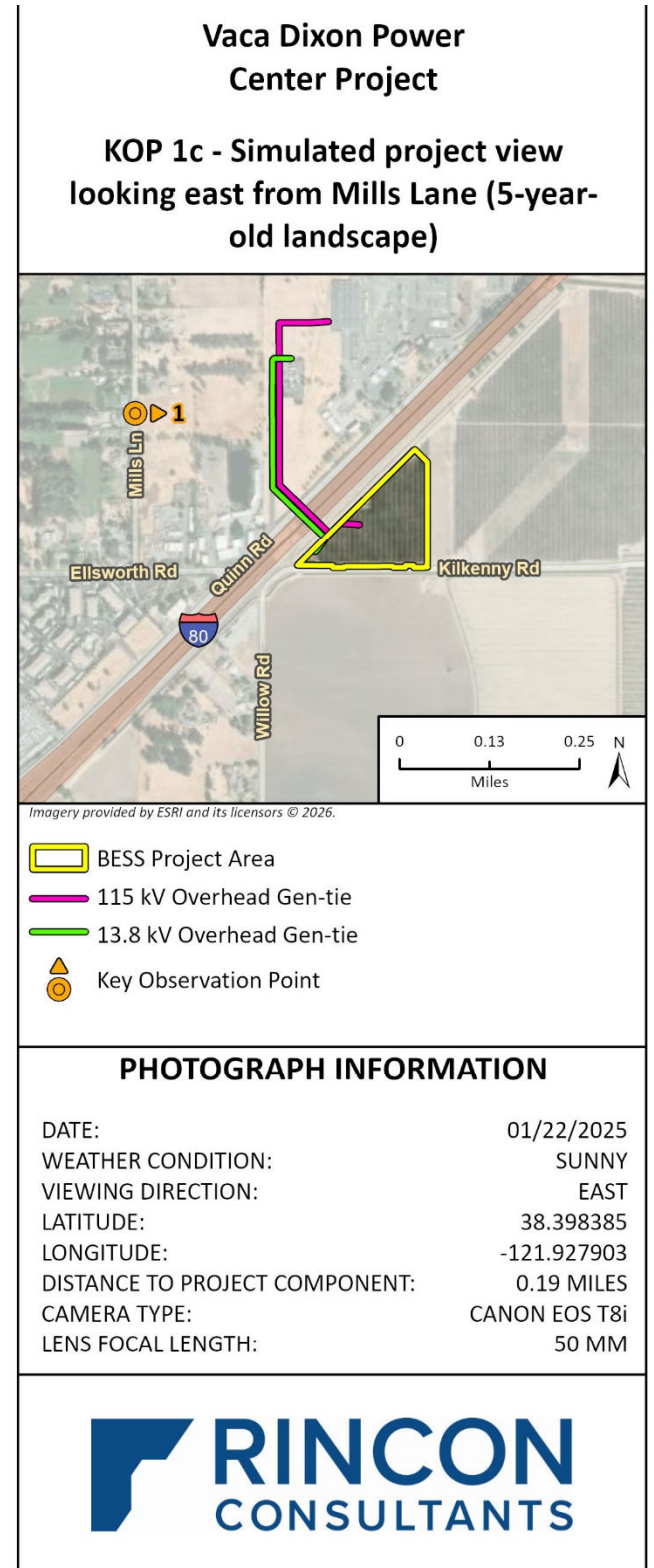
- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- 1 Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	01/22/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	EAST
LATITUDE:	38.398385
LONGITUDE:	-121.927903
DISTANCE TO PROJECT COMPONENT:	0.19 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM

25-17851-EP5
Fig X KOP Map Series

Figure 5.5-4c KOP 1 – Simulated Project View with 5 Years Landscape Growth



25-17951 EPS
Fig X KOP Map Series

Figure 5.5-5a KOP 2 – Existing View



**Vaca Dixon Power
 Center Project**

**KOP 2 - Existing View looking south
 from westbound I-80**



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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- 📍 Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTH
LATITUDE:	38.396855
LONGITUDE:	-121.922968
DISTANCE TO PROJECT COMPONENT:	0.05 MILES
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LENS FOCAL LENGTH:	50 MM

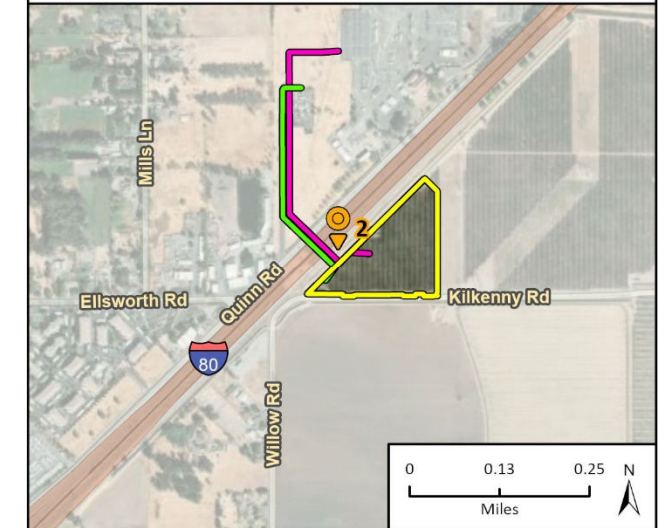


Figure 5.5-5b KOP 2 – Simulated Project View with 1 Year Landscape Growth



**Vaca Dixon Power
Center Project**

**KOP 2b - Simulated project view
looking south from westbound I-80
(1-year-old landscape)**



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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- ⦿ Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTH
LATITUDE:	38.396855
LONGITUDE:	-121.922968
DISTANCE TO PROJECT COMPONENT:	0.05 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM



25-17951 EPS
Fig X KOP Map Series

Figure 5.5-5c KOP 2 – Simulated Project View with 5 Years Landscape Growth



Vaca Dixon Power Center Project

KOP 2c - Simulated project view looking south from westbound I-80 (5-year-old landscape)

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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- 2 Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
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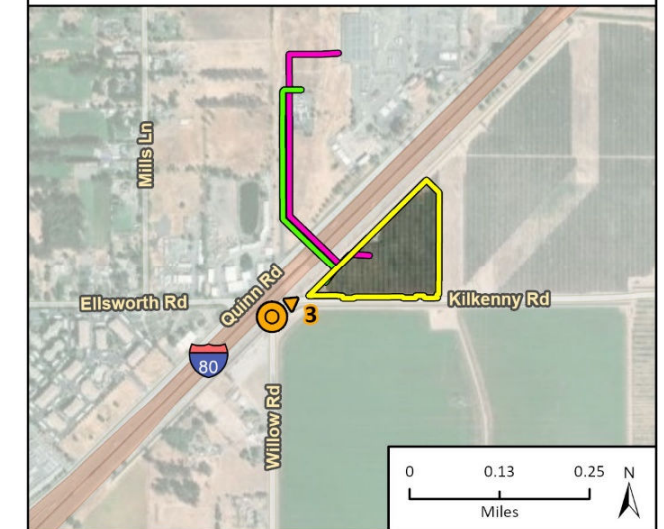
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Fig X KOP Map Series

