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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

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Section 6

Authors and Reviewers

6 Authors and Reviewers

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Mark Hamblin (Aesthetics)
Wenjun Qian, with Brewster Birdsall (Air Quality, Greenhouse Gas Emissions, Appendix D)
Andrea Koch (Alternatives)
Ann Crisp (Biological Resources)
Gabriel Roark, Melissa Mourkas (Cultural and Tribal Cultural Resources)
Shahab Koshmashrab and Kenneth Salyphone (Energy/Energy Resources, Minerals, Alternatives, Noise, MFOS, Appendix A, Appendix B)
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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)

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
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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

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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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

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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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

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
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	

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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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?					

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**
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

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**
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,

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
• 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)

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**
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)

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	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
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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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.					

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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				
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	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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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.