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CA3 Backup Generating Facility - Vantage

Final Environmental Impact Report
Part 4 of 4

CALIFORNIA
ENERGY
COMMISSION
Gavin Newsom,
Governor

March 2022
CEC-700-2022-003

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FINAL ENVIRONMENTAL IMPACT REPORT

CA3 Backup Generating Facility

(21-SPPE-01)

Lead Agency

California Energy Commission

March 2022

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Section 4

Environmental Setting and Environmental Impacts (cont.)

4.15 Public Services

This section describes the environmental setting and regulatory background, and discusses impacts associated with the construction and operation of the project specific to public services. Water supply and treatment services are discussed in the Utilities and Service Systems section.

PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: i. Fire protection?	☐	☐	☒	☐
ii. Police Protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.15.1 Environmental Setting

The proposed project is in the city of Santa Clara (city) within Santa Clara County. Therefore, the study area for public services is the city. Fire protection and related paramedic services for the project site are provided by the Santa Clara Fire Department (SCFD). Police protection services are provided by the Santa Clara Police Department (SCPD). Parks and recreation facilities in the city are provided and maintained by the Santa Clara Department of Parks & Recreation. The project site is within the Santa Clara Unified School District (SCUSD) boundaries.

Fire Protection

The SCFD has 10 stations consisting of eight engines, two trucks, two ambulances, one rescue/light unit, one hazardous materials unit, and one command vehicle (SCFD 2021). The closest fire station to the project site is Station 2, located at 1900 Walsh Avenue, which is approximately 0.8 mile east of the project site.

The SCFD responds to all emergencies within six minutes 90 percent of the time (SCFD 2021).

Police Protection

The SCPD consists of 239 full-time employees and a varying number of part-time or per diem employees, community volunteers, police reserves, and chaplains. Police headquarters are located at 601 El Camino Real, approximately 2.25 miles southeast of the project site (SCPD 2021).

The City of Santa Clara 2010-2035 General Plan (General Plan) identifies the goal of maintaining an average response time of three minutes for all areas of the city (Santa Clara 2010).

Parks, Schools, and Libraries

The nearest public parks to the project site are:

- Bracher Park, located at 2560 Alhambra Drive, directly west of the project site across from, and physically separated by, the Caltrain railroad right of way;
- Bowers Park, located at 2582 Cabrillo Avenue, approximately 0.8 mile south of the project site; and
- Warburton Park, located at 2250 Royal Drive, approximately 1.2 miles south of the project site.

The General Plan identifies a standard of maintaining 2.4 acres of parkland per 1,000 residents (Santa Clara 2010). The General Plan also identifies proposed parkland sites of at least 25 acres to maintain the city's ratio for parkland and serve the demand generated by future residential and employment center development.

The nearest public schools to the project site are:

- Bracher Elementary School, located at 2700 Chromite Drive, approximately 0.25 mile south of the project site;
- Adrian Wilcox High School, located at 3250 Monroe Street, approximately 0.6 mile west of the project site;
- Bowers Elementary School, located at 2755 Barkley Avenue, approximately 0.8 mile south of the project site; and
- Cabrillo Middle School, located at 2550 Cabrillo Avenue, approximately 0.8 mile south of the project site.

The nearest private school (within one mile) to the project site is the Cabrillo Montessori, located at 2495 Cabrillo Avenue.

According to the city's General Plan, SCUSD currently has four closed school sites (three of which are in the city of Santa Clara) that could be used to serve new development (Santa Clara 2010). Alternatively, SCUSD may choose to modify school catchment areas

or add modular classrooms to accommodate new students. SCUSD is also anticipating the construction of new school facilities in north San Jose as a result of an agreement with the city of San Jose and future housing developers.

The nearest library to the project site is the Northside Branch Library, located at 695 Moreland Way, approximately 2.25 miles northeast of the project site.

The General Plan states that new library facilities may be needed to accommodate future development, and the addition of approximately 33,000 residents, anticipated as a result of the implementation of the General Plan, but this need would be evaluated as part of the comprehensive planning process for new residential development (Santa Clara 2010). The General Plan also states that arts, cultural, and community facilities are sufficient to meet future demand particularly when the city can optimize the use of streets or other existing neighborhood amenities for community events.

Regulatory Background

No specific regulations related to public services apply to the project. Prior to issuing land use and building permits, the city requires projects to be reviewed under a development review process, which includes an assessment of a project's consistency and compliance with the city's goals and objectives that are established in the General Plan and Santa Clara City Code, and in other applicable regulations and standards. As part of this process, the Project Clearance Committee (PCC) reviews project applications for completeness and compliance with city standards.

The SCFD, SCPD, and Santa Clara Department of Parks & Recreation are included in the PCC review to determine if project applications are complete and require conditions of approval. These conditions may include revisions to project plans to ensure that the site design incorporates safety and security measures as well as adequate emergency access. The SCFD, SCPD, and Santa Clara Department of Parks & Recreation provided comments and conditions for the proposed project related to fire services, police services, and park facilities at the PCC meetings held on June 22, 2021 (CEC 2021j) and November 2, 2021 (CEC 2021u). The project applicant is currently working to address these comments in an iterative process with the PCC and any conditions deemed necessary through that process will ultimately be folded into any permit issued by the city. Any changes to the project as a result of these conditions would only serve to reduce the project's potential for impacts and would not have the potential to result in a significant adverse impact.

4.15.2 Environmental Impacts

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable

service ratios, response times, or other performance objectives for any of the public services:

i. Fire Protection?

Construction

Less Than Significant Impact. The project would require a large temporary construction workforce. As stated in the application, Phase I of construction would occur over a 14-month period and would require an average of approximately 100 workers per month with a peak number of approximately 150 workers per month (DayZenLLC 2021a). Phase II of construction would occur over an 11-month period and would require an average of approximately 80 workers per month with a peak number of approximately 200 workers per month.

The city is a self-identified employment hub, with approximately 70 percent of employees commuting from residences outside of the city's jurisdiction (Santa Clara 2010). As discussed in section **4.14 Population and Housing**, the anticipated construction workforce for the project would likely be drawn from the San Jose-Sunnyvale-Santa Clara region.[1] Based on the proximity of the available workforce to the project, construction workers from neighboring cities and counties are not likely to temporarily relocate closer to the project site. Therefore, this workforce is unlikely to increase the need for residential area fire services. In addition, any changes to service ratios as a result of the project's construction phases would be temporary and would not require the need for new or physically altered fire protection facilities.

Project construction activities that could pose a risk for fire due to heated exhaust or sparks include the use of welding equipment, grinders, cranes, excavation equipment, vehicles, and bulldozers. AQ-1 requires the project to properly tune and maintain construction equipment in accordance with manufacturer's specifications. Additionally, the use of best practices ensures that construction equipment would be inspected regularly and operated by qualified personnel in compliance with operator manuals and standard safety procedures to minimize the risk of fire. However, the need for fire protection response may increase slightly in the unlikely event that a fire occurs during equipment operation.

Potential effects on the need for fire protection response as a result of the project's construction phases would be temporary and would cease at the end of project construction. In addition, the nearest fire station is relatively close to the project site (0.8 mile away), so that the existing six-minute response time goal mentioned earlier could still be achieved without the need for new or physically altered facilities. Therefore, impacts would be less than significant.

1 Region in this instance is the Metropolitan Statistical Area. A Metropolitan Statistical Area is a geographical area with a population of 50,000 or more, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties (EDD 2021).

Operation

Less Than Significant Impact. The existing project site includes a 115,000-square-foot, one-story office and warehouse building. While the proposed project includes a larger building (a 468,170-square-foot, four-story building), the operation of the computer servers would not require a substantial number of employees. The project is anticipated to require a total of 19 to 21 permanent employees, with approximately 10 to 14 tenant employees visiting the CA3DC daily (DayZenLLC 2021e). The CA3BGF would not have any dedicated employees. Because the project would require a relatively limited number of permanent employees (approximately 20 employees), any changes to service ratios resulting from project operation would not be substantial.

The project site is currently developed with an office and warehouse that is already served by the SCFD. Therefore, the proposed project would not introduce new residential or business uses that would attract a substantial number of new residents to the project area. Given the availability of an existing workforce throughout the greater Bay Area, the project's permanent employees are likely to currently reside within commuting distance of the project site and would not need to relocate closer to the project. If employees were to move closer to the project, this small increase in population would not create a notable increase in the need for fire protection services.

Project elements that could pose a risk for fire include the operation of the emergency backup generators because of the use of diesel fuel (a flammable liquid) as well as the electrical substation and electricity distribution lines that could overheat and potentially spark fires. Emergency backup generators would run for short periods (i.e., duration and frequency) for testing and maintenance purposes, and would not fully operate unless there is a disturbance or interruption in the utility's electricity supply. The limited operation of the emergency backup generators would minimize the potential fire risk from overheating and sparks and would also minimize the use and handling of the diesel fuel required to operate the emergency backup generators.

The storage and handling of diesel fuel would also be conducted in compliance with safety procedures to minimize the risk of fire. Although a substantial quantity of diesel fuel would be stored on-site, the storage of this fuel would be split among many separate tanks, a portion of which would be stored in the double-walled belly tank beneath each emergency backup generator. Deliveries of diesel fuel by tanker truck during project operation would be scheduled on an as-needed basis. An emergency pump shut-off would be available in case a pump hose breaks during fueling. Other safety features include a 15-foot-high wall that would be installed around much of the electrical substation perimeter to reduce safety and fire hazards. Routine inspections of the electrical substation and electricity distribution lines would be conducted so that any operational issues are addressed to minimize overheating and fire hazards.

To further minimize the need for fire protection response, the project would be designed and constructed in conformance with current building and fire codes. As part of the recent PCC review, the SCFD reviewed the project plans to ensure appropriate

safety features have been incorporated to reduce fire hazards, including the provision of adequate emergency access for firefighting equipment and vehicles (CEC 2021j). As of the November 2, 2021, PCC meeting, the applicant was working with the city regarding the SCFD's requirements, including an emergency vehicle access easement, and the location of on-site power lines. The SCFD will review the final site design and may require conditions of approval prior to the issuance of land use and building permits.

With the implementation of standard safety protocols required by SCFD, potential effects on the need for fire protection response would be substantially minimized. No new or physically altered fire protection facilities would be required for project operation. Therefore, impacts would be less than significant.

ii. Police Protection?

Construction

Less Than Significant Impact. The proposed project's construction phases would not generate substantial population growth in the project area that would result in the need for additional police protection facilities for new residents. Based on the proximity of the available workforce to the project, construction workers from neighboring cities and counties are not likely to temporarily relocate closer to the project site. Therefore, they are unlikely to increase the need for residential area police services. In addition, any changes to service ratios as a result of project construction would be temporary and would not require the need for new or physically altered police protection facilities.

Project construction may result in a slight increase in the need for police response in the event law enforcement is needed at the site. The applicant has indicated that it (contractors) would provide fencing during the construction phase. As part of the recent PCC review, the SCPD reviewed the project plans and is requiring that the property be fenced off during demolition and construction as a safety barrier and deterrent of theft and other crime (CEC 2021j). SCPD is requesting that screening material on the fence allow visual access into the site for police patrol vehicles.

With the implementation of standard safety protocols as required by SCPD, potential effects on the need for police response would be substantially minimized. No new or physically altered police protection facilities would be required for project construction. Therefore, impacts would be less than significant.

Operation

Less Than Significant Impact. Because the project would require a relatively limited number of permanent employees (approximately 20), any changes to service ratios as a result of the project's operation would not be substantial. The project site is developed with a pre-existing office and warehouse that is already served by the SCPD. Therefore, the proposed project would not introduce new residential or

business uses that would attract a substantial number of new residents to the project area.

Given the availability of an existing workforce throughout the greater Bay Area, the project's permanent employees are likely to currently reside within commuting distance of the project site and would not need to relocate closer to the project. If employees were to move closer to the project, this small increase in population would not create a notable increase in the need for police protection services.

To enhance site security and reduce the need for police response, the project would include pole-mounted lighting fixtures along the site perimeter as well as along the perimeter of the CA3BGF utility yard, and outdoor security lighting would be provided along the CA3DC building and driveway entrances. Access to the project site would not be available to the public and would be restricted to persons having business on-site. A security checkpoint for vehicles would be located at the eastern driveway.

As part of the recent PCC review, the SCPD reviewed the project plans and provided comments and conditions of approval related to incorporating safety and security measures into the site design (CEC 2021j). These comments and conditions include:

- Providing vegetation and structures that do not block views or create hiding spaces;
- Installing signage to discourage trespassing and unauthorized parking;
- Incorporating alarm systems, security cameras, and a coded entry system for police access; and
- Ensuring that radio signals do not interfere with police communication.

With the implementation of standard safety protocols as required by SCPD, potential effects on the need for police response would be substantially minimized. No new or physically altered police protection facilities would be required for project operation. Therefore, impacts would be less than significant.

iii. Schools?

Construction and Operation

Less Than Significant Impact. The project would be in the SCUSD. SCUSD Board Policy (BP 7211 Facilities: Developer Fees) allows the Board of Trustees, among other things, to establish, levy, and collect developer fees on residential, commercial, and industrial construction within the district for the purpose of funding the construction or reconstruction of school facilities consistent with Education Code section 17620 and Government Code section 65995 et seq. Government Code section 65995(h) expressly provides that "[t]he payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code… are hereby deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or

development of real property, or any change in governmental organization… on the provision of adequate school facilities." The current school impact fee for the district is $0.66 per square foot of covered, enclosed commercial/industrial space (SCUSD 2020). Based on the proposed size of the four-story, 468,170-square-foot data center building, an estimated $308,992 would be assessed. These fees would be collected at the time the applicant applies for building permits from the city of Santa Clara; therefore, impacts would be less than significant.

iv. Parks?

Construction

Less Than Significant Impact. Based on the proximity of the available workforce to the project, construction workers from neighboring cities and counties are not likely to temporarily relocate closer to the project site. Therefore, the construction workers are very unlikely to increase levels of residential area park use. Temporary construction workers may visit park facilities before, during, or after a workday, but this would be a short-term use, if any, that would cease at the end of the project's construction. Although Bracher Park is located directly west of the project site, the project site has no direct access to the park. The entrance to Bracher Park is approximately one mile from the site. Furthermore, the presence of a Caltrain railroad right of way between the project site and the park makes increased park use by potential users from this project highly unlikely. No new or physically altered park facilities would be required for the project's construction. Therefore, impacts would be less than significant.

Operation

Less Than Significant Impact. The proposed project would not generate substantial population growth in the project area that would result in the need for additional park facilities for new residents. The project is not a residential project, and, therefore, developed parkland and recreational amenities are not required under the city's Park and Recreational Land ordinance (CEC 2021j). Employees at the project site may visit parks in the area, but the limited number of employees (approximately 20 employees) would not substantially increase demand for park facilities or affect service ratios. No new or physically altered park facilities would be required for project operation. Therefore, impacts would be less than significant.

v. Other Public Facilities?

Construction

Less Than Significant Impact. Based on the proximity of the available workforce to the project, construction workers from neighboring cities and counties are not likely to temporarily relocate closer to the project site. Those construction workers would most likely use the public facilities in the communities where they are permanent residents. Temporary construction workers may visit public facilities, such as public

libraries, before, during, or after a workday, but this use would be temporary and would cease at the end of project construction. No new or physically altered public facilities or services would be required for project construction. Therefore, impacts would be less than significant.

Operation

Less Than Significant Impact. The proposed project would not generate substantial population growth in the project area that would result in the need for additional public facilities or services for new residents. Employees at the project site may visit local libraries or other public facilities, but the limited number of employees (approximately 20 employees) would not substantially increase demand for public facilities. No new or physically altered public facilities would be required for project operation. Therefore, impacts would be less than significant.

4.15.3 Mitigation Measures

None.

4.15.4 References

CEC 2021j – California Energy Commission (CEC). (TN 239135). Record of Conversation PCC Minutes dated August 2, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

CEC 2021u – California Energy Commission (CEC). (TN 240967). Report of Conversation - City of Santa Clara, PCC Meeting Minutes, dated November 17, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

Santa Clara 2010 – City of Santa Clara (Santa Clara). *City of Santa Clara General Plan 2010-2035*. Adopted on November 16, 2010. Chapter 5.9, Public Facilities and Services. Accessed on June 29, 2021. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan

SCFD 2021 – City of Santa Clara Fire Department (SCFD). "Emergency Services." Accessed on June 25, 2021. Available online at: https://www.santaclaraca.gov/services/emergency-services

SCPD 2021 – City of Santa Clara Police Department (SCPD). "Fact Sheet." Accessed on June 25, 2021. Available online at: https://www.santaclaraca.gov/our-city/departments-g-z/police-department/about-us/fact-sheet

DayZenLLC 2021a – DayZenLLC (DayZenLLC). (TN 237380). VDC CA3BGF SPPE Application Part I, dated April 5, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DayZenLLC 2021e – DayZenLLC (DayZenLLC). (TN 237423). VDC CA3BGF SPPE Application Part II, dated April 12, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DayZenLLC 2021bb – DayZenLLC (DayZenLLC). (TN 240159). CA3DC Revised Project Description – PCC Revisions, dated October 28, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

EDD 2021 – State of California Employment Development Department (EDD). LMI for San Jose-Sunnyvale-Santa Clara MSA, California. Accessed on June 29, 2021. Available online at: https://www.labormarketinfo.edd.ca.gov/geography/msa/san-jose-sunnyvale-santa-clara.html

SCUSD 2020 – Santa Clara Unified School District (SCUSD). Santa Clara Unified School District Developer Fee. Approved on March 12, 2020, and effective May 11, 2020. Accessed on: January 2021. Available online at: https://www.santaclarausd.org/Page/53.

4.16 Recreation

This section describes the environmental setting and regulatory background, and discusses impacts associated with the construction and operation of the project specific to recreation.

RECREATION Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.16.1 Environmental Setting

The project would be in the city of Santa Clara (city) within Santa Clara County. The 6.69-acre project site is currently developed with an office and warehouse building and is zoned Light Industrial (ML). Adjacent uses are designated by the city as industrial and research and development uses (Santa Clara 2021).

The project would require a large, temporary construction workforce and a small, permanent operation workforce. Phase I of construction would occur over a 14-month period and would require an average of approximately 100 workers per month with a peak number of approximately 150 workers per month (Vantage 2021a). Phase II of construction would occur over an 11-month period and would require an average of approximately 80 workers per month with a peak number of approximately 200 workers per month. During operation, approximately 10 to 14 employees would be onsite daily, with a total permanent workforce of approximately 19 to 21 employees (Vantage 2021b).

Recreation Facilities

The city owns and maintains 497 acres of parks and recreation facilities, which include one community park, three mini parks, 24 neighborhood parks, three city-designated public open spaces, and 16 recreation facilities (i.e., sports fields, skate park, swimming pools/centers, senior center, and youth center) (Santa Clara 2010). The recreation site nearest to the project is Bracher Park, a 3.5-acre neighborhood park located approximately 170 feet southwest of the project site, albeit in another neighborhood. Bracher Park is physically separated from the project site by an existing Caltrain railroad right-of-way and is not directly accessible from the project site. The entrance to Bracher

Park is approximately one mile from the project site via the local street network. There are no parks or recreation facilities within one mile of the project site.

Regulatory Background

Federal

No federal regulations related to recreation apply to the project.

State

No state regulations related to recreation apply to the project.

Local

City of Santa Clara General Plan. The City of Santa Clara 2010-2035 General Plan (General Plan) describes goals and policies for the city to actively seek additional park and open space as residential and employment populations increase (Santa Clara 2010). The General Plan's implementation policies are designed to maintain a standard ratio of 2.4 acres of parkland per 1,000 residents. Staff identified the following applicable recreation policy:

- 5.9.1-P7 – Allow new parks in the general locations shown on the Land Use Diagram in all General Plan designations, except in areas designated for Light and Heavy Industrial uses.

4.16.2 Environmental Impacts

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Construction

No Impact. The city of Santa Clara is a self-identified employment hub, with approximately 70 percent of employees commuting from residences outside of the city's jurisdiction (Santa Clara 2010). As discussed in section **4.14 Population and Housing**, the anticipated construction workforce for the project would likely be drawn from the San Jose-Sunnyvale-Santa Clara region.[1] Based on the proximity of the available workforce to the project, construction workers from neighboring cities and counties are unlikely to temporarily relocate closer to the project site or utilize nearby parks or recreation facilities. In certain instances where construction workers do temporarily relocate for their employment, they by and large return to their community on the weekends and therefore recreate closer to home. Thus, the project would not increase the use of or accelerate

1 Region in this instance is the Metropolitan Statistical Area. A Metropolitan Statistical Area is a geographical area with a population of 50,000 or more, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties (EDD 2021).

the physical deterioration of a recreation site. The project would have no impact on parks and recreation facilities within the city.

Operation

Less Than Significant Impact. The project would employ a small number of permanent employees (i.e., approximately 20). Given the availability of an existing workforce throughout the greater Bay Area, it is likely that the project's permanent employees currently reside within commuting distance of the project site and would not need to relocate closer to the project. If employees were to move closer to the project, this small increase in population would not create a notable increase in the use of an existing park or recreation facility. Furthermore, the project would not contribute to a substantial physical deterioration of a park or recreation facility. Impacts to city parks and recreation facilities would be less than significant.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Construction

No Impact. Recreation facilities are not included as part of the project, and the project would not require the construction or expansion of a recreation facility. As described in the City's General Plan Policy 5.9.1-P7, new park facilities are not allowed in areas designated for Light Industrial uses, which would include the project site. Construction of the project would have no impacts to a recreation facility.

Operation

No Impact. The project's small operational workforce (i.e., approximately 20 employees) would not create a demand for recreational facilities that would require the construction of new facilities or the expansion of existing facilities. The operation of the project would have no impact on recreation facilities.

4.16.3 Mitigation Measures

None.

4.16.4 References

Santa Clara 2010 – City of Santa Clara (Santa Clara). *City of Santa Clara General Plan 2010-2035*. Adopted on November 16, 2010. Chapter 3, pg. 3-18; Chapter 5.9; Appendix 8, pgs. 8.8-3 to 8.8-5. Accessed on June 29, 2021. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan

Santa Clara 2021 – City of Santa Clara (Santa Clara). Interactive. Amended February 23, 2021. Accessed on: June 29, 2021. Available online at: https://www.

santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/zoning

EDD 2021 – State of California Employment Development Department (EDD). LMI for San Jose-Sunnyvale-Santa Clara MSA, California. Accessed on June 29, 2021. Available online at: https://www.labormarketinfo.edd.ca.gov/geography/msa/san-jose-sunnyvale-santa-clara.html

Vantage 2021a – Vantage Data Centers, LLC. (Vantage). Application for Small Power Plant Exemption: CA3 Backup Generating Facility Part I (TN 237423), April 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

Vantage 2021b – Vantage Data Centers, LLC. (Vantage). Application for Small Power Plant Exemption: CA3 Backup Generating Facility Part II (TN 237423), April 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

4.17 Transportation

This section describes the environmental setting and regulatory background and discusses impacts specific to transportation associated with the construction and operation of the project.

TRANSPORTATION Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☒	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.17.1 Environmental Setting

The project site is at 2590 Walsh Avenue in Santa Clara, California. The site is currently developed with an approximately 115,000-square-foot single-story office and warehouse building and associated paved surface parking and loading dock. Numerous freeways, including U.S. Highway 101 (US-101) and Interstates 680, 280, and 880, provide regional access to the Santa Clara area. Local access to the project area is provided by both Bowers Avenue and San Tomas Expressway, which connect directly to US-101 approximately one mile north of the project site. Both of these local roadways connect to Walsh Avenue, which provides direct access to the project site.

Transportation infrastructure on Walsh Avenue between Bowers Avenue and San Tomas Expressway (where the project site is located) is limited to four travel lanes with a dedicated center turn lane and pedestrian sidewalks on both sides of the road. Because Walsh Avenue is a short connector road serving the various industrial and commercial uses that are located along this segment, there are no designated bicycle lanes (VTA 2021a) and minimal roadway shoulder exists.

Public transit service to the project area includes regional light rail (provided by Caltrain) and local light rail and local bus transport (provided by the Santa Clara Valley Transportation Agency [VTA]). The nearest transit hub to the project is the Caltrain Lawrence Station, located approximately 1.2 miles west of the project site on Lawrence

Expressway. Lawrence Station is part of the regional Caltrain commuter rail system and is one of 32 stations serving the San Francisco Peninsula. From Lawrence Station, the Caltrain regional light rail connects to the VTA local light rail system at the San Jose Diridon Station, which is in downtown San Jose approximately 6 miles southeast of the Lawrence Station. The San Jose Diridon Station is served by the VTA Green local rail line, Amtrak, and the ACE Train (VTA 2021b).

From the Lawrence Station, the Caltrain regional light rail connects to local bus transport at the Santa Clara Transit Center approximately 3.5 miles southeast. The Santa Clara Transit Center is served by VTA local Bus Route 21, which connects 1,250 feet to the south on Monroe Street (VTA 2021c). VTA Bus Route 21 stops at Monroe Street and San Tomas Creek, which is the closest bus stop to the project (VTA 2021c). From this stop, the project site is approximately 3,500 feet to the north. Direct public transit access is not available to the project site.

The closest airport to the project site is the Norman Y. Mineta San Jose International Airport (San Jose International Airport), with the nearest runway located 1.75 miles east of the project site.

Regulatory Background

Federal

Code of Federal Regulations (14 CFR §77.5 et. seq). Under federal law, 14 CFR § 77.9(a), notification is required to be sent to the Federal Aviation Administration (FAA) for any construction or alterations exceeding 200 feet above ground level (AGL) (CFR 2021a). If a project's height, including any temporary equipment (such as cranes used during construction) or any ancillary structures (such as transmission poles or roof spires), exceeds 200 feet AGL, the project applicant must submit a copy of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The FAA then reviews the project to determine any potential hazards to navigable airspace.

Where a project is located within a horizontal distance of 20,000 feet from a public or military airport where at least one runway is more than 3,200 feet in length, 14 CFR § 77.9(b) also requires FAA notification of any construction or alteration of greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 (CFR 2021a). Because San Jose International Airport has a runway exceeding this length and is located 1.75 miles (9,240 feet) east of the project site, 14 CFR § 77.9(b) requires notification be sent to the FAA for any temporary or permanent features that exceed 92.4 feet in height AGL.

State

California Department of Transportation. Project construction activities that require the movement of oversized or excessive load vehicles on state roadways require a transportation permit issued by the California Department of Transportation under Vehicle Code, section 35780 (Caltrans).

Local

City of Santa Clara 2021-2035 General Plan. The City of Santa Clara 2010-2035 General Plan (General Plan) includes policies for the purpose of avoiding or mitigating impacts resulting from planned development projects within the city. While a number of General Plan policies pertain to city efforts to enhance the overall multimodal transportation system, the following policies are specific to new development and are assumed applicable to the proposed project (Santa Clara 2010):

- **Policy 5.8.3-P8**: Require new development to include transit stop amenities, such as pedestrian pathways to stops, benches, traveler information and shelters.
- **Policy 5.8.3-P9**: Require new development to incorporate reduced onsite parking and provide enhanced amenities, such as pedestrian links, benches and lighting, in order to encourage transit use and increase access to transit services.
- **Policy 5.8.3-P10**: Require new development to participate in public/private partnerships to provide new transit options between Santa Clara residences and businesses.
- **Policy 5.8.4-P7**: Require new development to provide sidewalks, street trees and lighting on both sides of all streets in accordance with city standards, including new developments in employment areas.
- **Policy 5.8.5-P1**: Require new development and city employees to implement transportation demand management programs that can include site-design measures, including preferred carpool and vanpool parking, enhanced pedestrian access, bicycle storage and recreational facilities.
- **Policy 5.8.5-P2**: Require development to offer on-site services, such as ATMs, dry cleaning, exercise rooms, cafeterias, and concierge services, to reduce daytime trips.
- **Policy 5.8.5-P3**: Encourage all new development to provide on-site bicycle facilities and pedestrian circulation.
- **Policy 5.8.5-P4**: Encourage new development to participate in shuttle programs to access local transit services within the city, including buses, light rail, Bay Area Rapid Transit, Caltrain, Altamont Commuter Express Yellow Shuttle and Lawrence Caltrain Bowers/Walsh Shuttle services.

City of Santa Clara, Transportation Analysis Policy. The city of Santa Clara approved their Transportation Analysis Policy on June 23, 2020. This policy establishes requirements for evaluating transportation impacts under the California Environmental Quality Act (CEQA) using the Vehicle Miles Traveled (VMT) methodology. The policy includes VMT baselines, thresholds, as well as criteria for exempting certain types of land use projects from VMT analysis. The policy also formalizes Transportation Operational Analysis (TOA) requirements that occur outside of CEQA.

With respect to VMT analyses under CEQA, the Transportation Analysis Policy establishes the following requirements that are applicable to the proposed project (Santa Clara 2020):

- Evaluating VMT. To evaluate whether a project will have a significant impact under CEQA, the city policy states that projects that result in a change of use to an existing development (which is applicable to the proposed project) are presumed to have a less than significant impact per state guidance and will not require a VMT analysis should the following criterion, among other possible criteria, be met:

  - Small Projects (generating 110 daily trips or less)

  Projects that are considered a change of use to an existing development but do not meet the above small project requirement, among others, are required to evaluate and disclose potential VMT environmental impacts with the established threshold criteria outlined in the city's Transportation Analysis Policy.

Santa Clara County Airport Land Use Commission's Comprehensive Land Use Plan for San Jose International Airport. San Jose International Airport is located 1.75 miles east of the project site. However, the project site is not within the airport's area of influence or within noise hazard areas identified in the Santa Clara County Comprehensive Land Use Plan (CLUP) (Santa Clara County 2016). Figure 6 of the CLUP identifies the Federal Aviation Regulations (FAR) Part 77 of Title 14 of the Code of Federal Regulations obstruction surfaces around the airport. An exceedance of these structure elevations could result in the obstruction of airspace and create hazards to aircraft entering or exiting the airport. The project site is located within the CLUP surface elevation threshold of 212 feet above mean sea level (MSL); meaning any structures at the project site exceeding 212 feet above MSL could pose a safety hazard (Santa Clara County 2016). The project site surface is 42 feet above sea level. Therefore, according to Figure 6 of the CLUP, any structure greater than 170 feet in height AGL may pose a safety hazard.

4.17.2 Environmental Impacts

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction

Less Than Significant Impact. Construction of the project would not significantly obstruct any transit, roadway, bicycle, or pedestrian facilities in the area. Construction activities would occur mostly onsite and not in the public right-of-way, with the exception of extending an existing recycled water line from the intersection of Walsh Avenue and Northwestern Parkway (approximately 500 feet east of the project site) to the site for secondary water needs. While this construction would require temporary lane blockages/closures on Walsh Avenue during daytime hours, it would not interfere with a designated bike lane or transit route, as none exist on the affected portion of Walsh

Avenue. Furthermore, Walsh Avenue has four travel lanes. Temporary construction associated with connecting the project site to the existing buried recycled water line is not anticipated to disrupt more than one travel lane at a time. This would ensure at least one travel lane remains open in each direction. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections.

The city of Santa Clara, as the permitting agency, would ensure the project applicant obtains the proper encroachment permit to minimize disruption to Walsh Avenue during construction. Furthermore, the city of Santa Clara, as the permitting agency, would require the applicant to obtain any required permits from Caltrans for the movement of oversized or excessive load vehicles on state roadways prior to construction to reduce effects on the state transportation network. The permitting process ensures that all applicable requirements are complied with. Therefore, the construction of the project would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and would, therefore, have less than significant impacts.

Operation

Less Than Significant Impact. Operation of the project would occur fully onsite and would not obstruct pedestrian, bike, or transit facilities. As discussed, the segment of Walsh Avenue containing the project site does not contain any pedestrian, bicycle, or public transit facilities. Additionally, the project would not interfere with any future pedestrian, bike, or transit plans for the area. The city of Santa Clara, as the permitting agency, would determine any transportation demand management (TDM) activities or conditions of approval necessary for the project to be consistent with General Plan Policies 5.8.3-P8, 5.8.3-P9, 5.8.3-P10, 5.8.4-P6, 5.8.4-P7, 5.8.5-P1, 5.8.5-P2, 5.8.5-P3, and 5.8.5-P4 (discussed under the "Regulatory Background" heading of this section). These policies are intended to improve multimodal accessibility between land uses and to facilitate the use of non-vehicular travel. For these reasons, operation of the project would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and would, therefore, have less than significant impacts.

b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines section 15064.3, subdivision (b), states that VMT is the most appropriate measure of transportation impacts under CEQA. VMT refers to the amount and distance of automobile travel attributable to a project. Increased VMT exceeding an applicable threshold could constitute a significant impact. If existing models or methods are not available to estimate the VMT for a particular project being considered, a lead agency may analyze the project's VMT qualitatively, evaluating factors such as the availability of transit or proximity to other destinations.

Construction

Less Than Significant Impact. For construction traffic, a qualitative analysis of VMT impacts (instead of a more detailed quantitative analysis) is often appropriate (see CEQA Guidelines section 15064.3, subdivision (b)(3)). Project construction would involve a temporary increase in vehicle trips resulting from workers commuting to the project site and the delivery and hauling of project materials.

Construction would occur in two separate phases. Phase I activities, involving the building shell, substation and switchyard, site work, and paving, are anticipated to begin in January 2022 and take approximately 14 months to complete. Phase I would include a construction workforce with a peak number of workers of approximately 150 per month and an average of approximately 100 per month. Phase II construction, involving the interior fit out and appointments, would begin as soon thereafter as feasible, likely in late 2023 and take approximately 11 months to complete for commercial operation at the beginning of 2025. The Phase II construction workforce is estimated to have a peak number of workers of approximately 200 per month with an average of approximately 80 per month.

Based on the construction details provided above, the average construction workforce is estimated to be 90 persons per day, with a peak estimated to be 175 for both phases. Similar to other recent data center projects, the daily trip rates for employees at a general light industrial facility were used to estimate construction worker trips. The Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, has a trip generation rate for general light industrial land uses (land use code 110) of 3.05 daily one-way trips per employee (ITE 2021).

Project construction is estimated to generate an average of 275 (i.e., 3.05 daily one-way trips X 90 workers = 275) daily one-way worker commute trips. The peak construction interval is estimated to involve a maximum of 534 (i.e., 3.05 daily one-way trips X 175 workers = 534) daily one-way worker commute trips. Many of the construction worker trips would be expected to occur prior to the morning and evening peak traffic hours in the Santa Clara region, in accordance with typical construction schedules. Truck trips associated with the removal and delivery of equipment and materials would occur throughout the day and would be scheduled for off-peak regional traffic hours whenever possible. The preparation of the site would include grading the entire site. It is possible that up to 10,000 cubic yards of soil and undocumented fill would be removed from the site but can be part of a balanced cut and fill approach. However, based on experience at other sites, if all the material cannot be used on site, it is estimated that the undocumented fill could be transported from the site with a frequency average of about 25 trucks per day.

As assumed in **Section 4.14 Population and Housing**, it is expected that workers would be from the greater Bay Area and the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area has a local workforce available to serve the project. While some construction truck trips may require slightly higher VMT to access the project site, such

trips would likely only be necessary to deliver specialized equipment and materials that may not be readily available locally. The construction contractor and project owner would likely look for opportunities to reduce the distance of material delivery and removal trips, as longer distances increase construction costs. Therefore, construction is not expected to result in unnecessary VMT.

Upon the completion of construction, all temporary worker commute trips and truck trips would cease. As such, project-related construction trips would not result in a substantial or sustained increase in VMT compared to Santa Clara County average VMT. Further, construction trips would not result in temporary emissions increases at levels that could obstruct the implementation of plans and policies related to the reduction of greenhouse gas emissions by reducing VMT. Refer to **Section 4.3 Air Quality** for information related to exhaust emissions during construction. For these reasons, project construction would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

Operation

Less Than Significant Impact. The data center would be operational 24-hours, 7-days a week. **Table 4.17-1** summarizes the anticipated headcount of personnel and visitors that would be on-site throughout a typical day.

TABLE 4.17-1. ANTICIPATED AVERAGE DAILY HEADCOUNT

Type	Daily Persons	Persons Per Shift
Data Center Operations	14	2-9[1]
Security	5	2-5[2]
Janitor	2	1-2
Tenant Personnel	10-12	10-12
Visitors	2	2
TOTAL	**33-35**	**17-30**

1 Operational staff would work in three shifts: Day Shift (9 employees), Swing Shift (3 employees), and Graveyard Shift (2 employees)

2 There would be 2 security staff stationed at the building and 3 shift rovers that patrol the proposed project building and other nearby Vantage sites.

Source: Kimley Horn 2021

Operation trips would be generated by the 33-35 employees at the building throughout the day, with 17-30 employees in the building at the same time (Kimley Horn 2021). It should be noted that some personnel would be shared with other Vantage data center sites within the area and may park at the other sites. In addition, trips associated with rented office space workers would also occur.

The trip generation was determined based on average rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. This manual provides trip rates based on land use. For the project, ITE Land Use 160: Data Center was used, which estimates 0.99 one-way trips would occur for every 1,000 square feet of data center land use. Based on a transportation operational analysis conducted for the proposed project, it is estimated that the project would generate a total of 467 daily worker one-way trips ([472,180 total square feet/1,000] x 0.99). Of these total 467 daily

one-way trips, the analysis shows 52 trips occurring in the morning peak hours (7:00–9:00 a.m.) and 42 trips occurring in the afternoon peak hours (4:00–6:00 p.m.) (Kimley Horn 2021).

The VTA in conjunction with Santa Clara County and the cities in the county developed the Santa Clara Countywide VMT Evaluation Tool. This tool allows local government staff, consultants, and new developments to measure VMT for land use projects within Santa Clara County. Based on this tool, the target VMT for the project is 15 percent below the county average, which results in project-related commute trips needing to be no more than 14.14 daily vehicle miles per worker (Kimley Horn 2021). This threshold and the following analysis was reviewed and approved by the city of Santa Clara (Kimley Horn 2021).

Table 4.17-2 shows the VMT analysis conducted for the project. As shown, the project under a normal 5-day workweek schedule would exceed the VMT threshold. However, when the workweek schedule is shifted to a 4-40 (four days a week, 10-hour workdays), the project's VMT would reduce to below the threshold.

Table 4.17-2. VTA VMT ESTIMATION

VMT Threshold and Scenario	**VMT Per Worker**	***Exceed 14.14 VMT Threshold?***
Santa Clara County Average VMT	16.64	
Project Threshold: 15% Below County Average	14.14	
Estimated Project VMT (5-Day Work Schedule)	15.53	*YES*
Estimated Project VMT (4-40 Work Schedule)	13.20	*NO*

Source: Kimley Horn 2021

To meet the target VMT for the project, the applicant has proposed an alternative work schedule for employees reflecting a 4-40 workweek (40 hours in 4 days) so that the project VMT would be below the city's threshold. This is a Transportation Demand Management (TDM) measure, which is the commitment to a 4-40 work schedule. Staff evaluated the measure in the context of impacts to VMT and concludes that the requirement defined in this TDM measure is sufficient. This TDM measure would reduce the project VMT to 13.20 per employee, causing the project VMT to fall below the city-approved threshold of 14.14. The city requires a TDM annual report, which would allow it to obtain confirmation that the 4-day, 40-hour work schedule has been complied with. Staff proposes **TRANS-1**, which would require the implementation of a TDM program that incorporates the 4-40 work schedule TMD measure.

Additionally, the city of Santa Clara, as the permitting agency for the project, would ensure project consistency with the General Plan policies related to trip reduction, transit connectivity, and alternative modes of transportation (as provided in Section 4.17.1, Local Regulatory Background). Therefore, with implementation of **TRANS-1**, the project would have a less-than-significant impact on VMT.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Construction

Less Than Significant Impact. As discussed under question "a" above, project construction would include extending an existing recycled water line from the intersection of Walsh Avenue and Northwestern Parkway (approximately 500 feet east of the project site) to the site for secondary water needs. While this construction would require temporary lane blockages/closures on Walsh Avenue during daytime hours, Walsh Avenue has four travel lanes. The temporary construction associated with connecting the project site to the existing buried recycled water line is not anticipated to disrupt more than one travel lane at a time. This would ensure at least one travel lane remains open in each direction. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections that could result in roadway hazards.

The city of Santa Clara, as the permitting agency, would ensure the project applicant obtains the proper encroachment permit to minimize disruption to Walsh Avenue during construction. As part of this permit, the city of Santa Clara may require the applicant to ensure temporary lane closures and traffic control measures occur according to standard guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and/or the California Joint Utility Traffic Control Manual. Lastly, the city of Santa Clara would require the applicant to obtain any required permits from Caltrans for the movement of oversized or excessive load vehicles on state roadways prior to construction to reduce effects on the state transportation network, as discussed under the "Regulatory Background" heading of this section. These actions would reduce any hazards from construction activities affecting roadways and from transporting materials to and from the site. Therefore, the impact to roadway hazards would be less than significant.

As discussed under the "Regulatory Background" heading of this section, under federal law, 14 CFR § 77.5 et. seq, the height threshold for FAA notification is 92 feet AGL at the project site. Project construction is expected to require a crane for placement of each chiller on the proposed structure roof. The top of the chillers is estimated to be nearly 110 feet AGL (DayZenLLC 2021e). Therefore, the crane boom would exceed 92 feet in height. This requires the project applicant to submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. It should be noted, the FAA generally grants a Determination of No Hazard for temporary construction equipment. The city of Santa Clara, as the permitting agency for the project, would ensure consistency with this federal regulation and compliance with any of the FAA's conditions to reduce potential airspace hazards. For these reasons, project construction would not increase hazards from an incompatible use and impacts would be less than significant.

Operation

Less Than Significant Impact.

Access. The existing curb locations and geometric design of vehicle site access from Walsh Avenue would remain identical to their current locations. For vehicle access, vehicles would be able to enter the site from the two gated entrances located at the eastern driveway and the western driveway. However, security protocols would most likely require vehicles to enter through the security checkpoint located at the eastern driveway. Vehicles exiting the site may use either the western or eastern driveways. As these driveways would be identical to the existing vehicle ingress and egress points of the site, the operation of the project would not increase surface transportation hazards.

Structure Height. As discussed under the "Regulatory Background" heading of this section, under federal law, 14 CFR § 77.5 et. seq, the height threshold for FAA notification is 92 feet AGL at the project site. Furthermore, the Santa Clara County Airport Land Use Commission's CLUP identifies that any structure greater than 170 feet AGL may pose a safety hazard at the site.

The highest point of the proposed project structure, the top of the penthouse roof, would be approximately 108 feet and 5 inches AGL (DayZenLLC 2021e). The proposed chillers would also be located on the roof of the building, with the top of the chillers being nearly 110 feet AGL (DayZenLLC 2021e). Based on these peak heights, the project would not exceed the Santa Clara County Airport Land Use Commission's CLUP hazard height restriction. However, the project would exceed the FAA's obstruction threshold of 92.4 feet AGL at the project site. As a result, the project applicant would be required to submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The city of Santa Clara, as the permitting agency for the project, would ensure consistency with this regulation and compliance with any of the FAA's conditions. For these reasons, project operation would not increase airspace hazards due to an incompatible structure and impacts would be less than significant.

Thermal Plumes. The project would involve 44 emergency backup diesel generators (generators) and 48 roof-mounted air chillers. The generators would be located at ground level, and the chillers would be located on the roof. Both the generators and the chillers would discharge vertical thermal plumes (i.e., high-velocity columns of hot air) during operation. Thermal plume velocities would be greatest at the discharge points, with plume velocities decreasing with altitude. Plume velocities would also be highest during certain weather conditions, such as cool temperatures and calm winds.

High velocity thermal plumes have the potential to affect aviation safety, and the FAA Aeronautical Information Manual identifies thermal plumes as potential flight hazards (FAA 2017). Though it should be noted that while the FAA regulates potential airspace safety impacts from the heights of physical structures, it does not regulate thermal plumes. Aircraft flying through thermal plumes may experience significant air disturbances, such as turbulence and vertical shear. The FAA manual advises that, when

able, a pilot should fly upwind of smokestacks and cooling towers to avoid encountering thermal plumes.

CEC staff uses a peak vertical plume velocity of 10.6 meters per second (m/s) (5.3 m/s average plume velocity) as a screening threshold for potential impacts to aviation. Based on a literature search, this velocity generally defines the point at which aircraft begin to experience severe turbulence. Two project features would produce thermal plumes: the generators and the chillers. Thermal plumes from these two features are discussed below.

- Emergency Backup Diesel Generators. Under worst-case weather conditions (calm winds), estimates show the project's generator plumes would maintain a peak vertical velocity of 10.6 m/s up to approximately 83 feet AGL (DayZenLLC 2021e). As the generators would be located at ground level next to the proposed building, this height is lower than the proposed building height of 110 feet AGL. Therefore, thermal plumes from the operation of the generators would not impact aviation safety.
- Chillers. Estimates show the project's chiller plumes would maintain a peak vertical velocity of 10.6 m/s up to approximately 131 feet AGL. As chillers would be located on the roof, which would be at 110 feet AGL (DayZenLLC 2021e), this means thermal plumes from the chillers at a speed of 10.6 m/s would only extend 21 feet above the proposed building roof. Federal law, 14 CFR § 91.119, states that unless necessary for takeoff or landing, the minimum safe altitudes for aircraft are 500 feet AGL for non-congested areas and 1,000 feet AGL for congested areas, such as the area around the project site (CFR 2020b). Therefore, aircraft would not be expected to be flying low enough (21 feet above the proposed building) to encounter potentially hazardous thermal plumes produced by the project's chillers. Therefore, the project would result in less than significant hazards to aircraft from thermal plumes.

d. Result in inadequate emergency access?

Construction

Less Than Significant Impact. As discussed under Impact 4.17.a, project construction would include extending an existing recycled water line from the intersection of Walsh Avenue and Northwestern Parkway (approximately 500 feet east of the project site) to the site for secondary water needs. While this construction would require temporary lane blockages/closures on Walsh Avenue during daytime hours, Walsh Avenue has four travel lanes. The temporary construction associated with connecting the project site to the existing buried recycled water line is not anticipated to disrupt more than one travel lane at a time. This would ensure at least one travel lane remains open in each direction. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections that could result in roadway hazards.

The city of Santa Clara, as the permitting agency, would ensure the project applicant obtains the proper encroachment permit to minimize disruption to Walsh Avenue during construction. As part of this permit, the city of Santa Clara may require the applicant to ensure temporary lane closures and traffic control measures occur according to standard

guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and/or the California Joint Utility Traffic Control Manual. This would ensure emergency vehicle travel on Walsh Avenue and access to adjacent buildings is not disrupted during the construction of the recycled water line extension. Therefore, the impact would be less than significant.

Operation

Less Than Significant Impact. The city of Santa Clara Fire Department reviewed the project and recommended several access and internal circulation changes to ensure proper turning radius and movement of emergency vehicles would occur. These changes included (DayZenLLC 2021f):

- Expanding the width and apron radius at the existing entrance on Walsh Avenue (west side),
- Creating a new entrance on Walsh Avenue at the east side to allow for the circular movement of vehicles through the project site; and
- Expanding the width of internal access roads and adjusting the location of the proposed substation to ensure the turning radius requested by the Fire Department was provided at all four corners of the proposed building.

With the incorporation of these changes into the project design, all requests by the city of Santa Clara Fire Department have been met to ensure proper access and movement of emergency service vehicles throughout the project site. Lastly, the city of Santa Clara, as the permitting agency, would ensure the project is consistent with building and zoning code requirements ensuring adequate emergency access. Therefore, the impact would be less than significant.

4.17.3 Mitigation Measures

TRANS-1: The project shall implement a Transportation Demand Management (TDM) program sufficient to demonstrate that vehicle miles travelled (VMT) associated with the project would be reduced to 14.14 or less per employee. The TDM program shall include, but is not limited to, the following measure, which has been determined to be a feasible method for achieving the required VMT reduction:

- The operations workforce at the project shall work a 4-40 work schedule (40 hours in 4 days).

Prior to the issuance of an occupancy permit, the TDM program shall be submitted and approved by the Director of Community Development and shall be monitored annually to gauge its effectiveness in meeting the required VMT reduction. The TDM program shall establish an appropriate estimate of initial vehicle trips generated by the occupant of the proposed project and shall include the conducting of driveway traffic counts annually to measure peak-hour entering and exiting vehicle volumes. The volumes shall be compared to trip thresholds established in the TDM program to determine whether the required

reduction in vehicle trips is being met. The results of annual vehicle counts shall be reported in writing to the Director of Community Development.

If TDM program monitoring results show that the trip reduction targets are not being met, the TDM program shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM program shall be subject to the same approvals and monitoring requirements listed above.

4.17.4 References

CFR 2021a – Code of Federal Regulations (CFR). Title 14, Section 77.9, Construction or Alteration Requiring Notice. Accessed on: July 8, 2021. Available online at: https://gov.ecfr.io/cgi-bin/text-idx?SID=8a9408b6022186a8d9460c5fa676d1ff&mc=true&node=se14.2.77_19&rgn=div8" \t "_blank"

CFR 2021b - Code of Federal Regulations (CFR). Title 14, Section 91.119, Minimum Safe Altitudes: General. Accessed on: March 25, 2020. Available online at: https://gov.ecfr.io/cgi-bin/text-idx?SID=1cdef684edba4fd0373ed7de0d3b1569&mc=true&node=se14.2.91_1119&rgn=div8

DayZenLLC 2021e – DayZenLLC (DayZenLLC). (TN 237423). VDC CA3BGF SPPE Application Part II, dated April 12, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DayZenLLC 2021f – DayZenLLC (DayZenLLC). (TN 240158). CA3DC PCC Drawing Set REV3- Part 1, dated October 28, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

FAA 2017 – Federal Aviation Administration (FAA). Aeronautical Information Manual, Chapter 7. Safety of Flight, Section 6: Potential Flight Hazards, Subsection 7-6-15: Avoid Flight in the Vicinity of Exhaust Plumes (Smoke Stacks and Cooling Towers), October 12, 2017. Accessed on: July 8, 2021. Available online at: https://www.faa.gov/air_traffic/publications/atpubs/aim_html/index.html

Kimley Horn 2021 – VDC CA3BGF Supplemental Response to Data Request Set 1, DR 22 VMT (TN 239147), August 2, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

ITE 2021 – The Institute of Transportation Engineers. Trip Generation Manual, Tenth Edition's trip generation rate. Available for purchase online at: https://www.ite.org/technical-resources/topics/trip-and-parking-generation/trip-generation-10th-edition-formats/

Santa Clara 2010 – City of Santa Clara. 2010-2035 General Plan, Chapter 5 Goals and Policies. Accessed on June 22, 2021. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan

Santa Clara 2020 – City of Santa Clara. Resolution and Final Transportation Analysis Policy. Accessed on June 22, 2021. Available online at: https://www.santaclaraca.gov/our-city/departments-g-z/public-works/engineering/traffic-engineering/transportation-analysis-policy-update

Santa Clara County 2016 – Airport Land Use Commission. Comprehensive Land Use Plan for Norman Y. Mineta San Jose International Airport. Accessed on July 8, 2021. Available online at: https://plandev.sccgov.org/commissions-other-meetings/airport-land-use-commission

VTA 2021a – Santa Clara Valley Transportation Agency (VTA). Bikeway Map. Accessed on: July 9, 2021. Available online at: https://www.vta.org/sites/default/files/images/2020-07/vta%20bike%20map_web-01.jpg

VTA 2021b – Santa Clara Valley Transportation Agency (VTA). VTA System Maps, Downtown San Jose Map and Main Map. Accessed on January 6, 2022. Available online at: https://www.vta.org/go/maps

VTA 2021c – Santa Clara Valley Transportation Agency (VTA). Bus Route 21 information. Accessed on July 9, 2021. Available online at: https://newservice.vta.org/routes/21

4.18 Utilities and Service Systems

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project including the data center and the backup generation facility on the Utilities and Service Systems in the project area.

UTILITIES AND SERVICE SYSTEMS Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.18.1 Environmental Setting

The proposed project would be constructed on a previously disturbed site that was fully developed and was originally used for commercial purposes. The project is estimated to use approximately 1.75 acre-feet (AF) during the two phases of construction expected to last about 24 months (CA3 Vantage 2021). The proposed project would have an operational demand of approximately 2.0 acre-feet per year (AFY) of potable water and approximately 0.8 AFY of recycled water for landscaping purposes. The project would generate approximately 144,000 gallons per day (gpd) of wastewater, which would be discharged to the San Jose-Santa Clara Regional Wastewater Facility (RWF) for treatment and disposal. The project would use up to 832,000 MWh of electricity per year (CA3 Vantage 2021). Electricity demand for the proposed project would be provided by Santa Clara County's Silicon Valley Power (SVP). A small amount of typical data center solid

waste would be generated by the project and would be disposed of at the Newby Island Landfill in San Jose.

Potable Water Supply

The project would be supplied with potable water provided by the city of Santa Clara. The potable water system gets water from three sources: Santa Clara Valley Water District (SCVWD), the San Francisco Public Utilities Commission (SFPUC), and 26 groundwater wells operated by the city's Department of Water and Sewer Utilities. The project is in the northern part of the city, which is served with water from SFPUC. In 2020, about one-third of the city's potable water came from the imported treated water supplies (SCVWD and SFPUC) and groundwater made up approximately two-thirds of the city's potable water supply. The water system in the city consists of more than 335 miles of distribution mains, 26 groundwater wells, and seven storage tanks with a total capacity of approximately 28.8 million gallons, or approximately 88 AF. According to the city's 2020 Urban Water Management Plan (UWMP), which was approved and adopted by the Santa Clara City Council on June 22, 2021, the citywide demand for potable water in 2020 was 18,302 AF (Santa Clara 2016). One AF is the equivalent of approximately 326,000 gallons.

