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**CALIFORNIA
ENERGY COMMISSION**



**CALIFORNIA
natural
resources
AGENCY**

July 3, 2020

Digital Realty
C/O Scott A. Galati
1720 Park Place Drive
Carmichael, California 95608

Data Requests Set 1 for Lafayette Backup Generating Facility (20-SPPE-02)

Dear Mr. Galati:

Pursuant to Title 20, California Code of Regulations, sections 1941 and 1716, California Energy Commission (CEC) staff is asking for the information specified in the enclosed Data Requests Set 1, which is necessary for a complete staff analysis of the Lafayette Backup Generating Facility (LBGF) and associated Lafayette Data Center (LDC), collectively the "project" under the California Environmental Quality Act (CEQA).

Responses to the data requests are due to staff within 30 days. If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send written notice to me and the Committee within 20 days of receipt of this letter. Such written notification must contain the reasons for not providing the information, the need for additional time, or the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions, please email me at leonidas.payne@energy.ca.gov.

/S/

Leonidas Payne
Project Manager

Enclosure: Data Requests Set 1

**LAFAYETTE BACKUP GENERATING FACILITY SPPE
DATA REQUESTS SET 1**

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LAFAYETTE BACKUP GENERATING FACILITY SPPE DATA REQUESTS SET 1

PROJECT DESCRIPTION

BACKGROUND: Building Heights and Site Plan

Building heights are discussed under subsection 2.3.2 of the small power plant exemption (SPPE) application, "Building Heights and Setbacks," where it states the following:

The data center building will be approximately 65 feet in height to the top of parapet to top of the Level 1 slab plus an addition [of] seven feet in elevation change to the top of the Fire Department access road.

The mechanical equipment screen on the roof [of] the building will extend to a height of 73 feet in height from the top of the Level 1 slab plus an addition [of] seven feet in elevation change to the top of the Fire Department access road.

The building would also include an elevator penthouse that will extend to a height of 82 feet in height from the top of the Level 1 slab plus an addition [of] seven feet in elevation change to the top of the Fire Department access road.

Figure 2.1-1, "Site Plan," shows several labels for the height to the parapet, which are mostly labeled as 71 feet 3 inches (except for locations near the east side of the site). Staff noted one parapet label as 81 feet 8 inches at around the middle of the data center near the generator yard. Figure 2.1-1 shows the power base building (PBB) at the west end of the data center and the "Proposed Future Power Base Building 2" at the east end of the data center. Subsection 2.3.1, "Overview," states that the PBB "will be located on the Lafayette Street side of the building and on Central Expressway side of the building towards the east side of the site." This statement suggests that these two seemingly separate parts of the data center building compose a single PBB. Subsection 2.3.1 includes this statement on the elevation of the PBB: "The elevation of the PBB roof would correspond with the elevation of the floor slab of the third data hall level."

Section **4.9 Hazards** includes this statement under Impact HAZ-5: "The maximum height of the proposed LDC would be approximately 122 feet above ground level, or roughly 159 feet [above mean sea level] AMSL...." The application states that the topography of the area is flat with an elevation of approximately 40 feet AMSL (pages 97, 122, and 132).

Subsection 2.2.5 states: "The generator yard will be enclosed with 22 feet high precast concrete screen walls on the south and east ends." However, section **4.13 Noise** states the following under Impact NOI-1: "The generator yard would also be shielded by a 12-foot tall screen wall." Section **4.13 Noise** also states under Impact NOI-1: "All rooftop equipment would be shielded by 11-foot tall screen walls." Additionally, subsection 2.3.1 states "A concrete masonry unit screen wall, 13 feet in height, would surround the substation."

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Appendix AQ1, "Emissions Support Data," includes a page with data on the "Cooling Towers-Wet Surface Condensers." No description or information on the location of the cooling towers is included in **Section 2.0 Project Description**. The application does not provide building elevation drawings or renderings. Most of the SPPE applications submitted previously to the CEC have included building elevations, including the three prior applications prepared by David J. Powers & Associates (Walsh, Mission College, and Great Oaks South). Building elevations are necessary for staff to understand the project and see how the building elements and dimensions described in the text correspond to the structural elements shown in the drawings.