Figure 5.5-6a KOP 3 - Existing View



**Vaca Dixon Power
Center Project**

**KOP 3 - Existing View looking
northeast from eastbound I-80**



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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- 3 Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTHEAST
LATITUDE:	38.394898
LONGITUDE:	-121.924662
DISTANCE TO PROJECT COMPONENT:	0.06 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM



25-17851 EPS
Fig X KOP Map Series

Figure 5.5-6b KOP 3 – Simulated View with 1 Year Landscape Growth



Vaca Dixon Power Center Project

KOP 3b - Simulated project view looking northeast from eastbound I-80 (1-year-old landscape)

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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- 3 Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTHEAST
LATITUDE:	38.394898
LONGITUDE:	-121.924662
DISTANCE TO PROJECT COMPONENT:	0.06 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM

25-17851.EPS
Fig X KOP Map Series

Figure 5.5-6c KOP 3 – Simulated Project View with 5 Years Landscape Growth



**Vaca Dixon Power
Center Project**

**KOP 3c - Simulated project view
looking northeast from eastbound
I-80 (5-year-old landscape)**



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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTHEAST
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LENS FOCAL LENGTH:	50 MM



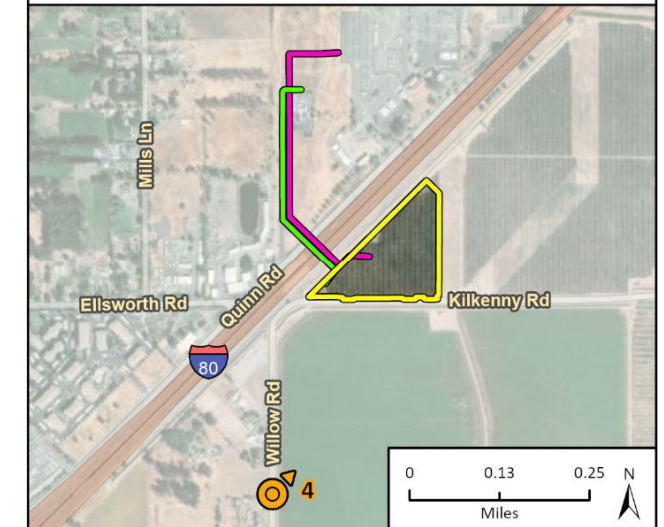
25-17851-EP5
Fig X KOP Map Series

Figure 5.5-7a KOP 4 – Existing View



**Vaca Dixon Power
 Center Project**

**KOP 4 - Existing View looking
 northeast from Willow Road**



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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- 📍 Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTHEAST
LATITUDE:	38.391365
LONGITUDE:	-121.924654
DISTANCE TO PROJECT COMPONENT:	0.28 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM



Figure 5.5-7b KOP 4 – Simulated Project View with 1 Year Landscape Growth

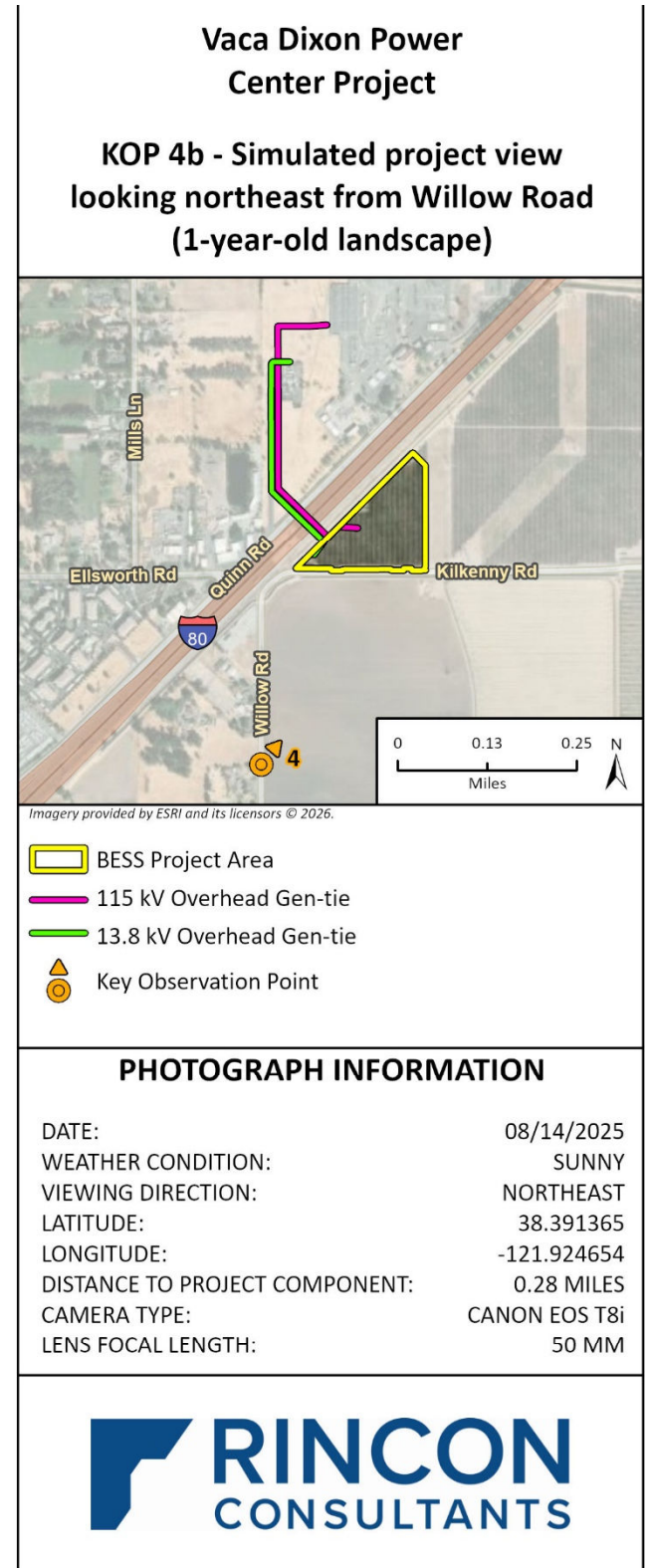


Figure 5.5-7c KOP 4 – Simulated Project View with 5 Years Landscape Growth



Vaca Dixon Power Center Project

KOP 4c - Simulated project view looking northeast from Willow Road (5-year-old landscape)

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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- ▲ Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	08/14/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTHEAST
LATITUDE:	38.391365
LONGITUDE:	-121.924654
DISTANCE TO PROJECT COMPONENT:	0.28 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM

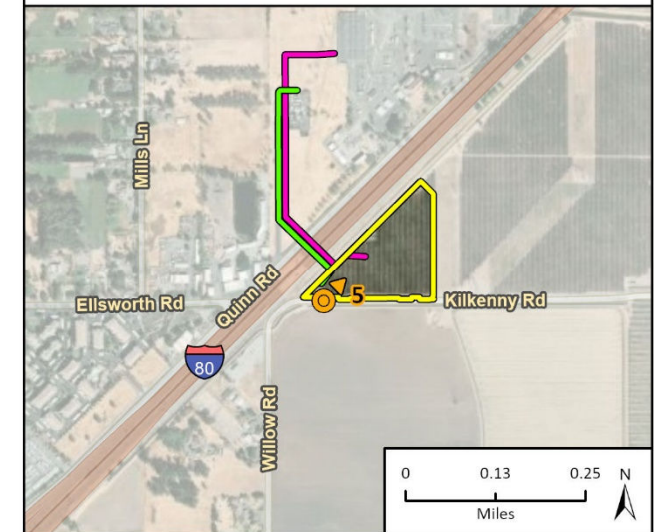
25-17851-EP5
Fig X KOP Map Series

Figure 5.5-8a KOP 5 – Existing View



**Vaca Dixon Power
Center Project**

**KOP 5a - Existing View looking
northeast from Kilkenny Road**



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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	03/12/2026
WEATHER CONDITION:	SUNNY
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DISTANCE TO PROJECT COMPONENT:	<0.01 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM



25-17931 EPS
Fig.X KOP Map Series

Figure 5.5-8b KOP 5 – Simulated Project View with 1 Year Landscape Growth



Vaca Dixon Power Center Project

KOP 5b - Simulated project view looking northeast from Kilkenny Road (1-year-old landscape)

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- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- ▲ Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	03/12/2026
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTHEAST
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LONGITUDE:	-121.923235
DISTANCE TO PROJECT COMPONENT:	<0.01 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM

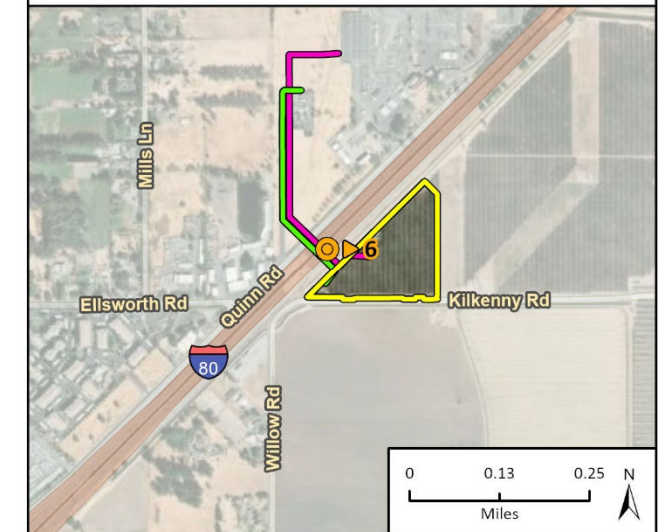
25-17851 EPS
Fig X KOP Map Series

Figure 5.5-9a KOP 6 – Existing View







Vaca Dixon Power
Center Project

KOP 6a - Existing View looking east
from eastbound I-80



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-  BESS Project Area
-  115 kV Overhead Gen-tie
-  13.8 kV Overhead Gen-tie
-  Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	03/12/2026
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	EAST
LATITUDE:	38.396298
LONGITUDE:	-121.923246
DISTANCE TO PROJECT COMPONENT:	<0.01 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM



25-17951 EPS
Fig.X KOP Map Series

Figure 5.5-9b KOP 6 – Simulated Project View with 1 Year Landscape Growth



Vaca Dixon Power Center Project

KOP 6b - Simulated project view looking east from eastbound I-80 (1-year-old landscape)

Imagery provided by ESRI and its licensors © 2026.

- BESS Project Area
- 115 kV Overhead Gen-tie
- 13.8 kV Overhead Gen-tie
- ▲ Key Observation Point

PHOTOGRAPH INFORMATION

DATE:	03/12/2026
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DISTANCE TO PROJECT COMPONENT:	<0.01 MILES
CAMERA TYPE:	CANON EOS T8i
LENS FOCAL LENGTH:	50 MM

25-17851.EPS
Fig X KOP Map Series

Visual Contrast Rating

FHWA Methodology

The analysis of visual resource impacts associated with the Project was conducted in accordance with the visual impact assessment system developed by the Federal Highway Administration (FHWA) in *Visual Impact Assessment for Highway Projects* (2015), as it is robust and widely used to provide systematic evaluations of visual change.

The FHWA method addresses the following primary questions:

- What are the visual qualities and characteristics of the existing landscape in the Project area?
- What are the potential effects of the Project's proposed alternatives on the area's visual quality and aesthetics?
- Who would see the Project, and what is their likely level of concern about or reaction to the way the Project visually fits within the existing landscape?

Applying the FHWA method entails the following six steps:

1. Establish the Project's area of visual influence.
2. Determine who has views of and from the project ("viewer").
3. Describe and assess the landscape that exists before project construction ("affected environment").
4. Assess the response of viewers looking at and from the Project, before and after Project construction ("viewer sensitivity or concern").
5. Determine and evaluate views of the Project for before and after Project construction (simulations).
6. Describe the potential visible changes to the Project area and its surroundings that would result from the Project.

The initial step in the evaluation process was the review of planning documents applicable to the Project area to gain insight into the type of land uses intended for the general area, and the guidelines given for the protection or preservation of visual resources. Consideration was then given to the existing visual setting within the Project viewshed, which is defined as the geographical area in which a project can be seen. Site reconnaissance and Google Earth desktop analysis were conducted to view the Project Site and surrounding area, identify potential KOPs, and take representative photographs of existing visual conditions. Photographs from the site reconnaissance were selected to represent the "before" conditions from each of the potential KOPs. Six KOPs were selected to be used as the basis for analysis of the Project's visual effects. The existing visual conditions seen in the views from each of the KOPs (existing condition photos shown in Figure 5.5-4a, Figure 5.5-5a, Figure 5.5-6a, Figure 5.5-7a, Figure 5.5-8a, and Figure 5.5-9a) were evaluated using the FHWA visual quality assessment system that entails use of a numerical rating system. The FHWA visual quality assessment asks: "Is this particular view common or dramatic?" as well as "is it a pleasing composition (a mix of elements that seem to belong together) or not (a mix of elements that either do not belong together or contrast with the other elements in the surroundings)?" Under the FHWA visual quality analysis system, the visual quality of each view is evaluated in terms of its vividness, intactness, and unity:

- **Vividness** is defined as the degree of drama, memorability, or distinctiveness of the landscape components. Overall vividness is an aggregated assessment of landform, vegetation, water features, and human-made components in views.
- **Intactness** is a measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings. High intactness means that the landscape is free of unattractive features and is not broken up by features and elements that appear out of place. Low intactness means that visual elements that are unattractive and/or detract from the quality of the view can be seen.
- **Unity** is the degree of visual coherence and compositional harmony of the landscape considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape or refers to an undisturbed natural landscape.