Recycled Water Supply

Recycled water is supplied to the city of Santa Clara through the South Bay Water Recycling (SBWR) program. The SBWR obtains advanced tertiary treated water from the RWF, formerly known as the San Jose-Santa Clara Water Pollution Control Plant. In 2020, the RWF treated a total of 113,493 AF of wastewater, of which 12,571 AF was treated to state Title 22 recycled water standards, out of which the city of Santa Clara received 3,499 AF. The remaining treated wastewater was discharged to the San Francisco Bay (Santa Clara 2020). The recycled water purchased from the SBWR made up approximately 19 percent of the overall water use in the city. The city of Santa Clara uses recycled water for the non-potable needs of businesses, industries, parks, and schools located along pipeline routes. Water Code sections 13550 and 13551 include strong language prohibiting the use of potable water where recycled water can be used, such as cooling, if recycled water is available and economically feasible. The Santa Clara City Code also has similar requirements (Santa Clara 2020). A recycled water connection that can serve the proposed project is located at the intersection of Walsh Avenue and Northwestern Parkway, approximately 500 feet to the southeast of the project site. The project plans to extend the recycled water line as a secondary source of water (CA3 2021).

Wastewater Service

The city of Santa Clara's Departments of Public Works and Water and Sewer Utilities are responsible for the wastewater collection system within the city. Wastewater is collected by sewer systems in Santa Clara and is conveyed by pipelines to the RWF. The RWF is jointly owned by the cities of San Jose and Santa Clara and is operated by the city of San

Jose's Department of Environmental Services. The RWF has a capacity to treat 167 million gallons per day (mgd) of wastewater and currently treats an average of 110 mgd, thus the RWF facility has 57 mgd, or 35 percent of available capacity. Approximately 13 percent of the RWF's effluent undergoes advanced tertiary treatment to meet state Title 22 recycled water standards, after which it flows to SBWR's adjacent pump station to be distributed to several customers in the city. The remaining effluent flows into San Francisco Bay. The RWF's current Waste Discharge Requirements (WDRs) were issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in September 2014.

Storm Sewer Service

The city of Santa Clara owns and maintains the municipal storm drainage system in the vicinity of the project site. The project site drains by a combination of surface flow and underground pipes towards the city's stormwater system located underneath Walsh Avenue (Walsh 2019), which discharges to Guadalupe River and ultimately the San Francisco Bay (Santa Clara 2016).

Solid Waste

Solid waste and recycling collection for businesses at commercial and institutional properties in the city of Santa Clara is provided by Mission Trail Waste Systems through a contract with the city. All waste is sorted locally at the Newby Island Resource Recovery Park. After sorting, recyclable materials are captured for reuse, diverting them from landfill, and organic material is taken to a Zero Waste Energy Development facility, where it is put through an anaerobic digestion process, ultimately producing electricity and compost. Newby Island Landfill, located in San Jose, provides disposal capacity to nearby cities, including San Jose, Santa Clara, Cupertino, Los Altos, and Los Altos Hills. The Newby Island Landfill is permitted to accept a maximum of 3,260 tons of solid waste per day. In December 2016, the city of San Jose Planning Commission approved a vertical expansion of the Newby Island Landfill where the permitted height was increased from 150 feet to 245 feet. The approved increase in elevation resulted in an increase of approximately 15.12 million cubic yards in the landfill capacity and an estimated closure date of January 2041 (Mercury News 2016).

Electric Power, Natural Gas, and Telecommunications

Electricity needed for project operation would be provided by SVP. Telecommunication services would be provided by one of several fiber optics providers in the project area, who provide their services using lines that run in city-owned conduits close to the project site. The services would be provided to the facility via established rights of way, as is the industry's common practice.

Natural gas for comfort heating would be supplied to the project by Pacific Gas and Electric (PG&E).

Regulatory Background

Federal

Federal Clean Water Act (33 U.S.C. Sec. 1251 et seq.) and State Porter-Cologne Water Quality Control Act (Water Code, Sec. 13000 et seq.). The State Water Resources Control Board (SWRCB) and its nine RWQCBs are responsible for the regulation and enforcement of the water quality protection requirements of the federal Clean Water Act (33 U.S.C. Sec. 1251 et seq.) (CWA) and the state Porter-Cologne Water Quality Control Act (Water Code, Sec. 13000 et seq.) (Porter-Cologne). The National Pollutant Discharge Elimination System (NPDES) is the permitting program that allows point source dischargers to comply with the CWA and Porter-Cologne laws. This regulatory framework protects the beneficial uses of the state's surface and groundwater resources for public benefit and environmental protection. The protection of water quality could be achieved by the proposed project by complying with applicable NPDES permits from the SWRCB or the San Francisco BayRWQCB. The RWF complies with the CWA through its current NPDES WDRs, which were issued by the San Francisco Bay RWQCB September 2014.

Under Section 303(d) of the CWA, states are required to identify impaired surface water bodies and develop total maximum daily loads (TMDLs) for contaminants of concern. The TMDL is the quantity of pollutant that can be assimilated by a water body without violating water quality standards. The listing of a water body as impaired does not necessarily suggest that the water body cannot support the beneficial uses; rather, the intent is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for future water quality degradation. Coyote Creek, east of the project site, is currently listed on the United States Environmental Protection Agency's Section 303(d) Listed Waters for California for diazinon and trash.

The San Francisco Bay RWQCB issued a Municipal Regional Stormwater NPDES Permit (Permit Number CAS612008) that requires the city of Santa Clara to implement a stormwater quality protection program. This regional permit applies to 77 Bay Area municipalities, including the city of Santa Clara. Under the provisions of the Municipal NPDES Permit, redevelopment projects that disturb more than 10,000 square feet are required to design and construct stormwater treatment controls to treat post-construction stormwater runoff. The permit requires the post-construction runoff from qualifying projects to be treated by using low impact development (LID) treatment controls, such as biotreatment facilities.

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) assists co-permittees, such as the city of Santa Clara, in the implementation of the provisions of the Municipal NPDES Permit. In addition to water quality controls, the Municipal NPDES Permit requires all new and redevelopment projects that create or replace one acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration, where such hydromodification is likely to cause increased erosion, silt pollutant generation, or other impacts to beneficial uses of local rivers, streams, and creeks. Projects may be deemed exempt from the Municipal NPDES Permit requirements

if they do not meet the size threshold, drain into tidally influenced areas or directly into San Francisco Bay (per the city of Santa Clara Hydromodification Management Map). The project site is in a catchment area with a hardened channel or drains to a tidal area; thus, the project site is not subject to the SCVURPPP hydromodification requirements.

State

Water Code, Sections 10910-10915. Water Code sections 10910-10915 require water service providers to evaluate stresses to the water supply service system caused by proposed project developments. The code sections require public water systems to prepare water supply assessments (WSA) for certain defined development projects subject to the California Environmental Quality Act (CEQA).

Water Code, section 10912, defines a "Project" as meeting any of the following criteria:

- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- A proposed hotel or motel, or both, having more than 500 rooms.
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- A mixed-use project that includes one or more of the projects specified in the prior bullet points.
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

If a proposed project satisfies that definition of a "Project," then pursuant to Water Code, section 10910, a detailed WSA would be required to be prepared by the water supplier.

Further guidance for how to interpret these sections of the Water Code is provided in a Department of Water Resources document titled "Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001" (Guidebook) (DWR 2003). A helpful interpretive section on page 3 of the Guidebook explains how to interpret the first bullet point above. It states that one dwelling unit typically consumes 0.3 to 0.5 AF of water per year (DWR 2003). Therefore, 500 dwelling units could be interpreted to mean 150 to 250 AFY of potable water.

The Guidebook also provides guidance about how to interpret other items in the list, but the one central theme is that WSAs are necessary for projects that increase the demand on the local system substantially. The Guidebook also emphasizes that WSAs are

necessary in areas with a poorly understood water supply, or in an area where the project would increase the demand substantially, or 10-percent (DWR 2003).

The project would be in a very well-studied service area with many service connections. Furthermore, the project is similar to the Walsh Data Center (exempted by the California Energy Commission in August 2020) in terms of total square footage but is expected to use less water. The city of Santa Clara determined that the Walsh Data Center project did not require a WSA (Walsh 2019b, Appendix E), so a similar determination would be expected for this CA3 (Vantage) Data Center project.

California 2019 Energy Efficiency Standards for Residential and Nonresidential Buildings—Green Building Standards Code, California Code of Regulations, Title 24. The California Green Buildings Standards Code (California Code of Regulations, Title 24, Part 11) applies to the planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires the installation of energy- and water-efficient indoor infrastructure. The related waste management plan is required to allow for the diversion of 50 percent of the generated waste away from the landfill.

Integrated Waste Management Act of 1989 (Public Resources Code, Section 40000 et seq.). The Integrated Waste Management Act of 1989 (Public Resources Code, section 40000 et seq.) requires cities and counties to reduce by 50 percent the amount of solid waste disposed of in landfills by the year 2000. To comply with the Integrated Waste Management Act, counties adopt regulations and policies to fulfill the requirements of the Act.

Senate Bill 350 (Renewable Energy Targets)

Senate Bill (SB) 350, the Clean Energy and Pollution Reduction Act of 2015, was enacted October 7, 2015, and took effect January 1, 2016. SB 350 (Chapter 547, Statues of 2015) codified, among other things, the state goal of increasing the procurement of electricity from renewable sources from 33 percent by 2020 to 50 percent by 2030. SB 350 also required the establishment of annual targets for statewide energy efficiency savings and demand reduction starting November 1, 2017. These energy efficiency savings and demand reductions would be designed to achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas use by January 1, 2030.

Local

City of Santa Clara 2010-2035 General Plan. The City of Santa Clara 2010-2035 General Plan (General Plan) includes numerous policies related to utilities and service systems. With respect to waste, General Plan Policy 5.10.1-P8 aims to increase a reduction for solid waste tonnage to 80 percent by 2020, or as consistent with the Climate Action Plan (CAP), Plan 2014 (Santa Clara 2016). Measure 4.2 of the CAP was adopted by the General Plan to achieve the goal of an 80 percent reduction in solid waste generation.

Santa Clara City Code. According to Santa Clara City Code Section 8.25.285, applicants seeking building or demolition permits for projects greater than 5,000 square feet are required to recycle at least 50 percent of the solid waste generated by the project (Santa Clara 2014).

4.18.3 Environmental Impacts

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Construction and Operation

Less Than Significant Impact. The project's wastewater flow during construction and operation would be treated by the RWF. Typical of other low wastewater producing industries, data centers produce low volumes of wastewater with no hazardous constituents. Treated wastewater is monitored by the San Francisco Bay RWQCB to ensure compliance with the facility's NPDES wastewater discharge permit. The RWF is permitted to treat the industrial and sanitary waste flows that would be generated by the project. Furthermore, as discussed below, the RWF has sufficient available capacity to accommodate the project's estimated wastewater flow. Therefore, the project would not cause the RWF to exceed its wastewater treatment requirements of the San Francisco Bay RWQCB for project construction and operation. The impact of the project on wastewater treatment capacity would be less than significant.

While the project would use a relatively small amount of electric energy during construction, it would use up to 832,000 MWh per year of electricity during operation (CA3 Vantage 2021). Electricity demand for the proposed project would be provided by SVP. In 2020, SVP sold approximately 3.5 million MWh to its customers, the vast majority of which was for non-residential (industrial and commercial) customers (CEC 2021). According to SVP's 2017 Integrated Resources Plan (IRP), electric demand in the SVP service area is projected to grow from 586 MW in 2017 to approximately 873 MW in 2038 (SVP 2021). The projected increase is attributed to a projected increase in population and an increase in demand for prospective commercial and industrial development, including data centers. To meet the projected increase in demand, SVP is continuously entering into agreements to procure electricity from renewable sources. Between currently owned supplies and guaranteed future deliveries, SVP has a total of approximately 1,121 MW, or approximately 9.8 million MWh per year of total energy supplies (SVP 2021). Thus, SVP has approximately 6.3 million MWh per year available to meet projected growth in demand. This is much more than the project's estimated annual energy demand of 832,000 MWh per year. SVP electrical resources

available are reliable. Project electricity demand during construction and operation would not be expected to affect existing users. The construction and operation of the project would not require new or expanded electric power utilities. Therefore, potential impacts would be less than significant.

Telecommunication services for the proposed project would be provided by providers that have been serving the existing business in the project area. Those providers have adequate available capacity to accommodate the project needs during construction and operation as evidenced by the fact that there is an abundance of telecommunication providers in the Santa Clara region, including Frontier, AT&T, T-Mobile, Verizon, and many others. The impact of the project on telecommunication services would be less than significant.

PG&E owns natural gas distribution facilities within the city of Santa Clara. CA3 would incrementally increase natural gas use, primarily for comfort heating purposes. Natural gas would be obtained from PG&E but would not require the construction of any additional offsite facilities.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Construction and Operation

Less Than Significant Impact. The water system in the city is operated and maintained by the city's Department of Water and Sewer Utilities. This system is supplied with potable water from three sources: SCVWD, SFPUC, and 26 groundwater wells operated by the city's Department of Water and Sewer Utilities. The proposed project is in an area served primarily with surface water from SFPUC. In 2020, about one-third of the city's potable water came from the imported treated water supplies (SCVWD and SFPUC); the other two-thirds came from groundwater. The water system in the city consists of more than 335 miles of distribution mains, the 26 groundwater wells discussed above, and seven storage tanks with approximately 28.8 million gallons of capacity. According to the 2020 UWMP, the citywide demand for potable water in 2020 was 18,302 AF (Santa Clara 2020). The city also distributed 3,499 AFY of recycled water in 2020, which resulted in a savings of 19 percent of potable water for the city (UWMP 2020). The UWMP also concludes that the city is expected to meet projected future demands ranging from approximately 21,801 AFY in 2025 and gradually increasing to approximately 31,676 AFY in 2045. Those demands include recycled water demands projected to be approximately 4,570 AFY in 2025 and gradually increasing to approximately 9,488 AFY in 2045.

The project is estimated to use approximately 1.75 AF during the two phases of construction expected to last about 24 months (CA3 Vantage 2021). That is equivalent to 0.88 AFY, which is less than half the project's estimated annual demand of approximately 2.8 AFY for operational needs, which, as discussed below, is less than the historic use of 3.2 AFY by the previous user at the project site. The impact of construction water demand would, therefore, be less than significant.

The proposed project would have an operational demand of approximately 2.0 AFY of potable water and approximately 0.8 AFY of recycled water for landscaping purposes. The city's UWMP for 2020 shows that the city has a sufficient supply to meet the project's demand in normal and single dry-year scenarios. However, the UWMP shows that the city could have a deficit in multiple dry-year scenarios if supply from SFPUC is interrupted. Under a multi-year drought scenario, the city's supply from SFPUC might be interrupted if certain conditions specified in the interruptible contract between the city and SFPUC are met (Santa Clara 2020). However, if supply from SFPUC is interrupted for any reason, the city has conservation plans and other measures in place to manage supply to meet demand. Examples of measures the city would implement to deal with water shortages include increasing groundwater pumping and encouraging customers to practice voluntarily, or, in severe shortage situations, imposing mandatory reductions of water supplies to reduce consumption (Santa Clara 2020).

The proposed project would be constructed on a previously disturbed site that was fully developed and was originally used for commercial purposes. Historic water use for the pre-existing and soon-to-be-demolished commercial activities were approximately 3.2 AFY of potable water supplied by the city. Thus, the proposed project would result in a slight net reduction in potable water use and a net beneficial impact on local water supplies.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Construction and Operation

Less Than Significant Impact. The RWF treats an average of 110 mgd of wastewater, which is 57 mgd less than its 167 mgd treatment capacity. No information was provided by the applicant on the amount of wastewater that would be generated by the project. However, similar data center projects of comparable sizes generate less than a maximum of 100 gallons per minute, or 144,000 gallons per day, which is less than 0.1 percent of the available treatment capacity of the RWF. Implementation of the proposed project would not result in an increase in the RWF's need for wastewater treatment beyond its design capacity. Therefore, the impact on wastewater treatment facilities would be less than significant.

The majority of the project site is currently covered with impervious surfaces. The project would reduce impervious areas at the site, which would result in more stormwater infiltration and, thus, a reduction in stormwater runoff. The proposed project would also include a stormwater collection system that includes stormwater bio-swales to reduce the overall runoff into the city's collection system and to control sedimentation impacts. In addition, the project would have to comply with the city's municipal stormwater permit, which would further reduce the likelihood of the project causing an increase in stormwater discharge from the site. Although the project would not be expected to result in increasing stormwater runoff from the project, the implementation of the new stormwater collection system described above would ensure that the project would comply with the city's municipal stormwater permit. The impact from the project on the stormwater system capacity would be less than significant.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Construction and Operation

Less Than Significant Impact. The demolition and construction activities for the project would result in minor amounts of solid wastes and a temporary increase in solid wastes. The project would divert construction and demolition waste during project construction to help the city reach its 80 percent waste diversion rate as required by Measure 4.2 of the CAP (CA3 Vantage 2021). Operations would result in the long-term generation of a small amount of solid waste. Based on solid waste generation rates for different uses published by the Department of Resources Recycling and Recovery (CalRecycle), the project would generate about 6,674 pounds, or 3.3 tons, per day of solid waste during operation (CA3 Vantage 2021). The solid waste would be disposed of at the Newby Island Landfill in San Jose. The Newby Island Landfill is permitted to accept a maximum of 3,260 tons of solid waste per day. In December 2016, the city of San Jose Planning Commission approved a vertical expansion of the Newby Island Landfill where the permitted height was increased from 150 feet to 245 feet. The approved increase in elevation resulted in an increase of approximately 15.12 million cubic yards in the landfill capacity and an estimated closure date of January 2041 (Mercury News 2016). The estimated rate of solid waste generation of 3.3 tons per day the constitutes a small fraction (0.1 percent) of the total daily capacity of 3,260 tons per day the landfill is capable of processing. Thus, the project would not significantly increase solid waste generation and could be accommodated by existing solid waste facilities. Therefore, the impact resulting from the construction and operation of the proposed project on landfill capacity would be less than significant.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Construction and Operation

Less Than Significant Impact. The Integrated Waste Management Act of 1989 requires local jurisdictions in California to reduce by 50 percent the amount of solid waste disposed of in landfills by the year 2000. During construction, the project would collect and haul construction debris off-site for recycling or disposal in local jurisdictions that comply with this state requirement and have programs in place to ensure that the disposal of solid waste meets these requirements. Through recycling efforts, such as sorting wastes at the disposal facilities and diverting some waste(s) for recycling, the project will help to achieve General Plan goals for waste reduction. The project would divert construction and demolition waste during project construction to help the city reach its 80 percent waste diversion rate as required by Measure 4.2 of the CAP. The project would not result in an adverse impact on solid waste collection and would comply with management and reduction regulations (CA3 Vantage 2021). Typically, data centers do not generate special or unique wastes. Likewise, this project would not generate any special or unique wastes to cause non-compliance with federal, state, and local statutes or solid waste management and reduction regulations. The management of hazardous waste and applicable federal regulations are discussed in **Section 5.9, Hazards and Hazardous Materials**.

During operation, the project would comply with federal, state, and local statutes and regulations related to solid waste and recycling requirements. Specifically, the project would handle its solid waste in compliance with city regulations and measures to achieve recycling goals. The project would recycle as much as possible of the solid waste generated and dispose only of permitted wastes to the waste handler. In the unlikely event the waste handler determines that the project is disposing of wastes that could be recycled, they would notify the project owner to alter its waste stream to facilitate compliance with the city requirements. There would be no change in compliance with federal, state, or local statutes and regulations related to solid waste management and reduction, and, therefore, no impact would occur.

4.18.4 Mitigation Measures

None

4.18.5 References

DayZenLLC 2021a-d – DayZenLLC (DayZenLLC). (TN 237380-383). VDC CA3BGF SPPE Application Part I, dated April 5, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DWR 2003 – Department of Water Resources (DWR). Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001. California Department of Water Resources. October 8, 2003. Available online at: https://documents.pub/reader/full/guidebook-for-implementation-of-senate-bill-610-and-for-implementation-of-senate. Accessed on: August 2, 2021.

Santa Clara 2012 – City of Santa Clara recycled water system map, July 2012 update. Available online at: http://santaclaraca.gov/home/showdocument?id=14883. Accessed on August 2, 2021.

Santa Clara 2020 – City of Santa Clara 2020 Urban Water Management Plan (UWMP). Prepared by the city of Santa Clara Water and Sewer Utilities. Adopted June 22, 2021. Available online at: https://www.santaclaraca.gov/home/showpublisheddocument/74073/637606452907100000. Accessed: August 2, 2021

Santa Clara 2014 – City of Santa Clara 2010-2035 General Plan. Approved by City Council November 16, 2010 and updated December 9, 2014. Available at: http://santaclaraca.gov/government/departments/communitydevelopment/planning-division/general-plan . Accessed: July 25, 2021.

SVP 2021a – Silicon Valley Power (SVP). 2017 Integrated Resources Plan. Accessed on December 9, 2021. Available online at: https://www.siliconvalleypower.com/home/showpublisheddocument/62481/637268684502400000.

SVP 2021b – The Silicon Valley Power (SVP). Resources Map. Accessed: December 9, 2021. Available at: http://www.siliconvalleypower.com/home/showdocument?id=5763

Walsh 2019b – Application for Small Power Plant Exemption: Walsh Data Center, Appendices A-E, dated June 28, 2019. (TN 228877-1). Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-02.

4.19 Wildfire

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project with respect to wildfires.

WILDFIRE If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Environmental criteria established by CEQA Guidelines, Appendix G.

4.19.1 Setting

Wildfire Hazards

The Department of Forestry and Fire Protection (Cal Fire) identifies and maps areas of significant fire hazards based on fuels, terrain, and other relevant factors. These maps categorize this information by Fire Hazard Severity Zones (FHSZ), grouped into unzoned, moderate, high, and very high zones. State Responsibility Areas (SRA) are locations where the state of California is responsible for wildfire protection and Local Responsibility Areas are locations where the responding agency is the county or city.

The California Public Utilities Commission (CPUC) categorizes fire threat areas as Tier 1, Tier 2, or Tier 3. Tier 1 (or CAL FIRE Zone 1) encompasses High Hazard Zones (HHZ) on the United States Forest Service (USFS-CAL FIRE) joint map of Tree Mortality HHZ. This tier represents areas where tree mortality directly coincides with critical infrastructure such as communities, roads, and utility lines, and are a direct threat to public safety. Tier 2 consists of areas where there is an elevated risk (including likelihood and potential impacts on people and property) from wildfires associated with overhead utility power lines or overhead utility power-line facilities also supporting communication facilities. Tier 3 consists of areas where there is an extreme risk (including likelihood and potential

impacts on people and property) from wildfires associated with overhead utility power lines or overhead utility power-line facilities also supporting communication facilities.

The project site is surrounded by urban and industrial development in the city of Santa Clara and is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC. The project site is also not within a state of California FHSZ (Cal Fire 2019) at the wildland and urban interface and is not in the vicinity of wildlands.

Regulatory Background

Federal

No federal regulations related to wildfires apply to the project.

State

Fire Hazard Severity Zones (Pub. Resources Code, §§ 4201-4204). The purpose of this code section is to provide for the classification of lands within SRAs in accordance with the severity of fire hazard present and identify measures to be taken to retard the rate of spreading and to reduce the potential intensity of uncontrolled fires that threaten to destroy resources, life, or property.

Fire Hazard Severity (Cal. Code Regs, tit. 14, § 1280). FHSZs reflect the degree of severity of fire hazard.

CPUC General Order 95: Rules for Overhead Electric Line Construction. CPUC GO 95, Section 35, covers all aspects of design, construction, operation, and maintenance of overhead electrical lines and management of safety hazards. Its application would ensure adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead lines and to the public in general.

CPUC General Order 166: Standards for Operation, Reliability, and Safety during Emergencies and Disasters. CPUC GO 166 covers the standards which require all electric utilities to be prepared for emergencies and disasters in order to minimize damage and inconvenience to the public which may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities.

Local

Santa Clara County Operational Area Hazard Mitigation Plan. The plan includes risk assessment that identifies the natural hazards and risks that can impact a community based on historical experience, estimate the potential frequency and magnitude of disasters, and assess potential losses to life and property. The plan also includes developed mitigation goals and objectives as part of a strategy for mitigating hazard-related losses.

4.19.2 Environmental Impacts

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Construction

No Impact. During project construction, traffic levels would experience a minimal increase that is not expected to degrade traffic performance significantly. Emergency response access during construction would not be significantly impeded. The project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No streets would be closed, rerouted, or substantially altered during construction.

Additionally, the project is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

Operation

No Impact. The project does not involve the addition of a large number of people to the local area who could increase emergency response demand during a potential evacuation. Thus, the project would not interfere with the coordination of the city's emergency operations plan at the emergency operations center or alternate emergency operations center, nor would the project interfere with any statewide emergency response, or evacuation routes or plans. Adequate emergency access to the project site and surrounding industrial area would be maintained.

Additionally, the project is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

b. Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Construction and Operation

No Impact. The topography of the project site is flat and the project area is highly developed with minimal open space areas, faces, or slopes. Therefore, project construction would not exacerbate wildfire risk or expose occupants to pollutant concentrations from a wildfire.

Additionally, the project is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency

water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Construction and Operation

No Impact. The project would require the installation of an onsite distribution substation to provide 60kV service to the site. The switching station will ultimately be owned and operated by Silicon Valley Power as part of its 60kV loop system. The construction of the substation would not block access to any road or result in traffic congestion. Maintenance of this substation would not physically block any access roads or result in traffic congestion that could significantly compromise timely access to this facility or any other location. Any large trees that would be crossed by the electrical supply line would be trimmed or removed consistent with electric reliability requirements. Therefore, the constructed electrical supply line and other project infrastructure will not constitute a possible ignition source for local vegetation, nor will it block access to any road or result in traffic congestion.

Additionally, the project is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Construction

No Impact. The project would not substantially alter local drainage patterns. Storm water discharge during construction would be managed according to the project's Storm Water Pollution Prevention Plan, and appropriately discharged to the city of Santa Clara's storm drain system. The project would therefore not be expected to contribute to a flooding hazard onsite or offsite. For further discussion of the potential flooding impacts that could result from the proposed project, please see the discussion in section **4.10 Hydrology and Water Quality**.

As discussed in this section, the topography of the project site and surrounding area is relatively flat and highly developed. Therefore, the project would not be exposed to post-fire slope instability or drainage changes.

Additionally, the project is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC, so the types of hazards listed as potentially occurring in a post-fire situation are not likely to occur.

Operation

No Impact. Operation of the project would not alter the course of a drainage (stream or river) and would not substantially alter local drainage patterns. The proposed onsite storm

drainage system would be designed to meet the city's storm water drainage standards and sized adequately to convey water away from the site and to the city of Santa Clara's storm drain system. The project would therefore not contribute to a flooding hazard onsite or offsite.

As discussed in this section, the topography of the project site and surrounding area is relatively flat and highly developed. Therefore, the project would not be exposed to post-fire slope instability or drainage changes.

Additionally, the project is not located in or near an SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC, so the types of hazards listed as potentially occurring in a post-fire situation are not likely to occur.

4.19.3 Mitigation Measures

None

4.19.4 References

CALFIRE 2019 – Santa Clara County FHSZ Map in Local Responsibility Area. Accessed on: June 15, 2021. Available online at: https://osfm.fire.ca.gov/media/5935/san_jose.pdf

4.20 Mandatory Findings of Significance

This section describes impacts specific to mandatory findings of significance associated with the construction and operation of the project.

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)??	☐	☒	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation Incorporated

Biology Resources

Less Than Significant with Mitigation Incorporated. With the implementation of staff recommended mitigation measures, the project would not substantially degrade the quality of the environment, substantially reduce the existing habitat of any fish or wildlife species, cause any fish or wildlife population to drop below self-sustaining levels, threaten

to eliminate any plant or animal community, or substantially reduce the number or restrict the range of an endangered, threatened, or rare plant or animal species.

The project site is in a highly developed area and surrounded by commercial and industrial buildings. Therefore, the potential to degrade environmental quality is minimal, as the project site and surrounding properties do not support natural vegetation that would allow for extensive wildlife foraging or occupancy. However, mature landscaping trees and shrubs provide nesting opportunities for protected migratory bird species. Existing structures and trees also provide roosting opportunities for protected bat species. The implementation of mitigation measures **BIO-1** and **BIO-2**, which would require avoidance and minimization measures for protected migratory bird species and protected bat species, would ensure that project impacts would be less than significant.

Cultural and Tribal Cultural Resources

Less Than Significant with Mitigation Incorporated. Important examples of the major periods of California history or prehistory represented by historical, unique archaeological, or tribal cultural resources are not known to be present in the project area. Nevertheless, the extent of proposed ground disturbance has the potential to damage unknown, buried archaeological resources in the project area. As described in **Section 4.5 Cultural and Tribal Cultural Resources**, most archaeological resources aged about 5,000 years or older are buried beneath the ground surface. If these resources were to be exposed or destroyed, it would be a significant impact. The implementation of mitigation measures **CUL-1** and **CUL-2** included in **Section 4.5 Cultural and Tribal Cultural Resources** would reduce the impacts to buried cultural resources to a less-than-significant level. The proposed project, therefore, is unlikely to eliminate important examples of major periods of California history or prehistory. Therefore, the impact would be less than significant.

Geology and Soils

Less Than Significant with Mitigation Incorporated. Paleontological resources that represent important examples of the major periods of California prehistory are known to be present in the project area. The extent of proposed ground disturbance has the potential to damage unknown, buried paleontological resources in the project footprint. As described in **Section 4.7 Geology and Soils**, paleontological resources may be buried beneath the ground surface in Pleistocene age sediments. Five (5) fossil sites have been found at or near the ground surface within several miles of the project site, particularly along stream beds (UCMP 2020). If significant paleontological resources were to be exposed or destroyed, it would be a significant impact. Adherence to the City of Santa Clara 2010-2035 General Plan (General Plan) (Santa Clara 2010) policies (5.6.3-P1, -P2, -P4, -P5) and implementation of proposed **GEO-1** included in **Section 4.7 Geology and Soils** would reduce the impacts to buried paleontological resources to a less-than-significant level. The proposed project, therefore, is unlikely to eliminate important examples of paleontological resources that are part of the prehistory of California, and, therefore, the impact would be less than significant.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant with Mitigation Incorporated. The analysis of cumulative impacts can employ one of two methods to establish the effects of other past, current, and probable future projects. A lead agency may select a list of projects, including those outside the control of the agency, or, alternatively, a summary of projections. These projections may be from an adopted general plan or related planning document, or from a prior environmental document that has been adopted or certified, and these documents may describe or evaluate the regional or area-wide conditions contributing to the cumulative impact.

General Plan Projection

This section evaluates cumulative impacts using the City of Santa Clara 2010-2035 General Plan Integrated Final Environmental Impact Report (General Plan EIR) since the project would be consistent with applicable land use plans and policies (Santa Clara 2011). The General Plan EIR identified that the build-out of the general plan would contribute to five significant and unavoidable cumulative impacts in the areas of climate change, noise, population and housing, traffic, and solid waste.

General Plan Significant Unavoidable Impacts

The General Plan EIR identified the following significant unavoidable environmental impacts applicable to the proposed project:

- Climate Change – Contribution to greenhouse gas (GHG) emissions exceeding Santa Clara's emissions reduction target for 2035;
- Noise – Increase in localized traffic noise level on roadway segments throughout Santa Clara;
- Population and Housing – Exacerbation of land use impacts arising from the jobs/housing imbalance;
- Traffic – Degradation of traffic operations on regional roadways and highways within Santa Clara of an unacceptable level of service; and
- Solid Waste – Contribution to solid waste generation beyond available capacity after 2024.

Although the project, in combination with future development in the city of Santa Clara, could conceivably have a significant cumulative impact to these environmental resources, the following discussion demonstrates how the project's contribution to these impacts would be less than cumulatively considerable.

Climate Change Impacts (Greenhouse Gas Emissions)

Less Than Significant with Mitigation Incorporated. The Bay Area Air Quality Management District (BAAQMD) 2017 California Environmental Quality Act (CEQA) Air Quality Guidelines do not identify a GHG emissions threshold for construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed and the impacts be determined in relation to meeting California Global Warming Solution Act of 2006, Assembly Bill (AB) 32, GHG emissions reduction goals. BAAQMD further recommends the incorporation of Best Management Practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable. The project's construction emissions would be in conformance with state and local GHG emissions reduction goals, so impacts would be less than significant and not cumulatively considerable.

For readiness testing and maintenance-related emissions, the BAAQMD 2017 CEQA Air Quality Guidelines state that for stationary-source projects, the threshold to determine the significance of an impact from GHG emissions is 10,000 metric tons per year of carbon dioxide equivalent ($MTCO_2e$/yr). However, BAAQMD is in the process of preparing and presenting to the BAAQMD board for approval an update to the CEQA GHG threshold for stationary sources to 2,000 $MTCO_2e$/yr or compliance with the California Air Resources Board's cap-and-trade program. As a stationary source, the project's emergency backup generators may be subject to the pending CEQA GHG threshold. The emergency backup generators would not have a cumulatively considerable contribution to GHGs if emissions are below the applicable BAAQMD CEQA GHG threshold.

Other project-related emissions from mobile sources, area sources, energy use, and water use would not be included for comparison to the stationary source threshold, based on guidance in BAAQMD's CEQA Guidelines. Instead, GHG impacts from all other project-related emissions sources would be considered to have a less-than-significant impact if the project is consistent with the city of Santa Clara Climate Action Plan (CAP), which is considered a qualified GHG reduction strategy, and applicable regulatory programs and policies adopted by the California Air Resources Board (CARB) or other California agencies. However, it should be noted that the current versions of the CAP and CARB's scoping plan, a statewide planning document for the reduction of GHG emissions across sectors, have focused on the near-term 2020 and 2030 GHG goals. They do not address the sharp cuts that will be needed to meet the state's 2045 goals and beyond. The city of Santa Clara is in the process of updating the CAP with a planned adoption date of April 2022 (Santa Clara 2021, CEC 2021x). The 2022 update to CARB's scoping plan is also currently under development to plan for the 2045 target set forth by the Governor's Executive Order B-55-18.

With the applicant's conservative estimate of 35 hours of readiness testing and maintenance per year per engine, the GHG emissions of the emergency backup generators of the project are expected to be less than the 10,000 $MTCO_2e$/yr threshold but more than the 2,000 $MTCO_2e$/yr threshold BAAQMD is currently considering. Therefore, staff proposes mitigation measure **GHG-1** to require the applicant to limit the GHG emissions of the emergency backup generators to the BAAQMD CEQA GHG threshold

applicable at the time of permitting. Staff also proposes mitigation measure **GHG-2** to require the applicant to use an increasing mix of renewable diesel and phase out the use of conventional petroleum diesel. Staff also proposes mitigation measure **GHG-3** to require the applicant to participate in Silicon Valley Power's Large Customer Renewable Energy (LCRE) program or other renewable energy program that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity or purchase ~~carbon offsets~~ renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. Additionally, the project would implement efficiency measures to meet California's green building standards, and additional voluntary efficiency and use reduction measures. As such, GHG emissions related to the project would not conflict with the city of Santa Clara CAP or other plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the project's GHG emissions would not be cumulatively considerable.

Noise Impacts

Less Than Significant with Mitigation Incorporated. The General Plan EIR anticipates significant noise impacts from the build-out of the General Plan. Temporary construction activities at the project site may significantly increase the existing ambient noise levels at the residential area immediately south of the project site (depending on the activity occurring and equipment being used at the time). However, with the implementation of the proposed mitigation measure **NOI-1**, noise impacts would be reduced during construction to less than significant. Likewise, with the implementation of **NOI-1**, the project's contribution to cumulative noise impacts during project construction would not be cumulatively considerable.

The project would contribute to vehicle trips during the construction period as construction workers commute and trucks deliver construction materials to the project site. These trips would be temporary in nature; therefore, they would not significantly add to regular traffic. Based on the facility's anticipated 13.2 daily vehicle miles traveled (VMT) per worker for operations, the facility would not substantially increase the traffic or associated traffic-related noise levels in the project area. Any noise impacts associated with construction and operation-related traffic would be less than significant and not cumulatively considerable.

Population and Housing Impacts

Less Than Significant Impact. The General Plan EIR identified significant impacts from the build-out of the General Plan land use designations. The General Plan EIR concluded that the proposed land uses would create a regional jobs/housing imbalance, as workers who are unable to live near their employment would commute long distances from outlying areas. As described in **Section 4.14 Population and Housing**, the project would not displace any people or housing or necessitate construction of replacement housing elsewhere. The operation of the project is anticipated to require a total of 19-21 employees. The project's construction and operation workforce would not directly or indirectly induce a substantial population growth in the project area. Therefore, the

project's contribution to the jobs/housing imbalance would not be cumulatively considerable.

Traffic Impacts

Less Than Significant with Mitigation Incorporated. The General Plan EIR anticipates significant traffic impacts from the build-out of the General Plan. As discussed in **Section 4.17 Transportation**, the implementation of **TRANS-1** would reduce the project-generated VMT to a level below the city's threshold and reduce the project impact to a less-than-significant level. With the implementation of **TRANS-1**, the project's contribution to cumulative transportation impacts during project construction and operation would not be cumulatively considerable.

Solid Waste Impacts

Less Than Significant Impact. As stated in **Section 5.18 Utilities and Service Systems**, the city of Santa Clara has available landfill capacity at the Newby Island Landfill in the city of San Jose through 2041. The current landfill impacts are addressed within an ongoing Integrated Waste Management Plan of the city of Santa Clara to provide waste disposal services. The project would participate in the city's Construction & Demolition Debris Recycling Program by recycling or diverting at least 65 percent of materials generated for discards by the project to reduce the amount of demolition and construction waste going to the landfill. The operation of the project would generate minimal operational waste as data centers typically require very little equipment turnover. Additionally, the project does not include a residential component and would not generate any increases in the supply and demand of utility services and infrastructure. Therefore, the project's contribution to this cumulative impact would not be cumulatively considerable.

Other Technical Areas

Although the city's General Plan EIR did not identify significant effects in the areas of air quality, cultural resources, and geology (paleontology), and did not include an analysis of impacts to tribal cultural resources as the General Plan EIR was adopted before the enactment of AB 52 requiring such analysis, the CEC staff concluded that the project's impacts in these areas are *less than significant with mitigation*. Thus, staff has considered whether the project would contribute to cumulatively considerable impacts in these areas. Staff has also included an analysis of potential cumulative impacts for the other technical areas where project impacts would be *less than significant*.

Aesthetics

Less Than Significant Impact. The proposed project is located on relatively flat land in a highly developed urban area within the city of Santa Clara, specifically intended to accommodate a range of light industrial uses that may have smoke, odor, dust, noxious gases, vibrations, glare, heat, fire hazards, or industrial wastes emanating from the property. The area permits light industrial uses, such as general service, warehousing, storage, distribution, and manufacturing.

There are no scenic vistas as discussed in **Section 4.1 Aesthetics** in the area. Existing aboveground buildings, structures, earthworks, equipment, trees, and vegetation, et cetera block or limit public views of the project and new or foreseeable projects from scenic resources.

The project would not conflict with the applicable city zoning and other regulations governing scenic quality. Nor is it expected that any foreseeable projects proposed and approved within this urbanized area would have significant impacts.

The project and other similar projects typically include outdoor lighting for driveways, entrances, walkways, parking areas, and security purposes. The City Code requires that lighting be directed away from residential areas and public streets. The nearest and only residential area is south of the Caltrain corridor and Bracher Park (public park).

The project would not: have a substantial adverse effect on a scenic vista; substantially damage scenic resources; substantially degrade the existing visual character or quality of public views of the site and its surrounding; and would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Nor is it expected that any foreseeable projects proposed and approved in the vicinity would have significant impacts under this technical area.

The project's contribution to Aesthetics impacts in the area would not be cumulatively considerable.

Air Quality

Less Than Significant with Mitigation Incorporated. The proposed project would be in Santa Clara County in the San Francisco Bay Area Air Basin (SFBAAB), under the jurisdiction of BAAQMD. The SFBAAB is designated as a nonattainment area for ozone and fine particulate matter having a diameter of less than or equal to 2.5 microns (PM2.5) under both California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The SFBAAB is also designated as nonattainment for particulate matter having a diameter of less than or equal to 10 microns (PM10) under CAAQS but not NAAQS.

SFBAAB's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. In developing thresholds of significance for air pollutants, BAAQMD considers the emissions levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. CEQA would then require the implementation of all feasible mitigation measures.

The construction exhaust emissions of the project would be lower than the thresholds of significance from the BAAQMD CEQA Air Quality Guidelines. There is no numerical threshold for fugitive dust generated during construction in BAAQMD's jurisdictional

boundaries. The BAAQMD CEQA Guidelines recommend the control of fugitive dust through BMPs to conclude that impacts from fugitive dust emissions are less than significant. The mitigation measure **AQ-1** would reduce air quality impacts during project construction. This measure requires incorporation of BAAQMD's recommended construction BMPs to control fugitive dust. This measure also incorporates exhaust control measures to reduce emissions from construction equipment. With the implementation of **AQ-1**, PM10 and PM2.5 emissions during construction would be reduced to a level that would not result in a considerable increase of these pollutants. Therefore, the project's construction emissions would not be cumulatively considerable.

During readiness testing and maintenance, the oxides of nitrogen (NOx) emissions of the emergency backup generators are estimated to exceed the BAAQMD significance threshold of 10 tons per year. All other pollutants would have estimated emissions rates below BAAQMD significance thresholds. The NOx emissions from the emergency backup generator readiness testing and maintenance would be required to be fully offset through the BAAQMD permitting process. Therefore, the project's emissions during readiness testing and maintenance would not be cumulatively considerable.

The criteria pollutant air quality impact analysis found that the concentrations from construction and readiness testing and maintenance of the gensets would not cause any exceedance of ambient air quality standards. Therefore, the project's criteria air pollutant impacts from genset readiness testing and maintenance would be less than significant.

The health risk assessment (HRA) shows that the project's health risk impacts would not exceed BAAQMD significance thresholds during construction or emergency backup generator readiness testing and maintenance. The project would not expose sensitive receptors to substantial toxic air contaminant (TAC) concentrations during construction or emergency backup generator readiness testing and maintenance.

Due to the infrequent nature of emergency conditions and the record of highly reliable electric service available to the project (see **Appendix B**), the project's emergency operations would be unlikely to expose sensitive receptors to substantial concentrations of criteria air pollutants or TACs.

Therefore, the project's air quality impacts would not be cumulatively significant.

Biological Resources

Less Than Significant with Mitigation Incorporated. The General Plan EIR found less than significant biological resources impacts in the event of a full build-out scenario. The project site and surrounding properties are highly developed with commercial and industrial buildings and associated paved parking. The potential to degrade environmental quality is minimal, as the project site and surrounding properties do not support natural vegetation that would allow for extensive wildlife foraging or occupancy. However, mature landscaping trees and shrubs and other features on and near the project site could provide nesting opportunities for birds protected under the Migratory Bird Treaty

Act and Fish and Game Code. Effects could include disruptions during the breeding season from construction and tree removal. In addition, mature landscaping trees as well as the existing building have the potential to provide roosting habitat for protected bat species in the roof cavities and other suitable crevices. Effects could include direct mortality during tree removal or building demolition. To ensure impact avoidance, **Section 5.4 Biological Resources** identifies the following mitigation measures: **BIO-1**, which requires nesting bird pre-construction surveys and implementation of appropriate nest buffers; **BIO-2**, which requires conducting bat clearance surveys prior to the demolition of the existing buildings or removal of trees and development of a Bat Mitigation and Monitoring Plan, which details exclusion methods, roost removal procedures, and compensatory mitigation methods for permanent impacts from roost removal; **BIO-3**, which provides detailed requirements for the replacement of trees removed as part of the project; and **BIO-4**, which requires the implementation of tree protection measures to avoid and minimize impacts to trees that remain on site. Biological resource impacts from the proposed project would be less than significant with the implementation of staff's proposed mitigation measures, and, therefore, would not be cumulatively considerable.

Cultural and Tribal Cultural Resources

Less Than Significant with Mitigation Incorporated. The General Plan EIR does not specifically address impacts on tribal cultural resources. Historical resources and unique archaeological resources, as defined by CEQA, share several of the impact vulnerabilities that tribal cultural resources face, especially the effects of ground-disturbing activities. In addition, historical and unique archaeological resources can also qualify as tribal cultural resources. The policies and resulting suite of mitigation measures for cultural resources presented in the General Plan EIR would reduce the severity of some impacts on tribal cultural resources. No known historical resources, unique archaeological resources, or tribal cultural resources have been found on the project site, although ground disturbance associated with the proposed project could result in the exposure and destruction of buried, as-yet unknown archaeological resources that could qualify as historical resources, unique archaeological resources, or tribal cultural resources. The implementation of proposed mitigation measures **CUL-1** and **CUL-2** would prevent, minimize, or compensate for impacts on buried, historical, unique archaeological, or tribal cultural resources. Project impacts to cultural resources and tribal cultural resources, therefore, would not be cumulatively considerable.

Energy and Energy Resources

Less Than Significant Impact. The total number of hours of operation for reliability purposes (i.e., readiness testing and maintenance) for the emergency backup generators would be limited to no more than 50 hours per generator annually and could be limited even further with implementation of GHG-1. At this rate, the total quantities of diesel fuel used for all the generators operating at full load would be approximately 10,047 barrels per year (bbl/yr). California has a diesel fuel supply of approximately 316,441,000 bbl/yr. The project's use of fuel constitutes a small fraction (less than 0.003 percent) of available

resources, and the supply is more than sufficient to meet necessary demand. For these reasons, the project's use of fuel is less than significant.

The project's consumption of energy resources during operation would not be inefficient or wasteful, as discussed in **Section 4.6 Energy and Energy Resources**. Project operation would have a less than significant impact on local or regional energy supplies and energy resources and, likewise, would not be cumulatively considerable.

Geology and Soils

Less Than Significant with Mitigation Incorporated. The General Plan identifies several policies (5.6.3-P1, -P2, -P4, -P5) that specifically address impacts on paleontological resources (Santa Clara 2021). Paleontological resources can be impacted by the effects of ground-disturbing activities. Five fossil sites have been found at or near the ground surface within several miles of the project site, particularly along stream beds (UCMP 2020). The suite of mitigation measures for paleontological resources presented in the General Plan EIR would reduce the severity of some impacts on paleontological resources. No known paleontological resources have been found on the project site. Ground disturbance associated with the proposed project could result in the exposure and destruction of buried, as-yet unknown paleontological resources that could qualify as significant paleontological resources. The implementation of **GEO-1** would prevent, or minimize, impacts on buried paleontological resources. Project impacts to paleontological resources, therefore, would not be cumulatively considerable.

Hazards and Hazardous Materials

Less Than Significant with Mitigation Incorporated. As discussed in **Section 4.9 Hazards and Hazardous Materials,** ground-disturbing activities associated with the grading and construction activities of the project would have the potential to encounter impacted groundwater and/or soil. The contaminated soils could contain organochlorine pesticides, heavy metals, and volatile organic compounds. The applicant's proposed measure **HAZ-1** would require a site mitigation plan (SMP) to be created. The SMP would establish proper procedures to be taken when groundwater and contaminated soil is found and how to dispose of the contaminated soil properly. In addition, if contaminated soils are found in concentrations above thresholds, the project would halt construction and the soil would be treated in place or removed to an appropriate disposal facility. With the implementation of **HAZ-1**, the construction of the project would create a less than significant impact to the public or the environment.

The proposed project would use hazardous materials in small quantities associated with construction. These hazardous materials would be stored in designated construction staging areas in compliance with local, state, and federal requirements. Any diesel fuel transported on site would also comply with the extensive regulatory framework that applies to the shipment of hazardous materials. In addition, the applicant would implement procedures and safety features and precautions that would reduce the risk of an accidental hazardous materials release. Therefore, the impact from the use, transport,

disposal, or accidental release of hazardous materials would not be cumulatively significant.

Hydrology and Water Quality

Less Than Significant Impact. The project would be required to comply with the Municipal NPDES Permit and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The NPDES permit and the urban runoff pollution prevention program work together to establish specific requirements to reduce storm water pollution from new and redevelopment projects, singularly and cumulatively. With the implementation as described in **Section 4.10 Hydrology and Water Quality**, these standards would protect the watershed receiving discharge from the project from a cumulatively considerable impact to the basin's hydrology. Similarly, these same plans and permits would be protective of water quality. These standards would be protective of the quality of both surface water and groundwater bodies receiving discharge from the project.

Land Use and Planning

Less Than Significant Impact. The project site is designated Light Industrial (ML), which includes data centers as an allowable use. The height of the proposed data center would exceed the permitted height for the ML zoning district (City Code Section 18.48.070). The city's Zoning Administrator has the authority to grant a minor modification to height, area, and yard regulations, provided that the minor modification does not exceed 25 percent of any zoning requirement (City Code Section 18.90.020). The city's granting of a minor modification in ML zoning requirements for height would ensure the project would be consistent with local land use regulations and that there would be no cumulative impacts from conflicts with local land use regulations.

Public Services

Less Than Significant Impact. As discussed in **Section 4.15 Public Services**, the construction and operation of the project would not result in substantial adverse physical environmental impacts associated with the provision of new or physically altered fire and police service facilities to maintain acceptable service ratios, response times, or other performance objectives. The project would be consistent with the planned growth in the General Plan. The Santa Clara Fire Department reviewed the project plans to ensure appropriate safety features have been incorporated to reduce fire hazards and will review the final site design prior to the issuance of land use and building permits. The Santa Clara Police Department reviewed the project plans and provided comments and conditions of approval for land use and building permits related to incorporating safety and security measures into the site design.

In accordance with Government Code Section 65996, the project would be required to the appropriate school impact fees to Santa Clara Unified School District. The operation of the project is anticipated to require a total of 19-21 employees. Given the availability of an existing workforce throughout the Bay Area, employees are likely to currently reside within commuting distance of the project site and would not need to relocate closer to

the project. Even if all the operation workforce would relocate closer to the project site, the additional population would be consistent with growth projections and service ratios in the General Plan and, thus, the project would not cause significant environmental impacts associated with the provision of new or physically altered park and other public facilities to maintain acceptable service ratios or other performance objectives. The project's impacts to public services would not be cumulatively considerable.

Recreation

Less Than Significant Impact. As discussed in **Section 4.16 Recreation**, the project does not require or propose the construction or expansion of recreation facilities. The operation of the project would require a total of 19-21 employees. The project's operation workforce would be consistent with growth projects and service ratios in the General Plan and, thus, the project would not increase the use of existing parks or recreational facilities to the extent that substantial physical deterioration of the park or facility would result. The project's impacts to recreation would not be cumulatively considerable.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant with Mitigation Incorporated. The proposed project would not cause substantial adverse effects on human beings either directly or indirectly. The proposed project would result in less than significant temporary impacts to human health during construction, including changes to air quality, and exposure to geologic hazards, noise, and hazardous materials. As discussed in **Section 4.3 Air Quality**, with the implementation of **AQ-1** to control emissions during project construction and NOx emissions fully offset for engine testing and maintenance, the project would result in a less-than-significant impact related to human health. As discussed in **Section 4.7 Geology and Soils**, the implementation of seismic design guidelines in the current California Building Standards Code and project-specific recommendations in a final geotechnical engineering report, as required by **GEO-1**, would ensure the project would not expose people or property to significant impacts associated with geologic or seismic conditions onsite. The project would result in temporary noise impacts to humans during construction and intermittently during operation. As discussed in **Section 4.13 Noise**, with the implementation of **NOI-1**, the project's noise impacts during project construction and operation would be less than significant. As discussed in **Section 4.9 Hazards and Hazardous Materials**, with the implementation of **HAZ-1**, hazards and hazardous material impacts would be less than significant. As discussed in **Section 4.10 Hydrology and Water Quality**, water quality impacts would be less than significant. No additional impacts to human beings would occur during project operation.

References

CEC 2021x – California Energy Commission (CEC). (TN 241090). Report of Conversation – Climate Action Plan Update and Applicability between CEC and City of Santa Clara, dated December 28, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

Santa Clara 2010 – City of Santa Clara (Santa Clara). City of Santa Clara 2010–2035 General Plan. Adopted November 16, 2010. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan.

Santa Clara 2011 – City of Santa Clara (Santa Clara). 2010-2035 General Plan Integrated Final Environmental Impact Report. January 2011. Available online at: http://santaclaraca.gov/home/showdocument?id=12900.

Santa Clara 2021 – City of Santa Clara (Santa Clara). Climate Action Plan Update. Accessed August 2021. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan/climate-action-plan.

UCMP 2020 – University of California Museum of Paleontology (UCMP) 2019. *UCMP database*. Accessed on: June 22, 2020. Available online at: http://ucmpdb.berkeley.edu/

4.21 Environmental Justice

This section describes the environmental setting and regulatory background and discusses impacts specific to environmental justice associated with the construction and operation of the proposed project.

4.21.1 Environmental Setting and Regulatory Background

The United States Environmental Protection Agency (U.S. EPA) defines environmental justice (EJ) as, "the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies" (U.S. EPA 2015, pg. 4).

The "Environmental Justice in the Energy Commission Site Certification Process" subsection immediately below describes why EJ is part of the California Energy Commission's (CEC's) site certification process, the methodology used to identify an EJ population, and the consideration of data from the California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool (CalEnviroScreen 4.0). Below that, the "Environmental Justice Project Screening" subsection presents the demographic data for those people living in a six-mile radius of the project site and a determination on the presence or absence of an EJ population. When an EJ population is identified, the analysis in 10 technical areas[1] and Mandatory Findings of Significance consider the project's impacts on this population and whether any impacts would disproportionately affect the EJ population. Lastly, the "Project Outreach" subsection discusses the CEC's outreach program specifically as it relates to the proposed project.

Environmental Justice in the CEC Site Certification Process

President Clinton's Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on federal agencies to achieve environmental justice as part of their mission. The order requires the U.S. EPA and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

1 The 10 technical areas are Aesthetics, Air Quality, Cultural and Tribal Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Population and Housing, Transportation, and Utilities and Service Systems. Cultural and Tribal Cultural Resources considers impacts to Native American populations.

The California Natural Resources Agency recognizes that EJ communities are commonly identified as those where residents are predominantly minorities or live below the poverty level; where residents have been excluded from the environmental policy setting or decision-making process; where they are subject to a disproportionate impact from one or more environmental hazards; and where residents experience disparate implementation of environmental regulations, requirements, practices, and activities in their communities. Environmental justice efforts attempt to address the inequities of environmental protection in these communities.