DATA REQUESTS

1. Please describe the elevation of the Level 1 slab relative to the stated building heights of 65, 73, and 82 feet.
2. Please explain the meaning of the addition of seven feet in elevation change to the top of the Fire Department access road.
3. Please state the elevation of the PBB at the west end of the data center.
4. Please describe the construction schedule for the "Proposed Future Power Base Building 2" within the context of the 24-month construction schedule mentioned under subsection 2.3.4, "Site Grading, Excavation, and Construction."
5. Please explain the relationship of the PBB at the west end of the building to the second PBB at the east end of the building.
6. Please state the elevation of the "Proposed Future Power Base Building 2" at the east end of the data center (described as a two-story building under Section 2.3.1, "Overview," and in Figure 2.3-1).
7. Please explain the building elements that add up to the maximum stated height of approximately 122 feet above ground level. Please explain how the maximum height of 159 feet AMSL was determined.
8. Please provide detailed building elevation drawings for the west, north, and east sides of the project.
9. Please submit a revised version of subsection 2.3.2 to accurately describe the building and other structure heights, including the top of the parapet and coping, various screen walls, penthouse, and cooling towers. Please ensure that the text matches the information in Figure 2.3-1 and the requested building elevations, and please include information on the location of the cooling towers.

BACKGROUND: Building Square Footage

Building square footage is discussed under subsection 2.3.1 of the application, "Overview," where it states the project would include a three-story 576,120 square foot (sq. ft.) data center building. It states that the data center building would consist of a three-level PBB and the three-level data center suite component. A second, two-story PBB would be connected at the east end of the data center. There is no clear information provided in the application showing the data center parts that make up the

LAFAYETTE BACKUP GENERATING FACILITY SPPE DATA REQUESTS SET 1

total 576,120 sq. ft. Using the information shown on Figure 2.3-1, staff tried to confirm the total square footage of the data center building and suite component. Based on the descriptions of Levels 1, 2, and 3 under subsection 2.3.1, staff assume that the data center square footages shown in larger typeface in Figure 2.3-1 include the “electrical rooms” and “flex space” areas shown in the figure. In other words, it appears that those building areas along the generator yard (totaling approximately 34,900 sq. ft.) are part of the data center’s full 576,120 sq. ft. As shown in the table below, staff was unable to confirm the total 576,120 sq. ft. stated in the application.

Staff Calculations of Data Center Square Footages			
Data Center Areas	Square Feet per Floor	Number of Stories	Total Square Feet
PBB at West End	16,025	Three	48,075
Data Center Areas West to East (four areas)			
<i>First area (westernmost)</i>	22,308	Three	66,924
<i>Second area</i>	21,982	Three	65,946
<i>Third area</i>	16,090	Three	48,270
<i>Fourth area (easternmost)</i>	20,383	Two	40,766
Proposed Future PBB 2 at East End	11,665	Two	23,330
Total			293,311 sq. ft.

DATA REQUESTS

10. Please provide a table and accompanying text to specify and clarify the project’s square footages to total 576,120 sq. ft.
11. Please confirm whether the information shown in Figure 2.3-1, “Site Plan,” is accurate. If not, please revise and resubmit Figure 2.3-1 to clarify the square footages of the building components included in the data center building. As stated above, please ensure that the information in Figure 2.3-1 matches the text descriptions of the building and the requested building elevations.

BACKGROUND: Silicon Valley Power (SVP) Electrical Distribution Facilities

Subsection 2.3.8 of the SPPE application indicates that the project would include a new, onsite distribution substation with two electrical supply lines that would connect to SVP’s South Loop. Staff require a complete description of the proposed interconnection to the SVP system in order to understand the potential operation of the back-up generators.

DATA REQUESTS

12. Please provide a complete one-line diagram for the new substation. Show all equipment ratings, including bay arrangement of the breakers, disconnect switches, buses, redundant transformers or equipment, etc. that would be required for interconnection of the project.