Each of these dimensions of visual quality were documented using an FHWA rating sheet (Appendix A of Appendix P), and for each of these dimensions, a numerical rating score on a scale from 1 to 7 was assigned; where a score of 1 indicates very low visual quality, a score of 4 indicates moderate or average visual quality, and a score of 7 indicates very high visual quality. The scores for each of these three dimensions were added and then averaged to generate an overall visual quality score.

To provide a basis for evaluating the Project's impacts on these views, visual simulations were produced according to the methodology described in Section 5.5.3.1, *Simulation Modeling*, to illustrate the "after" visual conditions from each of the KOPs. The "after" visual simulations are shown in Figure 5.5-4b and Figure 5.5-4c, Figure 5.5-5b and Figure 5.5-5c, Figure 5.5-6b and Figure 5.5-6c, Figure 5.5-7b, and Figure 5.5-8b.

Based on review of the simulated views from each KOP, the visual quality of each view was reevaluated using the FHWA visual quality evaluative system. The results of the evaluations of the existing and simulated views from each KOP were documented on the FHWA worksheets (provided in Appendix A of Appendix P). The evaluations of the existing and simulated views were compared to determine the degree of visual change. Based on the assessment of the degree of visual change that the development of the Project will bring about and an evaluation of the sensitivity of the view, overall determinations of visual impact were made and expressed in terms of the impact level (very low to very high).

Once all effects were examined, determinations were made as to whether any potential impacts will reach a level that would be significant under the four California Environmental Quality Act (CEQA) Guidelines checklist questions, as discussed in Section 5.5.3.2.

CEC Consultation

Selection of KOP locations was coordinated with the CEC in July and August 2025. A record of coordination is included in Appendix B of Appendix P.

Project Appearance

Project Structures, Dimensions, and Materials

Detailed descriptions of Project components are provided in Chapter 2, *Project Description*, and the various site arrangements, layouts, and elevation views of the Project components are included in Appendix C. Table 5.5-1 identifies the main above-ground Project components and their approximate dimensions, materials, and finishes. Landscaping is proposed along the northwestern and southern perimeters of the Project BESS facilities for screening (see Figure 2-3).

Project Lighting

The Project Lighting Plan (Appendix N) includes details about construction and operation lighting to the Project Site. These are summarized in their respective sections below.

CONSTRUCTION

Construction of the Project would generally occur during daytime hours from 7 a.m. to 7 p.m. Therefore, there would be minimal lighting requirements during construction. Any lighting required during construction would be limited to individual work areas and would be temporary in nature, consistent with the Project Lighting Plan. If temporary lighting is needed, portable light standards would be placed along the perimeter of the work area or construction laydown area, as necessary. The light standards would be shielded, resulting in light being directed downward and inward (toward the work or laydown area). The construction laydown yard may be lit for security; however, lighting would be directed on-site and away from potentially sensitive receptors (i.e., motorists and nearby residents).

OPERATION

Project lighting for operations would be restricted to areas required for safety, security, and operational activities. Lighting would be concentrated around the perimeter of the BESS storage containers and PCS skids in the BESS Project Area. All lighting would comply with dark sky requirements by utilizing shielding, so no light is emitted above the horizontal plane. Furthermore, lights would be 3000 Kelvin or warmer, which means the lights would emit a soft light yellow color which would be less harsh than a cool bright white light. Additionally, the lights would use timers and photocells to limit unnecessary illumination.

The Applicant does not anticipate installing any new structure lighting as part of the proposed gennie line, with the exception of aviation lighting and/or marking that may be required for some structures. Upon completion of final design, if necessary, the Applicant would file with the Federal Aviation Administration (FAA) for official study and determination of lighting and/or marking requirements for these structures. Aviation lights are manufactured with focused beacons which direct light upward and outward without illuminating nearby areas directly below the lights, and no visible reflected light would be visible from the ground surface. Any aviation lighting required for the Project would be consistent with similar, existing aviation lighting in the vicinity.

Table 5.5-1 Project Site Components

Project Component	Approximate Acreages and Dimensions	Materials	Finishes
Vaca Dixon 57 MWh BESS Facility 4.25 acres			
Electrical Enclosures	20 feet by 8 feet, 9.5 feet tall	Concrete pad, prefabricated metal	Light colored or neutral
PCS Inverter Skids	20 feet by 8 feet, 9.5 feet tall	Concrete pad, prefabricated metal	Light colored or neutral
Stormwater Retention Basin	27,800 square feet	Shallow earth and rock basin Mostly dry except during storm events	Exposed soil and rock
Storage Container	60 feet by 11 feet, up to 10 feet tall	Concrete foundation, prefabricated, metal paneling	Light colored or neutral
Voltage Transformers	16.5 inches by 6 inches, 7.5 inches tall	Concrete foundation, prefabricated metal	Light to dark grey
Control Enclosure	15 feet at the tallest point and 20 feet by 30 feet (up to approximately 600 square feet)	Concrete foundation, prefabricated, metal paneling	Light colored or neutral
Monopole Structures	45 to 100 feet tall, 2-6 feet diameter	Steel	Light to dark grey
Fencing	Up to 8 feet tall	Metal chain link topped with 1 foot barbed wire	Green
Arges 400 MWh BESS Facility 5.75 acres			
Electrical Enclosures	40 feet or 52 feet by 8 feet, 8.5 feet tall	Concrete pad, prefabricated metal	Light colored or neutral
PCS Inverter Skids	20 feet by 8 feet, 9.5 feet tall	Concrete pad, prefabricated metal	Light colored or neutral
Stormwater Retention Basin	13,500 square feet	Shallow earth and rock basin Mostly dry except during storm events	Exposed soil and rock
Storage Container	60 feet by 11 feet, up to 10 feet tall	Concrete foundation, prefabricated, metal paneling	Light colored or neutral
Communication Building	50 feet by 24 feet, 12 feet tall	Metal siding	Light colored or neutral
Monopole Structures	45 to 100 feet tall, 2-6 feet diameter	Steel	Light to dark grey
Control Enclosure	15 feet at the tallest point and 20 feet by 30 feet (up to approximately 600 square feet)	Concrete foundation, prefabricated, metal paneling	Light colored or neutral
Fencing	Up to 8 feet tall	Metal chain link topped with 1 foot barbed wire	Light to dark grey
Gen-Tie Line 0.8 mile long Up to 275-foot-wide corridor			
Monopole Structures	45 to 100 feet tall, 2-6 feet diameter	Steel	Light to dark grey
Arges 400 MWh BESS 115 kV Gen-Tie Circuit	477 kcmil Hawk ACSR Up to 0.45 mile long	Galvanized Steel	Light to dark grey
Vaca Dixon 57 MWh BESS 13.8 kV Gen-Tie Circuit	Twin-bundled 1590 kcmil Falcon ACSR Up to 0.35 mile long	Galvanized Steel	Light to dark grey
kcmil: thousand circular mills ACSR: Aluminum conductor steel reinforced			

Construction Laydown Area

As described in Chapter 2, *Project Description*, two construction laydown yards would be utilized between the two Project components. The northern and eastern portion of the Vaca Dixon 57 MWh BESS area would be utilized as temporary staging and laydown yard area. An approximately 0.28-acre construction laydown yard would be located on the west side of the Arges switchyard. Laydown area preparation would include the installation of temporary perimeter fencing that would be removed once construction is complete. The Project construction laydown yard would be used as a reporting location for workers, vehicle and equipment parking, and material storage.