An EJ analysis is composed of all the following:

- Identification of areas potentially affected by various emissions or impacts from a proposed project;
- Providing notice in appropriate languages (when possible) of the proposed project and opportunities for participation in public meetings to EJ communities;
- A determination of whether there is a comparatively larger population of minority persons, or persons below the poverty level, living in an area potentially affected by the proposed project; and
- A determination of whether there may be a significant adverse impact on a population of minority persons or persons below the poverty level caused by the proposed project alone, or in combination with other existing and/or planned projects in the area.

California law defines EJ as "the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code, § 65040.12; see also Pub. Resources Code, §§ 71110-71118). All departments, boards, commissions, conservancies, and special programs of the California Natural Resources Agency must consider EJ in their decision-making process if their actions have an impact on the environment, environmental laws, or policies. Such actions that require EJ consideration may include:

- Adopting regulations;
- Enforcing environmental laws or regulations;
- M=Making discretionary decisions or taking actions that affect the environment;
- Providing funding for activities affecting the environment; and
- Interacting with the public on environmental issues.

Bay Area Air Quality Management District Community Health Programs

The project site is located within the Bay Area Air Quality Management District (BAAQMD). BAAQMD has community health programs intended to reduce air pollution disparities in the San Francisco Bay Area.

The Community Air Risk Evaluation (CARE) program identified areas in the San Francisco Bay Area where air pollution disparities are most significant and where populations are most vulnerable to air pollution. Information from the CARE program has been used to design and focus effective mitigation measures in these areas (BAAQMD 2022). The project site is not located in a CARE community.

The Community Health Protection Program is BAAQMD's local implementation of the California Air Resources Board's (CARB) Community Air Protection Program, as enacted by Assembly Bill (AB) 617(C. Garcia, Chapter 136, Statutes of 2017). The statewide Community Air Protection Program requires CARB to develop a new community-focused program to reduce exposure more effectively to air pollution and preserve public health and to take measures to protect communities disproportionally impacted by air pollution. CARB is required to select the highest priority locations in the state for the deployment of community air monitoring systems and select locations around the state for the preparation of community emissions reduction programs. CARB has initially selected seven communities for a community emissions reduction program, and the project site is not located in an AB 617 community.

CalEnviroScreen - More Information About an EJ Population

CalEnviroScreen is a science-based mapping tool used by CalEPA to identify disadvantaged communities[2] pursuant to Health and Safety Code section 39711 as enacted by Senate Bill (SB) 535 (De León, Stats. 2012 Ch. 830). As required by state law, disadvantaged communities are identified based on geographic, socioeconomic, public health, and environmental hazard criteria. CalEnviroScreen identifies impacted communities by taking into consideration pollution exposure and its effects, as well as health and socioeconomic status, at the census-tract level. (OEHHA 2021, pg. 8).

Using data from federal and state sources, the tool consists of four components in two broad groups. The Exposure and Environmental Effects components comprise a Pollution Burden Group, and the Sensitive Populations and Socioeconomic Factors components comprise a Population Characteristic Group. The four components are made up of environmental, health, and socioeconomic data from 21 indicators.

The CalEnviroScreen score presents a relative, rather than an absolute, evaluation of pollution burdens and vulnerabilities in California communities by providing a relative ranking of communities across the state (CalEPA, 2021 pg. 8). CalEnviroScreen scores are calculated by combining the individual indicator scores within each of the four components, then multiplying the Pollution Burden and Population Characteristics groups scores to produce a final score (Pollution Burden X Population Characteristics = CalEnviroScreen Score). (CalEPA 2017, pg. 3) Each group has a maximum score of 10, and, thus, the maximum CalEnviroScreen score is 100. Based on these scores, census

2 The California Environmental Protection Agency, for the purposes of its Cap-and-Trade Program, has designated *disadvantaged communities* as census tracts having a CalEnviroScreen score at the top 25 percent (75th percentile) (CalEPA 2017).

tracts across California are ranked relative to one another (OEHHA 2021, pg. 13). Values for the various components are shown as percentiles, which indicate the percent of all census tracts with a lower score. A higher percentile indicates a higher potential relative burden. A percentile does not describe the magnitude of the difference between two tracts, but rather it simply tells the percentage of tracts with lower values for that indicator (CalEPA 2021, pg. 20).

Table 4.21-1 lists the indicators that go into the Pollution Burden score and the Population Characteristics score to form the final CalEnviroScreen score. These indicators are used to measure factors that affect the potential for pollution impacts in communities.

TABLE 4.21-1 COMPONENTS THAT FORM THE CALENVIROSCREEN 4.0 SCORE

Pollution Burden	
Exposure Indicators	**Environmental Effects Indicators**
Children's lead risk from housing	Cleanup sites
Diesel particulate matter (PM) emissions	Groundwater threats
Drinking water contaminants	Hazardous waste
Ozone concentrations	Impaired water bodies
PM 2.5 concentrations	Solid waste sites and facilities
Pesticide use	
Toxic releases from facilities	
Traffic density	
Population Characteristics	
Sensitive Populations Indicators	**Socioeconomic Factors Indicators**
Asthma emergency department visits	Educational attainment
Cardiovascular disease (emergency department visits for heart attacks)	Housing-burdened low-income households
Low birth weight infants	Linguistic isolation
	Poverty
	Unemployment

Notes: PM= particulate matter. PM 2.5= fine particulate matter 2.5 microns or less.
Source: OEHHA 2021

Part of staff's assessment of how, or if, the project would impact an EJ population includes a review of CalEnviroScreen data for the project area. There are three technical areas that could have project impacts that could combine with the indicators in CalEnviroScreen: Air Quality, Hydrology and Water Quality, and Utilities and Service Systems.

The CalEnviroScreen indicators relevant to each of the three technical areas are:

- For air quality, these indicators are asthma, cardiovascular disease, diesel particulate matter (PM) emissions, low birth weight infants, ozone concentrations, pesticide use, PM with diameters of 2.5 micrometers or smaller (PM2.5) concentrations, toxic releases from facilities, and traffic density.
- For hydrology and water quality, these indicators are drinking water contaminants, groundwater threats, and impaired water bodies.

- For utilities and service systems, these indicators are cleanup sites, hazardous waste, and solid waste sites and facilities.

When these technical areas have identified a potential project impact where an EJ population is present, CalEnviroScreen is used to better understand the characteristics of the areas where the impact would occur and ensure that disadvantaged communities in the vicinity of the proposed project have not been missed when screened by race/ethnicity and low income.

Note that CalEnviroScreen is not intended to:

- Substitute for a cumulative impact analysis under the California Environmental Quality Act (CEQA);
- Restrict the authority of government agencies in permit and land use decisions; or,
- Guide all public policy decisions.

Project Outreach

As a part of the U.S. EPA's definition of EJ, meaningful involvement is an important part of the siting process. Meaningful involvement occurs when:

- Those whose environment and/or health would be potentially affected by the decision on the proposed activity have an appropriate opportunity to participate in the decision;
- The population's contribution can influence the decision;
- The concerns of all participants involved will be considered in the decision-making process; and,

The Office of the Public Advisor, Energy Equity and Tribal Affairs outreach consists of emails to state and local elected officials, environmental justice organizations, local chambers of commerce, schools, and school districts, interested public, labor unions and trade associations, community centers, daycare centers, park departments, and religious organizations within a six- and twelve-mile radius of the proposed project.

The CEC staff (staff) docketed and mailed to the project mail list, including EJ organizations and similar interest groups, a Notice of Receipt of the CA3 Backup Generating Facility SPPE on July 15, 2021. Based on current U.S. Census English fluency data for the population residing in the cities and communities within a six-mile radius of the project site, translation of project notices was deemed appropriate. U.S. Census data also showed that of those who report they "Speak English less than very well," the predominant languages spoken were Spanish, Chinese, and Vietnamese. In addition, CalEnviroScreen data for the two disadvantaged community census tracts within a six-mile radius of the project showed the linguistic isolation population characteristic with a percentile of 90 and above. The CalEnviroScreen data supports the U.S. Census language fluency data, showing that the population living in this immediate project area are linguistically isolated and translation is warranted. Public notices for the project were

published in local newspapers in English, Spanish, Chinese, and Vietnamese on July 30, 2020.

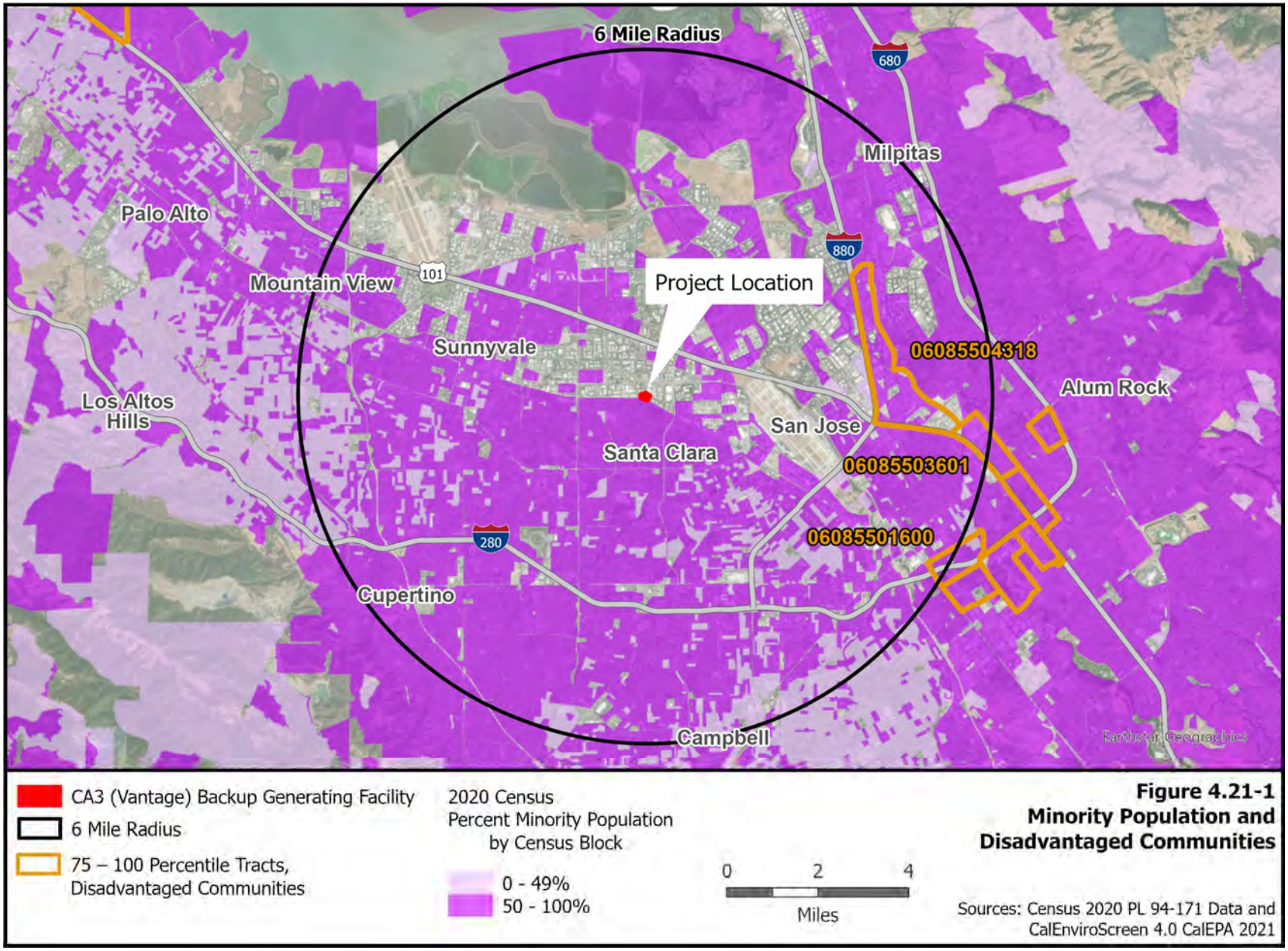
Staff conducted outreach and consultation with regional tribal governments as described in **Section 4.5 Cultural and Tribal Cultural Resources**.

As described in **Section 2 Introduction**, staff exceeded the noticing requirements under CEQA Guidelines section 15087 by mailing the Notice of Availability of the Draft EIR to all owners and occupants not just contiguous to the project site but also to property owners within 1,000 feet of the project site and 500 feet of project linears.

Environmental Justice Project Screening

Figure 4.21-1 shows 2020 census blocks in a six-mile radius of the project with a minority population greater than or equal to 50 percent (U.S. Census 2020). The population in these census blocks represents an EJ population based on race and ethnicity as defined in the U.S. EPA's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions* (U.S. EPA 2015).

Based on California Department of Education data in **Table 4.21-2** and presented in **Figure 4.21-2**, staff concludes that the percentage of those living in the school districts of Campbell Union, Luther Burbank Elementary, San Jose Unified, and Santa Clara Unified (in a six-mile radius of the project site) that are enrolled in the free or reduced-price meal program is larger than the percentage of those in the reference geography (Santa Clara County) that are enrolled in these programs. Thus, the population in these school districts are considered an EJ population based on a low income as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*.


6 Mile Radius
680
Milpitas
Palo Alto
880
101
Mountain View
Project Location
Sunnyvale
06085504318
Alum Rock
Los Altos Hills
San Jose
Santa Clara
06085503601
280
06085501600
Cupertino
Campbell
Earthstar Geographics
CA3 (Vantage) Backup Generating Facility
6 Mile Radius
75 – 100 Percentile Tracts, Disadvantaged Communities
2020 Census
Percent Minority Population
by Census Block
0 - 49%
50 - 100%
0
2
4
Miles
Figure 4.21-1
Minority Population and Disadvantaged Communities
Sources: Census 2020 PL 94-171 Data and CalEnviroScreen 4.0 CalEPA 2021

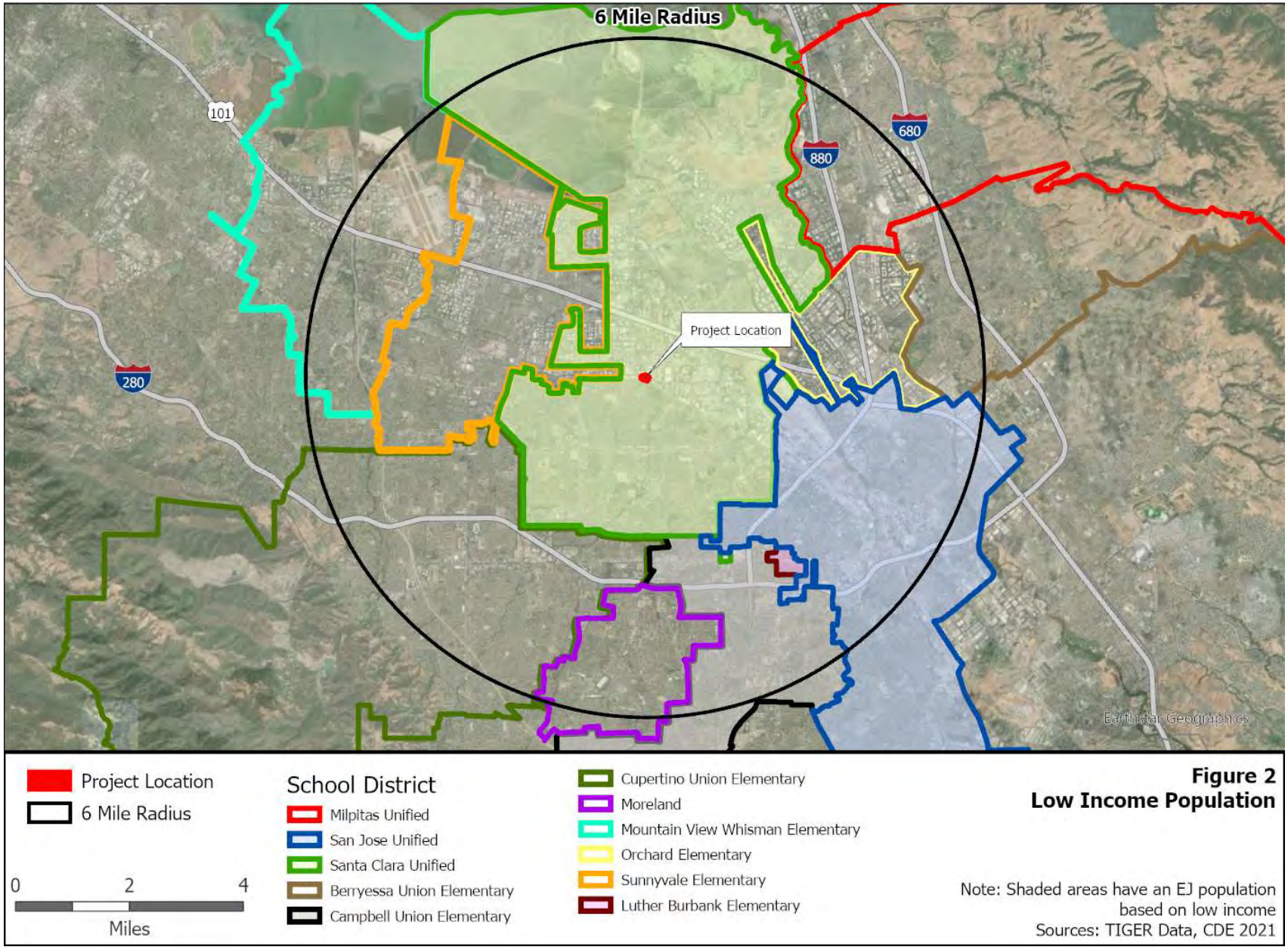


Figure 2
Low Income Population

Note: Shaded areas have an EJ population based on low income
Sources: TIGER Data, CDE 2021

TABLE 4.21-2 LOW INCOME DATA WITHIN THE PROJECT AREA			
School Districts in a Six-Mile Radius of the Project Site	**Enrollment Used for Meals**	**Free or Reduced-Price Meals**	
Berryessa Union Elementary	6,534	1,765	27.0%
Campbell Union	**6,622**	**2,721**	**41.1%**
Cupertino Union Elementary	15,663	885	5.7%
Luther Burbank Elementary	**475**	**397**	**83.6%**
Milpitas Unified	10,413	2,887	27.7%
Moreland	4,364	1,014	23.2%
Mountain View Whisman	4,753	1,315	27.7%
Orchard Elementary	815	219	26.9%
San Jose Unified	**28,710**	**10,622**	**37.0%**
Santa Clara Unified	**14,808**	**5,373**	**36.3%**
Sunnyvale Elementary	5,950	1,344	22.6%
Reference Geography			
Santa Clara County	253,625	82,218	32.4%

Note: **Bold** indicates school districts considered having an EJ population based on low income**.**
Source: CDE 2021.

CalEnviroScreen - Disadvantaged Communities

CalEnviroScreen 4.0 was used to gather additional information about the population potentially impacted by the proposed project. The CalEnviroScreen indicators (see **Figure 4.21-1**) are used to measure factors that affect the potential[3] for pollution impacts in communities. Staff used CalEnviroScreen to identify disadvantaged communities[4] in the vicinity of the proposed project and better understand the characteristics of the areas where impacts could occur. **Table 4.21-3** presents the CalEnviroScreen overall scores for the three disadvantaged communities within a six-mile radius of the project site. The location of each of these census tracts is shown on **Figure 4.21-1**.

TABLE 4.21-3 CALENVIROSCREEN SCORES FOR DISADVANTAGED COMMUNITIES				
Census Tract No.	**Total Population**	**CES 4.0 Percentile**	**Pollution Burden Percentile**	**Population Characteristics Percentile**
06085504318	6,095	80.06	88.82	63.28
06085503601	3,383	85.36	84.12	76.94
06085501600	7,716	85.01	77.80	81.48

Note: Disadvantaged communities by census tract in the project's 6-mile radius. Source: CalEPA 2021

3 It is important to note that CalEnviroScreen is not an expression of health risk and does not provide quantitative information on increases of impacts for specific sites or project. CalEnviroScreen uses the criteria of "proximity" to a hazardous waste site, a leaking underground tank, contaminated soil, an emission stack (industry, power plant, etc.) to determine that a population is "impacted". It does not address general principles of toxicology: dose/response and exposure pathways. For certain toxic chemicals to pose a risk to the public, offsite mitigation pathways must exist (through ingestion, inhalation, dermal contact, etc.) and contact to a certain amount, not just any amount, must exist.

4 The California Environmental Protection Agency (CalEPA), for purposes of its Cap-and-Trade Program, has designated *disadvantaged communities* as census tracts having a CalEnviroScreen score at or above the 75th percentile (CalEPA 2017). As a comparative screen tool, it is not intended to be used as a health or ecological risk assessment for a specific area.

Table 4.21-4 presents the CalEnviroScreen percentiles for the indicators that make up the pollution burden percentile. Where percentiles for CalEnviroScreen indicators are 90 and above, the percentile is shown in bold. These relatively higher percentiles could be seen as drivers for the census tract's identification as a disadvantaged community. There are no census tracts where the pollution burden percentile is 90 or above, and there are three census tracts where individual pollution burden indicators are in the 90 or above percentile. **Table 4.21-5** presents the CalEnviroScreen percentiles for the indicators that make up the population characteristics. There are no census tracts where the population characteristics burden percentile is 90 or above and three census tracts where individual population characteristic indicators are in the 90 or above percentile.

TABLE 4.21-4 CALENVIROSCREEN INDICATOR PERCENTILES FOR POLLUTION BURDEN FOR DISADVANTAGED COMMUNITIES

	Percentiles for Census Tracts		
	06085504318	06085503601	06085501600
Pollution Burden	88.82	84.12	77.80
Ozone	20.85	20.85	20.85
PM2.5	33.71	35.76	37.13
Diesel PM	**90.49**	**91.50**	**95.13**
Drinking Water	22.74	22.74	22.74
Lead	52.73	**93.48**	83.20
Pesticides	4.97	0.00	0.79
Toxic Release	39.48	33.02	32.10
Traffic	**94.31**	**91.00**	79.25
Cleanup Sites	**99.74**	81.02	50.56
Groundwater Threats	**96.73**	62.49	**91.57**
Hazardous Waste	**99.85**	**91.36**	65.18
Impaired Water Bodies	33.16	33.16	43.78
Solid Waste	**99.77**	84.74	77.96

Notes: Disadvantaged communities by census tract in the project's 6-mile radius. **Bold** indicates a percentile is 90 or above. Source: CalEPA 2021

TABLE 4.21-5 CALENVIROSCREEN INDICATOR PERCENTILES FOR POPULATION CHARACTERISTICS FOR DISADVANTAGED COMMUNITIES

	Percentiles for Census Tracts		
	06085504318	06085503601	06085501600
Population Characteristics	63.28	76.94	81.48
Asthma	36.05	73.54	72.98
Low Birth Weight	71.79	77.05	**91.34**
Cardiovascular Disease	28.12	53.39	39.71
Education	78.63	79.42	63.76
Linguistic Isolation	**95.72**	**95.03**	67.45
Poverty	59.52	78.45	80.28
Unemployment	78.97	21.11	64.51
Housing Burden	46.02	63.23	**94.47**

Notes: Disadvantaged communities by census tract in the project's 6-mile radius. **Bold** indicates a percentile is 90 or above. Source: CalEPA 2021

4.21.2 Environmental Impacts

The following technical areas discuss impacts to EJ populations: Aesthetics, Air Quality[5], Cultural and Tribal Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Population and Housing, Transportation, and Utilities and Service Systems.

Part of staff's assessment of how, or if, the project would impact an EJ population includes a review of CalEnviroScreen data for the project area. There are three technical areas that could have project impacts that could combine with the indicators in CalEnviroScreen: Air Quality, Hydrology and Water Quality, and Utilities and Service Systems. When these technical areas have identified a potential impact where an EJ population is present, CalEnviroScreen is used to better understand the characteristics of the areas where the impact would occur and ensure that disadvantaged communities in the vicinity of the proposed project have not been missed when screened by race/ethnicity and low income.

Aesthetics

Less Than Significant Impact. A disproportionate impact pertaining to Aesthetics to an EJ population may occur if a project is in proximity to an EJ population and any of the following true:

- The project, if in an "urbanized area" as defined in Public Resources Code section 21071, conflicts with applicable zoning and other regulations governing scenic quality.
- The project, if in a non-urbanized area, substantially degrades the existing visual character or quality of the public view of the site and its surroundings.
- The project creates a new source of substantial light or glare that adversely affects day or nighttime views in the area.

As discussed in **Section 4.1 Aesthetics**, the project is in an urbanized area. The project conforms to the applicable city zoning and other regulations governing scenic quality.

Staff viewed aerial, surface, and street imagery, and topographic and other maps in addition to the EJ section EJ figures and concludes the nearest EJ population would have a restricted public view from Bracher Park. The project's capability of being seen in the landscape from the public park rates moderate to high. It would be plainly visible and could not be missed by the casual observer from views in the general direction of the project. However, it would not strongly attract visual attention or dominate views because of apparent size and due to the existence of aboveground landscape components (buildings, structures, earthworks, trees, etc.) including the movement of passenger cars along the Caltrain corridor. The proposed project landscaping would aid in obstructing the view.

5 Public Health concern discussed under Air Quality.

The project design includes directional and shielded light fixtures to keep lighting onsite. The project design includes installing LED lighting throughout the project site. Project components would have no to low reflectivity offsite.

The project would have a less than significant effect on aesthetics and would not have a disproportionate effect to an EJ population.

Air Quality

Less Than Significant Impact. **Table 4.21-4** and **Table 4.21-5** include indicators that relate to both air quality and public health. The indicators that are associated with criteria air pollutants, such as ozone, PM2.5, and nitrogen dioxide (NO_2), are indicators related to air quality. Indicators that are associated with protecting public health are: Diesel PM, Pesticide Use, Toxic Release from Facilities, Traffic Density, Asthma, Low Birth Weight Infants, and Cardiovascular Disease. Each of these air quality and public health indicators are summarized under this Air Quality subsection.

Ambient air quality standards (AAQS) are established to protect the health of even the most sensitive individuals in our communities, which includes the EJ population, by defining the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. Both CARB and the U.S. EPA are authorized to set AAQS.

Staff identified the potential air quality impacts (i.e., ozone and PM2.5) that could affect the EJ population represented in **Figures 4.21-1** and **4.21-2**. Staff also examined individual contributions of indicators in CalEnviroScreen that are relevant to air quality (see **Table 4.21-4**).

Staff identified the potential public health impacts (i.e., cancer and non-cancer health effects) that could affect the EJ population represented in **Figures 4.21-1** and **4.21-2**. These potential public health risks were evaluated quantitatively based on the most sensitive population, which includes the EJ population, by conducting a health risk assessment (HRA). The results were presented by levels of risk. The potential construction and emergency backup generator (gensets) readiness testing and maintenance risks are associated with exposure to diesel PM.

In **Section 4.3 Air Quality**, staff concludes that, with the implementation of mitigation measure **AQ-1** and oxides of nitrogen (NOx) emissions fully offset through the permitting process with BAAQMD, the project would not have a significant impact on air quality or public health. Criteria air pollutants would not cause or contribute substantially to exceedances of health-based ambient standards and the project's toxic air emissions would not exceed health risk limits. Likewise, the project would not cause disproportionate air quality or public health impacts on sensitive populations, such as the EJ population represented in **Figures 4.21-1** and **4.21-2**.

The text below addresses each of the air quality and public health indicators included in **Tables 4.21-4** and **4.21-5**.

Ozone Impacts

Ozone is known to cause numerous health effects, which can potentially affect EJ communities as follows:

- Lung irritation, inflammation and exacerbation of existing chronic conditions, even at low exposures (Alexis et al. 2010, Fann et al. 2012, Zanobetti and Schwartz 2011);
- Increased risk of asthma among children under two years of age, young males, and African American children (Lin et al. 2008, Burnett et al. 2001); and,
- Higher mortality, particularly in the elderly, women, and African Americans (Medina-Ramón and Schwartz 2008).

Even though ozone is not directly emitted from emission sources such as the gensets, precursor pollutants that create ozone, such as NOx and volatile organic compounds (VOCs), would be emitted. The NOx emissions of the gensets during readiness testing and maintenance would be required to be fully offset through the BAAQMD permitting process. See more detailed discussion in **Section 4.3 Air Quality**.

For CalEnviroScreen, the air monitoring data used in this indicator have been updated to reflect ozone measurements for the years 2017 to 2019. CalEnviroScreen 4.0 uses the mean of the daily maximum eight-hour ozone concentration (ppm) for the summer months (May-October), averaged over three years (2017-2019). According to CalEnviroScreen data, census tracts are ordered by ozone concentration values, and then are assigned a percentile based on the statewide distribution of values.

Results for ozone are included in **Table 4.21-4**. Ozone levels in the three census tracts within a six-mile radius of the project site are relatively low, with percentiles around 21. Another way to look at the data is that approximately 79 percent of all California census tracts have higher ozone levels than these census tracts near the project. For ozone, the census tracts within a six-mile radius of the proposed project's site are not exposed to high ozone concentrations compared to the rest of the state.

The project would not be expected to contribute significantly to regional air quality as it relates to ozone. The project would be required to comply with air quality emission rate significance thresholds for NOx and VOCs, which are precursor pollutants that create ozone during the construction and testing and maintenance phases. The project would use best management practices (BMPs) during construction, which would reduce NOx and VOCs. The project's impacts would not be expected to cause an exceedance of AAQS during readiness testing and maintenance. NOx emissions resulting from readiness testing and maintenance would be high enough to trigger offset requirements due to BAAQMD Regulation 2, Rule 2. Therefore, the NOx emissions would need to be fully offset to reduce net impacts to levels below the BAAQMD's CEQA threshold. VOC emissions would be below the BAAQMD's threshold of significance and the applicant would not be required to offset them. Therefore, the project would not contribute significantly to regional ozone concentrations, relative to baseline conditions.

Staff concludes that the project would not expose sensitive receptors to substantial ozone precursor concentrations. The project's ozone and ozone precursor air quality impacts would be less than significant for the local EJ community and the general population. Additionally, as NOx emissions of the gensets would be fully offset, the project would not result in a cumulatively considerable net increase of secondary pollutants, such as ozone, in the air basin.

PM2.5 Impacts

PM is a complex mixture of aerosolized solid and liquid particles, including such substances as organic chemicals, dust, allergens, and metals. These particles can come from many sources, including cars and trucks, industrial processes, wood burning, or other activities involving combustion. The composition of PM depends on the local and regional sources, time of year, location, and weather.

PM2.5 refers to particles that have a diameter less than or equal to 2.5 micrometers. PM2.5 is known to cause numerous health effects, which can potentially affect EJ communities. Particles in this size range can have adverse effects on the heart and lungs, including lung irritation, exacerbation of existing respiratory disease, and cardiovascular effects.

For CalEnviroScreen, the indicator PM2.5 is determined by the annual mean concentration of PM2.5 (weighted average of measured monitor concentrations and satellite observations, $\mu g/m^3$), averaged over three years (2015-2017). According to CalEnviroScreen data, census tracts are ordered by PM2.5 concentration values, and then are assigned a percentile based on the statewide distribution of values and are shown in **Table 4.21-4**. While the three census tracts within the six-mile radius of the project site are similar, with percentiles being 33.71, 35.76, ad 37.13 for census tracts 6085504318, 6085503601, and 6085501600, respectively, the highest percentile is from census tract 6085501600. Census tract 6085501600 was at the 37.13 percentile in the PM2.5 category (see **Table 4.21-4**). This indicates that PM concentrations in this census tract are higher than 37.13 percent of tracts statewide. This means that these communities are exposed to below average PM2.5 concentrations compared to the rest of the state.

The project would not be expected to contribute significantly to the regional air quality related to PM2.5. The project would not expose sensitive receptors to substantial pollutant concentrations of PM2.5 during construction or the readiness testing and maintenance of the gensets. The project would use BMPs during construction, which would reduce PM emissions. The gensets would be equipped with diesel PM filters, which would reduce PM emissions from the engines. Therefore, the project would not contribute significantly to regional PM2.5 concentrations, relative to baseline conditions.

The project's PM2.5 air quality impacts would be less than significant for the local EJ community and the general population. Additionally, as NOx emissions of the gensets would be fully offset, the project would not result in cumulatively considerable net increase of secondary pollutants, such as PM, in the air basin.

NO_2 Impacts

Section 4.3 Air Quality includes an additional assessment of other criteria air pollutant impacts, including NO_2 impacts. Staff's analysis indicates that the project would not cause adverse NO_2 impacts during construction or readiness testing and maintenance. The project's NO_2 air quality impacts would be less than significant for the local EJ community and the general population.

Diesel PM

This indicator represents how much diesel PM is emitted into the air within and near the census tract. The data are from 2016 California Air Resources Board's emission data from on-road vehicles (trucks and buses) and off-road sources (ships and trains, for example). This is the most recent data available with which to make the necessary comparisons.

Table 4.21-4 shows that among these three census tracts, all are higher than the 90th percentile. They are 95.13, 91.5, and 90.49 (in census tracts 06085501600, 06085503601, and 06085504318, respectively), meaning these three are higher than 95.13, 91.5 and 90.49 percent of the census tracts in California.

However, according to the results of the HRA conducted for this project in **Section 4.3 Air Quality**, impacts associated with diesel PM from the proposed project construction and readiness testing and maintenance activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to the diesel PM levels in the disadvantaged communities. Therefore, the project's diesel PM impacts would be less than significant for the local EJ community and the general population.

Pesticide Use

Specific pesticides included in the Pesticide Use category were narrowed from the list of all registered pesticides in use in California to focus on a subset of 132 active pesticide ingredients that are filtered for hazard and volatility for the years 2017-2019 collected by the California Department of Pesticide Regulation. Only pesticides used on agricultural commodities are included in the indicator.

Census tract 06085504318 was at 4.97 percentile, census tract 06085501600 was at 0.79 percentile, and census tract 06085503601 was at zero percentile in the Pesticide Use category (see **Table 4.12-4**). This indicates that pesticide use in these census tracts are below the statewide average in terms of pesticide use. This indicates that these communities are not exposed to high pesticide concentrations as compared to the rest of the state. Therefore, the project's pesticide use would be less than significant for the local EJ community and the general population.

Toxic Releases from Facilities

This indicator represents modeled toxicity-weighted concentrations of chemical releases to air from facility emissions and off-site incineration in and near the census tract. The U.S. EPA provides public information on the amount of chemicals released into the environment from many facilities. This indicator uses the modeled air concentration and toxicity of the chemical to determine the toxic release score. The data are from 2017-2019.

Table 4.21-4 shows three census tracts are similar, with the percentiles being 39.48, 33.02, and 32.10 for census tracts 06085504318, 06085503601, and 06085501600, respectively. The highest percentile is from census tract 6085504318, indicating that toxic release from facilities threats in this census tract (6085504318) is higher than 39.48 percent of tracts statewide. This also indicates that these communities are lower than the state average for exposure to toxic releases.

According to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with toxic releases from construction and readiness testing and maintenance activities (diesel-fueled equipment) would be less than significant. The project would not have a significant cumulative contribution to toxic releases. Therefore, the project's toxics emissions would be less than significant for the local EJ community and the general population.

Traffic Density

This indicator represents the sum of traffic volumes adjusted by road segment length. It is calculated as the sum of traffic volumes adjusted by road segment length (vehicle-kilometers per hour) divided by total road length (kilometers) within 150 meters of the census tract. It is not a measure of level of service on roadways. The data are from 2017.

Table 4.21-4 shows that among these three census tracts, two are higher than the 90th percentile. The highest percentiles are 94.31 and 91 (in census tracts 06085504318 and 06085503601, respectively), meaning these two are higher than 94.31 and 91 percent of the census tracts in California. The percentile of census tract 06085501600 is at the 79.25 percentile. Traffic impacts are related to the diesel PM emitted from diesel-fueled vehicles.

The proposed project would generate a small number of vehicle trips to the site. These trips include workers, material, and equipment deliveries. It is unlikely that the addition of vehicle trips from the project would result in a significant contribution to the traffic density on any roadway in the vicinity of the project site. However, according to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with diesel PM from the proposed project construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to the diesel PM-related traffic density in the disadvantaged communities. Therefore, the project's traffic volume impact would not have a significant cumulative contribution to the traffic density for the local EJ community and the general population.

Asthma

This indicator is a representation of an asthma rate. It measures the number of emergency department (ED) visits for asthma per 10,000 people over the years 2015 to 2017. The information was collected by the California Office of Statewide Health Planning and Development.

Table 4.21-5 shows census tract 06085503601 was at the 73.54 percentile in the Asthma category. This indicates the number of emergency department visits for asthma per 10,000 people over the years 2015 to 2017 are higher than 73.54 percent of tracts statewide. Census tract 06085501600 was slightly lower, at the 72.98 percentile. This indicates that these two communities have above average numbers of emergency room visits due to asthma compared to the rest of the state. On the contrary, census tract 06085504318 was at the 36.05 percentile, lower than the state average for asthma ED visits.

According to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with emissions from construction, and readiness testing and maintenance activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to asthma ED visits. Therefore, the project's emissions would not have a significant cumulative contribution to asthma ED visits for the local EJ community and the general population.

Low Birth Weight Infants

This indicator measures the percentage of babies born weighing less than 2500 grams (about 5.5 pounds) out of the total number of live births over the years 2009 to 2015. The information was collected by the California Department of Public Health.

Among these three census tracts, Census Tract 06085501600 has the highest potential relative burden. The low birth-weight percentile for this census tract is 91.34, meaning the percent low birth weight is higher than 91.34 percent of tracts statewide. Census tract 06085504318 and 06085503601 were slightly lower, at the 71.79 and 77.05 percentile, respectively. This indicates that these two communities are also higher than the state average of low birth-weight infants.

The HRA of the project in **Section 4.3 Air Quality** was based on a highly conservative health-protective methodology that accounts for impacts on the most sensitive individuals in a population. According to the results of the assessment, the risks at the maximally exposed sensitive receptors (i.e., the maximally exposed individual resident [MEIR], maximally exposed school receptor [MESR], maximally exposed daycare receptor [MEDR], and the maximally exposed recreational receptor [MERR]) would be below health-based thresholds. Therefore, the toxic emissions from the project would not cause significant health effects for the low birth-weight infants in these disadvantaged communities or have a significant cumulative contribution to these disadvantaged communities. The project's emissions would not have a significant cumulative

contribution to low birth-weight infant births for the local EJ community and the general population.

Cardiovascular Disease

This indicator represents the rate of heart attacks. It measures the number of ED visits for acute myocardial infarction (AMI) (or heart attack) per 10,000 people over the years 2015 to 2017.

Table 4.21-4 shows three census tracts are with the percentiles being 28.12, 53.39, and 39.71 for census tracts 06085504318, 06085503601, and 06085501600, respectively. The highest percentile is from census tract 06085503601, indicating the number of emergency department visits for AMI per 10,000 people over the years 2015 to 2017 is higher than 53.39 percent of tracts statewide. This also indicates that this community is about the average number of emergency department visits for AMI compared to the rest of the state.

According to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with emissions from construction and readiness testing and maintenance activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to cardiovascular disease. The project's emissions would not have a significant cumulative contribution to cardiovascular disease for the local EJ community and the general population.

Cultural and Tribal Cultural Resources

No Impact. Staff did not identify any Native American EJ populations that either reside within six miles of the project or that rely on any subsistence resources that could be impacted by the proposed project.

Hazards and Hazardous Materials

Less Than Significant Impact. An EJ population may experience disproportionate hazards and hazardous materials impacts if the storage and use of hazardous materials within or near EJ communities occur to a greater extent than within the community at large. A disproportionate impact upon the EJ population resulting from the planned storage and use of hazardous materials on the site is extremely low. Diesel fuel to run the gensets is the hazardous material that the project site would have in greatest quantity. The total quantity would be divided up and stored in many separate double-walled fuel tanks (one for each genset) with proper spill controls. Therefore, the likelihood of a spill of sufficient quantity to impact the surrounding community and EJ population would be very small, and, thus, the impact on the EJ community would be less than significant.

Hydrology and Water Quality

Less Than Significant Impact. A disproportionate hydrologic or water quality impact on an EJ population could occur if the project would contribute to the impairment of drinking water, exacerbate groundwater contamination threats, or contribute pollutants to impaired water bodies.

Since the overall CalEnviroScreen score reflects the collective impacts of multiple pollutants and factors, staff examined the individual contributions to indicators as they relate to hydrology and water quality. The pollutants of concern in this analysis are those from construction and operational activities. The CalEnviroScreen scores for the disadvantaged community census tract in a six-mile radius of the project (see **Figure 4.21-1**) are presented in **Table 4.12-4** for each of the following environmental stressors that relate to hydrology and water quality: Drinking Water Contaminants, Groundwater Threat, and Impaired Water Bodies. The percentile for each disadvantaged census tract reflects its relative ranking among all of California's census tracts. A disproportionate hydrology or water quality impact on an EJ population could occur if a project introduces an additional pollutant burden to a disadvantaged community.

CalEnviroScreen assigns a score to each type of stressor. To assess the impact of a stressor on population within a census tract, the score is assigned a weighting factor that decreases with distance from the census tract. For stationary stressors related to hydrology or water quality, the weighting factor diminishes to zero for distances greater than 1,000 meters (0.6 mile). As **Figure 4.21-1** shows, there are no disadvantaged census tracts within 1,000 meters from the project. Therefore, impacts to Hydrology and Water Quality would not introduce an additional burden to an EJ population and would be less than significant.

Land Use and Planning

Less Than Significant Impact. A disproportionate land use impact on an EJ population could occur if a project would physically divide the established community of an EJ population or if a project in proximity to an EJ population conflicts with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating environmental impacts on a population. The primary purpose of planning is to protect the public health, safety, and welfare. Incompatible land uses may create health, safety, and welfare issues for the community.

Staff concludes the project would not divide an existing community as the project is proposed on a parcel of land that was previously developed for industrial use. The project would not introduce a new barrier or otherwise restrict public access within the community.

The project site is in the Light Industrial (ML) zoning district. The maximum permitted building height in the ML zoning district is 70 feet. The height of the proposed data center building would be 87.5 feet from the grade to the highest point of the parapet coping of the flat roof. The project would be eligible for a minor modification in ML zoning

requirements for height, and, with the city's approval of the minor modification, the project would conform to zoning. The project's floor area ratio (FAR) would exceed the maximum FAR for the zoning district. However, as is typical of data center projects, the project would have a low employment density relative to the size of its data center building. With its low employment density, the project would not cause the types of environmental impacts sometimes attributed to projects with high employment densities due to a commensurate increase in vehicle miles traveled. The project would not cause environmental impacts associated with the FAR exceedance, including no disproportionate impacts on an EJ population.

As discussed in section **4.11 Land Use and Planning**, the project would not conflict with land use plans or policies such that significant environmental impacts would occur. The overall impact would be less than significant, including potential disproportionate impacts on an EJ population.

Noise

Less Than Significant with Mitigation Incorporated. EJ populations may experience disproportionate noise impacts if the siting of unmitigated industrial facilities occurs within or near EJ communities to a greater extent than within the community at large. The project site is within an area having an EJ population. The area surrounding the site is primarily industrial. The nearest sensitive receptors are residences approximately 200 feet south of the project site's property line, across from the Caltrain rail line.

Construction activities would increase existing noise levels at the adjacent industrial land uses and the nearby residences identified above, but they would be temporary and intermittent. Staff proposes mitigation measure **NOI-1**, requiring a complaint and redress process be implemented to ensure construction noise impacts would not be significant, as perceived by the community. With this, impacts would be reduced to less than significant. In addition, construction would occur during the daytime hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and between 9:00 a.m. to 6:00 p.m. on Saturday, and prohibited on Sundays and holidays, in compliance with the city of Santa Clara City Code.

Therefore, potential noise effects related to construction would not result in a significant noise impact on the area's population, including the EJ population.

Sources of operational noise for the project would include the gensets, rooftop mechanical equipment. including HVAC and other equipment necessary for project operation. The City Code requires existing and new industrial development to reduce the effects of operational noise on adjacent properties through compliance with noise standards (Sections 9.10.040). Since the project is near a residential land use, noise reduction measures, such as mechanical equipment screening and enclosures, would be included (these measures have been incorporated in the operational noise modeling). Thus, the operation of the project would have a less than significant noise impact for all the of area's population, including the EJ population.

Population and Housing

Less Than Significant Impact. Because the study area used in this analysis for impacts related to population influx and housing supply includes the cities of Santa Clara, Campbell, Mountain View, San Jose, and Sunnyvale, and the county of Santa Clara , staff considered the project's population and housing impacts on the EJ population living in these geographic areas.

The potential for population and housing impacts is predominantly driven by the temporary influx of non-local construction workers seeking lodging closer to the project site. There is a sufficient local construction workforce in the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area (MSA) to accommodate the projected needs of the project, and, thus, workers would not likely seek temporary lodging closer to the project site. The local workforce in the MSA is sufficient to accommodate the permanent labor needs projected for the project, and, thus, operation workers would not likely seek housing closer to the project site. If some operations workers were to relocate closer to the project site, there would be sufficient housing in the project area.

A population and housing impact could disproportionately affect an EJ population if the project were to displace minority or low- income residents from where they live, causing them to find housing elsewhere. If this occurs, an EJ population may have a more difficult time finding replacement housing due to racial biases and possible financial constraints. As the project would not displace any residents or remove any housing, there would be no disproportionate impact to EJ populations from this project.

Transportation

Less Than Significant Impact. Significant reductions in transportation options may significantly impact EJ populations. An impact to bus transit, pedestrian facilities, or bicycle facilities could cause disproportionate impacts to low-income communities, as low-income residents more often use these modes of transportation. However, as concluded in **Section 4.17 Transportation** all transportation impacts, including impacts to alternative transportation, would be less than significant, and, therefore, would cause less than significant impacts to EJ populations. Likewise, transportation impacts would not be disproportionate.

Utilities and Service Systems

Less Than Significant Impact. Disproportionate impacts to an EJ population could occur if the project would contribute to or exacerbate the effects of cleanup sites, hazardous waste generators and facilities, and solid waste facilities.

Since the overall CalEnviroScreen score reflects the collective impacts of multiple pollutants and factors, staff examined the individual contributions to indicators as they relate to wastes addressed under utilities and service systems. The wastes of concern in this analysis are those from construction and operational activities. The handling and disposal of each type of waste depends on the hazardous ranking of its constituent

materials. Existing laws, ordinances, regulations, and standards ensure the desired handling and disposal of waste materials without potential public or environmental health impacts. The CalEnviroScreen scores for the disadvantaged community census tract in a six-mile radius of the project (see **Figure 4.21-1**) are presented in **Table 4.21-4** for each of the following environmental stressors that relate to waste management: cleanup sites, hazardous waste generators and facilities, and solid waste facilities. The percentile for each disadvantaged census tract reflects its relative ranking among all of California's census tracts. A disproportionate waste management impact on an EJ population could occur if project wastes impacted the disadvantaged community.

CalEnviroScreen assigns a score to each category of stressors. To assess the impact of a stressor on population within a census tract, the score is assigned a weighting factor that decreases with distance from the census tract. The weighting factor for stationary stressors more than 1,000 meters (0.6 mile) away from a census tract is zero. As **Figure 4.21-1** shows, there are no disadvantaged census tracts within 1,000 meters from the project. Therefore, no stressor under Utilities and Service Systems is close enough to create an additional burden to an EJ population and, therefore, the project impact on EJ communities would be less than significant.

List of Preparers and Contributors

The following are a list of preparers and contributors to **Section 4.21 Environmental Justice**:

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Abdel-Karim Abulaban	Utilities and Service Systems impact analyses
Scott Debauche	Transportation impact analysis

4.21.3 Mitigation Measures

None.

4.21.4 References

Alexis NE et al. 2010 – Alexis NE, Lay JC, Hazucha M, Harris B, Hernandez ML, Bromberg PA, et al. Low-level ozone exposure induces airways inflammation and modifies cell surface phenotypes in healthy humans. Inhal Toxicol 22(7):593-600. Available online at: https://www.ncbi.nlm.nih.gov/pubmed/20384440

BAAQMD 2022 – Bay Area Air Quality Management District (BAAQMD). Community Health. Available online at: https://www.baaqmd.gov/community-health

Burnett RT et al. 2001 – Burnett RT, Smith-Doiron M, Stieb D, Raizenne ME, Brook JR, et al. Association between Ozone and Hospitalization for Acute Respiratory Diseases in Children Less than 2 Years of Age. American Journal of Epidemiology 153(5):444-452. Available online at: https://academic.oup.com/aje/article/153/5/444/149769

CalEPA 2017 – California Environmental Protection Agency (CalEPA). *Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De Leon),* April 2017. Available online at: https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf

CalEPA 2021 – California Environmental Protection Agency (CalEPA). CalEnviroScreen 4.0 Microsoft Excel Spreadsheet data, last updated October 2021. Available online at: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40

CDE 2021 – California Department of Education (CDE). California Department of Education Educational Demographics Unit, Data Quest, Selected District Level Data - 4369674--Santa Clara Unified for the year 2020-21. Free or Reduced Price Meals. Available online at: https://dq.cde.ca.gov/dataquest/cbeds2.asp?cYear=2020-21&FreeLunch=on&cChoice=CoProf2&TheCounty=43%2CSANTA%25255ECLARA&cLevel=County&cTopic=Profile&myTimeFrame=S&submit1=Submit

Fann N et al. 2012 – Fann N, Lamson AD, Anenberg SC, Wesson K, Risley D, Hubbell BJ, Estimating the National Public Health Burden Associated with Exposure to Ambient PM2.5 and Ozone. Risk Analysis 32(1):81- 95. Available online at: https://www.ncbi.nlm.nih.gov/pubmed/21627672

Lin S et al. 2008 – Lin S, Liu X, Le, LH, Hwang, S, Chronic Exposure to Ambient Ozone and Asthma Hospital Admissions among Children. Environ Health Perspect 116(12):1725-1730. Available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2599770/

Medina-Ramón M, Schwartz J 2008 – Who is more vulnerable to die from ozone air pollution? Epidemiology 19(5):672-9. Available online at: https://www.ncbi.nlm.nih.gov/pubmed/18480732

OEHHA 2014 – California Environmental Protection Agency's Office of Environmental Health Hazzard and Assessment (OEHHA). CalEnviroScreen 2.0, October 2014. Available online at: https://oehha.ca.gov/media/CES20FinalReportUpdateOct2014.pdf

OEHHA 2021 – California Environmental Protection Agency's Office of Environmental Health Hazzard and Assessment (OEHHA). CalEnviroScreen 4.0, October 2021. Available online at: https://oehha.ca.gov/media/downloads/calenviroscreen/report/calenviroscreen40reportf2021.pdf

U.S. Census 2020 – United States Census Bureau (U.S. Census). PL-Race, Hispanic or Latino, Age, and Housing Occupancy: 2020 – DEC Redistricting Data (Public Law 94-171) Summary File, Tables P1, P2, P3, P4, H1. Available online at: https://www.census.gov/data.html

U.S. EPA 2015 – United States Environmental Protection Agency (U.S. EPA). Guidance on Considering Environmental Justice During the Development of Regulatory Actions, May 2015. Available online at: https://www.epa.gov/environmentaljustice/guidance-considering-environmental-justice-during-development-action

Zanobetti A, Schwartz J 2011 – Ozone and survival in four cohorts with potentially predisposing diseases. Am J Respir Crit Care Med 184(7):836-41. Available online at: https://www.ncbi.nlm.nih.gov/pubmed/21700916

Section 5

Alternatives

5 Alternatives

5.1 Introduction

This section evaluates a reasonable range of potentially feasible alternatives to the CA3 Data Center/Backup Generating Facility (CA3DC/CA3BGF). Both together are known as CA3 or the project. Alternatives considered but dismissed for full analysis due to reliability concerns include biodiesel fuel, fuel cells, and battery energy storage systems. Alternatives selected for more detailed analysis were limited to the "No Project/No Build Alternative," as required by the California Environmental Quality Act (CEQA), and those that could feasibly attain most of the proposed project's basic objectives while reducing or avoiding any of its significant effects. The alternatives selected for detailed analysis are:

- Alternative 1: No Project/No Build Alternative
- Alternative 2: Renewable Diesel Fuel
- Alternative 3: Natural Gas Internal Combustion Engines

5.2 CEQA Requirements

CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) require that an EIR consider and discuss alternatives to the proposed project. Section 15126.6 of the CEQA Guidelines provides that the alternatives analysis must include all of the following:

- Describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project;
- Evaluate the comparative merits of the alternatives;
- Focus on alternatives that would avoid or substantially lessen any significant effects of the project, even if these alternatives would impede to some degree attainment of the project objectives, or would be more costly; and
- Describe the rationale for selecting alternatives to be discussed and identify alternatives that were initially considered but then rejected from further evaluation.

CEQA requires that an EIR "consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (Cal. Code Regs., tit. 14, § 15126.6, subd. (a)). Alternatives may be eliminated from detailed consideration by the lead agency if they fail to meet most of the basic project objectives, are infeasible, or could not avoid any significant environmental effects (Cal. Code Regs., tit. 14, § 15126.6, subd. (c)). In addressing the feasibility of alternatives, factors that may be taken into account are: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(1)).

The range of potentially feasible alternatives selected for analysis is governed by a "rule of reason," requiring the evaluation of only those alternatives "necessary to permit a reasoned choice" (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)). Also, an EIR "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3)).

The lead agency is also required to evaluate the impacts of the "No Project" alternative. Analyzing a "No Project" alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(1)). "The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(2)).

5.3 Project Objectives and Alternatives Screening

The ideal process to select alternatives to include in the analysis begins with the establishment of project objectives. Section 15124 of the CEQA Guidelines addresses the requirement for an EIR to contain a statement of objectives, as follows:

> *A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits.*

The applicant's overall project goal is to develop a state-of-the-art data center providing greater than 99.999 percent reliability for its customers, with mission-critical space to support their servers, including space conditioning and a steady stream of high-quality power supply. The applicant's project objectives are as follows:

- Develop a state-of-the-art data center large enough to meet projected growth;
- Develop the data center on land that has been zoned for data center use at a location acceptable to the City of Santa Clara;
- Develop a data center that can be constructed in two phases, which can be timed to match projected customer growth; and
- Incorporate the most reliable and flexible form of backup electric generating technology considering the following evaluation criteria:
    - Commercial Availability and Feasibility. The selected backup electric generation technology must currently be in use and proven as an accepted industry standard for technology sufficient to receive commercial guarantees in a form and amount

acceptable to financing entities. It must be operational within a reasonable timeframe where permits and approvals are required.