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13. Please provide a detailed description and a one-line diagram showing how the project would be connected to the existing SVP system. Please label the name of the lines and provide the line voltages and SVP loop information.
14. Please provide the following for the 60 kilovolt (kV) loop on the SVP system that would serve the project:
 - a. A physical description.
 - b. The interconnection points to SVP service.
 - c. The breakers and isolation devices and use protocols.
 - d. A list of other connected loads and type of industrial customers.
 - e. A written description of the redundant features that would allow the system to provide continuous service during maintenance and fault conditions.
15. Please provide the pole configurations that would be used to support the overhead transmission lines from the SVP 60 kV system to the project. Show proposed pole structure configurations and measurements.
16. Please provide a detailed description and drawing of the proposed 60 kV transmission line route, length, possible interconnection points to the existing SVP system, and possible pole locations. Please provide a legend and label the drawing to show the proposed line route, pole locations, and the existing transmission facilities.

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AIR QUALITY, PUBLIC HEALTH, GREENHOUSE GAS EMISSIONS, AND THERMAL AND VISIBLE PLUMES

BACKGROUND: AIR DISTRICT REVIEW

The proposed LBGF would require a permit from the Bay Area Air Quality Management District (District or BAAQMD). For purposes of consistency, staff needs copies of all correspondence between the applicant and the District promptly to stay up to date on any issues that arise before completion of the initial study.

DATA REQUESTS

17. Please provide copies of all substantive correspondence between the applicant and the District regarding the project, including application and e-mails, within one week of submittal or receipt. This request is in effect until staff publishes the initial study.
18. Please identify the current schedule for the BAAQMD permit application submittal. If the application was already filed, please provide a copy of the application. If this application is filed during the CEC proceeding for LBGF, please submit a copy of that application to the CEC docket within five days of submitting it to BAAQMD.

BACKGROUND: EMISSIONS CALCULATIONS

The SPPE application includes an Appendix A, for Air Quality Analysis Technical Appendices (AQ 1 through AQ 5), which documents potential project construction and operation emissions calculations. To validate the applicant's work, staff requests the spreadsheet files of the applicant's emissions calculations in Appendix AQ1, AQ3, and AQ4 for staff's independent review.

DATA REQUEST

19. Please provide spreadsheet versions of the emissions calculations worksheets supporting the SPPE application in Appendix AQ1, AQ3 and AQ4 with the embedded calculations live and intact.

BACKGROUND: COOLING TOWER

The SPPE application includes emissions estimates for cooling towers, or wet-surface cooling, in the form of particulate matter (in spreadsheet AQ1-3 of Appendix AQ1). The Project Description for LDC in Section 2 of the SPPE application does not describe this system and indicates that each generator would be air-cooled (Section 2.2.7 and 2.2.8 of SPPE application). The cooling tower, if proposed, appears to be missing from the modeling data provided electronically for ambient air quality impact evaluation for PM10 and PM2.5.

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DATA REQUESTS

20. Please clarify if cooling towers would be included in the LDC or LBGF project design. If so, please ensure that particulate matter emissions are included in all facility-wide estimates and that the associated water use is correctly presented throughout the SPPE application.
21. Please ensure that PM10 and PM2.5 ambient air quality impacts from the cooling tower are included in facility-wide impacts to air pollutant concentrations.

BACKGROUND: CALEEMOD MODELING FILES

The applicant used CalEEMod to estimate demolition and construction emissions (shown in Table 4.3-6 of the SPPE application) and miscellaneous operational emissions (shown in Table 4.3-15). To validate the applicant's work, staff requests the CalEEMod files with live cells and formulas that the applicant used to estimate emissions.

DATA REQUEST

22. Please provide the CalEEMod files with live cells and formulas used to estimate demolition and construction emissions (shown in Table 4.3-6) and miscellaneous operational emissions (shown in Table 4.3-15).

BACKGROUND: CONSTRUCTION PERIOD

Section 2.3.4 on page 16 of the SPPE application (TN 233041-1) states that:

The demolition and construction activities are estimated to last approximately 24 months to the initial occupancy of the building, with construction activities to last an additional 60 months to bring the building to full occupancy.

However, section 4.3.2.3, Table 4.3-6 on page 55 states the construction period is approximately 21 months or 462 workdays. Starting on page 106 of 174 of the SPPE application, Part 2 Section 5 – App A-C (TN 233041-2) shows that demolition and construction are expected to be in 5 different phases over a period of around 24 months. The 60-month construction period shown above from section 2.3.4 does not agree with the assumptions in CalEEMod. Staff needs clarification on the length of the construction period. Staff would also like to know why it would take so much time to construct the proposed project, while it takes typically takes less than 2 years (24 months) to construct other data centers.