Water Vapor Plumes

There are no Project components that would produce visible water vapor plumes.

Visual Impact Assessment

A set of visual simulations, presented in Figure 5.5-4 through Figure 5.5-7, above, were prepared to document the Project-related visual change that would occur at six KOP locations to provide the basis for evaluating potential visual effects associated with the Project from these key public views. The figure sets consist of two full-page images designated “a,” “b,” and/or “c,” with the existing view shown in the “a” figure, and the with-Project visual simulation in the “b” and/or “c” figure.

This section provides a description of the Project-related change and an evaluation of potential visual effects on key public views, primarily as represented by the set of six visual simulations. Table 5.5-2 presents an overview of the changes anticipated at each KOP, including corresponding viewers and visual sensitivity; approximate viewing distance; and summary of the visible change that would occur at each KOP location. For FHWA Rating Worksheets, see Appendix A of Appendix P.

Table 5.5-2 Summary of Visual Change at KOPs

Photograph Number and Location	Viewers and Visual Sensitivity	Distance from KOP to Closest Project Component (miles)	Summary of Visual Change
KOP 1 Mills Lane	Residences on Mills Lane, high visual sensitivity	0.20	The proposed gen-tie line and associated structures appear as prominent new linear features crossing the foreground of the landscape.
KOP 2 Westbound I-80	Motorists on I-80, low visual sensitivity	0.07	The proposed gen-tie line and associated structures appear as prominent new linear features in the foreground and crossing over the roadway. Additionally, the BESS containers are new structures in the foreground which are partially obscured by a green screening fence and rows of green shrubs and trees.
KOP 3 Eastbound I-80	Motorists on I-80, low visual sensitivity	0.06	The proposed gen-tie line and associated structures appear as prominent new linear features in the foreground and crossing over the roadway. Additionally, the BESS containers are new structures in the foreground which are partially obscured by a green screening fence and rows of green shrubs and trees.
KOP 4 Willow Road	Motorists on Willow Road and Kilkenny Road and residences on Willow Road, high visual sensitivity	0.20	The proposed BESS containers appear as new features in the foreground, partially obscured by a green screening fence and rows of green shrubs and trees.
KOP 5 Kilkenny Road	Motorists and residents on Willow Road and Kilkenny Road, high visual sensitivity	0.01	The proposed gen-tie line and associated structures appear as prominent new linear features in the foreground. The green screening perimeter fence is distinct in the foreground and largely obscures the BESS containers. Perimeter plantings containing ornamental and flowering shrubs and trees surround the site.
KOP 6 Eastbound I-80	Motorists on I-80, low visual sensitivity	0.03	The proposed substation, BESS, gen-tie lines and associated structures appear as prominent new linear and rectilinear features in the foreground. The green screening perimeter fence is distinct in the foreground and largely obscures the BESS containers and control house. Perimeter plantings containing ornamental and flowering shrubs and trees surround the site.

5.5.3.2 Impact Evaluation Criteria

The potential for impacts to visual resources and their uses were evaluated using the criteria described in the California Environmental Quality Act Environmental Checklist (Appendix G of the CEQA Guidelines). Specific to visual resources, the CEQA Checklist asks, would the Project:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- In nonurbanized 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; and/or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Impact VIS-1

Threshold 1: Would the Project have a substantial adverse effect on a scenic vista?

As described in the Environmental Setting section, above, the Vacaville General Plan indicates that the City's scenic resources are associated with the open space, natural resources, and agricultural uses of the Planning Area as well as the hillside areas surrounding the city (City of Vacaville 2015).

Construction

Less than Significant Impact. Construction activities would be visible from I-80 as well as local streets such as Kilkenny Road, Willow Road, Quinn Road, and Mills Lane. However, construction would be temporary and views of these construction activities would be of short duration at highway speed from I-80. Construction and decommissioning activities would be visible for a prolonged period for motorists on Kilkenny and Willow Road and for residents along Willow Road. Due to the overall temporary nature of construction and decommissioning activities, the Project would not adversely affect scenic vistas or scenic resources in the Project vicinity.

Operation

Less than Significant Impact. As shown in Figure 5.5-1, there are County-designated scenic roadways, agricultural lands, and greenbelts within five miles of the Project. The BESS Project Area is currently used as an orchard with existing agricultural lands surrounding it. Construction of the Project would result in the removal of the existing orchard on site, which would result in a decrease in agricultural land viewed by motorists on I-80, Kilkenny Road, and Willow Road and for residents along Willow Road. However, this change would not result in a substantial adverse effect on scenic agricultural resources in the Project vicinity because neighboring agricultural land would stay in production and remain visible - especially to motorists on Kilkenny and Willow Road and residents on Willow Road, all of whom have the highest viewer sensitivity of any viewer group associated with the Project, and would have prolonged views of the Project due to the speed of travel on Kilkenny and Willow Roads. The gen-tie lines associated with the Project would be similar in height and color to existing utility lines and infrastructure around the Project, and the BESS battery storage containers would be screened by a green fence and ornamental tree and shrub plantings to further reduce the visibility of the structures on site. This would provide visual screening of the Project and

allow it to blend more seamlessly with surrounding utility infrastructure and agricultural land. Therefore, impacts would be less than significant.

Impact VIS-2

Threshold 2: Would the Project substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

Construction

Less than Significant Impact. As described in the Environmental Setting section, above, there are no designated or eligible State scenic highways which partially or fully intersect the Project Site (Caltrans 2018). The nearest designated state scenic highway is State Route 160 which is approximately 16 miles east of the Project Site (Caltrans 2018). Therefore, construction of the Project would have no impact on scenic resources within a state scenic highway. However, as depicted in Figure 5.5-1, the Solano County General Plan designates I-80 as a locally scenic roadway. As described under Threshold 1 above, construction and decommissioning activities would be visible from I-80; however, they would be briefly seen by motorists on I-80 due to the high speed of travel on the roadway and they would be temporary. Therefore, impacts would be less than significant.

Operation

Less than Significant Impact. As described above, there are no State designated or eligible scenic highways near the Project Site. Therefore, operation of the Project would have no impact on scenic resources within a state scenic highway. However, operation would alter views from I-80, which is a locally designated scenic highway. Operation of the Project would result in a decrease in agricultural land in the BESS Project Area, which is currently visible from I-80, and would introduce an additional overhead gen-tie line crossing over I-80. Due to the high speed of travel on I-80, these components would be briefly visible. Furthermore, the BESS battery storage containers in the BESS Project Area would be screened with green fencing, and trees and shrubs would be planted around the site perimeter to partially obscure views of the BESS containers on site. This would further reduce the visibility of these components from I-80. Therefore, impacts would be less than significant.