- Technical Feasibility. The selected backup electric generation technology must utilize systems that are compatible with one another.
- Reliability. The selected backup electric generation technology must be extremely reliable in the case of an emergency loss of electricity from the utility.
  - The CA3BGF must provide a higher reliability than 99.999 percent in order for the CA3DC to achieve an overall reliability of equal to or greater than 99.999 percent reliability.
  - The CA3BGF must provide reliability to the greatest extent feasible during natural disasters, including earthquakes.
  - The selected back-up electric generation technology must have a proven built-in resilience so if any of the back-up unit fails due to external or internal failure, the system will have redundancy to continue to operate without interruption.
  - The CA3DC must have on-site means to sustain power for 24 hours minimum in failure mode, inclusive of utility outage.

5.4 Reliability and Risk Factors

The most important data center criterion is reliability. Crucial services, such as 911, offices of emergency management, and utilities infrastructure, are increasingly using data centers for their operation. The selected backup electric generation technology must be extremely reliable in the case of an emergency loss of electricity from the utility. Data center customers demand the most reliable data storage service available, and data center insurers are willing to underwrite only proven technologies with an extremely low probability of operational failure. Any alternative backup generation technology would be measured against proven available technologies, such as the current technology proposed. Should the reliability of that technology not match that of the proposed technology, it would not be considered a viable alternative.

Risk factors that affect the reliable operation of backup generators include the following: failure to start; failure to run due to various technical issues; and failure to run due to a lack of fuel supply (NREL 2021). Any alternative technology must have proven operational hours, a reliable source of fuel supply, and redundancy capabilities. Sufficiently mitigating these risks would ensure that data center operation is not interrupted during a utility power failure.

5.5 Environmental Impacts of the Proposed Project

This EIR evaluates the potential environmental impacts of the proposed project. Project impacts would be less than significant with the following proposed mitigation measures:

- **Air Quality** – Proposed mitigation measure **AQ-1** would reduce air quality impacts during project construction. This measure requires the incorporation of the local air

district's best management practices to control fugitive dust. This measure also incorporates exhaust control measures to reduce emissions from construction equipment. During readiness testing and maintenance, the oxides of nitrogen (NOx [as an ozone precursor]) emissions of the standby generators would be fully offset through the permitting process with the Bay Area Air Quality Management District (BAAQMD). With the implementation of **AQ-1** during construction and NOx offsets for readiness testing and maintenance through the local air district's permitting requirements, the project would not cause a cumulatively considerable net increase of any criteria air pollutant and impacts would be reduced to less than significant with mitigation incorporated.

- **Biological Resources** – Proposed mitigation measure **BIO-1** would ensure that potential construction impacts to protected bird and raptor species would be less than significant. **BIO-1** includes requirements to conduct tree removal outside the nesting period if possible, to conduct nesting bird surveys prior to the initiation of any construction activities during the nesting period, and to establish buffers to avoid the disturbance of nesting birds if active nests are detected.

  Proposed mitigation measure **BIO-2** would reduce construction impacts to protected bat species, if present at the site, to less than significant. **BIO-2** includes requirements to conduct bat clearance surveys prior to the demolition of buildings or removal of trees. It also requires the development of a Bat Mitigation and Monitoring Plan detailing exclusion methods, roost removal procedures, and compensatory mitigation methods for the permanent impacts of roost removal.

  The implementation of mitigation measures **BIO-3** and **BIO-4** would reduce construction impacts on trees covered by city of Santa Clara General Plan policies 5.10.1-P4 and 5.3.1-P10 to less than significant. **BIO-3** requires the applicant to obtain the appropriate tree removal permits from the city of Santa Clara for the removal of all healthy mature trees and mitigate for tree removal as required by the city. **BIO-4** requires the applicant to implement tree protection measures for the trees that are to remain in place as required by the city of Santa Clara through its tree removal permits and Architectural Review.

- **Cultural and Tribal Cultural Resources** – Proposed mitigation measure **CUL-1** requires qualified professionals to survey the exposed ground surface for cultural resources once the demolition of existing structures is complete. It also requires test excavation to determine the presence or absence of buried cultural resources and procedures for avoidance measures and construction monitoring. This measure would reduce impacts to any discovered historical resources and unique archaeological resources to a less than significant level. In addition to mitigation measure **CUL-1**, mitigation measure **CUL-2** requires specific protocols to minimize or avoid impacts on inadvertently discovered human remains. Combined, mitigation measures **CUL-1** and **CUL-2** would reduce potential impacts to human remains to a less than significant level.

Although there are no known tribal cultural resources on or directly adjacent to the proposed site, ground disturbance associated with the proposed project could result in the exposure and/or destruction of buried, as-yet-unknown prehistoric archaeological resources that could qualify as tribal cultural resources. If these resources were to be exposed or destroyed, it would be a significant impact. The implementation of **CUL-1** and **CUL-2** would reduce potential impacts to buried, tribal cultural resources to a less-than-significant level.

- **Geology and Soils** – With the implementation of mitigation measure **GEO-1**, potential impacts to paleontological resources from trenching would be reduced to a less-than significant level. **GEO-1** includes protocols for worker training to identify potential fossil finds, notification of a qualified paleontologist to assess any finds, and if the resource is considered to be significant, development by the paleontologist of a plan for preservation and mitigation.
- **Greenhouse Gas Emissions** – This project would have a less than significant impact on greenhouse gas (GHG) emissions with the implementation of mitigation measures **GHG-1**, **GHG-2**, and **GHG-3**. **GHG-1** would require the applicant to limit the GHG emissions of the standby generators to the BAAQMD CEQA GHG threshold applicable at the time of permitting. **GHG-2** would require the applicant to use an increasing mix of renewable diesel and phase out the use of petroleum-based conventional diesel (conventional diesel). **GHG-3** would require the applicant to participate in Silicon Valley Power's (SVP) Large Customer Renewable Energy (LCRE) Program or other renewable energy program that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity or purchase ~~carbon offsets~~ renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. The implementation of **GHG-1**, **GHG-2**, and **GHG-3** would ensure the project complies with the BAAQMD CEQA GHG threshold, the city of Santa Clara Climate Action Plan, and other applicable regulatory programs and policies. Accordingly, staff concludes that with the implementation of **GHG-1**, **GHG-2**, and **GHG-3**, the project's GHG emissions would not have a significant direct or indirect impact on the environment. With the implementation of **GHG-1**, **GHG-2**, and **GHG-3**, impacts related to GHG emissions would be less than significant.
- **Hazards and Hazardous Materials** – With the implementation of **HAZ-1**, construction of the project would result in less than significant impacts to the public and the environment from hazards and hazardous materials. **HAZ-1** would require the preparation of a Site Management Plan (SMP), which would establish procedures for handling any contaminated groundwater or soil found during construction to minimize health risks. Records would be maintained for documenting compliance with the storage and handling of hazardous materials, and personnel would be required to follow health and safety procedures in the event of a release of hazardous materials.

  With the implementation of **HAZ-1**, construction of the project would create a less than significant impact to the public or the environment.
- **Noise** – The loudest construction activities could elevate the existing ambient noise levels at the nearest residences by up to 11 dBA and could be perceived as noisy,

although they would be less noisy than passing trains. The implementation of **NOI-1**, requiring a noise complaint and redress process, would ensure construction noise impacts as perceived by the community would be less than significant.

- **Transportation** – The operation of the project would generate vehicle miles travelled (VMT) that would exceed the city's thresholds. **TRANS-1** would require the implementation of a Transportation Demand Management (TDM) program requiring a 4-40 workweek (40 hours in 4 days) to reduce the project VMT to a level below the city's threshold. This would ensure that VMT generated by the project would be less than significant.

5.6 Alternatives Considered

Staff concluded that there would be no significant impacts from the project with the incorporation of mitigation. Nevertheless, staff considered several alternatives to the project for a more comprehensive analysis. The following discussion provides staff's analysis of these alternatives.

5.6.1 Alternatives Considered and Not Evaluated Further

This subsection discusses alternatives initially considered but ultimately not evaluated further due to infeasibility, failure to reduce any impacts, and/or failure to meet the project objectives. As a result, these alternatives were not evaluated from an environmental impact perspective or compared with the proposed CA3GBF project. The alternatives considered but not evaluated further include an alternative project site and biodiesel fuel, fuel cell, and battery energy storage alternatives.

5.6.1.1 Alternative Project Site

Although the impacts of the proposed project would be less than significant with mitigation, staff evaluated whether an alternative site location should be identified as a potentially feasible alternative to avoid or reduce potentially significant impacts. However, the project's impacts are the type that would not be avoided or lessened by proposing the project at another location, as some of the impacts are an inherent part of the project (e.g., air quality, GHG, construction noise) or would be similar at another location in the Santa Clara region (e.g., cultural and tribal resources, geology and soils [including paleontology]). Also, the applicant has already acquired the project site, zoned for the proposed use and located in close proximity to existing operational data centers, and acquiring an alternative site might be costly and infeasible if a suitable site (with needed infrastructure and consistent zoning) is not available for sale or lease within a reasonable timeframe, resulting in the project not meeting its project objectives. Finally, no alternative locations where environmental impacts would likely be avoided or substantially reduced compared to the project have been identified by the city of Santa Clara, public agencies, or members of the public.

For these reasons, further consideration of an alternative project site is not necessary. Staff concludes that further exploration of properties beyond the project site is unlikely to yield a different location for the project that could feasibly be developed as an alternative to the project that would reduce or avoid potentially significant impacts.

5.6.1.2 Biodiesel Fuel Alternative

Biodiesel is a domestically produced renewable fuel. Like renewable diesel, biodiesel can be manufactured from a variety of biomasses, such as vegetable oils, animal fats, and grease. However, biodiesel is not the same as renewable diesel. Biodiesel has different fuel properties than renewable diesel and must meet the definition of American Society for Testing and Materials (ASTM) D6751. Also, it is produced through transesterification, which is a chemical process that converts fats and oils into fatty acid methyl esters (U.S. EIA 2021). Biodiesel is generally blended with conventional diesel at a 5 percent to 20 percent ratio (Green Fleet 2021). Its physical properties are similar to those of conventional diesel, proposed for use by the applicant, but it is a cleaner burning fuel than conventional diesel. Biodiesel is compatible as an alternative fuel for diesel-fired emergency backup generators (gensets).

Potential Feasibility Issues

Biodiesel fuel currently suffers from technical problems, making it an unsuitable substitution for 100 percent petroleum-based, ultra-low sulfur diesel. Biodiesel fuel can be problematic for the genset's fuel system. It is harmful to rubber material, such as the hoses that transfer fuel, and the associated O-rings and seals that prevent fuel leaks. Additionally, this fuel suffers from stability issues when stored for long periods of time. Compared to conventional diesel, biodiesel is more hygroscopic (i.e., it attracts water) (Farm Energy 2021). Water can accumulate during transportation and storage. Moisture, if allowed to accumulate for a long time, will alter the fuel's chemical structure. Moreover, in cold weather conditions, the fuel thickens sooner than conventional diesel. Both conditions affect the function of the fuel filter, pump, and injectors in the fuel system of an engine. These issues would also increase the maintenance cycles and cost and can be a cause to void engine warranties. Additionally, biodiesel is expensive.

To date, the operating hours for biodiesel fuel use in data centers are minimal.

Finally, the production of biodiesel from plant material could have environmental impacts of its own; it is a water-intensive operation, as 2,500 liters of water would be needed to produce 1.0 liter of biodiesel fuel (UNESCO 2021).

Due to technical feasibility issues and potential additional environmental impacts, biodiesel fuel as an alternative was eliminated from further analysis.

5.6.1.3 Fuel Cell Alternatives

Fuel cells convert chemical energy into electrical energy. There are several types of fuel cells, which vary according to the types of electrochemical reactions that take place in

the cells, the types of catalysts required, the operating temperature range, the fuel requirements, and other factors affecting the applications suitable for the fuel cells.

The most promising types of fuel cells for powering data centers are solid oxide fuel cells (SOFCs) and polymer electrolyte membrane or proton exchange membrane (PEM) fuel cells (Microsoft 2021).

Solid Oxide Fuel Cells Alternative

SOFCs are electrochemical devices that convert the chemical energy of a fuel and oxidant directly into electrical energy. They operate at high temperatures, as high as 2,100 degrees Fahrenheit. Operating at high temperatures enables the SOFCs to use a variety of fuels to produce hydrogen but also carbon oxides. SOFCs can use natural gas, biogas and gases made from coal as fuel (U.S. DOE 2020a), but more commonly use natural gas. SOFCs are resilient and not susceptible to carbon monoxide (CO) poisoning. CO is a product of the chemical reaction created by the fuel and steam molecules. CO poisoning affects the voltage output of other types of fuel cells, such as PEM fuel cells. Due to their resiliency against CO poisoning and because they operate at extremely high temperatures, SOFCs can reform fuel internally. This reduces the cost associated with adding a reformer to the system.

Potential Feasibility Issues

SOFCs are typically configured and more suitable to serve as a prime base load power. To date, eBay's data center in Utah is using 30 200-kilowatt (kW) SOFCs to provide continuous base load power to the IT load, 6 megawatts (MW), 24 hours/day, all year round, with the electric grid as their backup power supply. Additionally, some data centers (i.e., Apple and Equinix) have supplemented their base load power demand (IT and cooling systems) with SOFCs but rely on the electric grid to support other loads, while retaining traditional uninterruptible power supply (UPS) and generators for emergency power (Data Center 2021). However, SOFCs providing power for 100 percent base load demand (i.e., IT and cooling systems) are not yet industry standard for large-scale data centers.

Because it takes time to reach critical operating temperatures, SOFCs have slow startup times requiring up to 60 minutes (GenCell 2021). Data centers must have a constant electricity supply, with even a momentary outage risking the loss of data; they, thus, require fast startup for their backup power generators. SOFCs also have a slow response to electricity demand (GenCell 2021). This can pose a problem for data centers, as their IT and cooling load demands constantly fluctuate, in addition to changes in environmental conditions (ambient air temperature and humidity). The internal temperature of the data center buildings must remain steady for the IT servers' optimal performance. The rapid changes in electricity demand could outpace the SOFCs' ability to provide the needed services offered by the data center.

The durability of the fuel cells is also an important factor that cannot be ignored. The high operating temperatures place stringent durability requirements on fuel cell materials. Outfitting SOFCs with durable materials is costly.

SOFCs would utilize the underground natural gas pipeline system. At least one pipeline connection would be needed to supply the project with natural gas. A second, independent pipeline connection may be needed for redundancy. The project site could interconnect with two independent gas distribution lines.

A crucial hurdle facing potential big users of SOFCs, such as data centers, is the lack of a sufficient supply of components. According to the Clean Energy Institute there is currently a limited production of SOFC components to meet the needs of major users (ZDNet 2021).

PEM Fuel Cells Alternative

A suitable fuel cell technology for backup energy generation is PEM fuel cell technology (U.S. DOE 2020a). PEM fuel cells are available for low-power applications that require intermittent backup power. They are typically used in small applications, such as mobile services or small stationary applications, such as backup generators for communication towers. Their power capacity ranges between 10 and 125 kW. However, the technology has expanded to data center applications with fuel cell capacity up to 1.0 MW delivered in the size of a 40-foot International Organization for Standardization (ISO) container (GenSureHP 2021). For a 100-MW system, the footprint required would be 32,000 square feet, or approximately 0.73 acre. PEM fuel cells operate at low temperatures and require fuels that are carbon-free and rich in hydrogen content, preferably pure hydrogen, for maximum voltage output and quick start-up times that a data center generator requires in a backup capacity. Hydrogen can either be piped in or made on-site from a methane source, such as natural gas, or from water through electrolysis. These options are discussed in more detail below. Unlike SOFCs, CO poisoning is an important issue for PEM fuel cells because they cannot tolerate great amounts of CO (Fuel Cell 2021).

Potential Feasibility Issues

On-site fuel storage, the current pipeline infrastructure, and on-site generation of hydrogen would challenge the project's ability to provide fuel to the fuel cell.

On-site Fuel Storage. The simplest way to store large volumes of hydrogen would be to compress it. Hydrogen can be compressed to 240 times the gas volumes at atmospheric pressure. The gauge pressure of hydrogen stored as a high-pressure gas is 3600 pounds per square inch (psig) (Hydrogen Properties 2021). Assuming a PEM fuel cell consumes 0.8 normal cubic meter (Nm^3) of fuel per kilowatt-hour produced (Air Liquide 2021), the fuel consumption rate for a 1.0-MW fuel cell would be 800 normal cubic meters per hour. The proposed project would need fuel for up to 24 hours of fuel cell operation (the same as the backup duration for diesel). Therefore, the project site

would need approximately 3,000 cubic feet of compressed hydrogen[1], at 3600 psig, stored on-site per 1.0-MW fuel cell. Furthermore, the site would need approximately 300,000 cubic feet, or over 7 acre-feet of compressed hydrogen, for 100 MW of fuel cells (not including redundant fuel cells). The project would require a storage system that includes at least several pressure vessels to store such a large amount of compressed hydrogen. The storage space required for compressed hydrogen would not be feasible on the project site.

Alternatively, hydrogen could be stored in liquid form to reduce the storage footprint. Hydrogen can be liquified to 848 times less volume than gas at atmospheric conditions (Hydrogen Properties 2021). Liquefying hydrogen would reduce the volume and storage space. The project would need approximately 80,000 cubic feet, or 2 acre-feet, of liquid hydrogen gas (LHG) for 100 MW of fuel cells. Liquid hydrogen gas requires hydrogen to be cooled below its critical point of minus 400 degrees Fahrenheit. LHG would need to be stored and distributed in specialized equipment, including insulated storage tanks to keep the fuel in liquid state at atmospheric pressure, at a temperature of minus 423 degrees Fahrenheit. LHG would result in a smaller footprint than compressed hydrogen. However, problems exist with storing the liquid, such as boil-off losses due to heat leakage. For LHG to remain at a constant temperature and pressure, it must allow for natural evaporation known as boil-off gas (BOG). BOG is a loss of stored fuel that occurs when the ambient temperature heats the insulated tanks. LHG must release this gas to maintain its liquid state, and the release in gas occurs at a rate of approximately 1 percent per day (Hydrogen 2021a).

Safely managing compressed or liquefied hydrogen storage systems would require special expertise and equipment, which would add to the cost and complexity of the proposed project. The presence of such storage systems would also likely raise concerns of public safety and introduce new impacts not found in the proposed project.

Fuel storage equipment must comply with the standards specified by the National Fire Protection Association along with the Santa Clara City Code (City Code) to protect against hazardous material release, fire, and explosions during natural disasters and as the result of accidents. Additionally, permits for the storage of hazardous materials would be needed pursuant to the City Code.

Pipeline Infrastructure. For large applications, such as the proposed project, hydrogen would need to be supplied through multiple pipelines to mitigate on-site storage challenges and increase reliability. However, according to the U.S. Department of Energy (U.S. DOE 2020b), with approximately 1,600 miles of hydrogen pipeline currently operating in the United States, there are technical concerns related to pipeline transmission, including: the potential for hydrogen to embrittle the steel and welds used

1 Compressed hydrogen conversion: 800 cubic meter per hour x 24 hours x 1/240 compression ratio x 35.32 cubic feet per cubic meter = 2,826 cubic feet

to fabricate the pipelines; the need to control hydrogen permeating and leaks; and the need for lower cost, more reliable, and more durable hydrogen compression technology.

On-site Generation (Reforming and Electrolysis). Alternatively, hydrogen for PEM fuel cells can be supplied using other methods, such as reforming and electrolysis.

Reforming

Reforming is a process that uses existing fuels with hydrogen content to react with water, which produces hydrogen and carbon oxides as products.

Steam-methane reforming (SMR) is a type of reforming. It is a thermal process, combining steam with a methane source, such as natural gas, to produce hydrogen and carbon oxides. The project currently has access to two natural gas pipelines that could be used for SMR. Although SMR is typically used in SOFCs because of the resiliency of the SOFCs' interior components to high levels of CO, it is not suitable for PEM fuel cells. The CO can poison the PEM fuel cells' platinum on the electrode, which leads to lower voltage at a given electrical current density (Fuel Cell 2021). SMR could produce the desired hydrogen content for PEM fuel cells should further processing to remove undesired levels of CO be performed, or by using a larger PEM fuel cell where the same amount of CO would be spread over a larger electrode.

Methanol reforming, however, is the leading reforming technology candidate for PEM fuel cells because of its high efficiency and energy density (Fuel Cell 2021). Methanol is a liquid, like conventional diesel, and can be stored on-site. Methanol is reformed with water to produce hydrogen and carbon oxides.

Both SMR and methanol reforming consume energy during hydrogen production and produce carbon dioxide (CO_2) that may be released into the atmosphere. Also, additional equipment for both types of reforming would increase project costs.

Electrolysis

Electrolysis can also be used to produce the hydrogen needed for PEM fuel cells. It is a promising option for carbon-free hydrogen production, using electricity to cause the chemical reaction of splitting water into hydrogen and oxygen. The reaction takes place in a unit called an electrolyzer. Like fuel cells, electrolyzers consist of an anode and a cathode separated by an electrolyte. There are different types of electrolyzers mainly due to the different electrolyte materials, such as PEM, alkaline, and solid oxide, but their function is essentially the same—generating hydrogen (Hydrogen 2021b).

A 1.0-MW PEM electrolyzer, the size of a 40-foot ISO container[2], can generate 18 kilograms (kg), or 200 Nm^3, of hydrogen per hour. For every kg of hydrogen produced, 10 kg of water is needed. Additionally, the electrolyzer would need 49.9 kWh of energy

2 An ISO container is a container which has been built in accordance with the International Organization for Standardization regulations.

to produce 1 kg of hydrogen (GenFuel 2021). For a 100-MW system, the footprint required would be 32,000 square feet, or approximately 0.73 acre.

During a grid outage, energy for the electrolyzer to generate hydrogen fuel may not be available, rendering the fuel cell inoperable and the data center without power. Therefore, hydrogen may need to be produced and stored on-site for future use during emergency generation. Again, fuel storage equipment must comply with standards specified by the National Fire Protection Association along with the City Code to protect against hazardous material release, fire, and explosions during natural disasters and as the result of accidents. Additionally, permits for the storage of hazardous materials would be needed pursuant to the City Code. Additional equipment required for hydrogen electrolyzers would increase project costs.

In conclusion, advances in fuel cell technology have led to increases in PEM fuel cell capacity and applications. However, the technology has not shown proven operating hours for large-scale backup energy solutions used in data centers. Furthermore, fuel cells would require a more robust hydrogen fuel supply infrastructure to meet the reliability requirements of large-scale data centers. At this time further testing is needed to verify the compatibility and reliability of these fuel cells. To ensure system compatibility, more test sites or small hybrid power systems should be considered in data centers.

SOFC and PEM Fuel Cells Feasibility Conclusion. In summary, fuel cells for large-scale backup generation are not fully proven; thus, their reliability is undetermined. Data center customers demand the most reliable data storage service available, as reflected in the applicant's project objectives, which include the development of a highly reliable data center. Furthermore, data center insurers are not willing to provide insurance coverage unless data centers use proven technologies with an extremely low probability of operational failure. Securing fuel for the cells and storing it is a challenge requiring specialized expertise and increased costs for installing and maintaining systems that are expected to be used only infrequently. Because of the limitations described above, fuel cell technology is not currently a viable alternative to the proposed project's use of diesel-powered backup generators.

5.6.1.4 Battery Energy Storage Alternatives

Standalone Battery Energy Storage Alternative

Batteries store chemical energy and convert it to electrical energy. They are used to supply power for many applications. Batteries come in many different shapes and sizes, and different battery types can have different chemical properties. Lithium-ion batteries in huge battery banks provide standby or emergency power and almost instantaneous startup times and are therefore considered suitable for data centers.

Data centers currently use UPS systems consisting of batteries to ensure a smooth transition from the grid to the gensets while the gensets synchronize to the data centers'

electrical busbars[3]. The UPS system proposed for the project is designed to provide up to five minutes of backup power at 100 percent load. UPS systems are proven and reliable to support genset start up, but they are currently limited in power supply duration.

A Battery Energy Storage System (BESS) would provide higher capacity and support longer outages for data center projects. A BESS can be designed to provide up to approximately 100 MWs of backup power and provides the quick start times that a data center requires.

A standalone BESS for a data center's load demands would require ample on-site storage space for long outage durations. To date, a 300-MW/1200 megawatt-hours (MWh) (supplying 300 MW continuously for 4 hours) BESS is the largest one successfully deployed (Power Magazine 2021). Until recently, the operational duration of battery systems has been in the range of four to six hours, not necessarily because battery systems do not have the potential to operate longer, but because a longer duration has not been demonstrated in large-scale data center applications requiring long-duration backup power. Staff is aware of a recent proposal, the Gilroy Backup Generating Facility (GBGF 2021), for two BESS facilities, each with a capacity of 50 MW and discharge capacity of 640 MWh for a total capacity of approximately 100 MW and a discharge duration of approximately 13 hours. The design of this proposal includes diesel-fired gensets to support the data center when the batteries are fully discharged and further backup generation is needed, prior to the electrical grid being restored.

Potential Feasibility Issues

The employment of a standalone BESS for the project would be the first application of this technology for a project of this magnitude for long durations. The project proposes storing fuel on-site for approximately 24 hours of backup generation. A 6-MWh battery storage container requires approximately 380 square feet of space. To supply approximately 100 MW of uninterruptable power in case of 24 hours of grid outage, the project would need a 2,400-MWh battery system, assuming a 100-percent charging and discharging scenario. This translates to approximately 3.5 acres of battery storage space alone, not including the data center buildings and miscellaneous equipment and structures. The storage space could double or triple for the project to meet its reliability and backup generation duration requirements. This footprint could be reduced by stacking the batteries on top of each other; however, the stacked height would be limited. The stacked containers would need to be constructed such that they could be readily accessible for maintenance and potential fire response, while mitigating seismic concerns. Alternatively, the batteries could be stored in buildings to reduce their footprint, but they would then be subject to stricter building code fire protection requirements. Reducing the footprint would increase the project cost.

3 In electric power distribution, a busbar is a metallic strip or bar used to connect high voltage equipment at electrical switchyards, and low voltage equipment in battery banks.

Whether the batteries are single-stacked, double-stacked in containers, or stored in a building, the risk of fires, typically caused by thermal runaway, is apparent and currently trending in large-scale applications. Thermal runaway begins when the heat generated within a battery exceeds the amount of heat dissipated to its surroundings. If the cause of the excessive heat generated is not remedied (through heat transfer), the condition will worsen. The internal battery temperature will continue to rise, causing the battery current to rise, thereby creating a domino effect. The rise in temperature in a single battery will begin to affect other batteries in its proximity, and the pattern will continue, thus the term "runaway" (Mitsubishi 2021).

There are extensive mitigations, codes and standards, and a comprehensive regulatory framework in place that apply to battery storage to ensure the risk is less than significant. However, even a less than significant risk, such as thermal runaway, could affect the overall reliability of the data center and the assurance that data would not be lost. Loss of data would be very significant for an operation whose topmost goal is protecting the data against loss and guaranteeing continuous and uninterruptable access to the data. Furthermore, if a single cell or cluster of the battery system fails, the entire project may be shut down for investigation. Once discharged, the batteries would require power to recharge; further design considerations would be needed to make this happen. Batteries have a lifetime of about 10 years. If the project's lifespan is 20 years, the batteries would have to be replaced at least once, adding to the project cost. If the project were expected to continue beyond 20 years, which is conceivable, additional replacements may be necessary.

Tandem Battery Storage Alternative

Staff considered a battery energy storage system in tandem (tandem BESS) with the proposed project's diesel-fired gensets. A tandem solution proposal would not be the first of its kind for a data center application, as previously mentioned. Such an option would allow the batteries to act as primary backup power for short outage durations, while the project's 44 diesel-fired gensets would provide backup power when outages are longer in duration and the batteries have been discharged.

For this project, the hypothetical tandem solution would include an approximately 100-MW-capacity BESS with a discharge capacity of 1370 MWh (approximately 100 MW with a discharge duration of approximately 13 hours) along with the 44 gensets. The battery system would supply backup power for a duration of approximately 13 hours and the 44 gensets would serve to back up the battery system once the batteries have been discharged until the electrical grid is restored. However, having a tandem solution would not reduce the number of gensets required for the project; again, the gensets would need to be sufficient to support data center load demands for longer outages if necessary. The battery system would require approximately 6,300 square feet of storage space.

Potential Feasibility Issues

The project site does not provide sufficient room for the proposed project and 6,300 square feet of battery storage for a tandem BESS. There is insufficient room around the building for an access road and battery storage.

Also, project cost would increase significantly with a 1370 MWh BESS configuration. Between 2015 and 2018, the average cost of utility-scale battery storage in the United States rapidly decreased from $2,152 to $625 per kWh. However, in 2019, the average cost of battery storage in California was $1,522 per kWh (EIA 2021). In addition, the required reliability would still need to be ensured. The electrical and electronic interface between the batteries and gensets would need to be tested to ensure operational reliability of at least 99.999 percent (DayZenLLC 2021a, Section 1.1).

As previously mentioned, once the batteries are discharged to the designed threshold, they would have to be recharged when grid service is restored. Since the proposed gensets would not be connected to the grid, to be able to recharge the batteries from the grid would require a redesign of the project's electrical connections. Alternatively, the batteries could be recharged using separate gensets designated for battery charging. This method is not preferable since it would require additional gensets on-site and fuel use, which would defeat the purpose of deploying batteries to reduce gensets and fuel consumption.

While there is currently a proposal for a tandem battery and diesel-fired gensets for a large-scale data center, each project is subject to different reliability requirements. What can work for one project may not work for another.

Additionally, although the 2022 update to the California energy code California Code of Regulations, (title 24, part 6, Building Energy Efficiency Standards, Nonresidential Photovoltaic and Battery Storage) requires battery storage systems when PV systems are required, this does not apply to data centers. The use of battery systems set forth in the California energy code update through its goals and primary functions is much different than that of large-scale data centers. Appendix JA12 of the updated code states that the primary function of the battery storage system is daily cycling for the purpose of load shifting, maximized solar self-utilization, and grid harmonization. The measure predicts that 100 MW of batteries will be installed in new nonresidential buildings in 2023 (Energy Code Update 2021, Section 3.2.2). Given this prediction, it is assumed that many small capacity batteries would be installed across many buildings with PV generation to reduce peak demand for a few hours.

The goal and primary function of battery systems for large-scale data centers with large capacity demand (99 MW) is not daily cycling, but to provide backup power during a grid electrical outage that may last many hours. The daily cycling of battery systems reduces the overall lifespan of the battery system, increases wear and tear, and may reduce battery system reliability. Also, the reliability requirements of small capacity batteries used for peak demand relief for limited duration is different than large capacity batteries used

as a backup power solution in large-scale data centers. Should a battery system of a building used for peak demand relief fail for any reason, the grid would still provide power to support the building's load. In contrast, if a single cell in a backup battery system fails, the whole system would be rendered inoperable and the battery system would need to be taken offline and inspected. Again, for a data center, such as the proposed project, the only backup energy in the event of a grid outage would be from its backup power source. The reliability of the project's backup power source is of utmost importance to ensure customers' data is not lost.

5.6.1.5 Decision to Eliminate These Alternatives from Further Consideration

The applicant's overall goal is to develop a state-of-the-art data center providing greater than 99.999 percent reliability for its customers, with mission-critical space to support their servers. One of the project objectives is to incorporate the most reliable and flexible form of backup electric generating technology considering commercial availability and feasibility, technical feasibility, and reliability. Biodiesel fuel, fuel cells, and battery storage alternatives were eliminated from further consideration as alternative technologies to the proposed project based on their infeasibility and/or lack of a sufficient level of proven reliability. Data center customers need the most reliable data storage service available, and data center insurers are willing to provide coverage only for proven technologies with an extremely low probability of operational failure.

5.7 Alternatives Selected for Analysis

The following alternatives are evaluated in this EIR:

- Alternative 1: No Project/No Build Alternative
- Alternative 2: Renewable Diesel Fuel
- Alternative 3: Natural Gas Internal Combustion Engines

Other than the No Project/No Build Alternative, which is required for analysis for every project, project alternatives were developed that could feasibly avoid or reduce the proposed project's potentially significant impacts. A comparative analysis of the impacts of these alternatives is below, followed by an assessment of the extent to which each alternative could meet the basic project objectives and an assessment of each alternative's feasibility.

The comparative analysis that follows is centered on impacts to air quality, public health, and GHG emissions. **Table 5-1**, below, compares the proposed project's impacts in each of these topic areas to those of each alternative. Impacts in other topic areas are not discussed, as staff found essentially no differences in other topic areas between the impacts identified under the proposed project and the impacts associated with the alternatives evaluated below.

As discussed in more detail below, the first alternative (No Project/No Build) would not meet the project objectives. The second and third alternatives (Renewable Diesel Fuel and Natural Gas Internal Combustion Engines, respectively) would not achieve the level of reliability required to ensure an uninterrupted power supply. (See the subsection above, "5.4 Reliability and Risk Factors," for further discussion of reliability.) It is assumed that the project site location would remain the same under the following alternatives.

5.7.1 Alternative 1: No Project/No Build Alternative

The project site is currently developed with a 115,000-square-foot office and warehouse building. Under the No Project/No Build Alternative, the development of the project site would not occur, and current conditions would continue at the site for an unknown period. As discussed in **Section 4.11 Land Use and Planning** in this EIR, the project site has a general plan land use designation of Light Industrial (ML), which "allows combinations of single and multiple users, warehouses, mini-storage, wholesale, bulk retail, gas stations, data centers, indoor auto-related uses and other uses that require large, warehouse-style buildings" (Santa Clara 2010). The project site is also zoned Light Industrial (ML), which "is intended to provide an optimum general industrial environment, and…is intended to accommodate industries operating substantially within an enclosed building" (Santa Clara 2021b). The proposed project is an allowable use in the ML land use designation and ML zoning district.

The site could eventually be approved for a use or uses consistent with these land use designations should the project not move forward. Although a different project would likely be proposed at the site in the future, no development plan exists to allow a comparison with CA3, and it would be speculative to assume the characteristics of such an alternative.

The No Project/No Build Alternative would avoid the proposed project's potentially significant impacts identified in this EIR (*no impact* compared to the proposed project). However, if the project is not constructed, the applicant's primary goal to develop a state-of-the-art data center, along with the basic project objectives, would not be attained.

5.7.2 Alternative 2: Renewable Diesel Fuel

Renewable diesel fuel is an alternative to conventional diesel fuel. It is not a fossil fuel and is made of nonpetroleum renewable resources (vegetable oil or other biomass feedstock such as wood, agricultural waste, garbage, etc.). Renewable diesel is produced through various thermochemical processes, such as hydrotreating, gasification, and pyrolysis (U.S. EIA 2021). It has the same chemical structure as conventional diesel and meets ASTM D975 specifications for conventional diesel in the United States (U.S. DOE 2020c). This makes renewable diesel a drop-in replacement for conventional diesel. Also, renewable diesel is a cleaner burning fuel alternative to conventional diesel that would be expected to meet the project objectives as a source of fuel for the gensets.

Under this alternative, the project would be developed the same as proposed, except it would use renewable diesel as the fuel source for the gensets. There would be no changes to the number, size, or placement of the gensets. The number of fuel deliveries would remain the same.

Air Quality and Public Health

Previous testing on engines used in motor vehicles without selective catalytic reduction (SCR) or diesel particulate filter (DPF) exhaust after treatment systems show that renewable diesel would have lower criteria air pollutant emissions than conventional, ultra-low sulfur diesel (ULSD) proposed to be used for the project. However, as shown in **Appendix D**, more recent testing on new technology diesel engines (NTDE) with SCR and DPF shows no statistically significant differences in NOx, particulate matter (PM), and total hydrocarbon emissions, but lower CO and CO_2 emissions using renewable diesel compared to CARB reference fuel.

However, the above conclusions are based on the limited testing done for much smaller engines than those proposed for the project. The above conclusions would need to be confirmed with testing under controlled conditions of the size of engines proposed for this facility, preferably using the same source test protocol used for engine certification.

Air quality and public health impacts using renewable diesel during project operations would likely be similar to those that would occur with the project. However, this conclusion would need to be confirmed by testing emissions under controlled conditions for the size of engines (equipped with DPFs and SCR) proposed for the project.

Greenhouse Gas Emissions

Compared to ULSD, renewable diesel would reduce CO_2 tailpipe emissions approximately 3 to 4 percent (**Appendix D**). However, renewable diesel is produced with a fuel cycle that has a far lower carbon intensity (CI) than ULSD. To have a more complete understanding of the impact of replacing ULSD with renewable diesel, it is necessary to examine the full fuel cycle of each fuel from origin to use. This is because GHGs have a global impact rather than a local impact.

Based on data from CARB's Low Carbon Fuel Standard (LCFS) program, staff computed the average amount of GHG reduction per million gallons of renewable diesel and used it as a factor to compute the fuel cycle emissions that would be avoided by switching from ULSD to renewable diesel. The results show that replacing the proposed ULSD with renewable diesel would reduce the project's readiness testing and maintenance GHG emissions from 3,387 metric tons of CO_2e ($MTCO_2e$) per year with ULSD by 2,280 $MTCO_2e$ per year, to annual emissions of 1,107 $MTCO_2e$ per year with renewable diesel.

Based on the limited information contained in **Appendix C**, using renewable diesel in place of ULSD would reduce the project's full fuel cycle GHG emissions associated with on-site fuel consumption during the operations period. However, renewable diesel still has some carbon associated with the fuel cycle because the CI values are not zero or

negative. Therefore, additional measures would be needed before an alternative fueled by renewable diesel could be considered a carbon-free facility. The comparative impact is *likely less* under this alternative.

While the project would meet BAAQMD GHG thresholds for the readiness testing and maintenance of the diesel backup generators with the implementation of **GHG-1**, the GHG emissions could be reduced further by using renewable diesel in place of petroleum-based diesel. Because of California's ambitious GHG reduction goals, staff concludes it is imperative that all feasible methods of carbon reduction be employed to ensure the project's GHG emissions are less than significant. Staff proposes **GHG-2** to require the project owner to use an increasing mix of renewable diesel to the maximum extent feasible, and only use ULSD as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. With **GHG-2**, the project's gensets would use renewable diesel to ensure that operation of the gensets would not hinder California's efforts to achieve the statewide 2030 or 2045 goals.

Potential Feasibility Issues and Attaining the Project Objectives

Renewable diesel fuel is not new but would be considered new for large-scale stationary equipment, such as the proposed project's gensets. The fuel is currently used in heavy-duty mobile engines and trucks. The city of Oakland and other cities surrounding the San Francisco Bay Area are using renewable diesel in their transportation fleet (Green Fleet 2021). While renewable diesel has been used in such applications, at this time there is no significant data regarding its use in large stationary engines, such as those for the proposed project.

The majority of renewable diesel consumed in California is primarily sourced and produced from overseas. Single-sourced production challenges fuel supply reliability and cost. If the source could no longer produce the fuel or other production and distribution issues arise, not the least of which are supply-chain issues, the project could face a supply shortage. Single-sourced products are quite often expensive, and for renewable diesel, the current cost is approximately two times that of conventional diesel. Distributors could mitigate these challenges by having a large supply on hand. In addition, new fuel supplies could increase in the future as more suppliers are added, such as Exxon Mobil, Bakersfield Renewable Fuels, Marathon Petroleum, and others (Biodiesel 2021). These future suppliers have announced plans for operation as early as 2022. At this point, the availability of a second source does not seem timely for the project to identify it as a feasible 100 percent replacement of conventional diesel fuel from the start of operation. However, in the foreseeable future, if and when more suppliers come online and the supply is plentiful, the project should revisit the feasibility of renewable diesel as the primary source of fuel. Staff has proposed mitigation measure **GHG-2** to reflect the increasing availability of renewable diesel over time.

Currently, there are LCFS credits available for mobile sources to use renewable diesel, making this fuel more financially viable; however, those credits are not currently available

for stationary sources. The extension of credits for non-mobile sources could result in an effective decrease to fuel cost for the project.

Data center customers demand the most reliable data storage service available, and data center insurers are willing to provide insurance coverage only for proven technologies with an extremely low probability of operational failure. Until a renewable diesel supply is more available and readily accessible and in the absence of a second source of renewable diesel, conventional diesel fuel is the most feasible backup fuel. This alternative could potentially attain the project objectives if a reliable fuel source could be obtained.

5.7.3 Alternative 3: Natural Gas Internal Combustion Engines

Natural gas internal combustion engines (ICEs) are fueled by natural gas, while the proposed engines for the project would use conventional diesel. Natural gas ICEs are available up to 18 MW each. Their physical dimensions range based on their MW capacity. For example, one of the natural gas ICEs from manufacturer Power Solution International (PSI) has a capacity of 445 kW and a nominal height of 12 feet. One of the natural gas ICEs manufactured by Innio has a capacity of 3 MW with a height for the genset assembly of 23 feet. As a point of reference, the height of the proposed genset assembly for the project is 27 feet. Under this alternative, the footprint of the natural gas ICEs may not be the same as for the proposed diesel gensets. The number of engines and associated equipment, height, fuel delivery, and on-site fuel storage would be different. It is assumed that the massing and locations of the data center buildings would be essentially the same as for the proposed project.

Data centers require a power generating solution with quick start times. The time it takes a natural gas ICE to begin carrying data center load from its power-off position (the moment the engine synchronizes to the bus bar) varies depending on the natural gas ICE's size and capacity. In the meantime, the UPS system can provide power to the data center. The startup time for the PSI natural gas ICEs and the Innio natural gas ICEs are fast enough that the proposed project's UPS system would not need to be redesigned.

The preferred, most feasible method to supply fuel for the natural gas ICEs would be by pipeline through Pacific Gas and Electric's underground natural gas transmission system. The two closest locations for independent natural gas pipeline connections are one adjacent to the project site on Walsh Avenue and one approximately 1.36 miles west of the project site on the Lawrence Expressway.[4] The project's primary pipeline would connect to the nearby gas line on Walsh Avenue. Another pipeline connecting to the gas line at Lawrence Avenue could also be installed to provide added reliability. It is assumed that new pipelines would be constructed along existing roadway rights-of-way and utility corridors. The natural gas pipeline trenches would be approximately 6 feet deep and 4 to 6 feet wide, with a minimum cover depth of 36 inches.

4 Along Walsh Avenue to Lawrence Expressway.

The installation of natural gas pipelines could cause temporary impacts during construction. Staff assumes that the implementation of the same mitigation and project design measures for the project would apply to pipeline construction impacts under this alternative (e.g., measures to reduce impacts on air quality, biological resources, water quality, noise, soil resources, transportation, and cultural and tribal cultural resources). This would reduce any potential impacts from gas pipeline construction to less than significant levels.

Air Quality and Public Health

Staff compared criteria air pollutant emissions and CO_2 emissions of natural gas ICEs against the proposed diesel-fired engines for CA3. The proposed 44 2.75-MW engines for the project would be equipped with SCR and DPFs to achieve compliance with Tier 4 emission standards. However, it takes time for the SCR to reach the activation temperature and become fully effective in controlling NOx emissions. Depending on load, the SCR would be expected to kick on within 15 minutes.

For the natural gas ICEs alternative, information is primarily based on the data provided for the San Jose Data Center (Jacobs 2021s) application. The natural gas ICEs for the San Jose Data Center would be equipped with a 3-way catalyst system to reduce emissions of NOx, CO, volatile organic compounds (VOC), and air toxics. The applicant for the San Jose Data Center also assumed 15 minutes of operation with uncontrolled emissions and 45 minutes of operation with controlled emissions to estimate hourly emissions (Jacobs 2021o).

Staff compared the emission factors in pounds per megawatt-hour (lbs/MWe-hr) for the proposed diesel-fired engines at CA3 and those for the natural gas ICEs proposed at the San Jose Data Center. Staff assumed the same 15-minute warm up period for the SCRs of the diesel engines and the 3-way catalyst system for the natural gas ICEs. As shown in **Table D-3** of **Appendix C**, the emission factors in lbs/MWe-hr for the NOx emissions would reduce by more than 98 percent using natural gas ICEs compared to the proposed diesel-fired engines for CA3. The PM emissions would reduce by more than 83 percent using natural gas ICEs compared to the proposed diesel-fired engines. The VOC emissions would reduce by about 46 percent using natural gas ICEs compared to the proposed diesel-fired engines. There would be less reduction in CO and sulfur dioxide (SO_2) emissions (about 11 percent reduction for CO and about 25 percent reduction for SO_2). Staff is unable to find data comparing air toxics emissions of natural gas ICEs with those for diesel-fired engines; however, these are expected to be reduced due to the reductions reported for VOCs and PM.

In addition, staff does not assume additional operation of the natural gas ICEs to offset the cost difference between the technologies and acknowledges that the capital cost of natural gas ICEs may be more expensive. Staff acknowledges that the operational profile may be different for the natural gas ICEs, and annual emissions may be higher since they may operate more based on other project applications. However, staff is not able to predict the exact number of operation hours and the associated emissions for the natural

gas ICEs in such a scenario since it is unknown how much grid support service would be provided. Therefore, staff only compares the emission factors in lbs/MWe-hour for the natural gas ICEs and those for the conventional diesel-fired engines for the proposed project, assuming a similar operating profile.

Air quality impacts using natural gas ICEs are expected to be *much less* than those that would occur with the proposed conventional diesel-fired engines for the project. Public health impacts from toxic air contaminants using natural gas ICEs are *likely less* than those that would occur with the proposed conventional diesel-fired engines for the project.

Greenhouse Gas Emissions

As shown in **Appendix C**, natural gas fueled ICEs would reduce GHG emissions by approximately 7 percent from conventional diesel-fired engines. When extending to the full fuel cycle, GHG emissions from natural gas ICEs fueled with pipeline natural gas produced from fossil feedstocks would be 20 percent lower than those from conventional diesel as indicated by the CI values. Moreover, natural gas feedstocks from some renewable feedstocks may have a much lower CI. The CI values of most renewable feedstocks are even negative, reflecting a net reduction in fuel cycle carbon emissions. The comparative impact is *likely less* under this alternative.

Fossil natural gas and some forms of renewable natural gas still have some carbon associated with the fuel cycle. These show up in the table for those fuels with a CI that is greater than zero. In these cases, additional measures could be needed before an alternative fueled by natural gas would be considered a carbon-free facility.

Potential Feasibility Issues and Attaining the Project Objectives

Natural gas ICEs are cleaner burning due to the type of fuel; however, the technology is not without feasibility issues. The project would employ 44 total backup gensets (including the four house gensets that serve administrative and emergency response functions). Depending upon the MW size of the natural gas ICE engine, more engines may or may not be needed.

There are two potential fuel supply methods: on-site storage and pipeline connection. On-site storage would require redesigning the project and would suffer from some feasibility issues. The project would need approximately 201 million gallons of natural gas storage to provide 24 hours of backup natural gas ICE operation, the same backup duration as the current proposal. Liquefied natural gas (LNG)[5] would minimize the storage

5 Natural Gas can be liquefied to 600 cubic meters times smaller than its volume in its gas state.

space, but the needed storage volume would still be substantially larger than that of diesel fuel.[6,7]

LNG would need to be stored and distributed with specialized equipment and stored in insulated tanks to keep the fuel in a liquid state at minus 260 degrees Fahrenheit. For LNG to remain at a constant temperature and pressure, it must allow for natural evaporation known as BOG. BOG is essentially a loss of stored fuel that occurs when the ambient temperature heats the insulated tanks. LNG must release this gas to maintain its liquid state. To mitigate the loss of fuel and gas release into the atmosphere, BOG can be reliquefied and put back into the LNG tank or used as fuel in certain marine applications, steam turbines, or in a gasification unit for creating alternative fuels. LNG would need to undergo a regasification process for the fuel to be used in natural gas ICEs. Both reliquefication and regasification would result in additional processes, equipment, and footprint.

Fuel storage, reliquefication, and regasification equipment must comply with standards specified by the National Fire Protection Association and the City Code to protect against hazardous material release, fire, and explosions during natural disasters and as the result of accidents. Additionally, permits for the storage of hazardous materials would be needed pursuant to the City Code.

The utility's underground pipeline transmission system would be the primary and preferred method of fuel supply, as discussed earlier. However, pipelines are susceptible to natural disasters (e.g., earthquakes) as well as accidents. This can potentially cut off fuel supply to the project during a grid outage. Access to the secondary pipeline 1.36 miles west of the project site on Lawrence Expressway would increase fuel supply reliability. The natural gas ICE alternative could potentially be feasible and attain the project objectives using the underground natural gas pipeline system.

5.8 Environmentally Superior Alternative

CEQA requires that if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(2)). Alternative 1, the No Project/No Build Alternative, is the environmentally superior alternative because it would avoid the potentially significant impacts of the proposed project. However, Alternative 1 would not meet any of the project objectives.

6 LNG calculated as: Approximate ICE Fuel Consumption 9,500 cubic feet per megawatt-hour x 118 MW (includes redundant engines) x 24 hours of backup duration = 26,904,000 cubic feet of natural gas = 201 million gallons

Conversion Cubic feet gas to liquid gallons: 26,904,000 cubic feet x 0.0283168 cubic meter gas x (1 cubic meter LNG / 600 cubic meter gas) x 264.172 liquid gallons = 335,426 gallons

7 Diesel volume for current proposal: Genset Fuel Consumption 191.8 gallons per hour x 44 gensets x 24 hours = 202,541 gallons

Staff compared the other alternatives to the proposed project and determined that each has some advantages in terms of reducing impacts. Staff examined the potential for the alternatives to meet most of the project's basic objectives. Staff's conclusions for the alternatives are summarized below, including discussions of whether the alternatives could attain the project objectives.

5.8.1 Alternative 2: Renewable Diesel Fuel

Air quality and public health impacts using renewable diesel during project operations would likely be similar to those that would occur under the proposed project. However, the conclusion would need to be confirmed with testing under controlled conditions for the size of engines proposed for this facility with DPFs and SCR being operative.

The GHG impacts from this alternative would likely be less than those of the project due to the reduced GHG emissions during the entire fuel cycle.

Staff considers Alternative 2 to be *somewhat environmentally superior* to the proposed project, although further study and analysis would be needed to fully compare this alternative to the proposed project. Changing the fuel source from conventional to renewable diesel would not require a project redesign or necessarily cause a schedule delay. Currently, however, the lack of LCFS fuel credits for non-mobile sources results in an effective increase to the cost of fuel for projects like CA3.

There are two options for the operation of a renewable diesel alternative. One option is to use renewable diesel as the primary source for the project, with conventional diesel as its backup fuel. The second option is to solely use renewable diesel. To only use renewable diesel, a second renewable fuel source should be available for reliability purposes. Future renewable diesel fuel suppliers have announced plans to provide additional fuel for California as early as 2022. If these plans are implemented and the supply becomes plentiful, the project owner should revisit the feasibility of fully replacing conventional diesel with renewable diesel.

If one of these options were fulfilled, this alternative could potentially attain the project objectives. Staff's proposed mitigation measure **GHG-2** implements a variation of this alternative by requiring the phase-in of renewable diesel fuel use over time as supply increases.

5.8.2 Alternative 3: Natural Gas Internal Combustion Engines

The GHG impacts of this alternative would likely be less than those of the CA3BGF due to the reduced GHG emissions during the entire fuel cycle. Also, criteria air pollutant emissions and air quality impacts using natural gas ICEs are expected to be much less than those that would occur with the project's gensets. Staff is not able to find data comparing the air toxics emissions of natural gas ICEs with those for diesel engines, but these are expected to be reduced due to the reductions reported for VOCs and PM. Therefore, public health impacts using natural gas ICEs would likely be less than those that would occur with the project's diesel engines.

Staff considers Alternative 3 to be *environmentally superior* to the proposed project due to its deep reductions in criteria air pollutants. Redesigning the project with natural gas ICE technology could increase the number of engines on-site depending upon the MW sizing and physical dimensions. As discussed earlier, two gas pipeline connections are available and likely needed to match the fuel supply reliability of the proposed project. Permitting and construction of the new pipelines would take time to complete.

Table 5-1 (below) summarizes the environmental effects for each alternative compared to the proposed project for the topics of air quality, public health, and GHG emissions. As discussed above, staff's comparative analyses for the other topics covered in this EIR show essentially no differences between the impacts identified under the proposed project and the alternatives selected for analysis.