DATA REQUESTS

23. Please describe the type of activities expected during the 60-month ramp to average occupancy. Would these include fabrication of server bay racks,

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installation of servers, server bay uninterruptible power supply (UPS) installation, electrical connections, and/or installation of standby generators in the LBGF yard?

24. Please clarify the length of the construction phase.
25. Please explain whether CalEEMod provides conservative emissions estimates assuming a continuous construction period, rather than using the construction schedule specified in section 2.3.4.
26. Please model overlap of construction and operation phases if necessary.

BACKGROUND: DISPERSION MODELING FOR CONSTRUCTION IMPACTS

The SPPE application and modeling data provided electronically does not include an ambient air quality impacts evaluation for criteria air pollutants during the demolition and construction phases of the project. As such, the application does not quantify impacts to or demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) during construction for the different averaging times of the standards. Staff needs ground-level impacts analysis using dispersion modeling to evaluate public health impacts and to determine compliance with NAAQS and CAAQS during the demolition and construction of the project.

DATA REQUESTS

27. Please provide ground-level impacts analysis using dispersion modeling to show public health impacts and compliance with NAAQS and CAAQS of the criteria pollutants during the demolition and construction of the project. Submit this modeling data electronically.
28. Please describe the assumptions of the source parameters (e.g., initial dimension and release height of area/volume sources, or stack height, diameter, temperature, and velocity of point sources) used in the dispersion modeling for demolition and construction impacts.

BACKGROUND: DIESEL PARTICULATE FILTERS

Page 70 of the SPPE application shows that the standby engines would be United States Environmental Protection Agency (U.S. EPA) certified Tier 2 units equipped with diesel particulate filters (DPFs). However, the SPPE application does not show the make or model or control efficiency of the DPFs. Staff needs such information to complete the initial study.

DATA REQUESTS

29. Please provide the make and model of the DPFs.
30. Please provide control efficiency of the DPFs

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31. Please describe the cleaning cycle for the DPFs and explain whether the control efficiency would change during intermittent maintenance and testing of the standby engines.

BACKGROUND: TESTING AND MAINTENANCE FREQUENCIES AND LOADING

Page 56 of the SPPE application states that Section 4.3.2.3 provides six scenarios of the testing and maintenance frequencies and loading proposed for the LBGF. Staff needs a detailed description of the testing and maintenance frequencies and standby engine load points to verify assumptions used in the SPPE analysis.

DATA REQUEST

32. Please provide a detailed description of the testing and maintenance frequencies and standby engine load points for the Cummins QSK95-G9 and Cummins QST30 engines. For example, the description could include the length and engine load points for each weekly, monthly, quarterly, and annual testing and maintenance event.

BACKGROUND: TESTING AND MAINTENANCE LIMITS

The annual emissions and impacts analysis in the SPPE application is based on the assumption of 50 hours per year of testing and maintenance. The daily emissions and impacts analysis is based on the assumption of testing 10 of the larger QSK95 engines per day. It is also assumed that the engines would be tested only from 7 AM to 5 PM in the impacts analysis. Also, the short-term impacts analysis assumes only one engine will be tested at any one time during a single hour. Staff would like to verify that these assumptions would be made enforceable.

DATA REQUESTS

33. Please confirm whether the applicant would request from the District an annual limit, not to exceed in terms of hours per year, on operating each engine for readiness testing and maintenance testing.
34. Please confirm that the applicant would request the District to require an enforceable limit that would allow testing of no more than 10 of the larger QSK95 engines per day.
35. Please confirm that the applicant would request the District to require an enforceable limit that would allow the testing of engines only between 7 AM to 5 PM daily.
36. Please confirm that the applicant would request the District to require an enforceable limit on concurrent testing of engines so that only a single-engine operates for maintenance and testing at any given time.

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BACKGROUND: SENSITIVE RECEPTORS

On page 68 of the application (Table 4.3-17) and Appendix AQ5, the applicant provided a list of sensitive receptors near the project site. On page 70 of the application, the applicant listed four receptors: PMI – Point of maximum impact, MEIR – Maximum exposed individual residential receptor, MEIW - Maximum exposed individual worker receptor, and MEIS - Maximum exposed individual sensitive receptor. Staff needs more information to check the validity of the health risk assessment (HRA).