Impact VIS-3

Threshold 3: Would the Project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings?

Construction

Less than Significant Impact. As discussed above under Impact VIS-1, construction activities would be visible from Kilkenny Road, Willow Road, and I-80. However, construction would be temporary and views of these construction activities would be of short duration at highway speed from I-80. Construction and decommissioning activities would be visible for a prolonged period for motorists on Kilkenny and Willow Road and for residents on Willow Road. However, due to the overall temporary nature of construction and decommissioning activities, the Project would not substantially degrade existing visual character or quality of views and impacts would be less than significant.

Operation

Less than Significant with Mitigation. The Project BESS facilities would be located in urbanized areas and only portions of the gen-tie would extend to non-urbanized areas as defined by CEQA. The Project would include BESS containers in the BESS Project Area, and an overhead gen-tie line which would cross over I-80 to connect to the PG&E substation to the north of the BESS Project Area. The gen-tie line would be visible from KOPs 1 through 6, as shown in Figure 5.5-4b through Figure 5.5-9b. An analysis of whether the Project would substantially degrade the existing visual character or quality of public views of the Project Site and its surroundings is provided below for each KOP.

KOP 1

As documented in the FHWA rating sheets in Appendix A of Appendix P the existing visual quality of the view from KOP 1 is moderately low; viewer sensitivity for residents is high. The gen-tie on the north side of I-80 is the only Project component visible in KOP 1. As shown from KOP 1 in Figure 5.5-4b, the Project introduces the gen-tie as new electrical infrastructure in the middleground. The foreground view would be unchanged, including existing vegetation, fencing, and structures that would remain visible between the viewer and the gen-tie line. Existing structures remain visible beyond the gen-tie line, and the gen-tie is added to a view that includes existing electrical infrastructure. The Project would introduce additional human-made features with distinct horizontal and vertical linear elements which would contrast against the sky and present more prominently within the view than the existing electrical infrastructure. These features would be similar in form and function as existing infrastructure present within the view; however, the proposed gen-tie clutters the view and decreases visual intactness and unity. The visual character and quality of public views from KOP 1 would be slightly reduced with introduction of the Project, but the overall visual quality would remain moderately low.

KOP 2

As documented in the FHWA rating sheets in Appendix A of Appendix P, the existing visual quality of the view from KOP 2 is low; viewer sensitivity for motorists is also low. The BESS facility on the south side of I-80 and the gen-tie lines crossing I-80 would be visible from KOP 2, as shown in Figure 5.5-5b. The Project would remove the existing orchard on the left-hand side of the view and replace it with the proposed BESS facility. Regular rows of evergreen ornamental hedges, trees, and flowering perennials, included as Project landscaping, would form a variable edge of green which would break up views of the BESS facility. The neutral-toned BESS containers would be partially screened by a green fence and vegetation, and would not be distinctly visible. The Project gen-tie line is similar to existing overhead electrical infrastructure, but larger in scale and more visibly prominent. The new gen-tie poles and lines are especially prominent in the foreground, decreasing the intactness of the view and reducing visual unity. The visual character and quality of public views from KOP 2 would be slightly reduced as a result of the Project, but the overall visual quality would remain low.

KOP 3

As documented in the FHWA rating sheets in Appendix A of Appendix P, the existing visual quality of the view from KOP 3 is low; viewer sensitivity for motorists is also low. The BESS facility on the south side of I-80 and the gen-tie lines crossing I-80 would be visible from KOP 3, as shown in Figure 5.5-6b. The Project would remove the existing orchard along the right side of the roadway

and replace it with the BESS facility. Regular rows of evergreen ornamental hedges, trees, and flowering perennials, included as Project landscaping, would form a variable edge of green which would break up views of the BESS facility and Project switchyard, but the tops of the BESS containers and switchyard would be visible above the fence and between the ornamental trees. The Project gen-tie is similar to existing high voltage overhead electrical infrastructure, but larger in scale and more visibly prominent. These Project components clutter the view and compete for dominance, resulting in decreased intactness and reducing visual unity. The visual character and quality of public views from KOP 3 would be slightly reduced as a result of the Project, but the overall visual quality would remain low.

KOP 4

As documented in the FHWA rating sheets in Appendix A of Appendix P, the existing visual quality of the view from KOP 4 is moderately low; viewer sensitivity for residents is high. The BESS facility and a portion of the gen-tie would be visible from KOP 4, as shown in Figure 5.5-7b. No changes to the view would occur in the immediate foreground; however, the Project would remove the existing orchard in the distant foreground (approximately 0.4 mile) and replace it with the BESS facility. Regular rows of evergreen ornamental hedges, trees, and flowering perennials, included as Project landscaping, in front of the green fence surrounding the BESS Project Area would form a variable edge of green which would break up views of the BESS facility, but the tops of the BESS containers would be slightly visible above the fence. The Project would not affect views of the grassy field in the immediate foreground, but would add additional human-made features visible along the horizon and against the sky. The neutral-toned BESS facility is generally obscured by the green fence and vegetation around the perimeter and is not distinctly visible. The Project gen-tie line and structures contribute horizontal and vertical features which add to visual clutter in the view across the center of the frame, but are compatible and blend in unremarkably with existing infrastructure within the view. While the proposed gen-tie structures are similar in form and function as existing utility infrastructure visible from KOP 4, the increased presence of human-made features and visibility of the proposed infrastructure results in a decrease of intactness in the view. The Project would not change the unified view of the immediate foreground. The visual character and quality of public views from KOP 4 would be slightly reduced as a result of the Project, but the overall visual quality would remain moderately low.

KOP 5

As documented in the FHWA rating sheets in Appendix A of Appendix P, the existing visual quality of the view from KOP 5 is low-moderately low; viewer sensitivity for local motorists is moderate, and sensitivity for residents is high. The proposed gen-tie and substation components along Kilkenny Road would be visible from KOP 5, as shown in Figure 5.5-8a. The Project would remove the existing orchard along the roadway and replace it with the BESS facility and proposed substation. The proposed BESS facility would be largely obscured by a green screen perimeter fence and tiered perimeter plantings consisting of green, flowering, and colorful trees and shrubs. The perimeter fence would be topped with three regularly-spaced strands of barbed wire, which contribute to the clutter of lines across the center of the view. Overhead utility lines, TSPs, and substation structures would be visible above the perimeter fence and introduce horizontal and vertical linear features which are highly contrasted against the sky. These Project components would clutter the view and compete for dominance, resulting in decreased intactness and reducing visual unity. The visual character and quality of public views from KOP 5 would be reduced as a result of the Project, resulting in very low visual quality.