TABLE 5-1 SUMMARY COMPARISON OF IMPACTS OF THE PROPOSED PROJECT TO THE ALTERNATIVES

Environmental Topics and Impacts	Proposed Project	No Project/No Build	Renewable Diesel Fuel	Natural Gas ICEs
Criteria air pollutants	LTS with Mitigation	No Impact	LTS with Mitigation (Likely Similar)	LTS with/without Mitigation (Much Less)
Toxic Air Contaminants (TACs)	LTS	No Impact	LTS (Likely Similar)	LTS (Likely Less)
GHG emissions	LTS with Mitigation	No Impact	LTS (Likely Less)	LTS with/without Mitigation (Likely Less)

Notes: Impact conclusions for the proposed project and the alternatives in **Table 5-1** are shown using these abbreviations:

No Impact = the proposed project or an alternative has no potential to affect the resource

LTS = less than significant impact, no mitigation required

LTS with Mitigation = mitigation measure(s) required to reduce a potentially significant impact to less than significant

The comparisons of impacts to the proposed project in **Table 5-1** are conveyed using these abbreviations (staff identified no impacts that would be greater than the proposed project):

- Much Less
- Less
- Likely Less (conclusion that is estimated and cannot be fully verified with available data)
- Likely Similar (conclusion that is estimated and cannot be fully verified with available data)

5.9 References

Air Liquide 2021 – Air Liquide. Fuel Cell. Accessed October 20, 2021. Available online at: https://energies.airliquide.com/resources-planet-hydrogen/fuel-cell

Biodiesel 2021 – Biodiesel Magazine (Biodiesel). Renewable Diesel's Rising Tide, January 2021. Accessed April 2021. Available online at: http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide

Data Center 2021 – Data Center Knowledge (Data Center). eBay Goes Live With its Bloom Powered Data Center, September 2013. Accessed April 19, 2021. Available online at: https://www.datacenterknowledge.com/archives/2013/09/26/ebay-goes-live-with-its-bloom-powered-data-center

DayZenLLC 2021a – DayZenLLC (DayZenLLC). (TN 237380). VDC CA3BGF SPPE Application Part I, dated April 5, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

EIA 2021 – U.S. Energy Information Administration (EIA). Today in Energy: Utility-scale battery storage costs decreased nearly 70% between 2015 and 2018, October 2020. Accessed on November 22, 2021. Available online at: https://www.eia.gov/todayinenergy/detail.php?id=45596

Energy Code Update 2021 – California Energy Commission (CEC). Nonresidential PV and Battery Storage Measure Proposal (TN 23776), May 2021. Accessed November 2, 2021. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=237776&DocumentContentId=71014

Farm Energy 2021 – Farm Energy (Farm Energy). Biodiesel Fuel Quality, April 2019. Accessed March 31, 2021. Available online at: https://farm-energy.extension.org/biodiesel-fuel-quality/

Fuel Cell 2021 – Fuel Cell Store (Fuel Cell). Processing Alternative Fuels for Fuel Cells, March 2019. Accessed April 19, 2021. Available online at: https://www.fuelcellstore.com/blog-section/processing-alternative-fuels-for-fuel-cells

GBGF 2021 – Gilroy Backup Generating Facility (GBGF). GBGF Revised Project Description – Addition of BESS Facilities (TN 239193). California Energy Commission Docket Number 20-SPPE-03. Docketed on August 5, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-SPPE-03

GenCell 2021 – GenCell (GenCell). Comparing Fuel Cell Technologies. Accessed April 19, 2021. Available online at: https://www.gencellenergy.com/news/compairing-fuel-cell-technologies/

GenFuel 2021 – GENFUEL (Plug Power). The 1MW Electrolyzer. Accessed October 20, 2021. Available online at: https://www.plugpower.com/wp-content/uploads/2020/10/2020_1MWELX_Spec051821_sm.pdf

GenSureHP 2021 – GENSURE (Plug Power). GENSURE HP Fuel Cells. Accessed October 20, 2021. Available online at: https://www.plugpower.com/wp-content/uploads/2020/08/GenSureHP_082021_R2.pdf

Green Fleet 2021 – Government Fleet (Green Fleet). What You Need to Know About Renewable Diesel, March 2016. Accessed March 29, 2021. Available online at: https://www.government-fleet.com/156621/what-you-need-to-know-about-renewable-diesel

Hydrogen 2021a – Internet Archive. Hydrogen as an Alternative Fuel. Accessed October 19, 2021. Available online at: https://web.archive.org/web/20080808053811/http://www.almc.army.mil/alog/issues/MayJun00/MS492.htm

Hydrogen 2021b – Office of Energy Efficiency & Renewable Energy (EERE). Hydrogen Production: Electrolysis. Accessed October 19, 2021. Available online at: https://www.energy.gov/eere/fuelcells/hydrogen-production-electrolysis

Hydrogen Properties 2021 – Office of Energy Efficiency & Renewable Energy (EERE). Module 1: Hydrogen Properties. Accessed October 20, 2021. Available online at: https://www1.eere.energy.gov/hydrogenandfuelcells/tech_validation/pdfs/fcm01r0.pdf

Jacobs 2021o – Jacobs (Jacobs). (TN 239409). SJC Data Center SPPE Application Supplemental Filing Volume 1, dated August 20, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-04

Jacobs 2021s – Jacobs (Jacobs). (TN 239413). SJC Data Center SPPE Application Supplemental Filing Appendix Air - Traffic, Part 1, dated August 20, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-04

Microsoft 2021 – Microsoft. Fuel Cells for Data Centers. By Li Zhao. February 2016. Accessed in March 2021. Available online at: https://www.microsoft.com/en-us/research/wp-content/uploads/2016/02/FCDC-TechReport.pdf

Mitsubishi 2021 – Mitsubishi. What is Thermal Runaway. 2021. Accessed in December 2021. Available online at: https://www.microsoft.com/en-us/research/wp-content/uploads/2016/02/FCDC-TechReport.pdf

NREL 2021 – National Renewable Energy Laboratory (NREL). A Comparison of Fuel Choice for Backup Generators, March 2019. Accessed January 2021. Available online at: https://www.nrel.gov/docs/fy19osti/72509.pdf

Power Magazine 2021 – Power Magazine (Power Magazine). Vistra Energizes Massive 1.2-GWh Battery System at California Gas Plant. By Sonal Patel. January 14, 2021. Accessed in March 2021. Available online at: https://www.powermag.com/vistra-energizes-massive-1-2-gwh-battery-system-at-california-gas-plant/

Santa Clara 2010 – City of Santa Clara (Santa Clara). *City of Santa Clara General Plan 2010-2035*. Adopted on November 16, 2010. Chapter 3, pg. 3-17; Chapter 5, pgs. 5-14, 5-39, 5-67; Table 8.3-1. Accessed on July 7, 2021. https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan

Santa Clara 2021b – City of Santa Clara (Santa Clara). Santa Clara City Code. Current through Ordinance 2029, passed February 23, 2021. Accessed on July 7, 2021. Available online at: https://www.codepublishing.com/CA/SantaClara/

UNESCO 2021 – United Nations Educational, Scientific, and Cultural Organization (UNESCO). World Water Assessment Programme, 2017. Accessed March 2021. Available online at: http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/facts-and-figures/all-facts-wwdr3/fact-7-water-biofuel/

U.S. DOE 2020a – U.S. Department of Energy (U.S. DOE). U.S. DOE Office of Energy Efficiency and Renewable Energy. Types of Fuel Cells. Accessed October 2020. Available online at: https://www.energy.gov/eere/fuelcells/types-fuel-cells

U.S. DOE 2020b – U.S. Department of Energy (U.S. DOE). U.S. DOE Office of Energy Efficiency and Renewable Energy. Hydrogen Pipelines. Accessed February 2021. Available online at: https://www.energy.gov/eere/fuelcells/hydrogen-pipelines

U.S. DOE 2020c – U.S. Department of Energy (U.S. DOE). U.S. DOE Office of Energy Efficiency and Renewable Energy. Alternative Fuels Data Center. Accessed February 2021. Available online at: https://afdc.energy.gov/fuels/emerging_hydrocarbon.html

U.S. EIA 2021 – U.S. Energy Information Administration (U.S. EIA). Biofuels Explained. Accessed April 2021. Available online at: https://www.eia.gov/energyexplained/biofuels/

ZDNet 2021 – ZDNet (ZDNet). Data centers want to be a lot greener. One big problem is holding them back. Accessed April 2021. Available online at: https://www.zdnet.com/article/data-centers-want-to-be-a-lot-greener-one-big-problem-is-holding-them-back/

Section 6

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6 Authors and Reviewers

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Section 7

Response to Comments

7 Response to Comments

7.1 Introduction

This section presents responses to the comments received during the 45-day public review period for the Draft Environmental Impact Report (EIR) (January 24, 2022, through March 9, 2022). A Notice of Availability of the Draft EIR (DEIR) was sent out to the project's mailing list. The California Energy Commission (CEC) received comment letters from *Andrew Ratermann, the Bay Area Air Quality Management District, and the project applicant, Vantage Data Centers.*

Table 7-1 presents the list of commenters that submitted comments on the EIR. The individual comments are numbered, and responses immediately follow the comments. If revisions have been made to the EIR based on the comments, the revisions are included in the text of this Final EIR with ~~strikeout~~ for deletions of text, and in <u>underline</u> for new text. The response references the general location of the revisions.

TABLE 7-1 COMMENTS RECEIVED ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

Commenter	Date of Comment	Comment Set
Andrew Ratermann	February 3, 2022	A
Vantage Data Centers	March 7, 2022	B
Bay Area Air Quality Management Agency	March 9, 2022	C

7.2 Comment Letters and Responses

Staff's responses follow each comment letter.

Comments Set A: Andrew Ratermann

Comment Received From: Andrew Ratermann
Submitted On: 2/3/2022
Docket Number: 21-SPPE-01

Noise

The environmental impact report addresses construction noise, but not noise generated by operations. There have already been anecdotal complaints about the noise generated by Vantage on social media. I would like to know if the project is expected to generate noise during operation, the level of anticipated noise, and any mitigations planned.

Responses to Comments Set A: Andrew Ratermann

A-1 Staff addresses the project's noise levels during operations on page 4.13-5 through 4.13-7 in **Section 4.13 Noise** of the DEIR (TN# 241264).

Noise modeling was performed for two scenarios: "normal" and "worst-case." Normal operation would primarily consist of the continuous operation of the heating, ventilation, and air conditioning equipment and other air-handling units. The worst-case modeled scenario, under CadnaA, consists of the simultaneous operation of the project in normal mode along with 12 of the emergency backup generators closest to the nearest noise receptors. This scenario is only intended for modeling the worst-case noise impact on the adjacent properties and not the typical noise levels during testing and maintenance since the emergency backup generators would be tested one at a time. The noise generated during the worst-case scenario would be higher than that during testing and maintenance.

As described on page 4.13-5 of the DEIR, the noise model included adequate mitigation measures that would be incorporated in the project during equipment installation. These measures include exhaust silencing and acoustically enhanced enclosures for the emergency backup generators; sound silencing and solid barriers for the heating, ventilation, and air conditioning, and chiller equipment; 15-foot-tall walls to surround the substation; and locating the emergency backup generators on the opposite side of the data center building away from the nearby residences.

The CadnaA modeling results show that for the normal mode of operation, the noise level at the residential receptor would be anticipated to reach a maximum of 50 dBA L_{eq} (DayZenLLC 2021e, Table 4.13-9). This is below the daytime and nighttime ambient noise levels of 59 dBA and 53 dBA, respectively, at the nearby residential area. At the same location, the project's 50 dBA sound level is below the city of Santa Clara's City Code daytime noise level limit of 55 dBA and does not exceed the City Code nighttime level of 50 dBA L_{eq}. The project's noise level at the nearby industrial receptor would not exceed 56 dBA L_{eq}. This is below the ambient level of 59 dBA L_{eq} at this location and below the City Code noise level limit of 70 dBA L_{eq} for ML uses (DayZenLLC 2021e, Table 4.13-9).

The results of the CadnaA computer modeling also show that during the worst-case scenario, the modeled equivalent continuous sound level (L_{eq}) at the residential receptors would reach a maximum of 50 dBA. This is the same as normal operation because the emergency backup generators are located on the opposite side of the data center building, away from these residences; this distance ensures that the increased noise resulting from the increased number of engines operating would not result in an increase in noise at the residences. A 50 dBA noise level is below the daytime and nighttime ambient noise levels of 59 and 53 dBA, respectively.

Additionally, it is below the City Code daytime residential noise level limit of 55 dBA L_{eq} and does not exceed the City Code nighttime limit of 50 dBA L_{eq}. Note that this would be due to emergency operation and is, therefore, exempt from the City Code noise limits. As discussed further in Section **4.3 Air Quality**, emergency operation is expected to be unlikely, infrequent, and of short duration if it does occur (TN# 241264, Section 4.3). The project's noise level at the nearby industrial receptor would not exceed 70 dBA, the City Code limit for Light Industrial zoned uses (DayZenLLC 2021e, Table 4.13-10).

The additive value of the lowest existing ambient noise level of 53 dBA and the project's maximum normal and worst-case operational noise level of 50 dBA would only increase the existing ambient noise level at the nearest residences by two dBA. An increase of less than three dBA is not noticeable (TN# 241264, Section 4.13, page 4.13-2). The operational noise control measures described above and planned to be installed for the project would be sufficient to avoid project neighbors' exposure to significant noise. The project's noise levels during operation would result in a less than significant impact.

Comments Set B: Vantage Data Centers

Scott A. Galati
DAYZEN LLC
1720 Park Place Drive
Carmichael, CA 95608
(916) 900-8026

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO: 21-SPPE-1**
Application For Small Power Plant Exemption for the **CA3 BACKUP GENERATING FACILITY**	**VDC's COMMENTS ON DRAFT ENVIRONMENTAL IMPACT REPORT**

Vantage Data Centers (VDC) hereby files its Comments on the Draft Environmental Impact Report (DEIR) published by Staff on January 21, 2022 (TN 241264) for the CA3 Backup Generating Facility (CA3BGF) and CA3 Data Center (CA3DC).

VDC agrees with the analysis, conclusions and proposed Mitigation Measures of the DEIR with the following proposed modifications. Additions are shown in **bold and underline** and deletions are shown in ~~strikethrough~~.

Pages 1-20 and 4.8-32, Mitigation Measure GHG-3

VDC requests the following modifications to Mitigation Measure **GHG-3** to allow the same flexibility for achieving carbon-free electricity as other projects that have been granted an SPPE from the Commission.

> **GHG-3:** The project owner shall ensure that 100 percent of the electricity purchased to power the project is covered by carbon-free resources using one of the following options: (1) participate in SVP's LCRE program for 100 percent carbon-free electricity **or other renewable energy program that accomplishes the same objective as SVP's LCRE program**, or (2) purchase **renewable energy credits** ~~carbon offsets~~ or similar instruments

1

that accomplish the same goals of 100 percent carbon-free electricity. The project owner shall provide documentation to the director, or director's designee, of the city of Santa Clara Planning Division of enrollment and annual reporting of continued participation in SVP's LCRE program with 100 percent carbon-free electricity coverage. If not enrolled in SVP's LCRE Program, the project owner shall provide documentation and annual reporting to the director, or director's designee, of the city of Santa Clara Planning Division that confirms that alternative measures achieve the same 100 percent carbon free electricity as SVP's LCRE program, with verification by a qualified third-party auditor specializing in greenhouse gas emissions.

Page 4.7-6, Geology and Soils

The reference to 210,000 cubic yards of imported fill should be deleted and replaced with the following:

It is possible that up to 10,000 cubic yards of soil and undocumented fill would be removed from the site. Grading of the site is not expected to require the import of fill material.

Dated: March 7, 2022

Respectfully Submitted,

Scott A. Galati
Counsel to Vantage Data Centers

Responses to Comments Set B: Vantage Data Centers

B-1 *Vantage Data Centers requests the following modifications to Mitigation Measure GHG-3 to allow the same flexibility for achieving carbon-free electricity as other projects that have been granted an SPPE from the Commission.*

GHG-3: The project owner shall ensure that 100 percent of the electricity purchased to power the project is covered by carbon-free resources using one of the following options: (1) participate in SVP's LCRE program for 100 percent carbon-free electricity **or other renewable energy program that accomplishes the same objective as SVP's LCRE program**, or (2) purchase **renewable energy credits** ~~carbon offsets~~ or similar instruments that accomplish the same goals of 100 percent carbon-free electricity…

Staff response:

Staff agrees with the applicant's proposed changes to mitigation measure **GHG-3** to allow the applicant flexibility for achieving carbon-free electricity through another renewable energy program that accomplishes the same objective as Silicon Valley Power's Low-Carbon Renewable Energy program. Staff also agrees with the proposal to change *carbon offsets* to *renewable energy credits.* Staff had intended the reference to "carbon offsets or similar instruments" to also encompass renewable energy credits and does not object to the applicant narrowing the provision to just renewable energy credits. The Final EIR includes revisions to mitigation measure **GHG-3** on page 4.8-32 and text on pages 4.8-7, 4.8-26, 4.8-27, and 4.8-31 in **Section 4.8 Greenhouse Gas Emissions** and on pages 1-13 and 1-14 in **Section 1.0 Summary** to reflect the applicant proposed changes. These are minor clarifications to the mitigation measure and do not trigger any need under CEQA Guidelines section 15088.5 or any other provision to recirculate the document.

B-2 *Vantage Data Centers notes the reference to 210,000 cubic yards of imported fill should be deleted and replaced with the following:*

It is possible that up to 10,000 cubic yards of soil and undocumented fill would be removed from the site. Grading of the site is not expected to require the import of fill material.

Staff response:

Staff acknowledges and agrees with the substitution of language on page 4.7-6 in **Section 4.7 Geology and Soils** to correct for specific site circumstances. This is a minor clarification and does not trigger any need under CEQA Guidelines section 15088.5 or any other provision to recirculate the document. The corrected paragraph reads as follows:

Construction of the Project would occur in phases. ~~Roughly 210,000 cubic yards of fill would be imported to the site to raise the base elevation by approximately four~~

~~feet (1.5 feet above the base flood elevation).~~ **It is possible that up to 10,000 cubic yards of soil and undocumented fill would be removed from the site. Grading of the site is not expected to require the import of fill material.** Excavation for utilities would extend to depths of up to 15 feet below the new base elevation (about 11 feet below existing grade) (DayZenLLC 2021a). However, this trenching would most likely occur within the Quaternary age upper clay layer (DayZenLLC 2021a).

Comments Set C: Bay Area Air Quality Management District (BAAQMD)

March 8, 2022

Lisa Worrall
Senior Environmental Planner
California Energy Commission
715 P Street, MS 40
Sacramento, CA 95814

RE: CA3 Backup Generating Facility - Vantage Draft Environmental Impact Report

Dear Ms. Worrall,

Bay Area Air Quality Management District (Air District) staff has reviewed the Draft Environmental Impact Report (DEIR) for CA3 Backup Generating Facility - Vantage (Project). The Project proposes to construct an approximately 468,000-square-foot four-story data center building at 2590 Walsh Avenue, Santa Clara, California. The Project includes a total of forty-four (44) 2.75-megawatt (MW) diesel fired generators that will be used exclusively to provide up to 96 MW of backup emergency generation to support the data center. Forty (40) of the generators would be dedicated to replacing the electricity needs of the data center in case of a loss of utility power, and four (4) of the generators would be used to support redundant critical cooling equipment and other general building and life safety services. Vantage Data Services is seeking a Small Power Plant Exemption (SPPE) from the California Energy Commission's (CEC) jurisdiction to proceed with local approval rather than requiring certification by the CEC.

The Project is situated in the South 101 neighborhood, an area which CalEPA's CalEnviroScreen tool indicates experiences high levels of diesel particulate matter (DPM), a toxic air contaminant. This area also already has three large data centers and chip manufacturers located in the neighborhood. As such, the Air District is concerned about air pollution emissions or exposures impacting the nearby community.

Emission Calculation and Methodology

The DEIR discussion of the Air District's analysis of data center diesel engine operations concludes that emergency operations "...would be speculative due to the infrequent, irregular, and unplanned nature of emergency events. Emissions and impacts during emergency operation are not easily predictable or quantifiable... project's emergency operation would be unlikely to expose sensitive receptors to substantial concentrations of criteria air pollutants." The Air District remains concerned about the environmental impacts associated with using backup diesel generators in non-testing/non-maintenance operations. The Air District has previously submitted historical evidence in our California Energy Commission - CA3

Data Center NOP letter that backup generators operate for non-testing/non-maintenance reasons, and we continue to recommend that this information should be incorporated into the emissions calculations for backup generator operations. Although the DEIR rightfully notes that emergency operations are less predictable than maintenance and testing, the evidence from historical operations should not be discounted and dismissed, but rather should be incorporated into the analysis to show various potential scenarios of backup power generation operations beyond routine testing and maintenance. Backup generators are operating more frequently than previously understood because of climate change induced crises and grid operational challenges, and as such, it is critical to consider the impacts of operating the emergency backup diesel generators. Air District staff recommend that the DEIR evaluate greenhouse gas (GHG), criteria pollutant, and toxic air contaminant (TAC) impacts due to the non-testing/non-maintenance operations of backup power generators. Various scenarios should be considered for non-testing/non-maintenance operations, including non-zero hours of operation and concurrent generator operations.

Additionally, the DEIR assumes a maximum operating limit for testing/maintenance of 35 hours per year averaged over all engines to determine the Project's operational potential to emit. To be the most health protective and transparent, the Project needs to clarify how this 35 hour per year limit will be enforced, for example through a lease agreement or voluntarily permit limits, otherwise the Project should model emissions for all of the generators assuming the 50 hour per year testing/maintenance operations limit regulated under the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (CCR, Title 17, Section 93115).

The Air District does not support the use of Emission Reduction Credits to offset NOx emissions to mitigate CEQA related impacts. Such banked emissions credits may have resulted from past and/or non-local sources, and do not reduce current local impacts. The use of Emission Reduction Credits is allowed in the Air District's New Source Review program, which is intended for no net emission increase in the whole Bay Area air basin. As CEQA mitigation for a specific project, the order of priority for mitigations to reduce impacts should be: 1) onsite to the maximum extent possible; 2) off-site within the community; 3) off-site within San Jose; 4) off-site within Santa Clara County. Only if no other mitigations are available should Emissions Reduction Credits be considered.

Cumulative Impact Analysis

The DEIR concludes that the Project exceeds the District's cumulative health risk thresholds but would not cause cumulatively considerable impacts, as the Project is estimated to only make up ~8% of the cumulative risk. The Air District notes that, based on the DEIR's conclusion that the Project cumulative analysis exceeds the District's cumulative health risk thresholds, the Project would contribute to cumulative impacts. In addition to the Project's contribution, Vantage owns and operates another data center within the area, at 2625 Walsh Avenue, and the Project would be the fourth data center within a quarter mile radius. Given the accumulation of health risk from the Project, other data centers, and other nearby sources, Vantage Data Services should implement mitigations including, but not limited to:

- Incorporate additional alternative technologies such as solar, battery storage and/or fuel cells, or utilize natural gas engines in place of diesel generators. As the DEIR concludes that Project Alternative 3, which includes natural gas engines, is feasible as well as environmentally superior to the proposed Project, the Air District recommend that these alternatives be incorporated into the Project.

Construction Emissions and Mitigations

The DEIR states that construction-related emissions were found to be less than significant with mitigations and that the Project will apply Air District best management practices (BMP) to control fugitive dust emissions. The Air District recommends that additional measures beyond the standard BMPs be added to help reduce particulate matter emissions. The following additional mitigation measures should be included into mitigation measure "AQ-1" to further address construction-related impacts:

- All off-road equipment greater than 25 horsepower (hp) shall have engines that meet or exceed Tier 4 final off-road emission standards. Use of zero-emission and hybrid-powered equipment is encouraged.
- All on-road trucks used for material delivery or hauling shall have engines that meet or exceed 2014 CARB emissions standards.
- Where grid power is available, portable diesel engines should be prohibited.
- Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed construction areas. Wind breaks should have at maximum 50 percent air porosity.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour (mph).
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.

Certain aspects of the Project may require a permit from the Air District (for example, back-up diesel generators). Please contact Barry Young, Senior Advanced Projects Advisor, at (415) 749-4721 or byoung@baaqmd.gov to discuss permit requirements. Any applicable permit requirements should be discussed in the EIR.

We encourage the CEC to contact Air District staff with any questions and/or to request assistance during the environmental review process. If you have any questions regarding these comments, please contact Matthew Hanson, Environmental Planner II, at mhanson@baaqmg.gov (415) 749-8733 or Amy Dao, Senior Environmental Planner, at adao@baaqmd.gov (415) 749-4933.

Sincerely,

Greg Nudd
Deputy Air Pollution Control Officer

cc: BAAQMD Director Margaret Abe-Koga
BAAQMD Director Cindy Chavez
BAAQMD Director Rich Constantine
BAAQMD Director Rob Rennie

Responses to Comments Set C: Vantage Data Centers

C-1 *The Project is situated in the South 101 neighborhood, an area which CalEPA's CalEnviroScreen tool indicates experiences high levels of diesel particulate matter (DPM), a toxic air contaminant. This area also already has three large data centers and chip manufacturers located in the neighborhood. As such, the Air District is concerned about air pollution emissions or exposures impacting the nearby community.*

Staff response:

Staff understands BAAQMD's concern about air pollution emissions and exposures impacting the nearby community. The DEIR addressed the air quality and public health impacts of the project based on 2017 BAAQMD CEQA Guidelines. The DEIR included the cumulative health risk assessment (HRA) to assess associated community health risks and hazards impacts of the proposed project with nearby cumulative sources. Staff's cumulative HRA included existing stationary sources, surrounding highways, main streets, railways, and the proposed project. As stated in the response to comment **C-5** below, staff's cumulative HRA did include nearby data centers: Vantage Data Centers at 2625 Walsh Avenue, CoreSite at 2901 Coronado Drive, and Cyxtera Communications LLC at 2401 Walsh Avenue for the Maximally Exposed Individual Sensitive Receptor (MEISR) since they fall into the 2,000-foot radius and for the other receptors if they fall into the 1,000-foot radius.

C-2 *The DEIR discussion of the Air District's analysis of data center diesel engine operations concludes that emergency operations "…would be speculative due to the infrequent, irregular, and unplanned nature of emergency events. Emissions and impacts during emergency operation are not easily predictable or quantifiable… project's emergency operation would be unlikely to expose sensitive receptors to substantial concentrations of criteria air pollutants." The Air District remains concerned about the environmental impacts associated with using backup diesel generators in non-testing/non-maintenance operations. The Air District has previously submitted historical evidence in our California Energy Commission - CA3 Data Center NOP letter that backup generators operate for non-testing/non-maintenance reasons, and we continue to recommend that this information should be incorporated into the emissions calculations for backup generator operations. Although the DEIR rightfully notes that emergency operations are less predictable than maintenance and testing, the evidence from historical operations should not be discounted and dismissed, but rather should be incorporated into the analysis to show various potential scenarios of backup power generation operations beyond routine testing and maintenance. Backup generators are operating more frequently than previously understood because of climate change induced crises and grid operational challenges, and as such, it is critical to consider the impacts of operating the emergency backup diesel generators. Air District staff recommend*

that the DEIR evaluate greenhouse gas (GHG), criteria pollutant, and toxic air contaminant (TAC) impacts due to the non-testing/non-maintenance operations of backup power generators. Various scenarios should be considered for non-testing/non-maintenance operations, including non-zero hours of operation and concurrent generator operations.

Staff response:

Starting from page 5 in **Appendix B**, the DEIR provides a detailed analysis of the "non-testing/non-maintenance" engine operations data provided by the BAAQMD. On page 11 of **Appendix B** in the DEIR staff reviewed the information gathered by BAAQMD and concluded that this information confirms that these types of events remain infrequent, irregular, and unlikely, and the resulting emissions are not easily predictable or quantifiable. The information does not show that these facilities operate significantly more than staff previously analyzed in the grid reliability context in prior cases.

The issue of the emergency operation of this facility in general is thoroughly analyzed in the DEIR, with detailed discussions of the potential for emergency situations that could trigger the emergency use of the emergency backup generator engines. Staff's conservative evaluation of the project's emissions and impacts of toxic air contaminants also reflected the potential emissions and impacts during emergency operation, as explained in **Section 4.3 Air Quality**, on page 4.3-8 in the DEIR.

However, as stated on page 4.3-8 in the DEIR and discussed in more detail starting from page 4.3-41 in the DEIR, the air quality impacts, especially the short-term (1-hour, 8-hour, and 24-hour) impacts, of emergency backup generator operation during emergencies are not quantified because the impacts of emergency operations are typically not evaluated during facility permitting and local air districts do not normally conduct an air quality impact assessment of such impacts. CEC staff assessed the likelihood of emergency events but finds that assessing the air quality impacts of emergency operations would require a host of unvalidated, unverifiable, and speculative assumptions about when and under what circumstances such a hypothetical emergency would occur. Such a speculative analysis is not required under CEQA (CEQA Guidelines, CCR, tit.14, §§ 15064(d)(3) and 15145), and, most importantly, would not provide meaningful information by which to determine project impacts. If emergency operation becomes a more frequent occurrence and more data is gathered regarding when and how these facilities operate during emergency situations, this conclusion might change.

There is no clear significance threshold to apply to emergency operations, and no state or local agency has adopted thresholds for use in evaluating emergency situations. Staff continues to believe that the best indicator that this project will not result in a significant adverse impact to air quality from emergency operations

is the continued infrequency of such events and the fact that in the rare instances when they do occur, they are of limited duration.

In addition, the California Air Resources Board (CARB) and BAAQMD have previously indicated that a project's use of Tier 4 engines is a significant step towards reducing these emissions. On December 14, 2020, the CARB and BAAQMD issued a joint recommendation letter for the Sequoia Backup Generating Facility[1] stating that: "…Tier 4 engines would further reduce this project's potential emissions, most critically during those rare occasions the project may have to run more than one engine at a time. CARB and BAAQMD agree the use of Tier 4 engines is adequate in this case and, given the circumstances, further modeling of emissions may not be necessary if the project applicant agreed to this project change." Staff expects that the same recommendation applies to the CA3 Backup Generating Facility, which would also meet Tier 4 emissions standards.

C-3 *Additionally, the DEIR assumes a maximum operating limit for testing/maintenance of 35 hours per year averaged over all engines to determine the Project's operational potential to emit. To be the most health protective and transparent, the Project needs to clarify how this 35 hour per year limit will be enforced, for example through a lease agreement or voluntarily permit limits, otherwise the Project should model emissions for all the generators assuming the 50 hour per year testing/maintenance operations limit regulated under the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (CCR, Title 17, Section 93115).*

Staff response:

The applicant's response to staff's data request[2] states their intent to seek an air district permit limitation on total oxides of nitrogen (NOx) emissions equivalent to 35 hours per year per engine of readiness testing and maintenance. Staff considers this to be part of the project description and expects the BAAQMD would include that condition in the applicant's air district permit as well as enforce that readiness testing and maintenance limit in the applicant's BAAQMD permit. A previous example of a BAAQMD permit condition on reliability-related testing for the China Mobile data center can be seen in the Report of Conversation between CEC staff and BAAQMD staff in the Great Oaks South Backup Generating Facility

[1] California Air Resources Board Comments - CARB-BAAQMD Joint Recommendation (TN 235939), Sequoia Data Center, dated December 14, 2020. Available Online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=235939&DocumentContentId=68933.

[2] Response to Data Request 9 in VDC Initial Responses to CEC Data Request Set 2 - CA3BGF (TN 238970), dated July 22, 2021. Available Online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=238970&DocumentContentId=72391.

proceeding.[3] The inspectors at BAAQMD would review the compliance records showing reliability-related testing hours when conducting onsite inspections.

In addition, other data center project applicants previously have stated that routine testing and maintenance would rarely exceed 12 hours per year. Staff has concluded the project would be able to comply with the limit of 35 hours of readiness testing and maintenance per year per engine.

C-4 *The Air District does not support the use of Emission Reduction Credits to offset NOx emissions to mitigate CEQA related impacts. Such banked emissions credits may have resulted from past and/or non-local sources, and do not reduce current local impacts. The use of Emission Reduction Credits is allowed in the Air District's New Source Review program, which is intended for no net emission increase in the whole Bay Area air basin. As CEQA mitigation for a specific project, the order of priority for mitigations to reduce impacts should be: 1) onsite to the maximum extent possible; 2) off-site within the community; 3) off-site within San Jose [sic]; 4) off-site within Santa Clara County. Only if no other mitigations are available should Emissions Reduction Credits be considered.*

Staff response:

The Emission Reduction Credits (ERCs) are required by BAAQMD Regulation 2 Rule 2 and should not be considered mitigation in this context. In preparing **Section 4.3 Air Quality** of the DEIR, staff followed the BAAQMD's May 2017 CEQA guidance document,[4] which has a five-step process for analyzing impacts. Specifically, Table 4-1 of the guidance lists a process wherein the analysis considers emissions quantification (Step 2) followed by a comparison of the project's impact with the thresholds (Step 3), then mitigation is added (Step 4), and finally mitigated project emissions are compared to the thresholds (Step 5). This is the process used by staff to prepare **Table 4.3-6** of the DEIR.

In emissions quantification (Step 2), the BAAQMD recommends that the methodology used to estimate stationary-source emissions be consistent with calculations that would need to be performed to fulfill the requirements of the permitting process. This means that the quantification reflects the effects of implementing Best Available Control Technology (BACT) and surrendering offsets through BAAQMD permitting. The BAAQMD CEQA guidance document specifically allows for the use of ERCs to offset facility emissions as follows:

[3] ROC with Xuna Cai, BAAQMD re China Mobile Data Center (TN 237298), Great Oaks South Backup Generating Facility Small Power Plant Exemption, dated March 25, 2021. Available Online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=237298&DocumentContentId=70480

4 Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, dated May 2017. Available Online at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

> "*Stationary sources may also be required to offset their emissions of criteria air pollutants and precursors to be permitted. This may entail shutting down or augmenting another stationary source at the same facility. Facilities also may purchase an emissions reduction credit to offset their emissions. Any stationary source emissions remaining after the application of BACT and offsets should be added to the indirect and area source emissions estimated above to arrive at total project emissions.*"

This process was used to determine whether the project would result in a cumulatively considerable net increase of any criteria pollutant for which the project's region is in nonattainment for an applicable federal or state ambient air quality standard. In the comparison of project emissions with the thresholds (Step 3), staff finds no mitigation requirements for NOx beyond the need to surrender ERCs.

The criteria pollutants that are classified nonattainment for the project location are ozone and particulate matter (PM). The project is in an area that attains nitrogen dioxide (NO_2) standards, and an applicant would not need to otherwise mitigate project-related direct impacts unless readiness testing and maintenance results in significant impacts. Page D-47 in Appendix D of the BAAQMD CEQA guidance document states that BAAQMD based its criteria pollutant significance thresholds for NOx emissions on ozone precursors.[5] Ozone is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and NOx. ERCs obtained to reduce the project's NOx emissions to below BAAQMD thresholds would ensure that the project does not significantly contribute to regional ozone exceedances.

The comment letter also states that, as CEQA mitigation for a specific project, the order of priority for mitigation to reduce impacts should be: "1) onsite to the maximum extent possible; 2) off-site within the community; 3) off-site within San Jose [sic]; 4) off-site within Santa Clara County." The onsite emissions would be controlled through selective catalytic reduction (SCR) and diesel particulate filters (DPF) to achieve compliance with Tier 4 emissions standards, which would meet the current BAAQMD BACT requirements and is consistent with the BAAQMD's May 2017 CEQA guidance document. In addition, as described in **Section 4.8 Greenhouse Gas Emissions**, the project would comply with all applicable city and state green building standards measures, including California Code of Regulations, title 24, part 6, baseline standard requirements for energy efficiency, based on the 2019 Energy Efficiency Standards requirements, and the 2019 California Green Building Standards Code, commonly referred to as CALGreen (CCR, title 24, part 11). The project would also use recycled water for mechanical cooling and for landscaping and use water efficient landscaping with low-water

[5] Id.

usage plant material to minimize irrigation requirements. These onsite measures would reduce emissions in a manner consistent with those recommended in the BAAQMD's May 2017 CEQA guidance document. The project would also implement additional design measures related to transportation and waste, which are described in more detail in **Section 4.8 Greenhouse Gas Emissions**.

Regarding the question where the offsite ERCs should be located, it is CEC staff's understanding that the BAAQMD would conduct a final evaluation of the ERCs in terms of their location, quantity or quality, and/or age when it reviews the project for compliance with the BAAQMD's Regulation 2, Rule 2.

To avoid confusion between the ERCs and mitigation, staff changed the operational impacts from "Less Than Significant with Mitigation Incorporated" to "Less Than Significant Impact" on page 4.3-29 of the Final EIR. Staff added clarification that the NOx offsets would be required through the BAAQMD permitting process on page 4.3-32 of the Final EIR. Staff changed "mitigated" emissions to "net" emissions in **Table 4.3-6** on page 4.3-33 of the Final EIR.

Staff also corrected an inconsistency between the environmental checklist conclusion for question "c" on page 4.3-1 and the analysis starting from page 4.3-34. The analysis starting from page 4.3-34 concluded the project's direct and cumulative criteria pollutant concentration impacts to sensitive receptors would be less than significant with mitigation incorporated during the construction of the project. However, staff incorrectly marked "Less Than Significant Impact" in the checkbox for environmental checklist question "c" on page 4.3-1 of the DEIR. To be consistent with the analysis, staff deleted the checkmark under "Less Than Significant Impact" and added the checkmark under "Less Than Significant with Mitigation Incorporated" for environmental checklist question "c" on page 4.3-1. This is not a change in the analysis or conclusion of the project impacts, but just a correction to the checkmark for consistency with the analysis. These changes are minor clarifications and do not trigger recirculation of the document under CEQA Guidelines section 15088.5 or any other provision.

C-5 *The DEIR concludes that the Project exceeds the District's cumulative health risk thresholds but would not cause cumulatively considerable impacts, as the Project is estimated to only make up ~8% of the cumulative risk. The Air District notes that, based on the DEIR's conclusion that the Project cumulative analysis exceeds the District's cumulative health risk thresholds, the Project would contribute to cumulative impacts. In addition to the Project's contribution, Vantage owns and operates another data center within the area, at 2625 Walsh Avenue, and the Project would be the fourth data center within a quarter mile radius. Given the accumulation of health risk from the Project, other data centers, and other nearby sources, Vantage Data Services should implement mitigations including, but not limited to:*

- *Incorporate additional alternative technologies such as solar, battery storage and/or fuel cells, or utilize natural gas engines in place of diesel generators. As the DEIR concludes that Project Alternative 3, which includes natural gas engines, is feasible as well as environmentally superior to the proposed Project, the Air District recommend that these alternatives be incorporated into the Project.*

Staff response:

The DEIR identifies the health risks from cumulative sources and the potential for a significant cumulative impact in the project area, primarily due to nearby highways, major streets, and railways, and other stationary sources. When the effects of the project are considered in this context, staff determined that the project's contribution to the cumulative impact is less than cumulatively considerable and, thus, is not significant.

Staff's approach to the cumulative HRA follows the BAAQMD's May 2017 CEQA Guidelines by aggregating the effects all nearby sources of TAC emissions. The May 2017 Guidelines recommend finding the total effects of cumulative sources within a 1,000-foot radius from the project fence line plus the contribution from the project. Staff conservatively presents the results for all sources within 2,000 feet at MEISR. Staff included all sources within the recommended 1,000 feet radius for other receptors. It should also be noted that staff's cumulative HRA did include Vantage Data Centers at 2625 Walsh Avenue, CoreSite at 2901 Coronado Drive, and Cyxtera Communications LLC at 2401 Walsh Avenue for the MEISR since they fall into the 2,000-foot radius and for the other receptors if they fall into the 1,000-foot radius.

As staff stated in page 4.3-52 and in **Table 4.3-12** of the DEIR, the cumulative cancer risks at MEISR and at Maximally Exposed Individual Resident (MEIR) are above the threshold for cumulative sources, and the cumulative PM2.5 concentrations at MEISR and at Maximally Exposed Individual Worker (MEIW) are above the threshold for cumulative sources (**Table 4.3-14**). As a result, there is a potential for a significant cumulative impact. To minimize the project's contribution to the cumulative impact, the project would implement the necessary BACT to reduce diesel particulate matter and PM2.5, and the exceedance of the cumulative threshold would not be due to the project itself.

Staff concluded the project's contribution is not cumulatively considerable because the project's incremental effects would not exceed the project-level thresholds of significance for an individual project and for the following reasons:

1. The project's incremental modeled cancer risk at the receptor of MEISR is 9.9 in one million, meaning the project contributes less than the threshold of 10 in one million. It also means the project contributes 9.9 in one million to this total number of 133 in one million. Comparing 9.9 in one million to

133 in one million, the project contributes about seven percent to this exceedance. The cumulative cancer risks are over the BAAQMD threshold primarily because of the proximity of receptors to the nearby railroad, which contributes a cancer risk of 72 in a million at the MEISR (DayZenLLC 2021t, Table 26-1). Potentially beneficial effects of the ongoing and probable future Caltrain Electrification Program were not considered. Staff notes that the text on page 4.3-52 and **Table 4.3-12** of the DEIR incorrectly reported that the total cumulative risk at MEISR is 113. The correct number should be 133. Staff made corrections on page 4.3-52 and in **Table 4.3-12** of the Final EIR. This is not a change in the analysis or conclusion of the project impacts, but just a correction to the text and table.

2. The cumulative cancer risk total (133 in one million) for MEISR was overestimated because it includes the summation of all stationary sources within 2,000 feet, larger than 1,000 feet recommended by the BAAQMD CEQA Guidelines, contributing a cancer risk of 32 in one million at the MEISR. And the contribution of these sources is overestimated because the distance multipliers do not account for the incrementally decreasing risk and hazard impacts from sources that are farther than 1,000 feet (DayZenLLC 2021t, page 20 and Table 26-1).

3. The cumulative cancer risk total (111.73 in one million) for MEIR are over the BAAQMD threshold primarily because of the proximity of receptors to the surrounding highways, major streets, and railways, which contributes a cancer risk of 102.31 in one million at the MEIR. The cancer risk from the surrounding highways, major streets, and railways at MEIR is already above the threshold. The project's incremental modeled cancer risk at the receptor of MEIR is 8.73 in one million, meaning the project contributes 8.73 in one million to this total number of 111.73 in one million. Comparing 8.73 in one million to 111.73 in one million, the project contributes 7.8 percent to the existing exceedances. Staff notes that the text on page 4.3-52 of the DEIR incorrectly stated that the modeled cancer risk at the MEIR would be 0.69 in one million, which is about 0.6 percent of the existing exceedances. To be consistent with the results shown in **Table 4.3-12**, staff corrected the text on page 4.3-52 to show that the modeled cancer risk at the MEIR would be 8.73 in one million, which would contribute 7.8 percent to the existing exceedances. This is not a change in the analysis or conclusion of the project impacts, but just a correction to the text for consistency with **Table 4.3-12**.

The comment letter recommends certain alternative generation and energy storage technologies for mitigating health risk impacts. Because staff concluded that the project's contribution to the effects of TAC emissions would not be cumulatively considerable, no additional mitigation would be necessary.

C-6 *The DEIR states that construction-related emissions were found to be less than significant with mitigations and that the Project will apply Air District best management practices (BMP) to control fugitive dust emissions. The Air District recommends that additional measures beyond the standard BMPs be added to help reduce particulate matter emissions. The following additional mitigation measures should be included into mitigation measure "AQ-1" to further address construction-related impacts:*

- *All off-road equipment greater than 25 horsepower (hp) shall have engines that meet or exceed Tier 4 final off-road emission standards. Use of zero-emission and hybrid-powered equipment is encouraged.*
- *All on-road trucks used for material delivery or hauling shall have engines that meet or exceed 2014 CARB emissions standards.*
- *Where grid power is available, portable diesel engines should be prohibited.*
- *Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed construction areas. Wind breaks should have at maximum 50 percent air porosity.*
- *All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour (mph).*
- *Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.*

Staff response:

The last three mitigation measures recommended by BAAQMD were already included in Mitigation Measure **AQ-1**. Therefore, no changes in the EIR are needed regarding these three mitigation measures.

The BAAQMD recommends off-road equipment greater than 25 horsepower (hp) to meet Tier 4 final off-road emissions standards and encourages the use of zero-emissions and hybrid-powered equipment. The BAAQMD-recommended mitigation measure would be more stringent than the original requirement of Tier 4 off-road equipment if they are more than 50 hp in **AQ-1** of the DEIR. Staff agrees with the BAAQMD-recommended mitigation measure.

Staff also agrees with the BAAQMD-recommended requirement of on-road trucks for material delivery or hauling to meet or exceed 2014 CARB emissions standards and the prohibition of portable diesel engines when grid power is available.

The Final EIR includes revisions to mitigation measure **AQ-1** on page 4.3-59 in **Section 4.3 Air Quality** to reflect the above mentioned BAAQMD recommendations in the comment. These changes to the mitigation measure are minor and do not trigger recirculation of the document under CEQA Guidelines section 15088.5 or any other provision.

7.3 References

DayZenLLC 2021a – DayZenLLC (DayZenLLC). (TN 237380). VDC CA3BGF SPPE Application Part I, dated April 5, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DayZenLLC 2021e – DayZenLLC (DayZenLLC). (TN 237423). VDC CA3BGF SPPE Application Part II, dated April 12, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DayZenLLC 2021t – DayZenLLC (DayZenLLC). (TN 239390). VDC Supplemental Responses to CEC Data Request Set 2 Air Quality – CA3BGF, dated August 19, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

Section 8

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

CA3 Backup Generating Facility
21-SPPE-01
March 2022

PREFACE

Public Resources Code section 21081.6 of the California Environmental Quality Act (CEQA) requires a Lead Agency to adopt a Mitigation Monitoring and Reporting Program (MMRP) whenever it approves a project for which measures have been required to mitigate or avoid significant effects on the environment. The purpose of the monitoring and reporting program is to ensure compliance with the mitigation measures during project implementation.

The Final Environmental Impact Report prepared for the CA3 Backup Generating Facility project concluded that the implementation of the project would not result in significant effects on the environment with the incorporation of mitigation measures. This MMRP addresses those measures in terms of how and when they will be implemented.

This document does *not* discuss those subjects for which the Final Environmental Impact Report concluded that the impacts from the implementation of the project would be less than significant.

I, _____, the applicant, on the behalf of _____, hereby agree to fully implement the Mitigation Measures described below, which have been developed in conjunction with the preparation of an EIR for my proposed project. I understand that these mitigation measures or substantially similar measures will be adopted as conditions of approval with my development permit request to avoid or significantly reduce potential environmental impacts to a less than significant level.

Project Applicant's Signature _____

Date_____

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
AIR QUALITY					
Impact 4.3-b 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?					
AQ-1: To ensure that fugitive dust impacts are less than significant, the project will implement the Bay Area Air Quality Management District (BAAQMD) recommended Best Management Practices (BMPs) during the construction phase, the project owner shall implement a construction emissions control plan that has been reviewed and approved by the Director or Director's designee of the City of Santa Clara Community Development prior to the issuance of any grading or building permits, whichever occurs earliest. These BMPs are incorporated into the design of the project and will include: • Water all exposed areas (e.g. parking areas, graded areas, unpaved access roads) twice a day. • Maintain a minimum soil moisture of 12% in exposed areas by maintaining proper watering frequency. • Cover all haul trucks carrying sand, soil, or other loose material. • Suspend excavation, grading, and/or demolition activities when average wind speed exceeds 20 miles per hour.	Implement the BAAQMD's recommended BMPs to control fugitive dust and additional measures to control exhaust emissions	During construction phase	Director of Community Development or director's designee of the City of Santa Clara	Receive and approve the fugitive dust control measures and exhaust control measures during construction	Prior to the issuance of any demolition, grading, and/or building permits (whichever occurs earliest)

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• Pave all roadways, driveways, and sidewalks as soon as possible. Lay building pads as soon as grading is completed, unless seeding or soil binders are used. • Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction with a maximum 50 percent air porosity. • Use a power vacuum to sweep and remove any mud or dirt-track next to public streets if visible soil material is carried onto the streets. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • Minimize idling time for all engines by shutting engines when not in use or limiting idling time to a maximum of five minutes. Provide clear signage for construction workers at all access points. • Properly tune and maintain construction equipment in accordance with manufacturer's specifications. Check all equipment against a certified visible emissions calculator. • Post a publicly visible sign with the telephone number and person to contact at the Lead Agency and the on-site job superintendent regarding dust complaints.					

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• Install vegetative ground cover in disturbed areas as soon as possible and water appropriately until vegetation is established. • Limit simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. • Install water washers to wash all trucks and equipment prior to leaving site. • Treat site access to 100-feet from the paved road with a 6- to 12-inch compacted layer of wood chip, mulch, or gravel. • Install sandbag or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent. • Minimize idling time of diesel-powered construction vehicles to two minutes. • ~~Develop a plan demonstrating that off-road equipment (more than 50 horsepower) used for construction would comply with Tier 4 emission limits.~~ • All off-road equipment greater than 25 horsepower (hp) shall have engines that meet or exceed Tier 4 final off-road emission standards. Use of zero-emission and hybrid-powered equipment is encouraged.					

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• All on-road trucks used for material delivery or hauling shall have engines that meet or exceed 2014 CARB emissions standards. • Where grid power is available, portable diesel engines should be prohibited. • Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings). • All construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM. • All contractors use equipment that meets CARB's most recent certification standard for off-road, heavy-duty diesel engines.					
BIOLOGICAL RESOURCES					
Impact 4.4-a Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?					
BIO-1, Avoid and Minimize Impacts to Protected Bird Species • If possible, demolition and construction activities, including removal of trees and vegetation clearing, shall take place between September and January. If demolition or	Avoidance of construction activities during nesting season. If construction activities occur between January and September, a pre-construction nesting	Prior to issuance of any permits for tree removal, demolition, or grading activities	Director of Community Development or director's designee of the City of Santa	Confirm that construction activities are scheduled outside of the nesting season	Prior to issuance of any permits for tree removal, demolition, or grading activity

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construction activities, including removal of the trees on –site, would take place between January and September, a pre-construction survey for nesting raptors and other protected native or migratory birds shall be conducted by a qualified ornithologist, approved by the City of Santa Clara, to identify active nests that may be disturbed during project implementation. Pre-construction surveys shall be conducted no more than 14 days prior to the initiation of demolition or construction activities or tree relocation or removal. Surveys shall be repeated if project activities are suspended or delayed for more than 14 days during the nesting season. The surveying ornithologist shall inspect all trees in and immediately adjacent to the construction area to be disturbed by these activities, and the ornithologist shall, in consultation with the California Department of Fish and Wildlife (CDFW), designate a construction-free buffer zone (typically 250 feet for non-raptors to 500 feet for raptors) around the nest until the end of the nesting activity. Any changes to a buffer zone must be approved by the City of Santa Clara, in consultation with CDFW. The nests and buffers will be field checked weekly by the approved ornithologist. The approved buffer zone will be marked in the field with exclusion fencing, within which no construction, tree removal, or vegetation clearing shall commence until the ornithologist verifies that the nest(s) are no longer active. If an active	bird survey shall be conducted by a qualified ornithologist in consultation with the California Department of Fish and Wildlife, and a construction-free buffer zone shall be designed around any discovered nest The ornithologist shall submit a report indicating the results of the survey and any designated buffer zones to the Director of Community Development or director's designee of the City of Santa Clara	Prior to issuance of any tree removal permit by the city arborist	Clara (Director of Community Development) Director of Community Development	The ornithologist shall inspect all potentially affected trees and designate a buffer-free zone around nest until the end of the nesting activity	Prior to issuance of any permits for tree removal, demolition, or grading

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bird nest is discovered during demolition or construction, then a buffer zone shall be established under the guidelines specified. • The applicant shall submit a report indicating the results of the survey and any designated buffer zones to the satisfaction of the City of Santa Clara's Director of Community Development prior to the issuance of permits for~~a~~ tree removal, demolition, or grading. ~~permit by the city arborist.~~ The report(s) shall contain maps showing the location of all nests, species nesting, status of the nest (e.g. incubation of eggs, feeding of young, near fledging), and the buffer size around each nest (including reasoning behind any alterations to the initial buffer size). The report shall be provided within 10 days of completing a pre-construction nest survey.					
BIO-2: Avoid and Minimize Impacts to Bat Species If suitable roosting habitat for special-status bats will be affected by project construction (e.g., removal of buildings, removal of trees), a qualified wildlife biologist shall conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area no less than 7 days and no more than 14 days prior to beginning tree removal and/or	A qualified wildlife biologist shall conduct surveys during the appropriate time of day to determine if bats are roosting	No less than 7 days and no more than 14 days prior to beginning tree removal and/or demolition ground disturbance	Director of Community Development to California Department of Fish and Wildlife standards	A tally of the number and species of bats using the roost shall be documented. Depending on the presence of bats, exclusion methods and bat houses may be specified for use depending	Prior to issuance of any tree removal, grading, demolition, and/or building permit or activities

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demolition ground disturbance. Survey methodology may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (e.g., Anabat, etc.). Visual surveys shall include trees within 0.25 mile of construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required. • If evidence of bat use is observed, the number and species of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts. • If roosts are determined to be present and must be removed, the bats shall be excluded from the roosting site before the tree or structure is removed. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). • If roosts cannot be avoided or it is determined that construction activities may cause roost				on the circumstances A Bat Mitigation and Monitoring Plan shall be prepared and implemented for habitat loss, if necessary	

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abandonment, such activities shall not commence until permanent, elevated bat houses have been installed outside of, but near, the construction area. Placement and height will be determined by a qualified wildlife biologist, but the height of bat house shall be at least 15 feet. Bat houses shall be multi-chambered and be purchased or constructed in accordance with CDFW standards. The number of bat houses required shall be dependent upon the size and number of colonies found, but at least one bat house shall be installed for each pair of bats (if occurring individually) or of a sufficient number to accommodate each colony of bats to be relocated. • If bat roosts are detected, then a Bat Mitigation and Monitoring Plan (Plan) shall be prepared and implemented to mitigate for the loss of roosting habitat. The Plan shall include information pertaining to the species of bat and location of the roost, exclusion methods and roost removal procedures, compensatory mitigation for permanent impacts (including specific mitigation ratios and location of proposed mitigation as described in above bullet) and monitoring to assess bat use of mitigation areas. This Plan shall be submitted to CDFW for review.					
Impact 4.4-e Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?					