DATA REQUESTS

Please provide the following information for PMI, MEIR, MIEW, MEIS, and all the sensitive receptors on Table 4.3-17.

37. Their Hot Spots Analysis and Reporting Program (HARP) receptor numbers.
38. Their latitude and longitude along with Universal Transverse Mercator (UTM) coordinates. Staff needs this information for the cumulative HRA.

BACKGROUND: CONSTRUCTION HRA

On page 70 and 73 (Table 4.3-21) of the application, the applicant reported the construction health risk for the PMI as 2.56E-6 (or 2.56 per million). However, staff could not verify this number from the modeling files (HARP output) provided by the applicant. The cancer risk of PMI staff found from HARP output is 7.64E-6 (or 7.64 per million). Also, the title of Table 4.3-21: LBGF Residential/Sensitive Health Risk Assessment Summary is confusing.

DATA REQUESTS

39. Please confirm if Table 4.3-21: LBGF Residential/Sensitive Health Risk Assessment Summary on page 73 is for project construction.
40. The results of MEIW were not included in Table 4.3-21. Please include the results of MEIW, PMI, MEIR, and MEIS in the table.
41. Please update the table with the correct risk numbers.
42. Please provide the assumptions of the construction HRA, such as the duration.
43. Please also provide the updated HRA files if an updated HRA is completed.

BACKGROUND: OPERATION HRA

On page 72 of the application, the applicant stated: "the excess lifetime cancer risk associated with concentrations in air estimated for the LBGF PMI location is estimated to be 0.00000595 (5.95E-6 or 5.95 per million)." But this number does not match the PMI number reported in Table 4.3-22 on page 73. Staff could not verify the rest of the numbers in Table 4.3-22 by checking the modeling files (HARP output) provided by the applicant, either. Also, the title of Table 4.3-22: LBGF Worker Health Risk Assessment Summary is confusing.

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DATA REQUESTS

44. Please confirm if Table 4.3-22: LBGF Worker Health Risk Assessment Summary on page 73 is for project operation.
45. Please update Table 4.3-22 for operation risk with the correct risk numbers, including the receptors of PMI, MEIR, MEIS, and MEIW.
46. Please also provide the updated HRA files if an updated HRA is completed.

BACKGROUND: OPERATION PHASE IMPACT

On page 56 of the application, the applicant stated: "for conservative evaluation purposes, it was assumed that testing (weekly, monthly, quarterly, annual, and special testing) would occur for no more than 50 hours per year." However, on page 65 of the application, the applicant stated: "each engine was assumed to operate up to 10 hours per day (7AM-5PM) to conservatively represent 10 different engines operating one hour each in any one day for 3-hour, 8-hour, and 24-hour averaging times." The information is mixed and confusing, so staff would like to clarify the assumptions of HRA.

DATA REQUESTS

47. Please confirm that the operation HRA was based on the 50 hours of operations per engine per year concurrently.
48. Please explain the assumption of 10 hours per day and how it affected the results of the HRA.
49. Please explain the assumptions of the operation HRA, such as the load scenarios.
50. In air quality impact analysis, if there are any different assumptions used to evaluate criteria pollutants versus toxic air contaminants, please justify these differences and explain in detail.

BACKGROUND: CUMULATIVE IMPACTS

On page 75 of the application, the applicant stated "[a]s of March 2020, the BAAQMD is currently updating the CEQA Cumulative Modeling Impact Guidelines. LBGF will submit, under separate cover, a cumulative impact assessment once the BAAQMD provides the updated procedures." However, the BAAQMD has already updated its Tools and Methodologies for cumulative HRA¹.

DATA REQUESTS

51. Please provide the results of cumulative HRA for the project.
52. The cumulative HRA should include the following receptors: PMI, MEIR, MEIS, and MEIW, and impacts within 1,000-ft of each receptor.