KOP 6

As documented in the FHWA rating sheets in Appendix A of Appendix P, the existing visual quality of the view from KOP 6 is low; viewer sensitivity for motorists is also low. The BESS facility and substation on the south side of I-80 would be visible from KOP 6, as shown in Figure 5.5-9b. The Project would remove the existing orchard along the south side of the roadway and replace it with the BESS and substation facilities. The green screen fencing would provide an opaque backdrop behind regularly spaced ornamental trees and flowering shrubs in front of the Project, which would break up views of the BESS facility and Project substation, but the tops of the BESS containers, control building, and most substation components would be visible above the fence. The Project gen-tie would be similar to existing high voltage overhead electrical infrastructure, but larger in scale and more visibly prominent. The Project substation facilities would introduce increased massing and larger-scale utility structures which are visually dominant from KOP 6. These Project components would clutter the view and compete for dominance, resulting in decreased intactness and reduced visual unity. The visual character and quality of public views from KOP 6 would be reduced as a result of the Project, and the overall visual quality would be very low.

Overall, the Project would introduce new overhead gen-tie lines, new utility infrastructure, and would result in the replacement of an orchard with industrial components in the form of the BESS battery storage containers. The utility infrastructure and gen-tie line would be similar to existing utility infrastructure in the Project area. The Project would reduce agricultural land in the BESS Project Area by replacing the existing orchard with BESS containers and switchyards. While these facilities would change the visual character of the Project Site, a screening fence and landscaping around the facilities would reduce the visibility of structures on the Project Site. The proposed Project would add visually dominant human-made features and contribute to a decrease in visual coherence, intactness, and unity within these views.

Mitigation Measure VIS-1 would require a Surface Treatment Plan to be prepared and implemented for the Project, which would ensure that potentially significant impacts associated with color contrast and glare for the Project are reduced. With implementation of Mitigation Measure VIS-1, operation impacts of these Project components would be less than significant.

Mitigation Measures

VIS-1 Surface Treatment Plan

To reduce potential significant impacts associated with color contrast and glare for components of the Project, the applicant shall prepare and implement a Surface Treatment Plan for new aboveground structural elements associated with the BESS facilities, step-up substation, switchyard, and gen-tie line. The Surface Treatment Plan will require that the finishes on all new transmission and other structures with metal surfaces shall be non-reflective, and new conductors shall be non-specular. The Surface Treatment Plan shall also address non-steel structural elements associated with Project components, such as buildings and storage tanks. Colors shall be selected according to their ability to reduce the aesthetic impact associated with contrast with the surrounding landscape.

Impact VIS-4

Threshold: Would the Project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Construction

Less than Significant Impact. Existing sources of nighttime lighting near the Project Site include headlights from vehicles on roadways, scattered rural residences, and agricultural and commercial facilities. As detailed in Chapter 2, Project Description, and Section 5.5.3.1, *Project Lighting*, lighting for the Project would be restricted to areas required for safety, security, and operation during construction and decommissioning. Care would be taken to prevent undue light pollution from nighttime security lighting, and if temporary nighttime lighting is required, all lighting standards would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties and roadways. While Project construction activities would be visible to motorists on local roads and I-80, as well as rural residences, these impacts would be temporary and minimized through lighting controls. Therefore, the potential for glare and nighttime lighting during construction and decommissioning of the Project to impact views would be minimal, and impacts would be less than significant.

Operation

Less than Significant with Mitigation. As detailed in Chapter 2, Project Description, and Section 5.5.3.1, *Project Lighting*, lighting for the Project would be restricted to areas required for safety and security during operation. Lighting would be installed primarily around the perimeter of the BESS Project Area. Security lights would use motion sensor technology that would be triggered by movement at a human's height, so as not to be triggered by wildlife. In the event that operations or maintenance activities are required outside of daylight hours, vehicular headlights may be required, and portable light standards similar to those utilized during construction may be used. However, vehicular headlights are an existing source of light in the vicinity, and any additional lighting associated with nighttime operational activities would be temporary, infrequent, shielded, and directed downward. All lighting would comply with Solano County and City of Vacaville General Plans and Municipal Codes. Any aviation lighting required for the Project would be consistent with similar existing aviation lighting in the vicinity. Mitigation Measure VIS-2 would require a Lighting Plan to be prepared and implemented for the Project, which would ensure that potentially significant impacts associated with new sources of light are reduced. With implementation of Mitigation Measure VIS-2, lighting impacts would be less than significant.

To reduce potential impacts associated with glare, surface treatments would feature flat and non-reflective color finishes. These types of finishes are designed to reduce light reflection and color contrast and help blend the structures into the landscape setting. These finish specifications will be included in the Surface Treatment Plan prepared as part of Mitigation Measure VIS-1. With implementation of Mitigation Measure VIS-1, the Project would not create new substantial sources of glare and impacts would be less than significant.

Mitigation Measures

VIS-2 Lighting Plan

A Lighting Plan shall be prepared for the Project and provided for CEC review and approval. Permanent lighting shall be designed and installed such that lighting is minimized from public viewing areas; lighting does not cause reflected glare; and illumination of the Project facilities, vicinity, and nighttime sky is minimized. The Plan shall include but is not limited to the following:

- Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources are shielded to prevent light spill outside the project boundary;
- All lighting shall be of minimum necessary brightness consistent with worker safety (OSHA, 1926.56[a]);
- All lighting shall have the International Dark-Sky Association Fixture Seal of Approval, as feasible;
- High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied;
- Specifically address reflectance - including the intensity of the specular reflectance from the exterior surface of the project's large buildings, structures, and major equipment offsite to the surrounding area (e.g., the light reflected from the shiny surface);
- Specifically address whether the proposed luminaires are full cutoff, semi cutoff, or non-cutoff;
- Specifically address the control of reflectance from exterior surfaces off site; and
- Note conformance with City and County municipal codes.

5.5.4 Cumulative Impacts

Impacts of the Project would be considered cumulatively considerable if they would have the potential to combine with other past, present, or reasonably foreseeable projects to become significant.

The Project area and vicinity (3-mile radius) in which cumulative projects are located contains views of the expansive, agricultural patchwork with interspersed development centered around transportation corridors and residential areas. The visual character of the Project area and cumulative project area is largely agricultural with some scattered industrial, commercial, and residential pockets.

The cumulative project area does not contain any designated scenic vistas or state scenic highways. However, Solano County has designated I-80 as a scenic roadway within the County. Similar to the Project, while there are locations throughout the cumulative project vicinity where new development may impede a given view, the new development would be minor when taken as a whole within the greater landscape. Therefore, no cumulative impacts to scenic vistas or scenic resources within a state scenic highway are anticipated.

Implementation of the Project would alter the visual character and quality in the Project vicinity by introducing industrial characteristics into a landscape with a largely agricultural character. Similarly, the cumulative projects listed in Table 5-1 in Chapter 5, *Environmental Analysis*, would potentially alter the visual character and view quality in the 2-mile vicinity around the Project.