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BIO-3, Tree Removal ~~Permit~~ The project applicant shall obtain approval by the City's Department of Community Development ~~the appropriate tree removal permits from the City of Santa Clara~~ for all~~removal of all healthy mature~~ trees to be removed. Acquisition of this permit shall include details of the final mitigation numbers. The City of Santa Clara's Tree Ordinance (SCCC 12.35.090(C)(7)~~landscape ordinance~~ mandates a ~~2:1~~ replacement ~~with 24-inch box size trees, or 1.5:1 replacement~~ ratio and size of tree species for planting. ~~with 36-in box size trees.~~ Depending on the species and size of the tree, additional mitigation may be required by the City of Santa Clara. The project proposes to mitigate for the loss of 66 trees through a combination of 24-inch box size and 36-inch box size.	Obtain tree removal permits from the City's department of Community Development	Prior to the removal of any trees	Director of Community Development	Approved permits, including tabulation of final tree mitigation numbers	Prior to tree removal work

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BIO-4, Trees to Remain: Avoidance and Minimization of Impacts The project applicant shall follow the tree protection measures for trees that are to remain in place, as included as specific conditions by the City of Santa Clara as part of Architectural Review approval and included on the approved landscape plans for the project	Follow the tree protection measures outlined by the City Arborist or other arborist retained by the city for trees that are to remain in place	To coincide with demolition activities	Director of Community Development	Retain final tally of trees retained and indicate said trees on final landscape plans	At the conclusion of construction
CULTURAL RESOURCES					
Impact 4.5-a Cause a substantial adverse change in the significance of a historical resource pursuant to California Code of Regulations, title 14, §15064.5? Impact 4.5-b Cause a substantial adverse change in the significance of a unique archaeological resources pursuant to California Code of Regulations, title 14, §15064.5?					
CUL-1: The following project-specific measures would be implemented during construction to avoid significant impacts to unknown subsurface cultural resources:	Submit the name and qualifications of the selected archaeologist and Native American monitor with a signed	Before a grading permit is issued	Director of Community Development or director's designee of the City of Santa	Review and approve the archaeologist and Native American monitor's qualifications	Before issuance of permits for any ground disturbing activities (trenching,

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• A Secretary of the Interior-qualified archaeologist and a Native American cultural resources monitor shall be on site to monitor all ground-disturbing activity, including the removal of foundations and landscaping, on the project site. The project applicant shall submit the name and qualifications of the selected archaeologist and Native American monitor, along with a signed letter of commitment or agreement to monitor, to the City of Santa Clara's Director of Community Development prior to the issuance of a grading permit. Preference in selecting Native American monitors shall be given to Native Americans with: o Aboriginal, culturally affiliated ties to the area being monitored. o Knowledge of local historic and prehistoric Native American village sites. o Knowledge and understanding of Health and Safety Code section 7050.5 and Public Resources Code section 5097.9 et seq. o Ability to effectively communicate the requirements of Health and Safety Code section 7050.5 and Public Resources Code section 5097.9 et seq. o Ability to work with law enforcement officials and the Native American Heritage Commission to ensure the return of all	letter of commitment or agreement to monitor		Clara (Director of Community Development)		grading, excavation)

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associated grave goods taken from a Native American grave during excavation. o Ability to travel to project sites within traditional tribal territory. o Knowledge and understanding of California Code of Regulations, title 14, section 15064.5. o Ability to advocate for the preservation in place of Native American cultural features through knowledge and understanding of CEQA mitigation provisions. o Ability to read a topographical map and to locate site and reburial locations for future inclusions in the Native American Heritage Commission's Sacred Lands Inventory. o Knowledge and understanding of archaeological practices, including the phases of archaeological investigation.					
After the removal of pavement and prior to grading, the archaeologist shall conduct a pedestrian survey over the exposed soils to determine if any surface archaeological manifestations are present. • After the demolition of the existing building and paved parking lot on the site, a qualified archaeologist with a N~~n~~ative American monitor present shall complete mechanical presence/absence testing for archaeological deposits and cultural materials. In the event	The archaeologist is to perform survey and presence/absence testing with a Native American monitor present	After the demolition of the existing building and pavement and prior to grading	Director of Community Development	Review the results and approve next steps	Prior to issuance of permits for any ground disturbing activities (trenching, grading, excavation)

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any prehistoric site indicators are discovered, additional backhoe testing will be conducted to map the aerial extent and depth below the surface of the deposits. In the event prehistoric or historic archaeological deposits are found during presence/absence testing, the significance of the find will be determined. If deemed significant, a treatment plan will be prepared and provided to the City of Santa Clara's Director of Community Development. Where Native American cultural materials are identified, the archaeological monitor will prepare a treatment plan in collaboration with the monitoring California Native American tribe. The key elements of a treatment plan shall include the following: o Identify the scope of work and range of subsurface effects (include location map and development plan), o Describe the environmental setting (past and present) and the historic/prehistoric background of the parcel (potential range of what might be found), o Develop research questions and goals to be addressed by the investigation (what is significant vs. what is redundant information), o Detail the field strategy used to record, recover, or avoid the finds (photos, drawings, written records, provenience data maps, soil profiles, excavation	If testing determines that cultural resources are present and significant, a treatment plan shall be prepared. If Native American cultural materials are present, the treatment plan shall be prepared in collaboration with the Native American monitor	Prior to issuance of permits for any ground disturbing activities (trenching, grading, excavation)	Director of Community Development	Review and approve the treatment plan	Prior to issuance of permits for any ground disturbing activities (trenching, grading, excavation)

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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techniques, standard archaeological methods), and address research goals. o Analytical methods (radiocarbon dating, obsidian studies, bone studies, historic artifacts studies [list categories and methods], packaging methods for artifacts, etc.); the monitoring California Native American tribe shall determine the appropriateness of analytical methods proposed for Native American cultural materials, o Report structure, including a technical and layperson's report and an outline of document contents in one year of completion of development (provide a draft for review before a final report), o Disposition of the artifacts (the monitoring California Native American tribe will determine the disposition of California Native American cultural materials), o Appendices: site records, update site records, correspondence, consultation with Native Americans, etc.					
The archaeologist and California Native American monitor will monitor full-time all grading and ground disturbing activities associated with the construction of the proposed project. If the archaeologist and Native American monitor believe that a reduction in monitoring activities is prudent, then a letter report detailing the	The archaeologist and California Native American monitor will monitor full-time all grading and ground disturbing activities and maintain a daily monitoring log	During grading and ground disturbing activities During ground disturbing activities	Director of Community Development	Review monitoring logs as needed	

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rationale for making such a reduction and summarizing the monitoring results shall be provided to the City of Santa Clara's Director of Community Development. Department of Parks and Recreation 523 forms shall be submitted along with the report for any cultural resources encountered over 50 years old. • If prehistoric or historic resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the City's Director of Community Development shall be notified, and a Secretary of the Interior-qualified archaeologist shall examine the find and record the site, including field notes, measurements, and photography for a Department of Parks and Recreation 523 Primary Record form. The archaeologist shall make a recommendation in collaboration with the monitoring California Native American tribe regarding eligibility for the California Register of Historical Resources, data recovery, curation, or other appropriate mitigation. Ground-disturbance within the 50-foot radius can resume once these steps are taken and the City of Santa Clara's Director of Community Development has concurred with the recommendations. Within 30 days of the completion of the construction or cultural resources monitoring, whichever comes first, a report of findings documenting any cultural resource finds, recommendations, data recovery efforts, and other pertinent	Request for reduction in monitoring based on results Work shall be stopped if cultural resources are encountered within a 50' radius Examination of the find and recordation on DPR 523 forms along with a determination of eligibility and recommendation for data recovery or curation A final report shall summarize the findings documenting any cultural resources found during construction	During ground disturbing activities While ground disturbing activities are halted and prior to returning to work Within 30 days of completion of construction or cultural resources monitoring Upon finalization of the report	Director of Community Development Director of Community Development; Secretary of the Interior-qualified archaeologist Secretary of the Interior-qualified archaeologist Director of Community Development;	Review and approve request to reduce monitoring Review and approve work stoppage Record on DPR forms with eligibility and curation recommendations Review and approve final report	During grading and ground disturbing activities During grading and ground disturbing activities During grading and ground disturbing activities During grading and ground disturbing activities Within 30 days of completion of

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	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	**Timing of Compliance**	**Oversight Responsibility**	**Actions/Reports**	**Monitoring Timing or Schedule**
information gleaned during cultural resources monitoring shall then be submitted to the City of Santa Clara's Director of Community Development under confidential cover, along with a report that redacts the location(s) of all cultural resources. Once finalized, this report shall be submitted to the Northwest Information Center at Sonoma State University.	Submittal of the final report to the NWIC	Prior to and during ground disturbing activities	Secretary of the Interior-qualified archaeologist	Obtain proof of submittal to NWIC	construction or cultural resources monitoring Upon finalization of the report
• Prior to and for the duration of ground-disturbance, the project owner shall provide Worker Environmental Awareness Program training to all existing and any new employees. This training should include: a discussion of the applicable laws and penalties under the laws; samples or visual aids of the artifacts that could be encountered in the project vicinity, including what those artifacts may look like partially buried, or wholly buried and freshly exposed; and instructions to halt work in the vicinity of any potential cultural resource discovery, and notify the city-approved archaeologist and Native American cultural resources monitor. The Native American monitor shall provide a Tribal Cultural Resources Sensitivity Training in conjunction with the Worker Environmental Awareness Program.	WEAP training shall be provided for all existing and new employees		Director of Community Development Director of Community Development	Review and approve WEAP submitted by archaeologist and Native American monitor	Prior to and during ground disturbing activities
Impact 4.5-c, Disturb any human remains, including those interred outside of dedicated cemeteries.					

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
Impact 4.5-b, (Tribal), A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.					
CUL-2: The project proposes to implement the following measure to ensure the project's impacts to human remains are less than significant: • If human remains are discovered during the presence/absence testing or excavation and/or grading of the site, all activity within a 50-foot radius of the find will be stopped. The Santa Clara County Coroner will be notified and shall determine whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with the California Code of Regulations, title 14, section 15064.5(e) of the CEQA Guidelines. All actions taken under this mitigation measure shall comply with the Health and Safety Code section 7050.5(b)	The contractor shall stop work within a 50-foot radius of the find and notify the Santa Clara County Coroner and the Director of Planning or director's designee of the City of Santa Clara Community Development Department (Director of Community Development)	Immediately upon discovery of human remains	Director of Community Development	The coroner shall contact the NAHC if human remains are found and are believed to be Native American	Upon discovery of human remains
GEOLOGY AND SOILS (PALEONTOLOGY)					

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
Impact 4.7-a.ii., Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking? Impact 4.7-a.iii., Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction? Impact 4.7-c.-Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or-off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?					
GEO-1: The project proposes to implement the following measures to ensure impacts to paleontological resources are reduced to less than significant. • Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology, who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and shall follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who shall evaluate its significance. • If a fossil is found and determined by the qualified paleontologist to be significant and avoidance is not feasible, the paleontologist shall develop and	The contractor shall require training in recognition of fossils/artifacts. The contractor shall stop work within a 50-foot radius of the find and notify the Santa Clara County Coroner and the Director of Community Development or director's designee of the City of Santa Clara	Prior to any subsurface excavations	Director of Community Development or director's designee of the City of Santa Clara	Receive copy of excavation and salvage plan AND final paleontological mitigation plan/report Review and approve final plans/reports and ensure the findings of the report are integrated into the final recommendations	First, if and when fossils are discovered AND second, following completion of construction

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implement an excavation and salvage plan in accordance with Society of Vertebrate Paleontology standards. Construction work in these areas shall be halted or diverted to allow preparation of the plan and recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan Report that outlines the results of the mitigation program shall be prepared and submitted to the Director or Director's designee with the City of Santa Clara Community Development Department at the conclusion of construction. The Director or Director's Designee with the Santa Clara Community Development shall be responsible for ensuring that the paleontologist's recommendations regarding treatment and reporting are implemented.					
GREENHOUSE GAS EMISSIONS					
Impact 4.8-a Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? Impact 4.8-b Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?					

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	Method of Compliance Or Mitigation Action	**Timing of Compliance**	**Oversight Responsibility**	**Actions/Reports**	**Monitoring Timing or Schedule**
GHG-1: If the Bay Area Air Quality Management District (BAAQMD) has adopted a new threshold of significance for stationary sources on or before CA3 receives its Authority to Construct permit, the project shall reduce the time the engines operate for readiness testing and maintenance on an annual basis to ensure the project complies with the new limit. Prior to the start of operation, the project owner shall provide a report to the Director, or director's designee, of the City of Santa Clara Community Development describing how the project intends to comply with the limit, including a proposed schedule of readiness testing and maintenance operations for the year. The project owner shall provide an annual report thereafter to the Director, or director's designee, of the City of Santa Clara Community Development describing all operations of the facility that occurred for readiness testing and maintenance and calculating the attendant GHG emissions that resulted for the year.	Time engines are run during operation for readiness testing and maintenance shall ensure emissions in accordance with the BAAQMD's thresholds for stationary sources	Prior to receiving an Authority to Construct permit from the BAAQMD	Director of Community Development or director's designee of the City of Santa Clara (Director of Community Development)	Provide a report describing how the owner will plan to comply with the limit. Thereafter, the owner shall submit a report annually describing all readiness, testing, and maintenance operations and the GHG emissions	Prior to the start of operation and annually thereafter

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GHG-2: The project owner shall use renewable diesel as the primary fuel for the emergency backup generators to the maximum extent feasible, and only use ultra-low sulfur diesel (ULSD) as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. If testing confirms that use of this fuel will not result in emissions that would cause the project to exceed applicable thresholds after any available mitigation for such emissions has been applied, the project owner shall ensure that renewable fuels are used for a minimum of at least 44 percent of total energy use by the emergency backup generators by December 31, 2024; 52 percent by December 31, 2027; and 60 percent by December 31, 2030. Renewable fuels shall be used for 100 percent of total energy use by the emergency backup generators by December 31, 2045. The project owner shall provide an annual report of the status of procuring and using renewable diesel to the Director, or director's designee, of the City of Santa Clara Electric Utility ~~Community Development~~ Department demonstrating compliance with the mitigation measure.	Use renewable diesel as the primary fuel and ULSD as a secondary fuel in accordance with the implementation schedule outlined in the mitigation measure	During project operation	Director of Electric Utility Department	The project owner shall provide an annual report of the status of procuring and using renewable diesel	Annually
GHG-3: The project owner shall ensure that 100 percent of the electricity purchased to power the project is covered by carbon-free resources using one of the following options: (1) participate in Silicon Valley Power (SVP) Large Customer Renewable Energy (LCRE)	Ensure that 100 percent of the renewable electricity purchased is covered by carbon-free resources	Prior to local approval of project entitlements and during the operational phase	Director of Electric Utility Department	The project owner shall provide proof of enrollment in SVP's LCRE or other acceptable instrument and	Annual or other proof of recurring enrollment

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Program or other renewable energy program that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity, or (2) purchase ~~carbon offsets~~ renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. The project owner shall provide documentation to the director, or director's designee, of the City of Santa Clara Electric Utility Department~~Community Development~~ of enrollment and annual reporting of continued participation in SVP's LCRE Program with 100 percent carbon-free electricity coverage. If not enrolled in SVP's LCRE Program, the project owner shall provide documentation and annual reporting to the Director, or director's designee, of the City of Santa Clara Electric Utility Department~~Community Development Dept.~~ that confirms that alternative measures achieve the same 100 percent carbon free electricity as SVP's LCRE Program, with verification by a qualified third-party auditor specializing in greenhouse gas emissions.				annual report, with verification by a qualified third-party auditor specializing in greenhouse gas emissions	
Hazards and Hazardous Materials					
Impact 4.9-c, Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? Impact 4.9-d, Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?					
HAZ-1: The project will implement the following measures to reduce potentially significant soil and	The project owner shall 1) take soil samples in accordance with an	Prior to the issuance of grading permits	Santa Clara Fire Department Fire Prevention and	Report findings of soil studies to Santa Clara Fire	Prior to the issuance of grading permits

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or groundwater impacts to construction workers to a less than significant level. • Prior to the issuance of grading permits, shallow soil samples shall be taken in areas where soil disturbance is anticipated to determine if contaminated soils with concentrations above established construction/trench worker thresholds may be present due to historical agricultural use and from historical leaks and spills. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division prior to initiation of work. Once the soil sampling analysis is complete, a report of the findings will be provided to the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division and other applicable city staff for review. • Documentation of the results of the soil sampling shall be submitted to and reviewed by the City of Santa Clara prior to the issuance of a grading permit. Any soil with concentrations above applicable environmental screening levels or hazardous waste limits would be characterized, removed, and disposed of off-site at an appropriate landfill according to all state and federal requirements.	approved soil sampling plan, 2) document the results of the sampling, and 3) develop a Site Management Plan to establish handling and management practices		Hazardous Materials Division	Department Fire Prevention and Hazardous Materials Division	

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• A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include:
  • A detailed discussion of the site background.
  • A summary of the analytical results.
  • Preparation of a Health and Safety Plan by an industrial hygienist.
  • Protocols for conducting earthwork activities in areas where impacted soil and/or groundwater are present or suspected.
  • Worker training requirements, health and safety measures and soil handing procedures shall be described.
  • Protocols shall be prepared to characterize/profile soil suspected of being contaminated so that appropriate mitigation, disposal, or reuse alternatives, if necessary, can be implemented.					

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• Notification procedures if previously undiscovered significantly impacted soil or groundwater is encountered during construction. • Notification procedures if previously unidentified hazardous materials, hazardous waste, and/or underground storage tanks are encountered during construction. • On-site soil reuse guidelines. • Sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility. • Soil stockpiling protocols; and • Protocols to manage groundwater that may be encountered during trenching and/or subsurface excavation activities. Prior to issuance of grading permits, a copy of the SMP must be approved by the Santa Clara County Environmental Health Department and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division. Prior to issuance of grading permits, a copy of the SMP must be approved					

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by the Santa Clara County Environmental Health Department, and the Santa Clara Planning Division. If contaminated soils are found in concentrations above risk-based thresholds pursuant to the terms of the SMP, remedial actions and/or mitigation measures will be taken to reduce concentrations of contaminants to levels deemed appropriate by the selected regulatory oversight agency for ongoing site uses. Any contaminated soils found in concentrations above thresholds to be determined in coordination with regulatory agencies shall be either 1) managed or treated in place, if deemed appropriate by the oversight agency or 2) removed and disposed of at an appropriate disposal facility according to California Hazardous Waste Regulations (CCR, tit. 22, div. 4.5) and applicable local, state, and federal laws.					
NOISE					
Impact 4.13-a Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?					
NOI-1: The project shall implement the following measures to reduce temporary construction noise to less than significant levels. • Construction is not permitted during the hours of 6 p.m. to 7 a.m. Monday through Friday~~, and~~	Implement the City's municipal code and measures to reduce noise levels. Use best available noise control technologies.	During the construction phase	Director of Community Development or director's designee of the City of Santa	Confirm the code and measures have been implemented	During the construction phase

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between 6 p.m. to 9 a.m. on Saturday, and prohibited on Sundays and holidays.~~.~~ • Prior to the start of construction, identify a noise control disturbance coordinator. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint received (e.g. starting too early, bad muffler, etc.) and shall ensure that reasonable measures warranted to correct the problem are implemented as soon as possible. • Prior to the start of construction, establish a telephone number for the disturbance coordinator, and post it in a conspicuous location on the construction site. • Prior to the start of construction, notify, in writing, the residents within 800 feet from the center of the project to the south across the rail line and industrial buildings to the north, east, and west of the project site of the construction schedule and provide a written schedule of "noisy" construction activities to the adjacent land uses. • Include the telephone number for the disturbance coordinator construction site in the above notice regarding the construction schedule sent to residences south across the rail line and industrial buildings to the north, east, and west of the project site.	Notify all adjacent business and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and to the City's Community Development Department	Prior to the start of demolition and construction activities	Clara (Director of Community Development)	Review and approve the schedule of "noisy" construction activities	Prior to the start of demolition and construction activities

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• The project owner shall orient construction equipment and locate construction staging areas within the project site away from the nearest residences to the south, to the extent feasible. • Equip all construction-related internal combustion engine-driven equipment with the best available noise control equipment (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) and use best noise control practices to minimize noise levels from construction activities.					
TRANSPORTATION					
Impact 4.17-b Conflict or be inconsistent with CEQA Guidelines [California Code of Regulations, title 14,] section 15064.3, subdivision (b)?					
TRANS-1: The project shall implement a Transportation Demand Management (TDM) program sufficient to demonstrate that vehicle miles travelled (VMT) associated with the project would be reduced to 14.14 or less per employee. The TDM program shall include, but is not limited to, the following measure, which has been determined to be a feasible method for achieving the required VMT reduction: • The operations workforce at the project shall work a 4-40 work schedule (40 hours in 4 days). Prior to the issuance of an occupancy permit, the	Adopt a transportation demand management program to reduce project-related vehicle miles traveled to 14.14 or less per employee	Prior to the issuance an occupancy permit	Director of Community Development or director's designee of the City of Santa Clara	Receive approval of the TDM program based on traffic counts; the program shall be updated as necessary based on new traffic counts	Annually by the Director of Planning

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TDM program shall be submitted and approved by the Director of Community Development and shall be monitored annually to gauge its effectiveness in meeting the required VMT reduction. The TDM program shall establish an appropriate estimate of initial vehicle trips generated by the occupant of the proposed project and shall include the conducting of driveway traffic counts annually to measure peak-hour entering and exiting vehicle volumes. The volumes shall be compared to trip thresholds established in the TDM program to determine whether the required reduction in vehicle trips is being met. The results of annual vehicle counts shall be reported in writing to the Director of Community Development. If TDM program monitoring results show that the trip reduction targets are not being met, the TDM program shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM program shall be subject to the same approvals and monitoring requirements listed above.					
MANDATORY FINDINGS OF SIGNIFICANCE					
Impact 4.20-a Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce					

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the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?					
BIO-1, **BIO-2, CUL-1**, **CUL-2**, **GEO-1** See impact 4.4-a, 4.5-a, 4.5-b, 4.5-c, 4.7-a.ii, 4.7-a.iii, and 4.7-c					
Impact 4.20-b Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)					
AQ-1, **BIO-1, BIO-2, BIO-3, BIO-4, CUL-1**, **CUL-2, GEO-1, GHG-1, GHG-2, GHG-3**, **HAZ-1**, **NOI-1, TRANS-1**. See impact 4.3-b, 4.3-c, 4.4-a, 4.4-e, 4.5-a, 4.5-b, 4.5-c, 4.7-a.ii, 4.7-a.iii, 4.7-c, 4.8-a, 4.8-b, 4.9-c, 4.9-d, 4.13-a., and 4.17-b					
4.20-c Does the project have environmental effects which will cause substantial adverse effects on human beings either directly or indirectly?					
AQ-1, **GEO-1, HAZ-1, NOI-1** See impact 4.3-b, 4.3-c, 4.7-a.ii, 4.7-a.iii, 4.7-c, 4.9-c, 4.9-d, and 4.13-a					

Source: California Energy Commission. Final Environmental Impact Report for CA3 Backup Generating Facility. March 2022.

Appendix A:

Project's Jurisdictional and Generating Capacity Analysis

Appendix A: Project's Jurisdictional and Generating Capacity Analysis

The CA3 Backup Generating Facility and Data Center (CA3 or project) proposed by Vantage Data Services would include 44 diesel-fueled standby emergency backup generators (gensets) that would provide emergency backup power supply for the project only during interruptions of electric service delivered by Silicon Valley Power, via Pacific Gas and Electric transmission lines. The gensets would be electrically isolated from the PG&E electrical transmission system with no means to deliver electricity offsite of VDC (the distribution line would only allow power to flow in one direction—from PG&E electrical transmission line to CA3.

There are other Vantage-owned data centers in the city of Santa Clara, the closest one of which, is located across the street from CA3 project site. There would be no common facilities between any of these data centers and CA3. Therefore, CA3 is considered an independent data center for the purpose of jurisdictional determination. While staff recognizes that employees of CA3 may use parking facilities located at another Vantage-owned data center, this alone is insufficient to consider the data centers part of the same project.

Each genset would have a nameplate output capacity of 2.75 megawatts (MW) and continuous steady-state output capacity of 2.2 MW. The maximum total facility load requirements would not exceed 96 MW. This includes the critical information technology (IT) load of the servers and server bays, the cooling load of the IT servers and bays, and the facility's ancillary electrical and telecommunications equipment operating loads to support the data customers and campus.

The California Energy Commission (CEC) is responsible for reviewing, and ultimately approving or denying, all applications for thermal electric power plants that are 50 MW and greater being proposed for construction in California. (Pub. Resources Code, § 25500.) The CEC has a regulatory process, referred to as the Small Power Plant Exemption (SPPE) process, that allows applicants with projects between 50 and 100 MW to obtain an exemption from the CEC's jurisdiction and from obtaining a CEC certificate and instead proceed with local approval if the CEC finds that the proposed project would not create a substantial adverse impact on the environment or energy resources. (Pub. Resources Code, § 25541.)

CEC staff (staff) calculated a net deliverable or useable electricity capacity of more than 50 MW and less than 100 MW from CA3 gensets, qualifying it for a SPPE under the capacity criterion. The following provides a summary of the factors supporting this conclusion, with a more detailed discussion of these factors following after:

1. The diesel-fueled reciprocating engine gensets use a thermal energy source.

2. The gensets and the associated project equipment that they would support would all be located on a common property under common ownership sharing common utilities, and the 44 gensets should be aggregated and considered as one thermal power generating facility with a generation capacity of greater than 50 MW.

3. While CA3 has an apparent installed generation capacity greater than 100 MW (44 gensets, each with 2.75 MW peak capacity), the "extra" MW installed are redundant. In no case would the maximum facility-wide load demand exceed 96 MW due to physical constraints built into the project.

4. Jurisdictional analyses are based on the net MWs that can be delivered for "use" (i.e., to a data center facility or the electricity grid), not the gross or nameplate rating. Unlike a traditional power plant supplying electricity to the grid, for a data center, the maximum load being served is determinative and not the combined net capacity of the installed gensets. Here, the maximum facility wide CA3 load requirement would be 96 MW.

5. The gensets would be exclusively connected to the CA3 buildings and would not be capable of delivering electricity to any off-site user or to the electrical transmission grid. The proposed redundancies built into the design of the facility are to ensure performance reliability, not to generate and supply the CA3 facility with more than 96 MW of electricity.

6. The restriction on the facility's load demand is hardwired through various control systems. It would be physically impossible for the gensets to generate more electricity than the buildings require. Excess electricity would damage components or at a minimum, isolate the project loads from the gensets.

To make a jurisdictional recommendation, staff assessed the generating capacity of the project, using the following:

1. CA3 is a thermal power plant under the statutory definition.

The Warren-Alquist State Energy Resources Conservation and Development Act (Public Resources Code, section 25000 et. seq) defines a thermal power plant "as any stationary or floating electrical generating facility using any source of thermal energy, with a generating capacity of 50 megawatts or more, and any facilities appurtenant thereto." (Pub. Resources Code, § 25120.) CA3's generation yard would be made up of gensets that use petroleum-based diesel engines to convert the thermal energy in the diesel fuel[1] into electricity via a rotating generator, and, thus, each genset is an electrical generating device that uses a source of thermal energy. The facility proposes to use 44 such gensets to service CA3.

1 Diesel fuel is composed of a mixture of hydrocarbons, containing chemical energy. When ignited, this chemical energy is converted to thermal energy.

CA3's 44 gensets, and the associated data center that they would support, would all be located on a common property under common ownership sharing common utilities. The gensets would operate to provide backup electricity to the project when its connection to the grid is lost. The gensets system includes a 5-to-make-4 design configuration, meaning that for every four gensets that would support load in the event of a utility failure, there is one redundant genset. The 44 gensets would never operate simultaneously at 100 percent capacity. However, any genset can function either as a back-up to the grid or a back-up to the grid back-up gensets, so there is not a functional difference in the type of engine or generator between each genset. All the gensets at the project would share a common trigger for operation during an emergency: the transfer switch isolating CA3 from the grid. Thus, because the project is stationary, under common ownership sharing common utilities, uses a fuel source to generate thermal energy, and has a generating capacity of 96 MW, the project meets the statutory definition of a thermal power plant.

2. *California Code of Regulations, Title 20, section 2003 requires the generating capacity to be the net generating capacity.*

For CA3, the data center would be installed during the initial construction of the project by the project owner, but there is no specific timeline proposed for when data center would need the full capacity of gensets; the exact timing of individual leases that fill server bay space is subject to the market decisions of disparate customers. Therefore, it may be years before the data center is at full load. Nevertheless, for purposes of this analysis, staff assumes full load will eventually be reached.

California Code of Regulations, Title 20, section 2003 specifies how the CEC calculates "generating capacity" for jurisdictional determinations, including the 50 MW threshold for the definition of a thermal power plant under Public Resources Code, section 25120. However, section 2003, which uses nameplate capacity in addition to consideration of other factors, only addresses steam and combustion turbines, not diesel-fueled gensets as used in the VDC, and is, therefore, not controlling here. There are also other reasons to conclude that simply focusing on nameplate capacity here is not appropriate.

For a typical power plant, outside the factors identified in California Code of Regulations, Title 20, section 2003, there is almost no limit on what might be generated and provided to the grid, so the approach outlined in that provision identifies the potential maximum generating capacity and is reasonable for those facilities. This is not the case with data centers, where producing electricity more than what the data center requires would be economically wasteful and likely result in damage to the facility.

In traditional turbine-based power plants, parasitic loads (fans, pumps, and heaters) are external to the turbine. Thus, the generating capacity is the total net MWs at the switchyard bus; that is, gross MWs less parasitic loads. If the grid "demands" more, the power plant cannot deliver more electricity unless it burns fuel at a higher rate or reduces parasitic loads. Even then, equipment would have to have the physical capacity to burn more fuel and convert thermal energy into rotational energy, and then operate the generator at a higher output. The calculations assume normal conditions, where

generation would be under average operating conditions, and assumes the onsite loads (often called parasitic loads) are also average (e.g., a filter backwash pumping load would not be included if that operation only occurs monthly or annually). Typically, at a traditional power plant, no redundant generating equipment is installed.[2] Generating capacity at a traditional power plant is determined based on the net capacity of all generators proposed to be installed and connected to the grid because there is almost no limitation on the amount of MWs the grid can "take" from the facility.

Typically, emergency backup generating facilities serving data centers are not physically able to send excess electricity to the grid, and all electricity generated must be absorbed by the data center itself. Data centers are designed with precise loads, assuming full build-out, and providing electricity more than these loads is not only economically wasteful (burning fuel for no benefit or reason) but can result in damage to the sensitive components located inside these data centers as well as to the heating, ventilation, air conditioning (HVAC) unit and other systems serving the buildings. Therefore, for purposes of evaluating the capacity of emergency backup generating facilities serving data centers, it is reasonable for staff to consider building loads to be the controlling factor in determining generating capacity.

3. *Data centers are analyzed differently than conventional power plant facilities for several reasons.*

To determine the net generating capacity of a collection of gensets[3] for data centers, the approach is slightly different but consistent with that used on a traditional power plant. The differences are: 1) the end user is the building and data servers, not the grid, and 2) extra gensets or generating capacity are installed to provide electricity not only for building and data server loads but to provide redundancy that achieves a statistical reliability that can be marketed to data customers.

Staff's approach is consistent with widely practiced standards. For example, ASHRAE's (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Energy Standards for Data Centers do not use the nameplate or gross capacity but the net generating capacity of data centers, or the actual cooling and IT server loads.[4] These ASHRAE standards are performance-based as opposed to prescriptive standards,

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2 At modern power plants, some equipment design includes 50 to 100 percent redundancy. The redundant equipment is generally limited to certain critical components like transformers, which are often custom items with long lead times for fabrication, or boiler water feed pumps, which are intended to protect the steam boiler components from damage from too much heat if circulating water flow is interrupted.

3 Backup generators, by definition, generally have the following characteristics: reliable starts, fast starting to full load, cheap to maintain as they sit idle most of the time, use cheap and stable fuel as the fuel sits unused most of the time, and use high-density fuels to limit storage volumes onsite so the project can operate if "islanded."

4 American National Standards Institute (ANSI)/ASHRAE Standard 90.4-2016, www.ashrae.org.

advocating the determination of load requirements be based on project-specific operational characteristics.

Staff's approach to calculating generating capacity has also been devised based on the International Organization for Standardization (ISO), which sets standards for different industries including the energy industry. The ISO standards are widely accepted by, and used throughout, the energy industry. Consistent with staff's method, the ISO specifies that generating capacity should be the net capacity at average annual ambient conditions.[5]

In the case of CA3, the load served acts as a limit to the generation levels from the gensets. This factor is not present in a capacity generation determination for a typical power plant feeding to the grid because the grid does not act in the same way the "CA3 grid" does. If the breakers between the CA3 data center building and the gensets were to trip due to excess generation, the data center would be isolated from the gensets, with the servers and building cooling forced to shut down. This subverts the intention of using the gensets to maintain reliable and high-quality electricity. Excess electricity would damage components or, at a minimum, isolate the load from the gensets. If the building cooling load were to increase (e.g., the day gets warmer), the gensets would open the engine fuel throttle to increase generation output and match demand but would still not exceed the combined 96 MW IT and building demand.

4. CA3's capacity will not exceed 96 MW.

The exact number of gensets that could operate in an emergency depends on actual cooling and IT server loads and the reliability and performance of the gensets. In no case would the combined output of gensets exceed the prescribed maximum load of 96 MW. As explained above, it would be physically impossible for the gensets to generate more electricity than the buildings require. For purposes of testing and maintenance, only one genset would operate at any given time.

The maximum demand of 96 MW would be fixed by the specification and installation of electrical buses and panels, switchyard, and breakers that would have an upper electrical capacity limit. The cooling equipment's maximum demand would also be fixed by the specification and installation of equipment that have an upper physical limit of cooling capacity and would include some redundant cooling equipment. Such redundant equipment could only be operated if a primary component fails and could not be operated in addition to the primary components because that would damage the CA3 data center. The CA3 data center would be served from the grid or from the gensets with electricity that matches and does not exceed demand for the operations of the data server bays and buildings.

5 ISO 3046-1 Reciprocating Internal Combustion Engines – Performance, www.iso.org/standards.

The heat rejected by the IT servers must be removed from each server bay or else the server equipment and data would be damaged. Any attempt to add more servers to a bay would result in direct, immediate, and dire consequences because the building and equipment would have been designed for an upper critical IT load. It is important to note that the maximum combined facility load of 96 MW is based on 100 percent critical IT load with maximum cooling on the hottest day. In actuality, the critical IT load and related cooling load would typically be less than this worst-case scenario.

In recent years, the power and energy industries have advanced in terms of software development and hardwired digital control to permanently limit generation capacity. The generation by CA3 would be regulated by each building and each bay in that building. Software would be used to operate the gensets in a manner that meets the bay and building demand. If the demand decreases (i.e., less mechanical load for cooling, etc.), the gensets sets would automatically adjust the loading and corresponding electrical output. If a genset or the software were to malfunction and attempt to generate more electricity than the building demand, individual electrical gensets controllers would shut down. CA3 would employ physical electronic devices and software technology that limit and monitor the facility's electrical load.

For the maximum generating capacity to increase, the project would have to be redesigned to physically fit more servers in a server bay or add more bays. The project owner would have to address the unplanned increase in electricity demand for normal operations because the existing electrical equipment would not be sized for the higher electricity throughput. Additionally, the project owner would have to install additional cooling equipment units to address the increased heat rejected by the server bays and buildings, and install additional redundant cooling equipment, additional uninterruptable power supply (UPS) battery units, and additional gensets to maintain the level of backup and reliability to match the new higher levels of load. This is an unlikely outcome because such changes are not trivial and would result in a cascade of design and physical changes to the facility.

When CA3 is at full load, its worst-case day combined IT and building load[6] would not exceed 96 MW. The project proposes gensets that total more than 96 MW for purposes of redundancy. The combined generating capacity of the installed operational gensets is autonomously determined by the electrical equipment in the CA3 server bays and building equipment in use at the time of an emergency. CA3 has been designed with one generation yard, configured as 16 data center suites or lineups. The lineups would be paired together in such a configuration that each pair would consist of five gensets, one of which would be redundant. The emergency operation of each of the data center lineups is fully automated. Once CA3 loses connection to the local grid, the transfer switch isolates CA3 from the local electrical transmission grid, and all the gensets assigned to a server

6 Based on the hottest, most humid day of the year and with all IT servers in use at their full usage rate

bay set initiate startup. As the gensets start, synchronize, and take up load associated with their server bays and building equipment, the UPS system would provide full-load power for up to five minutes[7] to smoothly transition the CA3 customers' data servers from the grid to the gensets (DayZenLLC 2021e, Section 2.2.4.3). If a genset or two fail to start or synchronize, the remaining genset in the 5-to-make-4 server bay or the other gensets in other server bay sets ramp up to higher output levels. The output of the genset assigned to a server bay set match (meet but cannot exceed) the CA3 data customers' IT demand in the respective server bay and the server bay's HVAC demand. The combined output of the server bay set is autonomously determined by the electrical equipment in the CA3 server bays and building equipment.

Combined output would be limited by sizing the electricity handling equipment to throttle transfer capacity to no more than 96 MW, which would prevent damage to IT servers and building equipment. Therefore, it would be physically impossible for the gensets to generate more electricity than what the data center would use, or more than 96 MW.

7 The gensets are expected to be on and synchronized within a minute or so, but the UPS can supply up to 5 minutes of power at 100 percent full-load UPS to ensure a complete transition from the grid to the gensets.

Appendix B:

Silicon Valley Power's Transmission System and Related Pacific Gas and Electric Company's Transmission System

Appendix B: Silicon Valley Power's Transmission System and Related Pacific Gas and Electric Company's Transmission System

This appendix includes a discussion of the Silicon Valley Power's (SVP) and Pacific Gas and Electric Company's (PG&E) electrical system reliability (including supporting information) and emergency operations.

Electrical System Reliability

Apart from readiness testing and maintenance, the emergency backup generators (gensets) are designed to operate only when the electric system is unable to provide power to the Vantage Data Services CA3 Data Center (CA3DC). To understand the potential for the gensets to operate during emergencies, one needs to know the conditions under which the electric system is unable to provide power to CA3DC. There are essentially four conditions that might result in the operation of the gensets:

- A fault occurs (power supply interruption) or planned maintenance is required on the equipment interconnecting CA3DC to the SVP 60 kV loop system, and CA3DC's electricity needs cannot be met.
- An outage or fault occurs on the utility transmission system, and PG&E is unable to deliver power to SVP system which provides electricity to CA3DC.
- A Public Safety Power Shutoff (PSPS) impacts the utility transmission system, and CA3DC is not able to receive power from SVP.
- An energy shortage crisis similar to the one in late Summer 2020 where the utility for transmission (e.g. PG&E) is unable to supply electricity to SVP or CA3DC's operators voluntarily disconnect from the utility and rely on gensets to provide the needed electricity.

The SVP 60 kilovolt (kV) loop systems are designed to provide reliable electric service to customers. The looped interconnection allows SVP to provide continuous electricity to customers even under contingency conditions, when one part of the electric network is not functioning. The interconnections for data centers, like CA3DC, on the SVP 60 kV system are designed with redundant equipment throughout such that there is no single point of failure. It takes at least two contingencies before customers on the 60 kV system lose power and, in the case of data centers, would instead rely on gensets. According to SVP, double outages on the 60 kV loop systems are extremely rare, and the data supports this.

SVP provided a list of the outages on its 60 kV system over the last 12 years. There were 41 outages, only six of which resulted in customers being without power. This means that in 35 of these outages the redundant design of the system prevented customers from being without power; data centers would not be isolated from the grid and would not

have relied on their gensets.

Only four outages from January 1, 2009, to June 16, 2021, affected data centers in the SVP service territory. One approximately 7.5-hour outage on May 28, 2016, which was the result of two contingencies (a balloon and a breaker failure), affected two data centers. Another 12-minute outage on December 2, 2016, affected four data centers. Two different outages on August 16, 2020 (both outages due to multiple lightning strikes), with one approximately 2.5 hours and the other one approximately 10.5 hours, affected data centers at various locations on the associated loops.

SVP's root-cause analysis of every outage resulted in changes in maintenance procedures to ensure that breakers are reset before power is restored to a portion of the system that was down for maintenance. Outages would be extremely rare, and the consequences or effects on the fleet of data centers almost negligible.

Wildfire policies could impact SVP's ability to supply power to customers if curtailments on the PG&E system interrupt SVP's access to its remote electricity supplies. A PSPS essentially de-energizes power lines to prevent the lines from causing or being damaged by wildfires. The PSPSs to date have been generally limited to high-fire risk zones and only implemented under special conditions. While the SVP service territory and the SVP's primary PG&E bulk transmission line interconnection points are not in high-risk zones, a line de-energization in one of PG&E's high risk fire zones to reduce the risk of lines causing a wildfire could reduce the SVP electricity transmission access and supply through PG&E lines.

The future impact of PSPSs on the PG&E system are not currently known. To date, two broadly implemented PSPSs in PG&E service territory last fall had no impact on SVP and its customers. As the utilities and regulators try to balance the costs and benefits of PSPSs by finetuning and targeting the implementation, the mostly likely outcome is that future PSPSs will have even fewer potential effects on SVP service territory. SVP has the ability to produce about 200 megawatts (MW) through generators located locally and can adapt to planned outages on the PG&E system just as it has reacted or recovered from unplanned outages in the past to maintain reliable and high-quality electricity supplies to its service territory customers.

Energy shortages, like those that occurred on two occasions in 2020, could prevent a utility from supplying CA3DC's electricity needs and CA3DC would then rely on gensets. Recently, the California Public Utilities Commission (CPUC) adopted a new five-year pilot program (D.21-03-056), in effect through 2025, that orders PG&E, Southern California Edison, and San Diego Gas & Electric to administer the Emergency Load Reduction Program (ELRP). Data centers could voluntarily participate in ELRP and, in the event of an energy shortage emergency, these utilities would disconnect from the grid and use their on-site gensets to supply electricity. The ELRP provides a mechanism for utilities to measure the load reduction and provide financial compensation to the participants. The ELRP does not affect the likelihood of emergency events. The last time an emergency

event occurred, like those in 2020, was 2001. Energy emergencies continue to be rare events. In addition, in the text below, California Energy Commission (CEC) staff (staff) discussed that CA3DC would not be online in time to be part of the first phase of the ELRP, and it is less likely that these types of measures will be necessary beyond the immediate future. Lastly, it is unclear whether the U.S. EPA would consider participation in such a program to be an emergency use and, thus, allowed under federal permit restrictions. For these reasons staff does not consider the existence of the ELRP to have any effect on the likelihood of the CA3 Backup Generators operating outside of testing and maintenance.

Still, staff expects the CA3DC gensets to be required to supply data center loads only rarely. The gensets would not be used when maintenance is performed on the transmission line or substation connecting CA3DC to the SVP grid. The SVP looped systems, designed with redundant equipment, ensure that line outages and other system faults only rarely result in a customer losing connection to grid power and over 10 years of data supports this. PSPSs have not directly impacted SVP customers, and, as staff expects the effects of PSPSs to decrease over time, staff does not think this would be an issue for CA3DC going forward. Finally, emergency events affecting electric supply are rare.

Emergency Operations

Historical Power Outage Frequency

This section provides information on the likelihood of an interruption of SVP's electrical supply that would trigger the emergency operation of the gensets at the Vantage Data Services CA3 Backup Generating Facility (CA3BGF). More than 12 years of historical data of past outages of data centers in the SVP service territory is available. Staff has used it to estimate the frequency and duration of reasonably foreseeable, future electrical outages that could trigger emergency operations. Emergency operations would be unplanned and infrequent.

Reliability statistics for all electric customers served by SVP appears within the 2018 Integrated Resource Plan (IRP), and to expand on this information, staff explored specifically how data centers in SVP's territory have been historically affected by outages.

From the 2018 IRP: "SVP's electric system experiences approximately 0.5 to 1.5 hours of outage time per customer per year. This compares favorably with other utilities in California with reliability factors ranging from 1.0 to 2.5 hours outage per customer per year" (SVP 2018a). The 2018 IRP for SVP reports the Average Service Availability Index (ASAI), defined as the customer-minutes-available divided by the total customer-minutes, expressed as a percentage, and the ASAI has been 99.979% or higher in each recent year, with an average of 99.989 over the past seven years. The SAIFI (interruptions per customer) shows that one or fewer outages have occurred, on average, for all customer types annually (SVP 2018a). This data for all customers is summarized in **Table B-1**.

TABLE B-1 SVP RELIABILITY STATISTICS FOR ALL CUSTOMER TYPES

Year	ASAI (%)	SAIDI (minutes)	SAIFI (interruptions per customer)	Total Outages (number)
2012	99.994	29.34	0.48	67
2013	99.991	47.33	0.49	69
2014	99.989	56.6	0.48	80
2015	99.986	73.96	0.59	123
2016	99.993	36.29	0.5	123
2017	99.979	109.08	1.03	195
2018	99.992	42.61	0.41	132

Notes:
ASAI (%): Average Service Availability Index - (customer minutes available / total customer minutes, as a %).
SAIDI (minutes): System Average Interruption Duration Index - (average minutes interrupted per customer for all customer).
SAIFI (number): System Average Interruption Frequency Index - (number of interruptions per customer for all customers).
Source: SVP 2018a.

The proposed CA3DC would be a large customer of SVP that would receive better-than-average reliability compared to all SVP customers by including a dedicated onsite substation that would be directly served by SVP's looped 60 kV system. Staff reviewed the frequency and duration of known data center customers' outages, as provided by SVP (DayZenLLC 2021l), to discern how redundant features allow SVP's system to provide greater reliability to data centers when compared with average SVP customers.

That data indicates that the likelihood of an outage on SVP's looped 60 kV system that forces the emergency operation of a data center's gensets would be "extremely rare" (DayZenLLC 2021l). Project-specific design factors include the site-specific substation that would connect CA3DC to the SVP looped 60 kV system, a limited number of commercial customers on the looped 60 kV system, redundant transformers to supply CA3DC, and CA3DC's proposed uninterruptible power supply (UPS) battery system to carry critical loads during short-term electric service disruptions or transients.

As mentioned above, there were 41 outages on the SVP 60 kV system over the last 12 years (January 1, 2009, to June 16, 2021), only six of which resulted in customers being without power. Of these outages, only four of them affected data centers in the SVP service territory. These customers are all served by a distribution system that includes "looped" lines that can provide alternate flow paths for power flow to data centers. Thus, in general, it takes more than one 60-kV system path failure to cause a power outage at data center.

One approximately 7.5-hour outage on May 28, 2016, which was the result of two contingencies (a balloon and a breaker failure), affected two data centers. Another 12-minute outage on December 2, 2016, affected four data centers. Two different outages

on August 16, 2020 (both outages due to multiple lightning strikes), with one approximately 2.5 hours and the other one approximately 10.5 hours, affected data centers at various locations on the associated loops.

BAAQMD's Review of Data Center Diesel Genset Engine Operations

Scoping comments from the Bay Area Air Quality Management District (BAAQMD) provided a review of data centers that initiated the operation of diesel genset engines for "non-testing/non-maintenance" purposes to inform staff's consideration of scenarios of emergency backup power generation operations beyond routine testing and maintenance (BAAQMD 2021b). BAAQMD's review covers a recent 13-month period (September 1, 2019, to September 30, 2020) that spans different types of emergency situations across California.

There are 66 data centers under the jurisdiction of BAAQMD with staff at BAAQMD gathering information from 45 of those data center facilities. The attachment to BAAQMD's scoping comments listed 20 facilities that reported some level of "non-testing/non-maintenance" diesel genset engine use in the 13-month period (CEC 2021).

The scope of BAAQMD's review can be summarized as follows:

a. Period covered: 13 months (9,504 hours)

b. Facilities (data centers) under BAAQMD jurisdiction: 66 data centers

c. Facilities from which information was collected: 45 data centers

d. Facilities responding with some "non-testing/non-maintenance" use: 20 data centers

e. Permitted genset engines at the 20 facilities responding: 288 engines

f. Installed generating capacity of genset engines at the 20 facilities responding: 686.5 MW

g. Information was not provided for the 25 facilities that did not report any non-testing/non-maintenance use or the other 21 facilities under BAAQMD's jurisdiction that were not surveyed in this data gathering effort.

BAAQMD normally issues permits for diesel genset engines, and the permit requires each owner or operator to maintain records of the number of operating hours for each "emergency" and the nature of the emergency. The types of events within BAAQMD's review period include a Governor-proclaimed state of emergency, other outages, power quality events, and human errors. The data shows that 75 percent of all genset engine-hours occurred either during the August 2020 Governor-proclaimed state of emergency or the subsequent heat event in September 2020. Staff does not consider this a typical year, and the data is probably not representative or indicative of future years.

For the 20 data centers listed in BAAQMD's review, the total permitted and installed generating capacity of these facilities equals 686.5 MW, across 288 individual genset engines. The total amount of "non-testing/non-maintenance" runtime of all these 288 genset engines amounted to approximately 1,877 engine-hours of operation.

Table B-2 summarizes the runtimes found by BAAQMD's review for each of the 20 data centers. BAAQMD's review identified one data center facility that ran diesel gensets for approximately 400 hours for non-testing/non-maintenance purposes during this time. **Table B-2** shows that this facility has over 40 individual genset engines permitted at the site for an average runtime of about 10 hours per engine. The different data centers within BAAQMD's review showed that nine of the 20 facilities responding had fewer than 50 hours of operating one or more diesel genset engines for non-testing/non-maintenance purposes.

TABLE B-2 BAAQMD'S REVIEW OF NON-TESTING/ NON-MAINTENANCE OPERATION (ENGINE-HOURS)

Data Center	# of Permitted Genset Engines	# of Genset Engines with Non-Testing/ Non-Maintenance Operations	Sum of Non-Testing/ Non-Maintenance Operations (Engine-Hours)	Average Hours of Operations per Genset Engine Used
1	10	10	83	8.3
2	5	5	77	15.3
3	6	6	108	18.0
4	44	44	22	0.5
5	3	2	11	5.5
6	6	6	219	36.5
7	24	24	202	8.4
8	26	24	10	0.4
9	5	5	26	5.2
10	41	40	401	10.0
11	14	11	75	6.8
12	11	11	275	25.0
13	5	5	85	17.0
14	22	8	28	3.4
15	8	7	98	14.0
16	17	4	10	2.4
17	2	2	4	2.0
18	8	6	18	3.0
19	6	6	24	4.0
20	25	17	103	6.0
Total	**288**	**243**	**1,877**	**Max. 36.5**

Sources: BAAQMD 2021b, Energy Commission staff analysis of data from BAAQMD

From the runtimes of all the genset engines at all facilities in BAAQMD's review, **Table B-2** estimates that the average genset engine ran no more than 36.5 hours over the 13-month period. Staff also found that no single engine within BAAQMD's review ran for more than 50 hours overall for "non-testing/non-maintenance" purposes.

Staff used the data in BAAQMD's review (BAAQMD 2021b) and a clarifying email of BAAQMD results (CEC 2021) to estimate the power production during "non-testing/non-maintenance" diesel genset engine use and found that approximately 1,575 MWh was generated during this 13-month (9,504 hour) period. The power generated by these genset engines presumably displaced grid service for the on-site data center facility electrical demand. Based on the installed generating capacity of 686.5 MW partially operating within the 13-month record, the genset engines in BAAQMD's review that did operate would have an extremely low capacity-factor of 0.024 percent [0.024 percent = 1,575 MWh / (686.5 MW * 9,504 hours)]. This capacity factor is only considering the facilities that had genset engines that ran during this 13-month period. Twenty-five of the 45 facilities reporting had zero hours of engine runtime.

Consideration of Extreme Events. California experienced different types of emergency situations within the 13-month period (September 1, 2019, to September 30, 2020) of BAAQMD's review. This period included the expansion of PG&E's PSPS program, severe wildfires, several California Independent System Operator (CAISO) declared emergencies, and winter storms. From August 14, to 19, 2020, California experienced excessive heat. On August 16, 2020, Governor Newsom proclaimed a state of emergency[1] because of the extreme heat wave in California and surrounding western states. This was a one in 30-year weather event that resulted in the first system-wide power outages California had seen in 20 years. In addition to the extreme heat wave in mid-August, high temperatures and high electricity demand occurred over the 2020 Labor Day weekend, especially on Sunday, September 6, and Monday, September 7, 2020 (CAISO 2021). Thus, the data set provided is not necessarily representative of an average 13-month period from which one could extrapolate average genset facility use into the future.

Table B-3 summarizes how these extreme events influenced the runtimes found by BAAQMD's review for each of the 20 data centers.

Table B-3 shows that most "non-testing/non-maintenance" diesel genset engine use identified by BAAQMD's review (over 1,400 engine-hours out of 1,877 engine-hours) occurred either during the August 2020 Governor-proclaimed state of emergency or the subsequent heat event in September. Excluding these extreme events results in 473.7 engine-hours of "non-testing/non-maintenance" diesel genset engine use during other dates, or fewer than two hours per engine for all 288 engines in the review. Out of the 20 data centers that ran genset engines for "non-testing/non-maintenance" purposes, the 473.7 engine-hours of runtime outside of extreme events was spread across 10 data centers out of the 45 data centers covered by BAAQMD's review.

Similarly, staff estimates that over 50 percent of the overall power produced by the genset engines in BAAQMD's review (at least 843 MWh of 1,575 MWh) occurred during the Governor-proclaimed state of emergency, and another 25 percent of the power

[1] https://www.gov.ca.gov/wp-content/uploads/2020/08/8.16.20-Extreme-Heat-Event-proclamation-text.pdf.

produced was attributable to unknown days in the period. Staff's analysis of actual power produced during each day of the 13-month record appears in **Table B-4**.

TABLE B-3 EXTREME EVENTS: NON-TESTING/NON-MAINTENANCE OPERATION (ENGINE-HOURS)

Data Center	Operations During August 2020 State of Emergency (Engine-Hours)	Operations During September 2020 Heat Event (Engine-Hours)	Other Dates of Operations (Engine-Hours)	Sum of Non- Testing/ Non-Maintenance Operations (Engine-Hours)
1	82.7			83
2			76.6	77
3	107.8			108
4	21.6			22
5	11.0			11
6	218.8			219
7	88.2	81.2	32.5	202
8			10.3	10
9	26.0			26
10	259.7		141.1	401
11	75.0			75
12	275.3			275
13			85.0	85
14	19.9		7.6	28
15			98.0	98
16			9.6	10
17			4.0	4
18	9.0		9.0	18
19	24.0			24
20	88.4	14.3		103
Total	**1,307.4**	**95.5**	**473.7**	**1,877**

Sources: BAAQMD 2021b, Energy Commission staff analysis of data from BAAQMD

Across all events, including the extreme event days within the period, **Table B-4** shows that the average genset engine loading in BAAQMD's review was below 40 percent. However, the data does not establish a typical type of operation that could be reasonably expected to occur during any emergency or any typical operational characteristics that could be used in representative air quality modeling. For example, some genset engines in the data set ran at no load or with very low loads; one genset engine ran at no load for 41.7 hours while the highest genset engine load in the data set was 70 percent load. The range of genset engine loads and the fact that most genset engines operated at low loads demonstrates the difficulty in predicting the level of facility electrical demands that would need to be served by the genset engines during an emergency. This also demonstrates the difficulty in making an informed prediction

of the genset engines' emission rates, which vary depending on load, in the event of an emergency.