¹ <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools>

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BACKGROUND: CARBON DIOXIDE EQUIVALENT (CO₂E) INTENSITY IN POUNDS PER MEGAWATT HOUR (LB/MWH)

In Appendix AQ 4, pdf page 107 of 174, to estimate indirect greenhouse gas (GHG) emissions from electricity consumed by the LDC, the applicant has proposed to use a CO₂e Intensity factor of 641.35 pounds per megawatt-hour (lb/MWh), in the CalEEMod assumptions with the operational year of 2023. However, on page 113, in Table 4.8-2 the footnote states that a carbon intensity factor of 430 lb of CO₂e per MWh was used to estimate indirect GHG emissions from the electricity used by the facility.

CEC staff have established in recent data center proceedings that SVP's carbon intensity factor for electricity generation is declining and would continue to drop in future years. On page 112 of the application, it states that SVP's carbon intensity factor for 2019 was determined to be 341 pounds of CO₂e per MWh. The first phase of operation of this project is expected to occur in 2023. Staff needs to ensure that a representative carbon intensity value is used to estimate GHG emissions during normal operations.

DATA REQUEST

53. Please reconcile the carbon intensity values in various locations in the applicant's documents as noted above, and please justify the choice of carbon intensity value used to estimate GHG emissions. Revise GHG emissions as needed so that the CEQA analysis discloses expected indirect GHG emissions that could be attributed to the LDC.

BACKGROUND: LDC and LBGF AND STATE OF CALIFORNIA GOALS AND PROGRAMS

Governor Edmund G. Brown signed Executive Order B-55-18 on September 10, 2018. This Executive Order establishes a goal for California to achieve carbon neutrality as soon as possible and no later than the year 2045 and to maintain net negative carbon emissions thereafter. It directs the California Air Resources Board (CARB) to work with other state agencies to incorporate this goal into future Scoping Plans by identifying and recommending measures to meet the goal. It also directs state agencies to work with businesses to achieve the goals.

On page 108 of the SPPE application, it states:

"Because the project would not become operational prior to the end of 2020, consistency with the CAP cannot be used to determine significance under CEQA. The project, however, would still be required to be consistent with the requirements of the CAP, and implementation of required CAP measures would reduce GHG emissions from the project. The City is embarking on a process to update the CAP to reflect 2030 GHG reduction targets in SB 32, but that process is ongoing and would not precede the subject project application".

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Staff will need to describe the project and its emissions in the context of the State of California policies, programs, and long term goals for achieving carbon neutrality.

DATA REQUESTS

54. Has the applicant considered how the proposed data center and diesel back-up generators would contribute to the State of California's goal of carbon neutrality no later than 2045?
55. What other technologies to diesel back-up generators have the applicant explored and why were they not pursued?
56. Has the project applicant explored the procurement of renewable diesel and/or carbon offsets as a means of contributing to the State's goal of carbon neutrality? If not, why not?
57. What currently available options have the applicant evaluated to contribute to this goal?
58. What additional options may become available in time for businesses to contribute to this goal?

BACKGROUND: ALTERNATIVE GENERATING TECHNOLOGIES AND FUELS

On pages 188 thru 190, of Sections 5.3 thru 5.7 in the SPPE application Part 2 Section 5 – App A-C TN 233041-2, there is a discussion of various alternative technologies, however, the application did not discuss alternative fuels or fully discuss alternative technologies.

Staff will need to discuss alternative fuels and whether or not they are a feasible approach to reducing GHGs.

DATA REQUESTS

59. Please discuss alternative technologies such as fuel cells.
60. Please discuss alternative fuels such as renewable diesel and biodiesel.
61. Please discuss the potential air quality implications that would also need to be considered with these alternative technologies and fuel types.
62. Please discuss how the reliability of the alternative technologies would affect the configuration of the backup generators for the data center needs.

BACKGROUND: CARBON SEQUESTRATION AFTER REPLANTING TREES

Staff would like to explore the idea of the net CO₂e emissions sequestered when the applicant replants off-site trees at a 2:1 ratio as required by the City of Santa Clara. Trees sequester CO₂ while they are actively growing. CalEEMod calculates the amount of CO₂ sequestered during the growing period of different types of trees, which could be used to quantify the net benefit of carbon emissions sequestration effects. On page 82

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of the SPPE application, it states: "As shown in Figure 2.3-2 the project would plant 638 trees to meet the City's replacement requirement [at least 2:1]."

DATA REQUEST

63. Please quantify the annual net benefit of the carbon emission sequestration effects, in CalEEMod, after replanting trees at a 2:1 ratio as required by the City of Santa Clara.