The visual simulations prepared for the Project at KOPs 1 through 6 demonstrate that Project visibility varies based on viewing location and Project components present in selected views exhibit different levels of contrast with the surrounding environment. Generally, while the Project would result in a slight reduction of visual character and quality, impacts would be less than significant.

Cumulative projects that may individually have impacts to visual character and quality include Projects 15 (warehouse and wholesale facility), 18 (warehouse distribution buildings and utilities), 20 (digital billboard), 22 (warehouse), and 55 (battery energy storage system). Although these projects are located within 3 miles of the Project, most are concentrated in an existing developed area where existing views and scenic resources are fully or partially obstructed by nearby development and topography. Similar to the Project, Cumulative Project 55 would be visible from I-80 and proximate residences along Kilkenny Road, and distantly visible from residences along Mills Lane. However, these components would be seen in context with similar existing utility infrastructure and would largely not be visible within the same viewshed. Therefore, cumulative impacts to existing views or scenic resources would be less than significant.

As discussed in Impact VIS-4, the Project would not be a source of considerable light or glare with implementation of Mitigation Measure VIS-1. Cumulative projects 1, 5, 7, 9, and 11 involve residential subdivision construction and may introduce reflective surfaces that could generate glare. Additionally, commercial and mixed-use projects such as 3, 4, 8, and 18 are anticipated to result in new sources of nighttime glare. All cumulative projects would be required to comply with existing regulations which limit light and glare such as the Vacaville Municipal Code. Furthermore, as discussed previously, Project would not introduce a new significant source of light or glare, and therefore it would not contribute to a cumulatively considerable impact.

5.5.5 Laws, Ordinances, Regulations, and Standards

This section lists and discusses the visual resources-related LORS that apply to the Project. Table 5.5-3 summarizes the LORS relevant to the Project.

Table 5.5-3 LORS Applicable to Visual Resources

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity
State	California Environmental Quality Act (CEQA)	Requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of the Project and to reduce environmental impacts to the extent feasible.	Throughout this Opt-In Application	The Project would comply with CEQA, as required by the California Energy Commission’s Opt-In Application process.
Local	Solano County Municipal Code Section 28.77.10	Provides general development requirements for industrial land uses, including those preventing glare and light pollution.	Impact VIS-4	The Project would minimize impacts related to new sources of light and glare through adherence with County Code lighting standards and restrictions.
Local	Solano County General Plan Policy RS.P-35	Encourages the preservation of scenic views and vistas.	VIS-1, VIS-3	The Project would minimize impacts to scenic views and vistas through implementation of Mitigation Measure VIS-1, which requires a Surface Treatment Plan to ensure that Project finishes are minimally contrasting and in harmony with the existing visual setting.
Local	Solano County General Plan Policy RS.G-6	Encourages the preservation of visual character and community identity.	VIS-3	The Project would minimize impacts to visual character through implementation of Mitigation Measure VIS-1, which requires a Surface Treatment Plan to ensure that Project finishes are minimally contrasting and in harmony with the existing visual setting.
Local	Solano County General Plan Policy RS.P-37, RS.P-37, Figure RS.5	Identifies I-80 as a designated scenic roadway within Solano County and protects the visual character of the roadway.	VIS-2	Project components would be visible from I-80 and the proposed gen-tie line would cross over and parallel I-80. The Project would minimize impacts to views from I-80 through implementation of Mitigation Measure VIS-1, which requires a Surface Treatment Plan to ensure that Project finishes are minimally contrasting and in harmony with the existing visual setting.

Vaca Dixon BESS LLC and Arges BESS LLC
Vaca Dixon Power Center Project

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity
Local	Solano County General Plan Policy RS.P-36	Encourages reduced light pollution and preservation of nighttime views.	VIS-4	The Project would minimize impacts related to new sources of light and glare through adherence with County Code lighting standards and restrictions and implementation of Mitigation Measures VIS-1 and VIS-2. Mitigation Measure VIS-1 requires a Surface Treatment Plan to ensure that Project finishes are flat and non-specular to minimize glare, and Mitigation Measure VIS-2 requires a Project Lighting Plan, which includes, but is not limited to, specifications to minimize offsite light spill, utilization of Dark-Sky compliant fixtures, and details the intensity of specular reflectance.
Local	City of Vacaville Municipal Code Section 14.09.240.110	Enforces general land use and development performance standards, including those preventing glare and light pollution.	Impact VIS-4	The Project would minimize impacts related to new sources of light and glare through adherence with County Code lighting standards and restrictions and implementation of Mitigation Measures VIS-1 and VIS-2. Mitigation Measure VIS-1 requires a Surface Treatment Plan to ensure that Project finishes are flat and non-specular to minimize glare, and Mitigation Measure VIS-2 requires a Project Lighting Plan, which includes, but is not limited to, specifications to minimize offsite light spill, utilization of Dark-Sky compliant fixtures, and details the intensity of specular reflectance.
Local	City of Vacaville General Plan COS-P8.1, COS-P8.2	Encourages the preservation of scenic features and views.	VIS-1, VIS-3	The Project would minimize impacts to scenic views and vistas through implementation of Mitigation Measure VIS-1, which requires a Surface Treatment Plan to ensure that Project finishes are minimally contrasting and in harmony with the existing visual setting.

Source: Solano County Municipal Code, Solano County 2008, City of Vacaville Municipal Code, City of Vacaville 2015

5.5.5.1 Federal LORS

There are no federal LORS that apply to visual resources.

5.5.5.2 State LORS

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of the Project and to reduce environmental impacts to the extent feasible. Appendix G of the CEQA Guidelines includes criteria for evaluating potential impacts related to aesthetics.

5.5.5.3 Local LORS

Solano County

Municipal Code

Solano County Municipal Code Section 28.77.10 provides general development requirements for industrial land uses, including those preventing glare and light pollution.

General Plan

The Solano County General Plan Resources Element provides the following goals and policies related to visual resources:

Policy RS.G-6: Preserve the visual character and identity of communities by maintaining open space areas between them.

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.

City of Vacaville

Municipal Code

City of Vacaville Municipal Code Section 14.09.240.110 enforces general land use and development performance standards, including those preventing glare and light pollution.

General Plan

The City of Vacaville General Plan Conservation and Open Space Element includes the following goals and policies related to scenic resources:

Goal COS-8: Maintain and enhance the quality of Vacaville's scenic and visual 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.

Policy COS-P8.2: Retain major ridgelines and hillsides as open space.

5.5.6 Agencies and Agency Contact

There are no agencies with jurisdiction to issue permits or approvals, or to enforce identified LORS related to visual resources.

5.5.7 Permits and Permit Schedule

No permits related to visual resources would be required for the Project.

5.5.8 References

California Department of Transportation (Caltrans). 2018. California State Scenic Highways Map.

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https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.pdf. (accessed October 2025).

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https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf. Accessed October 2025.

Solano, County of. 2008. Solano General Plan, Chapter 5 Health and Safety

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