TABLE B-4 EXTREME EVENTS: NON-TESTING/NON-MAINTENANCE OPERATION (ENGINE LOADS)

Date of Event Start	Extreme Heat Wave Event?	Non-Testing/Non-Maintenance Operations - @ actual load (MWh - per day)	Average Genset Engine Loading on Event Day
Unknown		418.0	45.3%
11/26/2019		1.1	13.8%
11/27/2019		5.5	17.7%
2/15/2020		0.7	7.0%
7/31/2020		2.9	17.3%
8/14/2020		39.0	48.0%
8/16/2020		25.6	38.4%
8/17/2020	Aug 2020 Emergency	843.1	34.5%
8/18/2020	Aug 2020 Emergency	112.0	31.2%
8/19/2020	Aug 2020 Emergency	14.4	40.0%
8/25/2020		5.4	30.0%
9/6/2020	Sept 2020 Event	90.0	48.6%
9/7/2020	Sept 2020 Event	16.8	39.2%
Total		**1,574.7**	**Average 31.6%**

Sources: BAAQMD 2021b, Energy Commission staff analysis of data from BAAQMD

Frequency of Diesel Genset Engine Emergency Use, Discussion: The BAAQMD scoping comment illustrates that genset engines were used at data centers for "non-testing/non-maintenance" purposes that could occur more frequently than utility service power outages. In staff's review of prior data center cases that were proposed within the SVP territory, staff found that the likelihood of an outage on SVP's looped 60 kV system that forces the emergency operation of a data center's gensets would be "extremely rare" and a low-probability event. For the prior cases in SVP territory, staff estimated a 1.6 percent probability of any given data center facility experiencing a power outage in a period of a year based on 10 years of data between 2009 and 2019 (e.g. CEC 2020a, CEC 2020b).

In BAAQMD's review, including the extreme events, 1,877 engine-hours of diesel genset engine use occurred at 20 data centers for "non-testing/non-maintenance" purposes (less than half of the 45 facilities included in the review, and less than a third of such facilities under BAAQMD's jurisdiction). These runtimes occurred due to power outages, in response to the heat storm, and also for other unspecified situations categorized by the genset engine operators as "emergencies." BAAQMD's review covered 288 individual diesel genset engines that operated over a 13-month record. Data was not provided concerning the number of genset engines at the 25 facilities that did not operate under these circumstances. Because the genset engines were collectively available for over

2.74 million engine-hours during the 13-month period (288 engines * 9,504 hours), and they were used for emergency operations for 1,877 engine-hours, at those facilities where operation occurred, the genset engines entered emergency operations during 0.07 percent of their available time (1,877 / 2.74 million). This confirms that emergency use of the genset engines would be very infrequent. It is important to note that this calculation only takes into consideration those genset engines that BAAQMD found to run during this time period; a more comprehensive review would also include the availability of the 25 facilities that had zero hours of genset engine run time and also conceivably the 21 facilities that were not surveyed at all. If these facilities without genset engine runs were included, the estimated probability that any given genset engine would be likely to run would be lower.

Duration of Diesel Genset Engine Emergency Use, Discussion: The BAAQMD scoping comment shows genset engines were used for "non-testing/non-maintenance" purposes, mostly due to extreme events within the 13-month record. The average runtime for each event in BAAQMD's review was approximately 5.0 hours. This shows that the duration of diesel genset engine use for "non-testing/non-maintenance" purposes, without excluding the extreme events, could involve longer runtimes than for typical utility service power outages. However, again this calculation does not factor in the larger proportion of facilities that did not run at all. In staff's review of prior data center cases, staff found an average of 2.6 hours per outage, based on only two transmission line outages occurred in 10 years (between 2009 and 2019) affecting data centers served by SVP's 60-KV lines (e.g. CEC 2020a, CEC 2020b).

BAAQMD's review of diesel genset engine use considers a wider variety of reasons for running the genset engines than solely an electric power service outage. The listed reasons include: state of emergency load shedding, human error event, utility-inflicted disturbance, lightning strikes to transmission line, utility outage, power outage, system-wide power quality event, equipment failure, power bump, power supplier request, power blips, UPS/board repair, utility sag event, mandatory load transfer, and substation transformer power equipment failure. Many of these explanations are simply subcategories under the general category of grid reliability analyzed for prior cases. Others like a human error event, equipment failure, and UPS/board repair appear to be exceedingly rare occurrences unlikely to significantly add to the calculation of when emergency operations might occur. Lastly, the category of emergency load shedding/power supplier request/mandatory load transfer all appear related to the heat storm and Governor-proclaimed state of emergency described above and, given the state's efforts to address reliability in response to such events, are unlikely to re-occur with any frequency. The provision of these categories and sub-categories helps to explain why BAAQMD shows more instances of genset engines running than staff found in prior cases and longer durations of runtimes during emergency situations. Although emergency operations could be triggered for a range of situations, including extreme events like those of August and September 2020, this information confirms that regardless of the triggering event, emergency operations of genset engines would be expected to be infrequent and of short duration.

Summary of Staff's Analysis of "Non-testing/Non-maintenance" Genset Engine Use: BAAQMD's review of "non-testing/non-maintenance" genset engine operations expands our understanding of "when, why, and for how long" diesel genset engine use might occur. BAAQMD's 13-month period of review included a Governor-proclaimed state of emergency, other outages, power quality events, and human errors. Accordingly, BAAQMD's review confirms that genset engine use may occur for reasons other than grid outages, though the period is not representative of a typical year due to the rare heat storm events. Many genset engines were used for "non-testing/non-maintenance" purposes in the period reviewed by BAAQMD, but the overall number of hours of operation for the less than half of the facilities in the review that did run was 0.07 percent of the available time. Genset engine loading levels recorded during these times of use were low (average below 40 percent), and the capacity factor of these genset engines was extremely low (0.024 percent). The BAAQMD review confirms that these types of events remain infrequent, irregular, and unlikely, and the resulting emissions are not easily predictable or quantifiable. The BAAQMD review does not show that these facilities operate significantly more than staff previously analyzed in the grid reliability context in prior cases.

CPUC Decision, D.21-03-056, Directing PG&E, Southern California Edison, and San Diego Gas & Electric To Take Actions To Prepare For Potential Extreme Weather In The Summers Of 2021 And 2022

On March 25, 2021, CPUC adopted decision D.21-03-056, which directed the utilities to take specific actions to decrease peak and net peak demand and increase peak and net peak supply to avert the potential need for rotating outages that are similar to the events that occurred in summer 2020 in the summers of 2021 and 2022. On December 2, 2021, CPUC adopted decision D.21-12-015, which is Phase 2 of the proceeding, and focuses on increasing electric supply and reducing demand for 2022 and 2023 (CPUC 2021b).

Addressed in the decisions are the following scoped issues:

1. Flex Alert program authorization and design
2. Modifications to and expansion of Critical Peak Pricing (CPP) Program
3. The development of an Emergency Load Reduction Program (ELRP)
4. Modifications to existing demand response (DR) programs
5. Expedited Integrated Resource Plan (IRP) procurement
6. Modifications to the planning reserve margin (PRM)
7. Parameters for supply side capacity procurement
8. Expanded electric vehicle participation

This menu of options attempts to ensure grid reliability. One of the options, ELRP, allows PG&E, Southern California Edison, San Diego Gas & Electric, and CAISO to access additional load reduction during times of high grid stress and emergencies involving inadequate market resources, with the goal of avoiding rotating outages while minimizing costs to ratepayers.

The CPUC decisions would allow data centers to choose to participate in a program whereby they could be asked to shed load if an extreme heat event similar to the August 2020 event occurs in the summer of 2022 or 2023. The initial duration of the ELRP pilot program will be five years, 2021-2025, with years 2023-2025 subject to review and revision in the Demand Response Applications proceeding that is expected to be initiated May 2022.[2] However, the CPUC decision lays out many options for emergency load reduction to ensure grid reliability that could be utilized before resorting to gensets. The decision explains that the ELRP design aspects that are subject to review and revision as part of the pilot program include minimizing the use of diesel gensets where there are safe, cost-effective, and feasible alternatives (CPUC 2021a, Section 5.2, page 19).

However, it is not expected that CA3DC would be operational until after the summer of 2023, based on these factors: 1) estimated construction schedule of 15 months for the first phase of the project; 2) estimated completion of CEC exemption proceeding in May or June of 2022; 3) additional time needed for the city and BAAQMD to permit the project. Thus, CA3 would not be online in time to be part of the first phase of ELRP. The next two summers are likely to be the most critical in terms of extra measures needed to ensure grid reliability. It is less likely that these types of measures will be necessary beyond the immediate future, as longer-term strategies for grid resilience, such as battery facilities to supplement intermittent renewable generation, come online.

Additionally, it is unclear whether the U.S. EPA would consider participation in such a program to be an emergency use and, thus, allowed under federal permit restrictions. For these reasons staff does not consider the existence of the ELRP to have any effect on the likelihood of the CA3 Backup Generators operating outside of testing and maintenance.

Furthermore, based on the capacity factors and run times for data centers that operated during the 2020 heat events, even if it were necessary to call on data centers to shed load again, it is expected that these facilities would be called on very infrequently and would have very low capacity-factors and run times in any potential future events.

Electrical Reliability Supporting Information

Staff provided a series of questions to SVP to understand when, why, and for how long gensets would need to operate for any purpose, including PSPSs, other than readiness

[2] CPUC Decision 21-12-015 Attachments 1-3. Available Online at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821668.PDF

testing or maintenance at CA3DC in the SVP service area.

This supporting information includes the following:

A. VDC Supplemental Responses to Data Requests 15-20 – CA3BGF on June 22, 2021 to staff's questions (including a table listing SVP system outages between January 1, 2009 to June 16, 2021)

B. VDC Responses to CEC Data Request Set 3 – CA3BGF on August 26, 2021

C. Report of Conversation: CA3 Backup Generating Facility docketed on September 21, 2021

D. A schematic diagram of the SVP 230 kV, 115 kV and 60 kV transmission system, SVP System Map, and

E. A list of the customers connected to each of the five 60 kV loops in the SVP system.

A. VDC Supplemental Responses to Data Requests 15-20 on June 22, 2021

15. Please explain whether the Uranium Substation or the Walsh Substation could provide 100 percent power to the CD3DC in the event one of the substations is unable to.

RESPONSE TO DATA REQUEST 15

SVP provided the following response.

Walsh and Uranium Substations are General Distribution Stations for customers connected at 12kV and with loads less than 13.5 MW's. In the event a customer load will exceed 13.5 megavolt ampere (MVA) for a single parcel, as we expect for CAD3DC, then they will be required to build a dedicated substation.

VDC adds that it has proposed the necessary substation improvements and expansion for a dedicated Switchyard in its Application for SPPE to accommodate electricity delivery above 13.5 MVA. The improvements are designed to accommodate full electricity demand of the CA3DC after full buildout.

16. SVP has divided its 60 kV system into "loops" each with its own name; please clarify which loop the CA3DC on-site substation would be interconnected to.

RESPONSE TO DATA REQUEST 16

17. CA3DC will be on the Central Loop. Please explain whether the additional load associated with CA3DC would cause overloads on the SVP transmission system that would require upgrades to the existing system.

RESPONSE TO DATA REQUEST 17

SVP provided the following response.

From SVP's initial investigations, the additional load associated with CA3DC will be loadramp restricted until projects to reconfigure the Center Loop and Northwest loop and certain PG&E projects being developed to increase the transmission capacity to theSVP system are completed. To fully understand the impacts of this facility, SVP is conducting a System Impact Study funded by CA3DC and that information will be presented to CA3DC. The System Impact Study is underway. Once the System Impact Study and the SVP and PG&E projects are completed, CA3DC will be allowed to ramp based upon the approved load ramp schedule. Please see attached letter to Vantage from SVP dated 9/24/2020 for additional details related to when load will be able to be served to this facility.

VDC adds that it is proceeding in constructing and operating the CA3DC in phases as described in its SPPE Application pursuant to the 9/24/2020 letter (attached). The SPPEApplication has been prepared to accommodate the future load growth and electricity availability but presents the "whole of the action" as required by CEQA for full planned buildout of the CA3DC facility.

18. Please provide for the 60 kV loop on the SVP system that would serve the CA3DC:
    a. A physical description
    b. The interconnection points to SVP service
    c. The breakers and isolation devices and use protocols
    d. A list of other connected loads and type of customers
    e. A written description of the redundant features that allow the system to provide continuous service during maintenance and fault conditions

RESPONSE TO DATA REQUEST 18

The following response was provided by SVP.

a. The loop serving CA3DC is an overhead transmission line comprised of mainly wooden transmission poles, bundled 954 AAC Conductor, serving the Central Clara Area.

b. Interconnection with the SVP system would be in the 60KV Junction Feeder that serves the customer's transformer.

c. SVP utilizes a breaker and half bus design primarily to isolate any faults within each breakers zone of protection, isolating a fault tothe specific location and preventing an extended outage to adjacenttransformers within the substation or to an adjacent substation.

d. Center Loop serves a mix of General Distribution substations and customer dedicated 60kV Junctions for a total of six substations.

e. Loop services are designed to have two sources of power so that inthe event of an unplanned outage, the faulted zone is isolated from the remainder of the loop system, isolating the unplanned outage to the affected zone. In the same manner, a planned outage used to perform maintenance on a section of the transmission line can be performed without having to drop load, by planning the isolation locations around the piece of equipment to be maintained.

19. Please describe any outages or service interruptions on the 60 kV systems that would serve the CA3DC:

a. How many 60 kV lines serve data centers in SVP, and how many data centers are on each?

b. What is the frequency of these outages and how would they require the use of backup generators?

c. How long were outages and what were their causes?

d. Are there breakers on the 60 kV line or disconnect switch(es) and did they isolate the faults?

e. What was the response to the outage(s) by the existing data centers (i.e., initiated operation of some or all back up generation equipment, data offshoring, data center planned shutdown, etc.)?

RESPONSE TO DATA REQUEST 19

The following responses were provided by SVP.

a. SVP currently has five 60 kV loops plus an internal 60 kV loop at the Scott Receiving Station (SRS) and the Kifer Receiving Station (KRS). The number of Data Centers (DC) on each Loop:

i. North East Loop—4 DC

ii. North West Loop—5 DC

iii. East Loop—8 DC

iv. Center Loop--18 DC

v. South Loop—5 DC

vi. SRS Internal Loop – 2 DC

vii. KRS Internal Loop – 4 DC

b&c. There were four outages between January 1st, 2009 and June 16, 2021 where SVP lost both 60kV feeds into a substation that affected a data center where back-up generators were required to operate. Over this period, this equates to a system reliability of 99.98%.

The outages occurred on May 28th, 2016 (7 hours 23 minutes), December 2nd, 2016 (12 minutes) and two different outages on August 16th, 2020 (one 2 hours 21 minutes and second 10 hours 22 minutes). This is a total outage time affecting data centers of 20 hours and 18 minutes. Only the data centers at various locations on the associated loops were affected, not all data centers.

Since 2009, 60kV outage data is presented in the below table (over 12 years, 5 months of data). The items highlighted in yellow indicate that there was some kind of fault occurred. The items highlighted in blue is when we had a customer out of power as a result. The non-highlighted items are where an outage was taken to correct an observed situation.

d. Each loop has breaker/switches and they operated as expected. SVP does not have knowledge of how each data center reacts to an SVP-caused outage. SVP only know the times we restored service.

20. Please provide the following regarding PSPS events:

a. Would historical PSPS events have resulted in the emergency operationsof the backup generators at the proposed CA3DC?

b. Have there been changes to the SVP and PG&E system around the CA3DC that would affect the likelihood that future PSPS events would result in the operation of emergency generators at the proposed CA3DC?

RESPONSE TO DATA REQUEST 20

SVP provided the following responses.

a. To date, SVP has not had any historical PSPS events. As such there has been no impact to SVP or SVP customers by a PG&E initiated PSPS event in other areas.

b. SVP has not been notified of any changes related to PG&E's transmission system that would change the likelihood of futurePSPS events.

DATE	LINE (S)	CAUSE	DURATION	CUSTOMERS OUT OF POWER
01/29/21	HOM-BRO	Tree Trimming	1 Hour 38 Min	0
12/29/20	ZEN-URA	Tree Trimming	1 Hour 25 Min	0
09/26/20	HOM-BRO	Tree Trimming	2 Hours 55 Min	0
09/22/20	NAJ-PLM	Tree Trimming	1 Hour 36 Min	0
08/16/20	KRS 60KV BUS AND LAF SUB	Multiple Lightning Strikes	2 Hours 21 min	1273
08/16/20	WAL-FIB, WAL-URA	Multiple Lightning Strikes	10 Hours 22 min	5438
10/24/19	MIS CB62 (NRS-MIS)	Hot Spot Repair	29 Min	0
10/11/19	WAL-FIB	Balloons close to line	6 Min	0
09/17/16	KRS-PLM	Rotten Pole Replacement	10 Hours 5 Min	0
08/14/19	SRS CB982-(SRS-CEN)	Faulty JMUX Card	4 Min	0
03/30/19	URA-WAL	Bird @ UW43	1 Hour 46Min	0
11/22/18	HOM-SER	Pole Fire HS9 (forceout)	1 Hour 27Min	0
07/5/18	SER-HOM	Force out to removeballoons	9 Min	0
05/5/18	SER-HOM	Force out to remove balloons	11 Min	0
09/1/17	AGN-NAJ	Force out to cut trees	1 hour 5 min	0
08/8/17	URA-ZEN	Force out to remove balloons	20 Min	0
05/25/17	SRS-FRV	Tripped during SCADA commissioning	1 Min	0
05/8/17	NWN-ZEN	Force out to remove bird	50 Min	0
04/29/17	SRS-HOM	Force out to remove balloons	2 hours 22 min	0
03/20/17	JUL-CEN	Third Party got into 60kV	9 hours 55 min	0
01/22/17	SER-BRO	Tree in wires	3 hours 31 min	0
01/22/17	NAJ-PLM	A phase contact guy wire when winds pick up	1 hour 47 min	0
01/19/17	KRS-PLM	Palm frond between phases	41 min	0
01/18/17	NAJ-PLM	A phase contact guy wire when winds pick up	1 Hour 44 min	0
12/02/16	RAY T1 & T2	Dropped both transformers during restoration switching due to relay not reset	12 minutes	257
09/06/16	SRS-CEN	Bird Contact	40 Min	0
06/30/16	WAL-FIB	Bird nest contact	12 hours and 4 min	0
05/28/16	SRS-FRV- NWN-ZEN	Balloons in line and breaker fail	7 hours 23 min	28
02/17/16	SRS-FRV	Palm tree with fire	7 hours	0
11/18/15	SER-BRO	Arcing wires forced	2 hours 59 min	0
11/16/15	SER-BRO	Rotten Pole- forced	22 hours 32 min	0
11/09/15	JUL CB32	Possible lightning	53 min	0
10/29/15	SER-BRO	Roller arcing-forced	3 hours 33 min	0
DATE	**LINE (S)**	**CAUSE**	**DURATION**	**CUSTOMERS OUT OF POWER**
08/12/15	BRO-DCJ, BRO T1	Squirrel on CB100	3 hours 55 min	2155
06/24/15	CCA CB22	Bad JMUX card	3 hours 23 min	0
05/30/15	SER-BRO	No cause found	3 hours 12 min	0

03/31/15	BRO-DCJ 12KV BUS 1& 2	Squirrel across 12kv bus tie	3 hours 26 min	2927
01/28/15	Mission CB12	Shorted control cable	6 hours 29 min	0
04/24/14	DCJ CB42	Tripped during relay work. BF wired as TT	1 Hour 30 Min	0
10/14/13	URA_WAL	Sheared Hydrant hit 60kV above	2 hours 26 min	0
12/06/12	Jul CB 32	Tripped due to cabinet vibration	2 min	0

SILICON VALLEY POWER
CITY OF SANTA CLARA

September 24, 2020

Vantage Data Centers
Sam Huckaby, Vice President – Construction
2820 Northwestern Parkway
Santa Clara, CA 95051

Subject: New Data Center at 2590 Walsh

Dear Mr. Huckaby,

The City of Santa Clara's Electric Department, Silicon Valley Power, is the electric utility for the City of Santa Clara. Electric service to the subject project will be provided in accordance with the Rules and Regulations for the utility as approved by the Santa Clara City Council. Silicon Valley Power has reviewed the power needs and commitments at all Vantage sites within the City per the property list below:

- 2820 Northwestern
- 2897 Northwestern
- 737 Mathew
- 2590 Walsh (new proposed project not yet approved – request for 90 MVA)

Based on Vantage's existing and future power needs, Silicon Valley Power should be able to provide the following total power combined for all the sites:

- Up to 126.5 MVA from the current date to the end of Second Quarter of 2022
- Up to 192.5 MVA at Third Quarter of 2022 upon completion of the South Loop Project.
    - If there are delays on the South Loop Project, it will affect the timeline to increase from 126.5 to 192.5.
    - 737 Mathew is limited to 33 MW until the South Loop Project is completed.
- Silicon Valley Power is starting the process for additional transmission capacity to the City. The conceptual timeline for completion is Fourth Quarter of 2025. Upon completion of additional transmission, Vantage can increase from 192.5 MVA to 273 MVA.
- If Vantage has a need to exceed 192.5 MVA prior to these timeframes, the City would be interested in partnering on a battery storage project or other generation facility to serve those needs.

The specific details of this service and SVP system modifications required to provide this capacity for 2590 Walsh will be worked out in a Substation Service Agreement at a future date. The City is also in the process of reviewing and updating its load development fee, which will be applicable for any new project (or above 192.5 MVA). It is also important to note that all appropriate fees will need to be paid, and this letter does not supersede any requirements or

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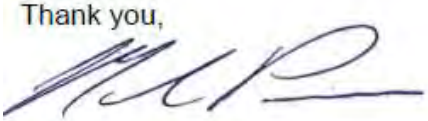
agreements for the already approved sites at 2820 Northwestern, 2897 Northwestern, and 737 Mathew.

Questions can be directed to Wendy Stone at (408) 615-5648.

Thank you,



Manuel Pineda
Chief Electric Utility Officer
City of Santa Clara – Silicon Valley Power

cc: Michael Stoner

B. VDC Responses to CEC Data Request Set 3 – CA3BGF on August 26, 2021

5. Please provide the System Impact Study.

RESPONSE TO DATA REQUEST 5

The background provided is generally correct, but Vantage provides additional clarification. As described in the SPPE Application, the CA3DC will be constructed but leased to clients over time in accordance with the then present demand for data center space and services. Additionally, as with every data center project or any other project that would require electricity, Vantage's future clients cannot occupy portions of the CA3DC without Vantage's ability to provide the electricity necessary for the client's demand. This is unlike a power plant which upon reaching commercial operation would have the ability to transmit all of its electricity to the grid, the CA3DC will ramp up its electrical demand over time. That demand curve is unknown, but Vantage believes that ultimately the entire CA3DC can be successfully leased and occupied by clients.

As described by SVP at evidentiary hearing in prior proceedings, it works closely with all of its large electricity users, especially data centers, to forecast increasing electrical demand on an annual basis. If SVP simply did not have the ability to serve Vantage's predicted demand, Vantage could and would not increase its electrical demand until SVP could provide the electricity. Therefore, Staff's reliance on a System Impact Study for use in its CEQA analysis is misplaced. There can be no environmental impact associated with SVP's inability to provide electricity to meet Vantage's desired electrical demand.

Therefore, the background's assertion that "the build out of the data center would be restricted until the impacts on the SVP are understood" is only partially accurate. A better statement would be that Vantage simply could not use more electricity than SVP can provide. Therefore, as with other projects approved by the Commission, the System Impact Study is not needed for the Commission to be able to complete its analysis.

Unlike a System Impact Study for a power plant, the SVP System Impact Study will study the ability to serve the CA3DC over the long term in addition to serving other existing and new users. In other words, the System Impact Study is not solely studying the impacts to the system from the CA3DC alone.

Vantage has already included the known upgrades to the SVP system necessary for it to receive electricity at the CA3DC site. They include the new substation and switching station and the overhead wires and poles necessary to interconnect to the Uranium Substation. Any other upgrades would not be specifically attributable to the CA3 alone and therefore, would not be required for Staff's CEQA analysis.

For example, as shown in Attachment PD DR-5, SVP acknowledges that it requires outside the system upgrades to be performed by PG&E to increase electricity imports into its system. These network upgrades are not solely the result of the CA3DC, but instead are the result of all the increased electrical demand forecasted by SVP. These outside the system upgrades are part of the Transmission Planning Process. Such upgrade projects have not yet been defined but would be subject to CEQA at the time they are proposed by PG&E.

Similarly, as part of SVP's network upgrade evaluation, if it is determined that additional network upgrades would be necessary to serve future load, such network upgrades would be processed within the City of Santa Clara and compliance with CEQA would be conducted by the City at the time the network upgrade is proposed. This is how the upgrades to the SVP "loops" was performed. While new users benefit from the loop upgrades, no individual project was the sole cause for the loop upgrades.

Staff should not treat these potential future upgrades as "part of the whole of the action" with the CA3DC because they are not caused by CA3DC, are not necessary for the project to be built, and are part of the routine SVP planning processes to serve future load.

Vantage believes that the letter provided by SVP in Attachment PD DR-5 is sufficient for it to fulfill its obligations under CEQA and to determine that the CA3DC will not cause environmental impacts associated with SVP's supply of electricity.

6. Please identify any system upgrades that would be required to fully support the CA3DC.

RESPONSE TO DATA REQUEST 6

See Response to Data Request 5.

C. Report of Conversation: CA3 Backup Generating Facility docketed on September 21, 2021

1. Generally, what is the System Impact Study?
   a. What is the purpose of the study?

RESPONSE TO Question a.

The System Impact Study evaluates the SVP transmission system for impacts based on the projected load from the specific project.

b. Does the study look at overall SVP system needs or is it specific to the Vantage Data Centers?

RESPONSE TO Question b.

The System Impact Study evaluates the overall SVP system and where we think issues will occur within SVP and potentially with the interconnection points we have with the CAISO controlled electric grid.

c. When will the study be completed?

RESPONSE TO Question c.

Anticipated completion 12/2021, but can be as late as Q2 of 2023. Depends on the CAISO TPP 2021/2022 Reliability report findings, and approved mitigation work by PG&E.

d. When completed, will the study identify specific SVP transmission/distribution system upgrades that are directly assigned to the CA3 Data Center at 2590 Walsh Ave?

RESPONSE TO Question d.

Yes, for SVP's system. The present CAISO TPP 2021/2022 reliability model does not account for CA3, however it does account for load growth of the Applicants two other data centers in SVP's territory that may be used to grow load at CA3 instead. The mitigations approved by the CAISO will provide a schedule when capacity may be available for CA3 to connect to the system. In addition SVP may decide to add CA3 to the new TPP 2022/2023 forecast presently being developed. The reliability model for this TPP 2022/2023 year will not be ready until August 2022. SVP expects that the TPP 2022/2023 reliability report and approved mitigation plans will provide a ramp up schedule for CA3.

2. The project owner's statement indicates that there are both SVP projects and PG&E projects that are "being developed" and until these projects are completed the CA3 Data Center will be limited in the amount of load it can connect to the SVP system.

a. What are the PG&E projects that are "being developed"?

RESPONSE TO Question a.

PG&E projects for CA3 have not yet been identified since this project was not included in the 2021/2022 Transmission Planning Process (TPP). If this project (CA3) is elected to be included in the SVP Load Forecast for TPP 2022/2023, and the CEC adopts SVP's load forecast. Then CA3 load will be included for the CAISO to consider in their approved TPP 2022/2023 projects.

i. Are there specific line upgrades that have been identified?

RESPONSE TO Question i.

It is anticipated that the TPP 2021/2022 Approved projects will provide for a significant increase in Load Service Capacity to the SVP system beyond its projected load growth. However, we will be monitoring any PG&E construction schedules provided by PG&E and provide the estimates to the customer on when capacity may be available for their load ramp.

ii. When are they expected to be completed?

RESPONSE TO Question ii.

Unknown

iii. Are these upgrades directly attributable to the CA3 Data Center or are they more generally being developed for SVP loads as a whole? What is the expected date of operation for any identified upgrades?

RESPONSE TO Question iii.

Unknown

b. What are the SVP projects that are "being developed"?

i. Are there specific line upgrades that have been identified?

RESPONSE TO Question i.

Yes

ii. When are they expected to be completed?

RESPONSE TO Question ii.

To be determined

iii. Are these upgrades directly attributable to the CA3 Data Center or are they more generally being developed for SVP loads as a whole? What is the expected date of operation for any identified upgrades?

RESPONSE TO Question iii.

Directly and as a whole to SVP's system. Upgrades will occur over the next 3-6 years.

3. If possible, we would appreciate a general description of what is happening on the SVP system as a whole with load growth due to data centers and other end users and how that relates to the need for upgrades on the PG&E system into SVP and upgrades within the SVP system.

RESPONSE TO Question 3.

Over the past several years, a number of data centers in Santa Clara have received a Small Power Plant Exemption (SPPE) from the CEC. The approved projects currently under construction in Santa Clara represents a significant increase in load. This information was presented to the CEC in the fall of 2020 for an update

to the CAISO 2021/2022 Transmission Planning Process (TPP). The CEC and CAISO evaluated SVP's data and ultimately recommended SVP's load growth be included in the Base Case for the 2021/2022 TPP process. During the CAISO Governors Board meeting in the Spring of 2021, SVP's growth was adopted the Base Case TPP plan approved by the Governor's Board.

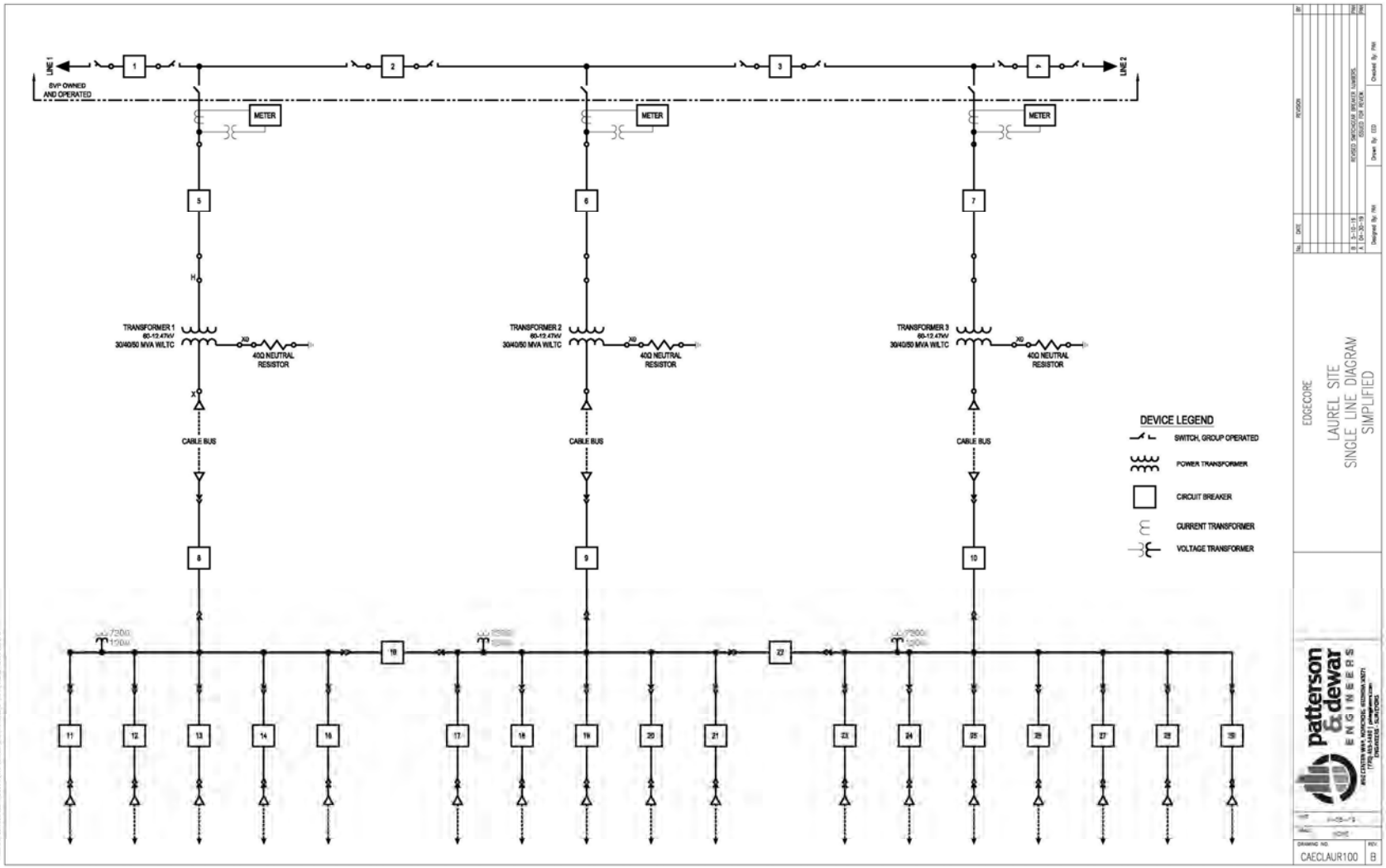
SVP's peak load has been near 600 MW. At approximately 780 MW, SVP experiences N-1 issues with SVP's ability to support a higher load. SVP's adopted load growth for the 1 in 10 scenario is an increase to 1,130 MW by 2031. PG&E is currently studying what projects are required to meet this load growth and will be providing its mitigation plans to the CAISO in September 2021. The CA3 data center is not included in this load growth. As the CA3 projects become real (once CEQA is finalized and the project earns entitlements), SVP will add it to our projections per the CEC guidance we have received. SVP will be updating the projections to the CEC on a yearly basis.

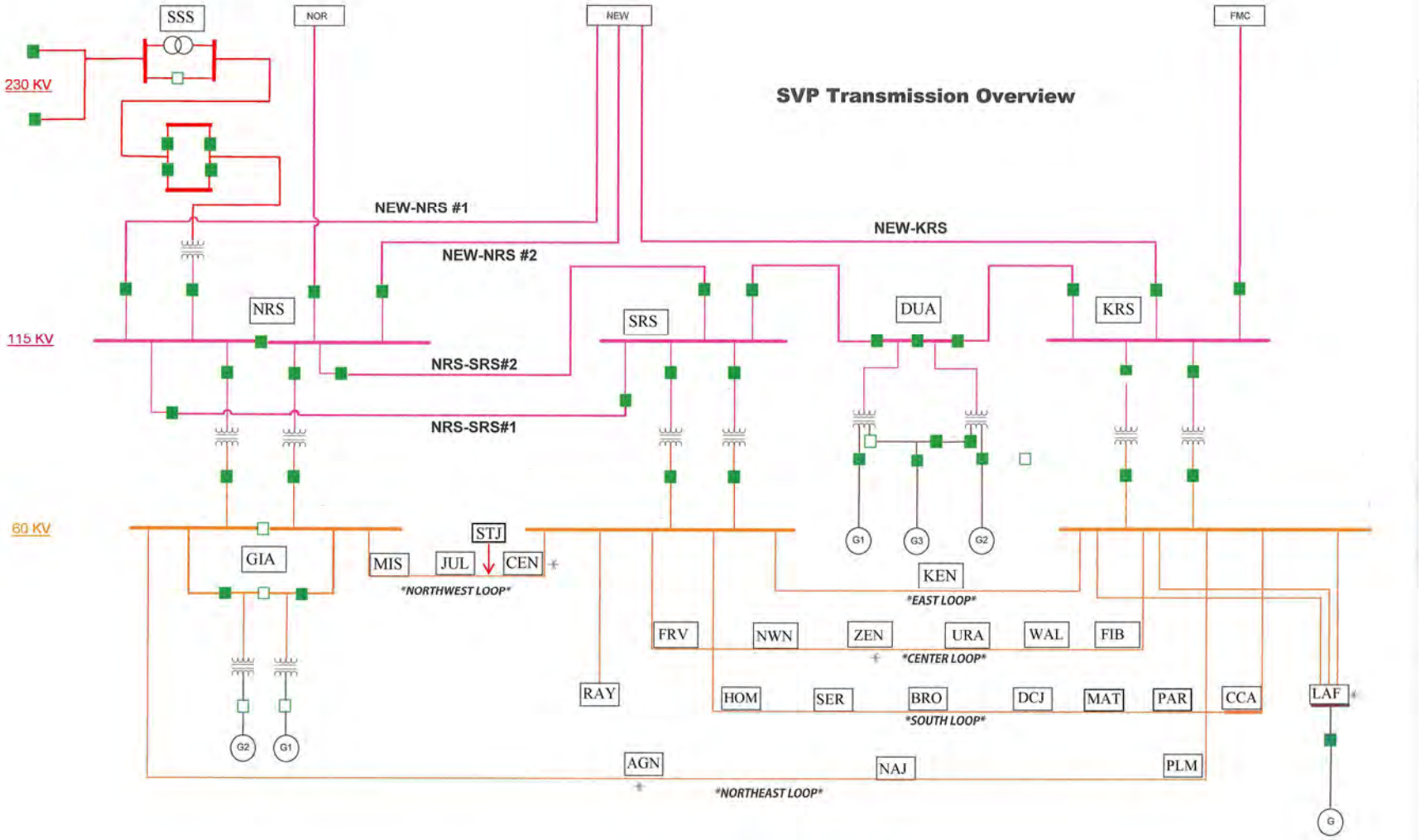
PG&E is currently studying the effects of this load growth and SVP has shared with PG&E potential projects being investigating. Identified projects will be presented Fall of 2021 and voted on by the CAISO Governors Board in the Spring of 2022. Timing of these projects is currently unknown.

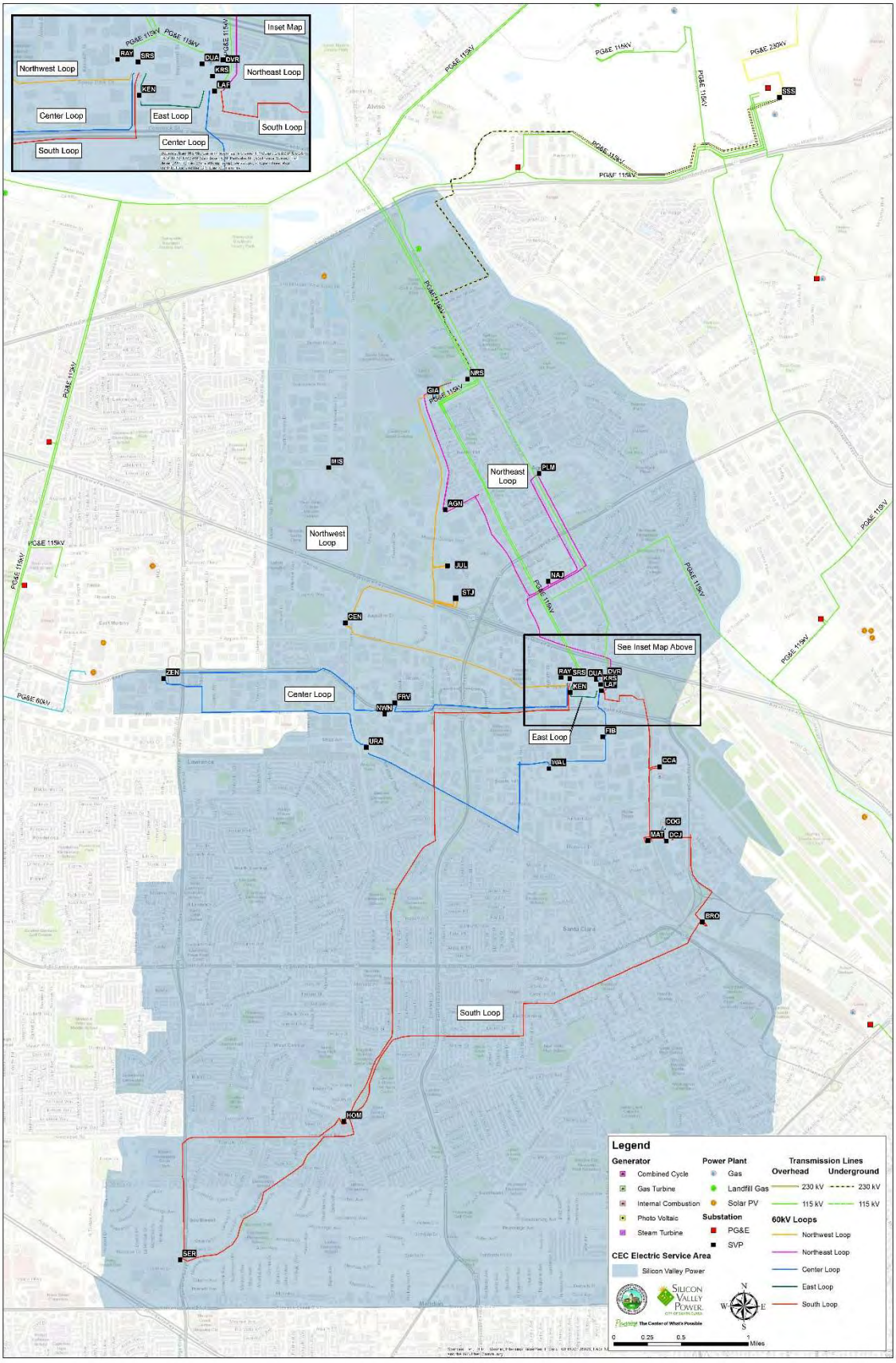
In regard to the Vantage projects, they approached SVP with utilizing unused capacity they currently have entitlements for in Santa Clara for a new data center, CA3. The letter you attached limits their ability to go above certain limits based on projects currently in progress and futures once yet to be identified. The first project is completion of the South Loop Project. This is a project that has been in developments for nearly 10 years, includes reconductoring and splitting of existing loops. This project has gone through CEQA, engineering, easement acquisition and is currently being bid. Construction should begin by the end of the year and be completed by end of 2nd quarter 2022. This will enable the McLaren data center to increase their load. The next level of projects required to go beyond the established numbers are in PG&E system. The McLaren data center, plus other approved data centers were included in the load forecast provided to the CEC and ultimately adopted by the CAISO Governors Board. These projects are currently being studied through the 2021/2022 TPP process.

SVP cannot provide an estimate when Vantage's portfolio will be able to go beyond the values included in the referenced letter. Specifically, the 192.5 MW value. There are options for additional storage facilities to accommodate above the 192.5 MW values. The SVP system limitations are during peak temperature days for up to 4 hours per day which may occur 20 to 30 times annually. Vantage has not approached SVP related the storage options.

D. Schematic diagram of the SVP 230 kV, 115 kV and 60 kV transmission system, and SVP System Map


LINE 1
SVP OWNED AND OPERATED
LINE 2
METER
METER
METER
TRANSFORMER 1
60-12.47kV
30/40/50 MVA W/LTC
TRANSFORMER 2
60-12.47kV
30/40/50 MVA W/LTC
TRANSFORMER 3
60-12.47kV
30/40/50 MVA W/LTC
40Ω NEUTRAL RESISTOR
40Ω NEUTRAL RESISTOR
40Ω NEUTRAL RESISTOR
CABLE BUS
CABLE BUS
CABLE BUS
DEVICE LEGEND
SWITCH, GROUP OPERATED
POWER TRANSFORMER
CIRCUIT BREAKER
CURRENT TRANSFORMER
VOLTAGE TRANSFORMER
EDGECORE
LAUREL SITE
SINGLE LINE DIAGRAM
SIMPLIFIED
patterson & dewar ENGINEERS
CAECLAUR100
B


SVP Transmission Overview
230 KV
115 KV
60 KV
SSS
NOR
NEW
FMC
NEW-NRS #1
NEW-NRS #2
NEW-KRS
NRS
SRS
DUA
KRS
NRS-SRS#2
NRS-SRS#1
GIA
MIS
JUL
STJ
CEN
NORTHWEST LOOP
KEN
EAST LOOP
FRV
NWN
ZEN
URA
WAL
FIB
CENTER LOOP
RAY
HOM
SER
BRO
DCJ
MAT
PAR
CCA
LAF
SOUTH LOOP
AGN
NAJ
PLM
NORTHEAST LOOP
G1
G3
G2
G2
G1
G


Inset Map
Northwest Loop
Northeast Loop
Center Loop
East Loop
South Loop
Center Loop
South Loop
PG&E 115kV
PG&E 230kV
SSS
NRS
GIA
MIS
PLM
AGN
JUL
STJ
CEN
ZEN
FRV
NWN
URA
RAY
SRS
DUA
DVR
KRS
LAF
KEN
RIB
NAJ
CCA
COC
MAT
DCJ
BRO
HOM
SER
See Inset Map Above
Legend
Generator
Combined Cycle
Gas Turbine
Internal Combustion
Photo Voltaic
Steam Turbine
Power Plant
Gas
Landfill Gas
Solar PV
Substation
PG&E
SVP
Transmission Lines
Overhead
Underground
230 kV
115 kV
60kV Loops
Northwest Loop
Northeast Loop
Center Loop
East Loop
South Loop
CEC Electric Service Area
Silicon Valley Power
Silicon Valley Power
N
W
E
S
0
0.25
0.5
1
Miles

E. A list of the customers connected to each of the five 60 kV loops in the SVP system.

SVP Loop Customers and Loading Peak - Substation:

Substation	Loop	Customer/Industry	Substation	Loop	Customer/Industry
Fairview	Center	Mfg1	Central	Northwest	Medical2
Fairview	Center	Datacenter1	Central	Northwest	Real Estate2
Fairview	Center	Datacenter2	Central	Northwest	Real Estate3
Fairview	Center	Datacenter3	Central	Northwest	Real Estate4
Fairview	Center	Datacenter4	Central	Northwest	Datacenter24
FIB	Center	Mfg2	Central	Northwest	Datacenter25
Lafayette	Center	Mfg3	Central	Northwest	R&D2
Lafayette	Center	Datacenter5	Central	Northwest	Real Estate5
Lafayette	Center	Mfg4	Central	Northwest	Real Estate6
Lafayette	Center	Mfg5	Central	Northwest	Healthcare equipment
Lafayette	Center	Datacenter6	Central	Northwest	Education13
Lafayette	Center	Mfg6	Central	Northwest	Semiconductor/R&D
NWN	Center	Datacenter7	JUL	Northwest	Datacenter26
Uranium	Center	Datacenter8	Mission	Northwest	Property Management7
Uranium	Center	R&D1	Mission	Northwest	Computer
Uranium	Center	Property	Mission	Northwest	Real Estate7
Uranium	Center	Datacenter9	Mission	Northwest	Datacenter27
Uranium	Center	Datacenter10	Mission	Northwest	Software1
Uranium	Center	Datacenter11	Mission	Northwest	Computer
Uranium	Center	Property	Mission	Northwest	Cyber Security 2
Uranium	Center	Education1	Mission	Northwest	Conventions 2
Uranium	Center	Education2	Mission	Northwest	Hotel3
Uranium	Center	Education3	Mission	Northwest	Medical3
Uranium	Center	Education4	Mission	Northwest	Cyber Security 3
Uranium	Center	Semiconductor/ Telecommunications	Mission	Northwest	Education14
Uranium	Center	Gaming/AI/ Semiconductors1	Mission	Northwest	Datacenter28
Uranium	Center	R&D/Mfg	Mission	Northwest	R&D3
Uranium	Center	Mfg7	Mission	Northwest	Semiconductor6
Walsh	Center	Semiconductor1	Mission	Northwest	Storage1
Walsh	Center	Gaming/AI/ Semiconductors2	Mission	Northwest	Entertainment3
Walsh	Center	Mfg8	Mission	Northwest	Property Management8
Walsh	Center	Gaming/AI/ Semiconductors3	Mission	Northwest	Medical4
Walsh	Center	Datacenter12	Mission	Northwest	Telecommunications2
Walsh	Center	Education5	Mission	Northwest	NFL5
Walsh	Center	Government1	Raymond	Northwest	Datacenter29
Walsh	Center	Government2	Raymond	Northwest	Datacenter30
Walsh	Center	Semiconductor2	Raymond	Northwest	Datacenter31
Walsh	Center	Semiconductor/R&D/M	Raymond	Northwest	Datacenter32
Walsh	Center	Mfg9	Raymond	Northwest	Telecommunications3
Walsh	Center	Telecommunications1	Raymond	Northwest	Datacenter33
Walsh	Center	Datacenter13	Raymond	Northwest	Gaming/AI/Semiconduct
Walsh	Center	Education6	Raymond	Northwest	Datacenter34
Walsh	Center	Datacenter14	Brokaw	South	Government3
Zeno	Center	Education7	Brokaw	South	Education15

Substation	Loop	Customer/Industry	Substation	Loop	Customer/Industry
Zeno	Center	Education8	Brokaw	South	Education16
Zeno	Center	Semiconductor3	Brokaw	South	Education17

Substation	Loop	Customer/Industry	Substation	Loop	Customer/Industry
Zeno	Center	Datacenter15	Brokaw	South	Real Estate8
Zeno	Center	Bio Tech 1	Brokaw	South	Design1
Zeno	Center	Semiconductor/ Telecommunications	Brokaw	South	Security 2
Zeno	Center	Semiconductor/R&D/M	Brokaw	South	Education18
Agnew	Northeast	Security1	Brokaw	South	Education19
Agnew	Northeast	Property	CCA	South	Mfg12
Agnew	Northeast	Property	DCJ	South	Datacenter35
Agnew	Northeast	Entertainment1	Homestead	South	Education20
Agnew	Northeast	NFL1	Homestead	South	Education21
Agnew	Northeast	Property	Homestead	South	Education22
Agnew	Northeast	Entertainment2	Homestead	South	Education23
Agnew	Northeast	Hotel1	Homestead	South	Education24
Agnew	Northeast	Datacenter18	Homestead	South	Education25
Agnew	Northeast	Medical1	Homestead	South	Education26
Agnew	Northeast	Mfg10	Homestead	South	Healthcare1
Agnew	Northeast	Datacenter19	Homestead	South	Telecommunications4
Agnew	Northeast	Datacenter20	Homestead	South	Education27
Agnew	Northeast	Datacenter21	Homestead	South	Education28
Agnew	Northeast	Datacenter22	MAT	South	Datacenter36
Agnew	Northeast	Cyber Security 1	PRK	South	Datacenter37
Agnew	Northeast	Hotel2	Serra	South	Medical device
Agnew	Northeast	Property	Serra	South	Education29
NAJ	Northeast	Mfg11	Serra	South	Education30
Palm	Northeast	Datacenter/software/ cloud computing	Serra	South	Healthcare2
Palm	Northeast	NFL2	Serra	South	Healthcare3
Palm	Northeast	NFL3	Serra	South	Healthcare4
Palm	Northeast	NFL4	Serra	South	Healthcare5
Palm	Northeast	Education9	Kenneth	East	Datacenter16
Palm	Northeast	Education10	Kenneth	East	Datacenter17
Palm	Northeast	Conventions 1	Kenneth	East	Gaming/AI/Semiconductors4
Palm	Northeast	Education11			
Palm	Northeast	Semiconductor4			
Palm	Northeast	Datacenter23			
Palm	Northeast	Education12			
Palm	Northeast	Real Estate1			
Palm	Northeast	Network hardware1			
Palm	Northeast	Semiconductor5			
Palm	Northeast	Computer hardware/software 1			

SVP Loop Customers and Loading Peak - Loop:

Center 141MW	East Loop 15MW	Northeast Loop 28MW	Northwest Loop 112MW	South Loop 65MW
Mfg1	Datacenter16	Security1	Medical2	Government3
Datacenter1	Datacenter17	Property Management3	Real Estate2	Education15
Datacenter2	Gaming/AI/Semiconduct	Property Management4	Real Estate3	Education16
Datacenter3		Entertainment1	Real Estate4	Education17
Datacenter4		NFL1	Datacenter24	Real Estate8
Mfg2		Property Management5	Datacenter25	Design1
Mfg3		Entertainment2	R&D2	Security 2
Datacenter5		Hotel1	Real Estate5	Education18
Mfg4		Datacenter18	Real Estate6	Education19
Mfg5		Medical1	Healthcare equipment	Mfg12
Datacenter6		Mfg10	Education13	Datacenter35
Mfg6		Datacenter19	Semiconductor/R&D	Education20
Datacenter7		Datacenter20	Datacenter26	Education21
Datacenter8		Datacenter21	Property Management7	Education22
R&D1		Datacenter22	Computer	Education23
Property Management1		Cyber Security 1	Real Estate7	Education24
Datacenter9		Hotel2	Datacenter27	Education25
Datacenter10		Property Management6	Software1	Education26
Datacenter11		Mfg11	Computer	Healthcare1
Property Management2		Datacenter/software/cloud	Cyber Security 2	Telecommunicatio
Education1		NFL2	Conventions 2	Education27
Education2		NFL3	Hotel3	Education28
Education3		NFL4	Medical3	Datacenter36
Education4		Education9	Cyber Security 3	Datacenter37
Semiconductor/Telecommunic		Education10	Education14	Medical device
Gaming/AI/Semiconductors1		Conventions 1	Datacenter28	Education29
R&D/Mfg		Education11	R&D3	Education30
Mfg7		Semiconductor4	Semiconductor6	Healthcare2
Semiconductor1		Datacenter23	Storage1	Healthcare3
Gaming/AI/Semiconductors2		Education12	Entertainment3	Healthcare4
Mfg8		Real Estate1	Property Management8	Healthcare5
Gaming/AI/Semiconductors3		Network hardware1	Medical4	
Datacenter12		Semiconductor5	Telecommunications2	
Education5		Computer hardware/software 1	NFL5	

Center 141MW	East Loop 15MW	Northeast Loop 28MW	Northwest Loop 112MW	South Loop 65MW
Government1			Datacenter29	
Government2			Datacenter30	
Semiconductor2			Datacenter31	
Semiconductor/R&D/Mfg			Datacenter32	
Mfg9			Telecommunications3	
Telecommunications1			Datacenter33	
Datacenter13			Gaming/AI/Semiconductor	
Education6			Datacenter34	
Datacenter14				
Education7				
Education8				
Semiconductor3				
Datacenter15				
Bio Tech 1				
Semiconductor/Telecommunic				
Semiconductor/R&D/Mfg				

References

BAAQMD 2021b – Bay Area Air Quality Management District Comments (BAAQMD). (TN 239805). Letter for CA3 Data Center NOP, dated September 21, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

CAISO 2021 – California Independent System Operator (CAISO). Final Root Cause Analysis Mid-August 2020 Extreme Heat Wave, dated January 13, 2021. Accessed November 2021. Available online at: http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf

CEC 2020a – California Energy Commission (CEC). Walsh Data Center Initial Study and Proposed Mitigated Negative Declaration (TN 232078), February 2020. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-02

CEC 2020b – California Energy Commission (CEC). Mission College Data Center Initial Study and Proposed Mitigated Negative Declaration (TN 232798), April 2020. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-05

CEC 2021 – California Energy Commission (CEC). Record of Conversation with J. Zielkiewicz, BAAQMD Staff Regarding Emergency Operations: Great Oaks South Backup Generating Facility (TN 237631), May 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-SPPE-01

CPUC 2021a – California Public Utilities Commission (CPUC). Decision Directing Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company To Take Actions To Prepare For Potential Extreme Weather In The Summers Of 2021 and 2022. Decision 21-03-056 March 25, 2021. Available online at: https://docs.cpuc.ca.gov/publisheddocs/published/g000/m373/k745/373745051.pdf

CPUC 2021b – California Public Utilities Commission (CPUC). Phase 2 Decision Directing Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company To Take Actions To Prepare For Potential Extreme Weather In The Summers Of 2022 and 2023. Decision 21-12-015, December 2, 2021. Available online at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821475.PDF

DayZenLLC 2021l – DayZenLLC (DayZenLLC). (TN 238416). VDC Supplemental Responses to Data Requests 15-20 CA3BGF, dated June 22, 2021. Available online

at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

SVP 2018a – Silicon Valley Power (SVP). Final 2018 Integrated Resource Plan for Silicon Valley Power. Adopted by the Santa Clara City Council, November 27, 2018. Available online at: http://www.siliconvalleypower.com/svp-and-community/about-svp/integrated-resource-plan.

Appendix C:

Renewable Diesel and Natural Gas
Supplemental Information

Appendix C: Renewable Diesel and Natural Gas Supplemental Information

Renewable Diesel

Introduction

Staff has researched the difference in cost, the production, supply, and emissions of renewable diesel in place of conventional, petroleum diesel for the emergency backup generators proposed for this project. Renewable diesel fuel supply is increasing year-by-year and limited emissions data indicate that greenhouse gas (GHG) emissions would be reduced if the ultra-low sulfur diesel (ULSD) fuel proposed for this facility is replaced with renewable diesel.

On July 31, 2013, the State Air Resources Board (CARB) and the State Water Resources Control Board issued a joint statement declaring that renewable diesel is fully equivalent to conventional low-sulfur diesel for sale in California.[1] Renewable diesel and CARB diesel (called ULSD below) both meet the same definition of "hydrocarbon oil" and American Society of Testing and Materials (ASTM) specification ASTM D975-12a. The joint statement states that renewable diesel is considered by these agencies to be a "drop in" fuel and fully equivalent to one another. A table attached to this joint statement shows that renewable diesel has much lower sulfur content than CARB diesel, a higher cetane number (for improved auto-ignition), and a much lower total aromatic content.

Cost Difference Between Renewable Diesel and ULSD

As explained more fully below, renewable diesel is manufactured at industrial facilities, such as refineries, using high pressures and temperatures to convert feedstocks to the final product. Currently, the most likely source of renewable diesel that could substitute for ULSD is the Neste facility located in Singapore.

There is very little data available comparing the unsubsidized cost of renewable diesel to ULSD. A representative of Western States Oil Company[2], which is a distributor of Neste renewable diesel, indicated that federal and state subsidies that are only available for transportation uses "pretty much covers the differential cost," which he estimated to be around $2.50 to $3.00 per gallon. In addition, transportation fuels are subject to approximately $0.66 per gallon in road taxes, and for a stationary source to avoid these taxes, the fuel supplier must dye the fuel red to distinguish it as a non-taxed use. Staff at the US Environmental Protection Agency (U.S. EPA) confirmed that federal tax credits are only available for transportation fuel uses at this time and that it would take an act

1 Letter from Air Resources Board, signed by Ricard Corey, Executive Officer of CARB and Tom Howard, Executive Director of SWRCB, dated July 31, 2013. Link:
https://ww2.arb.ca.gov/resources/documents/renewable-diesel-joint-statement

2 Email exchanges of information occurred by phone and email on June 22 and June 24, 2020, between Gerry Bemis of CEC staff and Bob Brown of Western State Oil (TN 233855).

of congress to extend them to stationary source use.[3] In addition, CARB staff confirmed that credits issued under the state's Low Carbon Fuel Standard (LCFS) regulation (California Code of Regulations, Title 17, sec. 95480 et. seq) are only available for transportation uses.[4]

CARB initially approved the LCFS regulation in 2009 with the operative date beginning on January 1, 2011. CARB approved some amendments to the LCFS in December 2011, which became operative on January 1, 2013. In September 2015, CARB approved the re-adoption of the LCFS, which became operative on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted.

Due to the complexity of the LCFS program, CARB staff have indicated that it was more likely CARB would establish a parallel program for stationary uses rather than to expand the existing LCFS Program.

The applicant estimated the worst-case annual amount of petroleum diesel fuel needed for readiness testing and maintenance activities to be approximately 421,740 gallons per year of ULSD, assuming each generator is tested at full load for a maximum of 50 hours per year[5]. However, the applicant is proposing an annual limit of 35 hours of readiness testing and maintenance per year per generator. Therefore, the annual amount of petroleum diesel fuel needed would be prorated to 295,218 gallons. If the cost of renewable diesel is $3.00 per gallon more than ULSD, this equates to an annual increase in fuel cost of about $886,000 per year.[6] For comparison purposes, the cost of providing electricity to the CA3 data center (project) is estimated to be about $87 million dollars per year.[7]

Production of Renewable Diesel

Almost all renewable diesel fuel currently used in California is produced in Singapore by Neste, using a patented vegetable oil refining process[8]. Chemically, the production

3 Information exchanges occurred by email between Gerry Bemis of CEC staff and Paul Michiele, Fuel Center Director, Office of Transportation and Air Quality, US EPA. These emails were dated July 6 and 7, 2020 (TN 234353 in the Great Oaks South Data Center proceeding).
4 Information exchange occurred by email between Gerry Bemis of CEC staff and Rachel Connors of ARB staff on July 17, 2020 (TN 235915 in the Great Oaks South Data Center proceeding).
5 VDC CA3BGF SPPE Application Part II (TN 237423), dated April 12, 2021. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=237423&DocumentContentId=70609
6 Computed from 295,218 gallons/yr. x $3.00/gallon = ~$886,000/yr.
7 Computed assuming a maximum data center occupancy and cooling load equal to 96 MW and 8,760 hours per year, or 840,960,000 kWh/yr. x $0.173 per kWh (PG&E's E-20P rate) x 0.60 (assumed occupancy rate) = ~$87 million per year. This is likely an overstatement of annual electricity procurement costs because the cooling portion of the electricity demand is based on the hottest day of the year.
8 Vegetable oil refining is a process to transform vegetable oil into biofuel by hydrocracking or hydrogenation. Hydrocracking breaks big molecules into smaller ones using hydrogen while hydrogenation adds hydrogen to molecules. Diesel fuel produced from these sources is known as *green diesel* or *renewable diesel*.

process entails direct catalytic hydrodeoxygenation [9] of plant oils, which are triglycerides[10], into the corresponding alkanes[11] and propane[12]. The glycerol chain of the triglyceride is hydrogenated to propane.

Thus, renewable diesel is made in an industrial facility that can accommodate the high temperatures and pressures needed to manufacture it.

Adequacy of Renewable Diesel Supply

Currently, renewable diesel is used mostly in mobile source applications in California. This use is supported by both the federal and state credits discussed above that are only available to transportation uses of renewable diesel. As explained above, these credits currently are high enough to cover the increased price of renewable diesel over ULSD for those uses that qualify for these credits.

Renewable diesel produced by Neste and ULSD are both available from a terminal located near the proposed project. The distributor is Western States Oil Company, located at 1790 South 10th Street, San Jose. A representative of this company indicated that they could easily supply one million gallons of renewable diesel per year. It is located approximately 7.5 miles southeast of the project's proposed location, and the drive time is typically less than 20 minutes.

CARB began reporting the consumption of renewable diesel in 2011. Annual sales volumes have grown from approximately 1.8 million gallons sold in 2011 to 618 million gallons sold in 2019. The annual consumption of ULSD for the project for readiness testing and maintenance is estimated to be about 295,218 gallons. If this were replaced with renewable diesel, this level of demand would be about 0.05 percent of renewable diesel consumption in 2019. Thus, if the project used renewable diesel in place of ULSD, there would be little change in the annual consumption of renewable diesel in California and the current supply should be adequate. See **Figure D-1** for annual sales of renewable diesel in California from 2011 to 2019.

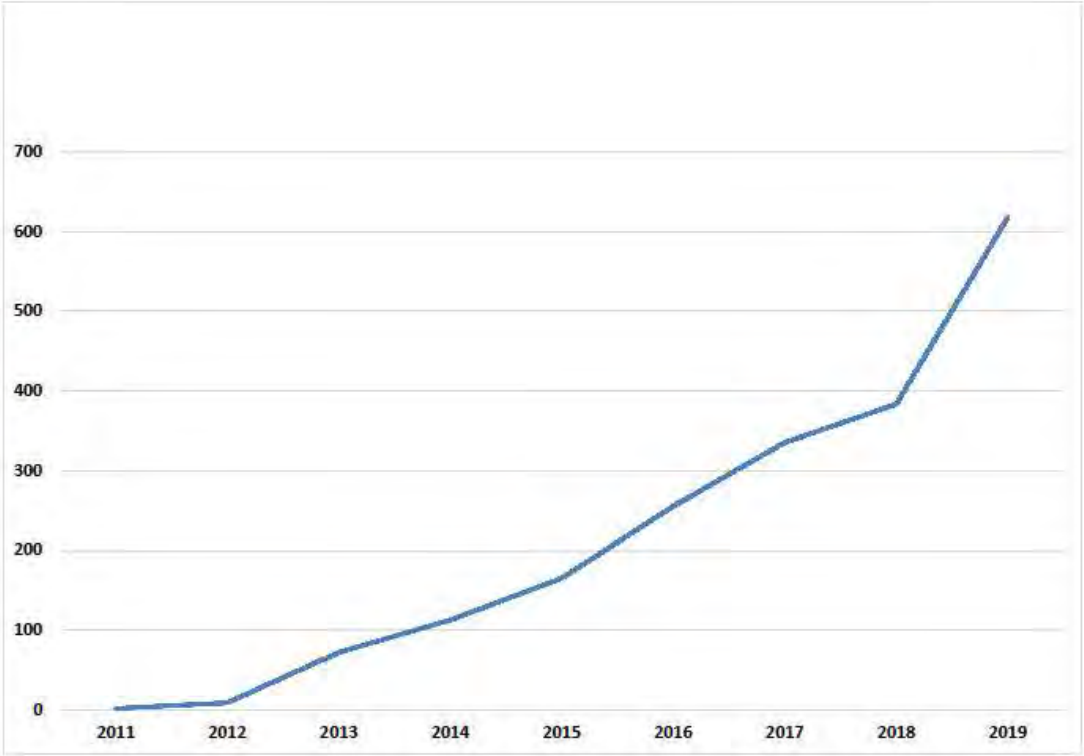
9 Hydrodeoxygenation (HDO) is a hydrogenolysis process for removing oxygen from oxygen containing compounds.

10 A triglyceride is an ester derived from glycerol and three fatty acids. Triglycerides are the main constituents of body fat in humans and other vertebrates, as well as vegetable fat.

11 An alkane consists of hydrogen and carbon atoms arranged in a structure in which all the carbon-carbon bonds are single.

12 Propane is a three-carbon alkane with the molecular formula C3H8. It is a by-product of natural gas process and petroleum refining and is commonly used as a fuel.

FIGURE D-1 CALIFORNIA'S ANNUAL SALES OF RENEWABLE DIESEL (MILLIONS OF GALLONS)



Renewable Diesel Emissions Compared to ULSD

Previous limited test results for motor vehicle engines show renewable diesel would have lower criteria air pollutants emissions, GHG emissions (over the full fuel-cycle), and toxics substance emissions than conventional ULSD. However, the previously tested engines did not have selective catalytic reduction (SCR) or diesel particulate filter (DPF) exhaust aftertreatment systems. CARB's most recent testing on new technology diesel engines (NTDE) with SCR and DPF shows no statistically significant differences in oxides of nitrogen (NOx), particulate matter (PM), and total hydrocarbon emissions, but lower carbon monoxide (CO) and carbon dioxide ($CO_{2)}$ emissions using renewable diesel compared to CARB reference fuel. This should be confirmed with testing under controlled conditions in the size of engine proposed for this facility and using the same source test protocol used for engine certification.

Criteria Air Pollutant, Carbon Dioxide, and Fuel Use Test Results

CARB has conducted testing to evaluate emissions from the use of renewable diesel/biodiesel in one on-road and one off-road NTDE with SCR and DPF exhaust after treatment systems, and one off-road non-NTDE (legacy engine) without DPF and SCR.[13]

[13] Low Emission Diesel (LED) Study: Biodiesel and Renewable Diesel Emissions in Legacy and New Technology Diesel Engines, Final Report – November 2021. Available Online at: https://ww2.arb.ca.gov/resources/documents/low-emission-diesel-led-study-biodiesel-and-renewable-diesel-emissions-legacy. Accessed December 2021.

The emissions and performance effects of three renewable diesel/biodiesel blends – 100 percent renewable diesel (R100), 65 percent renewable diesel/35 percent biodiesel (R65/B35), and 50 percent renewable diesel/50 percent biodiesel (R50/B50) – were tested in each engine against a petroleum-based CARB reference fuel (CARB reference fuel).

Table D-1 summarizes the test results comparing R100 and CARB reference fuel from CARB's report.

For the off-road legacy engine (115 horsepower [hp] 2009 John Deere 4045HF285, without DPF and SCR), test results are consistent with previous observations. R100 showed statistically significant NOx reduction of 5.4 percent using the Non-Road Transient Cycle (NRTC) for testing and 4.9 percent using the five-mode D2 ISO 8718 steady state cycle (D2 cycle) for testing compared to CARB reference diesel. Emissions of PM decrease by 38 percent using the NRTC and 27 percent using the D2 cycle. Total Hydrocarbon (THC) emissions showed significant decreases (45 percent using the NRTC and 35 percent using the D2 cycle) using R100 compared to CARB reference diesel. Emissions of CO showed statistically significant decreases (22 percent using the NRTC and 14 percent using the D2 cycle) using R100 compared to CARB reference diesel. Emissions of CO_2 showed statistically significant reductions (4.1 percent using the NRTC and 4.6 percent using the D2 cycle) using R100 compared to CARB reference diesel. Brake Specific Fuel Consumption (BSFC), measured in gallons/bhp-hr, showed statistically significant increases of 3.5 percent for R100 using the NRTC. For the D2 cycle, there was no statistically significant change in BSFC for R100. Total particle number ([TPN] greater than 3 nm in diameter) and solid particle number ([SPN] greater than 23 nm in diameter) emissions show reductions for R100, except for the TPN tested in the D2 cycle that also showed a relatively large measurement variability.

For the on-road NTDE (450 hp 2019 Cummins C-15, with DPF and SCR), no statistically significant NOx emissions differences were found between the CARB reference fuel and R100. Emissions of PM of the on-road NTDE are low and near background levels. PM emissions observed for the CARB reference fuel and R100 did not show statistically significant differences. Emissions of THC were near or below background values. With the Federal Test Procedure (FTP), R100 showed no statistically significant difference in THC emissions relative to the CARB reference fuel. With the steady state Ramped Modal Cycles (RMC), THC emissions levels were below the background levels for all tests, and hence there were no measurable THC emissions. Emissions of CO from the FTP testing showed no statistically significant changes, but the RMC testing showed a slight reduction of 5 percent with R100. Emissions of CO_2 showed statistically significant decreases (3.2 percent using the FTP and 2.9 percent using the RMC) using R100 compared to CARB reference diesel. BSFC showed statistically significant increases (4.8 percent using the FTP and 5.1 percent using the RMC) using R100 compared to CARB reference diesel. Emissions of TPN show reductions (16 percent using the FTP and 14 percent using the RMC) for R100. Emissions of SPN also show reductions (22 percent using the FTP and 19 percent using the RMC) for R100.

TABLE D-1 COMPARISON OF TEST RESULTS FOR R100 AND CARB REFERENCE FUEL			
	Percent Difference Comparing R100 and CARB Reference Fuel		
	Off-Road Legacy Engine	**On-Road New Technology Diesel Engine (NTDE)**	**Off-Road NTDE**
NOx	-5.4 (NRTC), -4.9 (D2 cycle)	No Statistically Significant Difference	No Statistically Significant Difference
PM	-38 (NRTC), -27 (D2 cycle)	No Statistically Significant Difference	No Statistically Significant Difference
Total Hydrocarbon (THC)	-45 (NRTC), -35 (D2 cycle)	No Statistically Significant Difference	No Statistically Significant Difference
CO	-22 (NRTC), -14 (D2 cycle)	No Statistically Significant Difference (FTP), -5 (RMC)	-44 (NRTC), Below Background Levels (C1 cycle)
CO_2	-4.1 (NRTC), -4.6 (D2 cycle)	-3.2 (FTP), -2.9 (RMC)	-3.8 (NRTC), -3.0 (C1 cycle)
Brake Specific Fuel Consumption (BSFC)	+3.5 (NRTC), No Statistically Significant Difference (D2 cycle)	+4.8 (FTP), +5.1 (RMC)	+4.1 (NRTC), +5.0 (C1 cycle)
Total Particle Number (TPN) Emissions	-16 (NRTC), No Statistically Significant Difference (D2 cycle)	-16 (FTP), -14 (RMC)	Not Tested
Solid Particle Number (SPN) Emissions	-19 (NRTC), -21 (D2 cycle)	-22 (FTP), -19 (RMC)	Not Tested

Source: See footnote 13.

For the off-road NTDE (225 hp 2018 Caterpillar C7.1 ACERT, with DPF and SCR), NOx emissions showed no statistically significant differences between the CARB reference fuel and R100. Emissions of PM were more than a factor of 30 below the Tier 4 PM standard of 0.015 g/bhp-hr in that size category. No statistically significant differences in PM emissions were seen between different fuels. Emissions of THC were below the background levels for both the NRTC and eight-mode C1 ISO 8718 steady state cycle (C1) cycles and for all fuels. Therefore, there were no statistically significant differences in THC emissions relative to the CARB reference fuel. Emissions of CO from the NRTC testing for R100 were 44 percent lower than those for the CARB reference fuel. With the C1 cycle testing, CO emissions were near or below background levels for all tests. Emissions of CO_2 showed statistically significant reductions (3.8 percent using the NRTC and 3.0 percent using the C1 cycle) using R100 compared to CARB reference diesel. BSFC showed statistically significant increases (4.1 percent using the NRTC and 5.0 percent using the C1 cycle) using R100 compared to CARB reference diesel. Emissions of TPN and SPN were not tested for the off-road NTDE.

In summary, test results for the off-road legacy engine are consistent with previous observations, which showed that renewable diesel is expected to reduce criteria air pollutant and tailpipe CO_2 emissions from levels expected for ULSD. However, for the on-road NTDE and off-road NTDE engines, which were equipped with DPF and SCR, no statistically significant differences were found in the NOx, PM, and THC emissions using renewable diesel and CARB reference diesel. Emissions of CO for the on-road NTDE and off-road NTDE engines showed reduction using the renewable diesel for some testing cycles. Emissions of CO_2 for the on-road NTDE and off-road NTDE engines also showed reduction using the renewable diesel. Fuel consumption (shown as BSFC) is increased for the renewable diesel for all three engines tested, which is likely due to its slightly lower energy density per gallon, around 4 to 10 percent lower than ULSD. TEmissions of TPN and SPN are generally reduced using renewable diesel for the off-road legacy engine and the on-road NTDE.

The Caterpillar 3516E engines proposed by the applicant to be used at the project for the backup generators are rated at a nominal 2.75 megawatt (MW) (4,043 hp), much larger than the engines tested in the report cited above. The Caterpillar 3516E engines proposed for the project would be equipped with SCR and DPF to achieve compliance with Tier 4 emission standards. Test results for the new technology diesel engines would be more comparable to the proposed engines than the legacy engine. Ideally, tests should be performed on the proposed engine using renewable diesel compared with ULSD to have a better understanding of the amount of reduction in emissions expected using renewable diesel in place of ULSD. However, based upon testing to date, criteria air pollutant emissions should be significantly reduced when replacing ULSD with renewable diesel.

Toxics Emissions Test Results. Toxics emissions were tested previously on a 475 hp 2000 Caterpillar C-15 engine in the Freightliner chassis tested on a heavy-duty vehicle dynamometer.[14] The previous test data show good potential for reducing toxics substance emissions by substituting renewable diesel for ULSD. However, the results obtained for increased acetone emissions may need further study and analysis. In addition, the tested engine did not have SCR and DPF, and, therefore, it may not be comparable to the proposed engines.

Toxics emissions were not tested for CARB's most recent report. Based on the test results for total hydrocarbon emissions and PM emissions for the NTDE (shown in **Table D-1**), staff expects no statistically significant difference in toxics emissions using renewable diesel compared to ULSD.

14 CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California—Biodiesel Characterization and NOx Mitigation Study (October 2011); Appendix G.

Fuel-cycle Greenhouse Gas Emissions Comparison

As shown in **Table D-1** above, renewable diesel used in place of ULSD can reduce CO_2 tailpipe emissions approximately 3 to 4 percent. However, renewable diesel is produced with a fuel-cycle that is a far lower carbon intensity (CI) than ULSD. To have a more complete understanding of the impact of replacing ULSD with renewable diesel, it is necessary to examine the full fuel-cycle of each fuel from origin to use. This is because GHGs have a global impact rather than a local impact.

To compute full fuel-cycle GHG emissions, a model called GREET[15] is commonly used to evaluate full fuel-cycle GHG emissions for transportation. Although staff has not computed fuel-cycle emissions using GREET, we can estimate the relative change in GHG emissions using CI values from the LCFS program. Although the use of renewable diesel does not qualify for obtaining credits from LCFS as explained above, CI values obtained from that program[16] can be used to estimate the expected GHG emissions reductions associated with switching from ULSD to renewable diesel in this project. CARB staff use a version of GREET called CA-GREET to compute CI values for the LCFS program.[17]

The data shown below in **Table D-2** are CARB-estimated values for Neste reformulated diesel supplied from various feedstocks with the renewable diesel produced at the Neste refinery located in Singapore. These CI values include the feedstock and transport to California via oceangoing tanker. They apparently do not include the consumption of the fuel. Combining the CI of the fuel-cycle with the reduced tailpipe emissions from **Table D-1** provides an approximate estimate of the full fuel-cycle benefit of replacing ULSD with renewable diesel. For comparison purposes, the CI for ULSD/CARB diesel has a value of 100.45.

15 Greenhouse gases, Regulated Emissions, and Energy use in Transportation. Available from Argonne National Labs. From the Arbonne web site: Analysis of transportation systems on a life-cycle basis permits us to better understand the breadth and magnitude of impacts produced when vehicle systems are operated on different fuels or energy options like electricity or hydrogen. Such detailed analysis also provides the granularity needed to investigate policy implications, set R&D goals, and perform follow-on impact and policy assessments. US Department Energy's Office of Energy Efficiency and Renewable Energy, Systems Assessment Group in Argonne's Energy Systems Division has been developing the GREET model to provide a common, transparent platform for lifecycle analysis (LCA) of alternative combinations of vehicle and fuel technologies.Vehicle technologies include conventional internal combustion engines, hybrid electric systems, battery electric vehicles, and fuel cell electric vehicles. Fuel/energy options include petroleum fuels, natural gas-based fuels, biofuels, hydrogen, and electricity. LCAs conducted with the GREET platform permit consideration of a host of different fuel production, and vehicle material and production pathways, as well as alternative vehicle utilization assumptions. GREET includes all transportation modes – on-road vehicles, aircraft, marine vessels, and rail (to be added in a new GREET release). The Systems Assessment Group has conducted various LCAs of vehicle/fuel systems for DOE and other agencies. There are more than 20,000 registered GREET users.

16 https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities

17 https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities.

TABLE D-2 CARBON INTENSITY VALUES COMPUTED FROM CA-GREET MODEL		
Feedstock	**Carbon intensity (CI)**	**Percent Reduction of Renewable Diesel From ULSD (%)**
Asian-sourced used cooking oil	16.89	-83
Globally averaged used cooking oil	25.61	-75
Southeast Asian fish oil	33.08	-67
North American tallow	34.19	-66
New Zealand tallow	34.81	-65
Australian tallow	36.83	-63
Midwest corn oil	37.39	-63
Globally averaged tallow	39.06	-61
ULSD/CARB Diesel	100.45	0

Thus, the 61 to 83 percent reduction in CI values from **Table D-2** should be combined with results in **Table D-1** above. However, it can be seen that using renewable diesel in place of ULSD would greatly reduce the project's full fuel-cycle GHG emissions associated with operating diesel-fueled equipment during the construction period and onsite fuel consumption during the operations period. However, renewable diesel still has some carbon associated with the fuel-cycle, as evidenced by the CI values in **Table D-2** not being zero, so additional measures would be needed before the project could be considered a carbon-free facility.

Natural Gas Internal Combustion Engines

Introduction

Staff has researched the difference in cost, supply, and emissions of using natural-gas-fueled internal combustion engines (ICEs) in place of conventional petroleum diesel for the emergency backup generators proposed for this project. Currently, there is limited information available on the fuel supply reliability of natural gas delivered to the site by pipeline versus the reliability of delivering liquid petroleum diesel by tanker truck to the site. However, most backup generators currently in place use diesel. A nationwide survey in 2016 revealed that 85 percent of the emergency backup generation was served by diesel, while 10 percent was served by natural gas and the remainder by propane.[18]

Cost Difference Between Natural Gas and Petroleum Diesel Emergency Backup Generators

The reliability of a system is an important consideration when selecting an emergency backup generator. But cost is important as well. Many factors contribute to the life-cycle costs of a backup system, such as equipment, maintenance, and fuel costs.

18 National Renewable Energy Laboratory report. A Comparison of Fuel Choices for Backup Generators; https://www.nrel.gov/docs/fy19osti/72509.pdf.

Both, natural gas ICEs and diesel engines are reciprocating engines. They are available in sizes up to 18 MW. The fast start-up capability of reciprocating engines allows for the timely resumption of the system following a maintenance procedure. In peaking or emergency power applications, reciprocating engines can quickly supply electricity on demand. The annual energy cost ($/MMBtu) for natural gas fuel is lower than conventional diesel. But diesel generators generally have a lower component cost than ICEs. It is notable that improvements in ICEs and recently promulgated air quality regulations have reduced some of the cost advantages of diesel systems.[19]

The size of the engines can impact operating cost. If switching from one generating technology to another requires more engines to deliver the same total MW capacity, the repair and maintenance frequency and testing requirements could increase, which may result in an increase in associated costs.

Space Needs

Diesel-fueled emergency backup generators are typically built on a rack over their fuel supply tank, requiring space between each generator and a staircase and service deck at the elevation of the diesel engine. Based on air quality modeling files, staff estimated the footprint of the 44 engines proposed at the project site as approximately 0.48 acres for 121 MW (peak power) or approximately 252 MW per acre.

Enchanted Rock, a vendor for natural gas ICEs, provided a drawing showing how they would arrange their engines at a typical site. The result was an approximate capacity of 78 MW per acre.

Natural Gas ICE Emissions Compared to Petroleum Diesel

Criteria Air Pollutant and Carbon Dioxide Emissions Comparison

Staff compared criteria air pollutant emissions and carbon dioxide emissions of natural gas ICEs against the proposed diesel-fired engines for the project. The proposed 44, 2.75-MW engines would be equipped with SCR and DPF to achieve compliance with Tier 4 emission standards. However, it takes time for the SCR to reach the activation temperature and become fully effective in controlling NOx emissions. Depending on load, the SCR would be expected to kick on within 15 minutes.

Information for the natural gas ICEs is primarily based on the data provided for the Small Power Plant Exemption application for the San Jose Data Center (Jacobs 2021s). The natural gas ICEs for the San Jose Data Center would be equipped with a 3-way catalyst system to reduce emissions of NOx, CO, volatile organic compounds (VOC), and air toxics. The applicant for the San Jose Data Center also assumed 15 minutes of operation with uncontrolled emissions and 45 minutes of operation with controlled emissions to estimate hourly emissions (Jacobs 2021o).

Table D-3 compares the emission factors in pounds per megawatt-hour (lbs/MWe-hr) for the proposed diesel engines at the project and those for the natural gas ICEs proposed at the San Jose Data Center. Staff assumed the same 15-minute warm up period for the SCRs of the diesel engines and the 3-way catalyst system for the natural gas ICEs.

TABLE D-3 CRITERIA AIR POLLUTANT EMISSIONS NATURAL GAS ICE VERSUS PETROLEUM DIESEL ICE

	Units	Proposed Petroleum Diesel Engine	Natural Gas ICE	Difference	Percent Difference (%)
NOx	Lbs/MWe-hr	4.89	0.09	-4.81	-98.2
PM	Lbs/MWe-hr	0.06	0.01	-0.05	-83.1
VOC	Lbs/MWe-hr	0.19	0.10	-0.09	-45.9
CO	Lbs/MWe-hr	1.89	1.68	-0.21	-11.3
SO_2	Lbs/MWe-hr	0.01	0.009	-0.003	-25.4
CO_2	Lbs/MWe-hr	1,556	1,440	-116	-7.4

Sources: DayZenLLC 2021b, Jacobs 2021s, and Energy Commission staff analysis

Toxics Emissions

Staff is not able to find data comparing toxics emissions of natural gas ICEs with those for diesel engines. However, these are expected to be reduced due to the reductions reported above for VOCs and PM.

Fuel-cycle Greenhouse Gas Emissions Comparison

As mentioned above, to compute full fuel-cycle GHG emissions, the GREET model is commonly used to evaluate full fuel-cycle GHG emissions for transportation. Although staff has not computed fuel-cycle emissions using GREET, we can estimate the relative change in GHG emissions using carbon intensity (CI) values from the LCFS program. GREET results should be combined with stack emissions shown above to get an understanding of the relative GHG emissions associated with both natural gas ICEs and petroleum diesel ICEs.

CI values indicate that natural gas ICEs fueled with pipeline natural gas produced from fossil feedstocks have a CI about 20 percent lower than petroleum diesel, as shown in the first three rows of **Table D-4**, compared to petroleum diesel, which is shown at the bottom of the table.

Natural gas feedstocks from renewable feedstocks have a CI that is much lower, with most of the renewable feedstocks associated with a net reduction in fuel-cycle carbon emissions. In other words, these feedstock options act as a way of capturing GHG emissions that would otherwise escape. Negative values in **Table D-4** below reflect this outcome. Converting these feedstocks into a fuel would provide substantial societal benefits since the feedstock would otherwise be contributing directly to global warming.

A recent study done for the State Water Resources Control Board by Carollo Engineers[19] and published in June 2019 illustrates how food wastes can be converted to renewable natural gas and achieve significant GHG emissions reductions. Through the co-digestion of food waste diverted from landfills and processed in anaerobic digesters, municipal wastewater treatment plants have the potential produce, capture, and make beneficial use of biogas, which is a renewable source of methane.

The Carollo report stated that landfills accounted for approximately 8,560,000 metric tons of carbon dioxide equivalent (MT CO_2e) emissions as methane in 2016, or about 22 percent of statewide methane emissions. They estimated that by the year 2030, approximately 3.4 million short wet tons of food waste could be diverted from landfills to municipal wastewater treatment plants for co-digestion and processing into renewable natural gas for beneficial use. This would reduce methane emissions from landfills and reduce GHG emissions from this sector by up to approximately 2.4 $MMTCO_2e$.

TABLE D-4 CARBON INTENSITY VALUES COMPUTED FROM CA-GREET MODEL

Feedstock	Carbon intensity (CI)	Percent Reduction of Natural Gas ICEs From Petroleum Diesel (%)
PG&E Gas	80.59	-19.7
Average Pipeline Gas	79.21	-21.1
SoCal Gas	78.21	-22.1
Landfill Gas	-5.28 to 62.30	-105 to -38
Food Wastes	-22.93	-122
Dairy Manure	-377.83 to -192.49	-476 to -292
Renewable Natural Gas	-630.72 to -151.41	-728 to -251
ULSD/CARB Diesel	100.45	0

While using pipeline natural gas in place of ULSD would reduce fuel-cycle GHG emissions approximately 20 percent, a 2018 report funded by the Public Utilities Commission (CPUC) evaluated issues with injecting fuels other than natural gas into natural gas pipelines. The report was titled: *Biomethane in California Common Carrier Pipelines: Assessing Heating Value and Maximum Siloxane Specifications -- An Independent Review of Scientific and Technical Information*.[20] Assembly Bill 1900 (Chapter 602, Statutes of 2012), which became operative beginning in 2013, required, among other things, that the CPUC review and upgrade as appropriate specifications for adding biogas to the state's existing natural gas pipeline system.

In 2006, the CPUC adopted Decision 06-09-039, which increased the specified minimum allowable biomethane heating value (HV) from 970 British Thermal Units per standard cubic foot of gas (BTU/scf) to 990 BTU/scf.

19 WRCB, Co-Digestion Capacity In California; Co-Digestion Capacity Analysis Prepared for the California State Water Resources Control Board under Agreement #17-014-240; https://www.waterboards.ca.gov/water_issues/programs/climate/docs/co_digestion/final_co_digestion_capacity_in_california_report_only.pdf; June 2019.

20 See: https://ccst.us/wp-content/uploads/2018biomethane.pdf

In 2014 the CPUC adopted Decision 14-01-034, which included additional gas quality specification requirements that biogas would need to meet before it could be added to natural gas pipelines, including a maximum siloxane content of 0.1 mg siloxane per cubic meter of gas (Si/m^3). This level was set to protect against equipment damage and catalyst poisoning.

The 2018 CPUC report recommends that CPUC conduct further work to determine the acceptability of allowing an HV as low as 970 BTU/scf, which is the value that was allowed before the 2006 CPUC decision to increase the HV to 990 BTU/scf.

The 2018 CPUC report stated that siloxanes are not expected to be present in dairy waste, agriculture waste, or forestry residues. It concluded that some sources are very unlikely to have siloxanes (e.g., dairies or agricultural waste) and that these sources could be held to a reduced and simplified verification regime.

Further work may be needed to integrate renewable natural gas into the existing natural gas pipeline system in a cost-effective manner.

Contracting to obtain rights for renewable gas would lead to greater GHG benefits. This can be accomplished simply by displacement if the issues identified above can be resolved, assuming that the location of the use of the renewable natural gas is different from the source of the renewable natural gas unless they are close enough together to use a dedicated pipeline.

As shown in **Table D-2**, *fossil* natural gas and some forms of renewable natural gas still has some carbon associated with the fuel cycle. These show up in the table for those fuels with a CI that is greater than zero. In these cases, additional measures could be needed before the project would be considered a carbon-free facility.

References

DayZenLLC 2021b – DayZenLLC (DayZenLLC). (TN 237381). VDC CA3BGF SPPE Application Part III, dated April 5, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

Jacobs 2021o – Jacobs (Jacobs). (TN 239409). SJC Data Center SPPE Application Supplemental Filing Volume 1, dated August 20, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-04

Jacobs 2021s – Jacobs (Jacobs). (TN 239413). SJC Data Center SPPE Application Supplemental Filing Appendix Air - Traffic, Part 1, dated August 20, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-04

Appendix D:

Mailing List

Appendix D: Mailing List

The following is the mailing list for the San Jose Data Center project.

The following is a list of the State agencies that received State Clearinghouse notices and documents:

- California Air Resources Board (ARB)
- California Department of Conservation (DOC)
- California Department of Fish and Wildlife, Marin Region 7 (CDFW)
- California Department of Parks and Recreation
- California Department of Transportation, District 4 (DOT)
- California Department of Water Resources (DWR)
- California Energy Commission
- California Governor's Office of Emergency Services (OES)
- California Highway Patrol (CHP)
- California Natural Resources Agency
- California Public Utilities Commission (CPUC)
- California Regional Water Quality Control Board, San Francisco Bay Region 2 (RWQCB)
- California State Lands Commission (SLC)
- Department of Toxic Substances Control, Office of Historic Preservation
- San Francisco Bay Conservation and Development Commission (BCDC)
- State Water Resources Control Board, Division of Drinking Water
- State Water Resources Control Board, Division of Water Quality
- California Native American Heritage Commission (NAHC)
- California Department of Fish and Wildlife, Bay Delta Region 3 (CDFW)

Table E-1 presents the list of occupants and property owners contiguous to the project site.

Table E-2 presents the list of property owners within 1,000 feet of the project site and 500 feet of the project linears.

Table E-3 presents the list of agencies, including responsible and trustee agencies and libraries.

Table E-4 presents the list of interested parties including environmental justice and community-based organizations.

TABLE E-1 OWNERS AND OCCUPANTS OF PROPERTY CONTIGUOUS TO PROJECT SITE				
Name	**Address**	**City**	**State**	**Zip**
CITY OF SANTA CLARA	1500 WARBURTON AVE.	SANTA CLARA	CA	95050
PENINSULA CORRIDOR JOINT POWERS, BOARD	1250 SAN CARLOS AVE	SAN CARLOS	CA	94070
WALSH INVESTMENT PROPERTIES LLC	2630 WALSH AVE	SANTA CLARA	CA	95051
JJ & W-WALSH LLC	2490 CHARLESTON RD	MOUNTAIN VIEW	CA	94043

TABLE E-2 PROPERTY OWNERS WITHIN 1,000 FEET OF PROJECT SITE AND 500 FEET OF LINEARS				
Name	**Address**	**City**	**State**	**ZIP**
SANTA CLARA UNIFIED SCHOOL DISTRICT	1889 LAWRENCE ROAD	SANTA CLARA	CA	95051
ACHK ASSOCIATES LLC	2775 NORTHWESTERN PKWY	SANTA CLARA	CA	95051
	465 CALIFORNIA ST	SAN FRANCISCO	CA	94104
PEAK REALTY INVESTMENT LLC	2625 WALSH AVE	SANTA CLARA	CA	95051
KEYPOINT CREDIT UNION	2805 BOWERS AVE	SANTA CLARA	CA	95051
IPX WALSH BOWERS INVESTORS LP	225 W SANTA CLARA ST 12TH FL	SAN JOSE	CA	95113
SCPO LLC	5674 SONOMA DR	PLEASANTON	CA	94566
JST COMMERCIAL PROP LLC	2050 SEABROOK CT	REDWOOD CITY	CA	94065
LBA RV-COMPANY I LLC	PO BOX 847	CARLSBAD	CA	92018
SPTC ESMT MURRA N, U	1500 SANSOME ST	SAN FRANCISCO	CA	94111
MEAD VENTURES INC	10920 PRIETA CT,	SAN JOSE	CA	95127
SILVER HORSE EQUITIES LLC	265 SUNSET DR	WESTLAKE VILLAGE	CA	91361
PROLOGIS EXCHANGE 2800 MEAD AVENUE LLC	1800 WAZEE ST	DENVER	CO	80202
BODO, JOSEPH; BODO, VALERIE	2695 WALSH AVE	SANTA CLARA	CA	95051
STEPHENS & STEPHENS	2590 WALSH AVE	SANTA CLARA	CA	95051
DIGITAL REALTY TRUST LP	16600 WOODRUFF AVE	BELLFLOWER	CA	90706
NVIDIA CORP	2788 SAN TOMAS EXPY	SANTA CLARA	CA	95051
CHUNYUAN PHOTONICS LLC	2701 NORTHWESTERN PKWY	SANTA CLARA	CA	95051
CHUNYUAN PHOTONICS LLC	2710 NORTHWESTERN DR	SANTA CLARA	CA	95051
VANTAGE DATA CENTERS 4 LLC; VANTAGE DATA CENTERS 3 LLC	2820 NORTHWESTERN PKWY	SANTA CLARA	CA	95051
VANTAGE DATA CENTERS 3 LLC	2880 NORTHWESTERN PKWY	SANTA CLARA	CA	95051

TABLE E-3 AGENCIES AND LIBRARIES							
FIRST NAME	**LAST NAME**	**TITLE**	**AGENCY**	**ADDRESS**	**CITY**	**STATE**	**ZIP**
ARIANA	HUSAIN	PERMIT ENGINEER	BAY AREA AIR QUALITY MANAGEMENT DISTRICT	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
DR. STACY	SHERMAN	ACTING REGIONAL MANAGER	CA. DEPT. OF FISH AND WILDLIFE, BAY DELTA REGION (REGION 3)	2825 CORDELIA ROAD SUITE 100	FAIRFIELD	CA	94534
GERRY	HAAS	CONSERVATION PLANNER	SANTA CLARA VALLEY HABITAT AGENCY	535 ALKIRE AVENUE	MORGAN HILL	CA	95037
SIMON	BAKER	DIRECTOR, ENERGY DIVISION	CALIFORNIA PUBLIC UTILITIES COMMISSION	505 VAN NESS AVENUE	SAN FRANCISCO	CA	94102
RYAN	OLAH	DIVISION CHIEF	US FISH & WILDLIFE SERVICE, SACRAMENTO FISH & WILDLIFE OFFICE, COAST BAY DIVISION	2800 COTTAGE WAY RM W-2605	SACRAMENTO	CA	95825
KERRI	KISKO	ENVIRONMENTAL SCIENTIST	CALIFORNIA DEPARTMENT OF CONSERVATION	801 K STREET, MS 14-15	SACRAMENTO	CA	95814
LAURA	MIRANDA	COMMISSIONER	NATIVE AMERICAN HERITAGE COMMISSION	1550 HARBOR BLVD, SUITE 100	WEST SACRAMENTO	CA	95691
SYLVIA	FUNG	SUPERVISING TRANSPORTATON ENGINEER	IGR, CALTRANS, DISTRICT 4	P.O. BOX 23660	OAKLAND	CA	94623 -0660
KEITH	LICHTEN		SAN FRANCISCO BAY RWQCB, REGION 2	1515 CLAY SUITE 1400	OAKLAND	CA	94612
LORI	KOCH	ACTING CHIEF BERKELEY/HQ	DEPT. OF TOXIC SUBSTANCES CONTROL	700 HEINZ AVENUE SUITE 200	BERKELEY	CA	94710 -2721
			SAN FRANCISCO BAY CONSERVATION & DEVELOPMENT COMMISSION	375 BEALE STREET, SUITE 510	SAN FRANCISCO	CA	94105
BINAYA	SHRESTHA	SUBJECT MATTER EXPERT, PG&E	CALIFORNIA INDEPENDENT SYSTEM OPERATOR	250 OUTCROPPING WAY	FOLSOM	CA	95630
WADE	CROWFOOT	SECRETARY	NATURAL RESOURCES AGENCY	1416 NINTH STREET, SUITE 1311	SACRAMENTO	CA	95814
PHILLIP	CRADER	ASST. DEPUTY DIRECTOR	STATE WATER RESOURCES CONTROL BOARD, WATER QUALITY DIVISION	P.O. BOX 100	SACRAMENTO	CA	95812 -0100

TABLE E-3 AGENCIES AND LIBRARIES							
FIRST NAME	**LAST NAME**	**TITLE**	**AGENCY**	**ADDRESS**	**CITY**	**STATE**	**ZIP**
ALYSON	AQUINO	SOIL CONVERSATIONIST	NATURAL RESOURCES CONSERVATION SERVICES	3585 GREENVILLE ROAD SUITE 2	LIVERMORE	CA	94550-6707
KARLA	NEMETH	DIRECTOR	DEPARTMENT OF WATER RESOURCES	P.O. BOX 942836	SACRAMENTO	CA	94236-0001
			COUNTY OF SANTA CLARA, OFFICE OF THE CLERK RECORDER	70 WEST HEDDING STREET	SAN JOSE	CA	95110
DENNIS	JANG	SUPERVISING AIR QUALITY ENGINEER	BAQMD, ENGINEERING DIVISION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
PAMELA	LEONG	DIRECTOR, OFFICER	BAQMD, ENGINEERING DIVISION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
REBECCA	FANCHER		CALIFORNIA AIR RESOURCES BOARD	1001 I ST	SACRAMENTO	CA	95814
COURTNEY	GRAHAM	MANAGER	CALIFORNIA AIR RESOURCES BOARD, ENFORCEMENT DIVISION	1001 I ST	SACRAMENTO	CA	95814
GLORIA	SCIARA	DEVELOPMENT REVIEW OFFICER	CITY OF SANTA CLARA PLANNING DIVISION	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
ROY	MOLSEED	SENIOR ENVIRONMENTAL PLANNER	SANTA CLARA VALLEY TRANSPORTATION AUTHORITY	3331 NORTH FIRST STREET	SAN JOSE	CA	95134-1927
ARUNA	BODDUNA	ASSOCIATE TRANSPORTATION PLANNER	COUNTY OF SANTA CLARA ROADS AND AIRPORT DEPARTMENT	101 SKYPORT DRIVE	SAN JOSE	CA	95110
MARK	CONNOLLY	PLANNER	SANTA CLARA COUNTY AIRPORT LAND USE COMMISSION	70 WEST HEDDING STREET; EAST WING, 7TH FLOOR	SAN JOSE	CA	95110
GWEN	GOODMAN	KEY CUSTOMER SERVICE REPRESENTATIVE	SILICON VALLEY POWER	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
KATHRIN	TURNER	ASSISTANT ENGINEER II	SANTA CLARA VALLEY WATER DISTRICT-- COMMUNITY PROJECTS REVIEW UNIT	5750 ALMADEN EXPRESSWAY	SAN JOSE	CA	95118

TABLE E-3 AGENCIES AND LIBRARIES							
FIRST NAME	**LAST NAME**	**TITLE**	**AGENCY**	**ADDRESS**	**CITY**	**STATE**	**ZIP**
		STAFF LIAISON	HISTORICAL AND LANDMARKS COMMISSION	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
FREDERICK	CHUN	ASSOCIATE FIRE MARSHAL/HAZARDOUS MATERIALS MANAGER	CITY OF SANTA CLARA--FIRE PREVENTION/HAZARDOUS MATERIALS	1675 LINCOLN STREET	SANTA CLARA	CA	95050-4653
			SANTA CLARA FIRE STATION #2	1900 WALSH AVE	SANTA CLARA	CA	95050
RUBEN	TORRES	FIRE CHIEF	SANTA CLARA FIRE DEPARTMENT, FIRE STATION NO. 1 /FIRE ADMINISTRATION	777 BENTON STREET	SANTA CLARA	CA	95050
KEVIN	KEATING	ELECTRIC DIVISION MANAGER	SILICON VALLEY POWER (CITY OF SANTA CLARA)	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
KATHERINE	KENNEDY	AIRPORT PLANNER	FEDERAL AVIATION ADMINISTRATION (FAA)	1000 MARINA BOULEVARD, SUITE 220	BRISBANE	CA	94005
DREW	NIEMEYER	ADMINISTRATIVE OFFICES, AIRPORT DEPARTMENT	NORMAN Y. MINETA SAN JOSÉ INTERNATIONAL AIRPORT	1701 AIRPORT BOULEVARD, SUITE B-1130	SAN JOSE	CA	95110-1206
		ENVIRONMENTAL REVIEW, PLANNING DIVISION	DEPARTMENT OF PLANNING, BUILDING, AND CODE ENFORCEMENT	200 E. SANTA CLARA STREET	SAN JOSE	CA	95113
CARY	GREENE	AIRPORT PLANNER	CITY OF SAN JOSE AIRPORT DEPARTMENT	1701 AIRPORT BOULEVARD, SUITE B-1130	SAN JOSE	CA	95510
			SAN FRANCISCO BAY-DELTA FISH AND WILDLIFE	650 CAPITOL MALL, SUITE 8-300	SACRAMENTO	CA	95814
Nicole	WAUGH		CEC - ENERGY LIBRARY	1516 9TH ST, MS 10	SACRAMENTO	CA	95814-5504
			FRESNO COUNTY FREE LIBRARY	2420 MARIPOSA ST	FRESNO	CA	93721-2204
			HUMBOLDT COUNTY MAIN LIBRARY	1313 3RD STREET	EUREKA	CA	95501-0553

TABLE E-3 AGENCIES AND LIBRARIES							
FIRST NAME	**LAST NAME**	**TITLE**	**AGENCY**	**ADDRESS**	**CITY**	**STATE**	**ZIP**
		SERIALS DIVISION	LOS ANGELES PUBLIC LIBRARY	630 W 5TH ST	LOS ANGELES	CA	90071-2002
		SCIENCE & INDUSTRY DIV	SAN DIEGO PUBLIC LIBRARY	330 PARK BLVD	SAN DIEGO	CA	92101-6478
		GOVERNMENT INFORMATION CENTER	SAN FRANCISCO PUBLIC LIBRARY	100 LARKIN ST	SAN FRANCISCO	CA	94102-4733
		GOV PUBS	STANLEY MOSK LIBRARY & COURTS BLDG	914 CAPITOL MALL, 3RD Floor	SACRAMENTO	CA	95814-5512
		Librarian	Northside Branch Library	695 Moreland	Santa Clara	CA	95054-5134

TABLE E-4 INTERESTED PARTIES INCLUDING ENVIRONMENTAL JUSTICE AND COMMUNITY-BASED ORGANIZATIONS						
First Name	**Last Name**	**Organization**	**Address**	**City**	**State**	**Zip**
Carol	Zabin	Center for Labor Research and Education (Labor Center)	2521 Channing Way #5555	Berkeley	CA	94704
		Californians for Pesticide Reform (CPR)	2029 University Ave., Suite 200	Berkeley	CA	94704
Amy D.	Kyle	UC Berkeley, School of Public Health	140 Warren Hall	Berkeley	CA	94720
		Rising Sun Center For Opportunity	111 36th Street	Oakland	CA	94608
Brooks	Andrew	Association for Energy Affordability West	5900 Hollis Street, Suite R2	Emeryville	CA	94608
		San Mateo County Union Community Alliance (SMCUCA)	1153 Chess Dr.	Foster City	CA	94404
		Communities for a Better Environment	6325 Pacific Blvd. Ste 300	Huntington Park	CA	90255
LeVonne	Stone	Fort Ord Environmental Justice Network, Inc.	PO Box 361	Marina	CA	93933
		Asian Pacific Environmental Network	426 17th St #500	Oakland	CA	94612
Stephanie	Chen	Greenlining Institute	360 14th Street, 2nd Floor	Oakland	CA	94612

TABLE E-4 INTERESTED PARTIES INCLUDING ENVIRONMENTAL JUSTICE AND COMMUNITY-BASED ORGANIZATIONS						
First Name	**Last Name**	**Organization**	**Address**	**City**	**State**	**Zip**
		Local Initiatives Support Corporation (LISC) Bay Area	1970 Broadway Suite 1100	Oakland	CA	94612
		GRID Alternatives	1171 Ocean Avenue, Suite 200	Oakland	CA	94608
Strela	Cervas	California Environmental Justice Alliance	1904 Franklin Street, Ste. 250	Oakland	CA	94612
Mia	Kitahara	StopWaste	1537 Webster St.	Oakland	CA	94612
		Center for Biological Diversity (CBD)	1212 Broadway, St. #800	Oakland	CA	94612
		The People's Senate	1999 Harrison Street, Suite 650	Oakland	CA	94612
		Center on Race, Poverty and Environment (CRPE)	1999 Harrison Street, Suite 650	Oakland	CA	94612
		The East Oakland Collective	PO Box 5382	Oakland	CA	94605
Bob	Allen	Urban Habitat Program	2000 Franklin Street	Oakland	CA	94612
		Union of Concerned Scientists	500 12th Street, Suite 340	Oakland	CA	94607
		People United for a Better Oakland (PUEBLO)	1728 Franklin Street	Oakland	CA	94612
Susannah	Churchill	Vote Solar	360 22nd Street, Suite 730	Oakland	CA	94612
Bradley	Angel	GreenAction	315 Sutter Street, 2nd Fl	San Francisco	CA	94108
		Literacy for Environmental Justice	P.O. Box 170039	San Francisco	CA	94117-0039
		Bluegreen Alliance	369 Pine Street, Suite 700	San Francisco	CA	94104
Maria	Stamas	Natural Resources Defense Council (NRDC)	111 Sutter Street, 21st Floor	San Francisco	CA	94104
Eddie	Ahn	Brightline Defense	1028A Howard Street	San Francisco	CA	94103
Jennifer	Berg	Association of Bay Area Governments (ABAG)	375 Beale Street, suite 700	San Francisco	CA	94105-2066
Ivan	Jimenez	Brightline Defense	1028A Howard Street	San Francisco	CA	94103
Erica	McConnell	Shute, Mihaly & Weinberger LLP	396 Hayes St.	San Francisco	CA	94102

TABLE E-4 INTERESTED PARTIES INCLUDING ENVIRONMENTAL JUSTICE AND COMMUNITY-BASED ORGANIZATIONS						
First Name	**Last Name**	**Organization**	**Address**	**City**	**State**	**Zip**
Antonio	Diaz	People Organizing to Demand Environmental and Economic Rights (PODER)	474 Valencia Street, #125	San Francisco	CA	94103
		Environmental Law and Justice Clinic	536 Mission Street	San Francisco	CA	94105
		Bayview Hunters Point Community Advocates (Karen Pierce)	186 Maddux Avenue	San Francisco	CA	94124
		Silicon Valley Toxics Coalition	PO Box 27669	San Franciso	CA	94127
		Santa Clara Valley Audubon Society (SCVAS)--McClellan Ranch Preserve	22221 McClellan Road	Cupertino	CA	95014
		Loma Prieta Sierra Club Chapter Office	39821 East Bayshore Road, Suite 204	Palo Alto	CA	94303