BACKGROUND: THERMAL AND VISIBLE PLUME ANALYSIS

On page 112 of the SPPE application (TN 233041-1), the applicant states: "Water consumption results in indirect emissions from electricity usage for water conveyance and wastewater treatment. Indoor uses at the project site would generate a potable water demand of approximately 67 acre-feet per year". In the SPPE application Part 2 Section 5 App A-C (TN 233041-2) on page 63 of 174, the applicant identifies cooling towers – Wet Surface (Wet Sac) condensers, which would be used to cool the data center building. The SPPE application does not address thermal or visible plumes from the building/server cooling system and staff could not find any discussion of a thermal or visible plume analysis for traffic hazards. Staff will need to determine whether thermal and/or visible plumes from the cooling system would be of concern for local aircraft using the nearby airport or reach the Central Expressway and be a hazard to motorists.

DATA REQUESTS

Staff requests the following information in order to complete its evaluation of thermal plumes from the currently proposed building/server cooling system.

64. Please perform thermal plume modeling of the equipment used to reject heat from the building and data servers.
65. Please perform a visible plume analysis of the equipment used to reject heat from the server building of data servers.
66. Please describe in detail the heat-rejection units, including adiabatic cooling towers, with enough detail so that staff can confirm the thermal or visible plume modeling.
67. Please provide at least the following to support the thermal and visible plume analysis (provide equivalent data if necessary):
 - a. Stack (or cooling tower fan cowl) height (m) above ground level (agl)
 - b. Exhaust Temperature (degrees K)
 - c. Exit Velocity (m/s)
 - d. Stack Diameter (m)
 - e. Moisture Content (% by weight) (visible plume analysis)
 - f. Exhaust Temp (F) (visible plume analysis)
 - g. Exhaust Flow Rate (lbs/hr) (visible plume analysis)

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BIOLOGICAL RESOURCES

BACKGROUND: Development and Design Details

The SPPE application lacks specificity and additional information is needed for staff to complete its CEQA analysis. Furthermore, CEC staff is proposing changes to PD BIO-1, a mitigation measure proposed by the applicant and incorporated into the project design to reduce impacts to nesting birds. Changes are necessary because PD BIO-1 lacks the elements and scope necessary to ensure potential project impacts on birds protected by the Migratory Bird Treaty Act (MBTA) and Fish and Game codes would be avoided or reduced to less than significant levels. The applicant's proposed pre-construction survey is limited to nesting raptors, and the timing of the surveys (14 days prior to the start of construction activities or tree removal for the first half of the nesting season, and 30 days prior for the second half) is not adequate to protect bird species during the entirety of the nesting season. Some birds can complete a nest within 14 days, therefore 30 days is too long a time frame and could allow a bird to build a nest and lay eggs, which would prohibit tree removal where the nest occurs and would reduce construction work in this area because a buffer would be needed to protect the bird and the nest. PD BIO-1 also does not specify any protective measures (such as avoidance buffers) in the event nesting birds covered by the MBTA and Fish and Game codes were to establish on the site during construction.

DATA REQUESTS

68. The Biological Resources section (4.4) of the SPPE application, mentions that the site is highly urbanized, and special-status species are not present on-site. Please provide a copy of the results any biological resource surveys performed as well as the results of any plant or animal species research such as review of the California Natural Diversity Database.
69. Please provide more descriptive information (e.g. design, materials, location, etc.) and detailed figures for the following:
 - a. Bioretention/Bioswale areas, including the landscape planting and the impervious surface areas that would drain to these structures. Also, clarify if the bioretention/bioswale areas would function as retention ponds during flood events.
 - b. Sections 2.2.11 and 2.3.3 and 2.3.4 discuss project construction and site parking; laydown areas for construction materials and construction worker parking is not mentioned. Please clarify whether all construction parking and material laydown would occur on-site. If not, please provide details, location and map of any off-site parking and laydown areas.
70. The Biological Resources section (4.4) of the SPPE application presents information from the October 2019 Arborist Report included in Appendix B (Part II) of the application. Section 4.4 provides details on protection of trees to remain, guidelines on removal of trees, protection of new trees planted and so

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forth as well as recommendations from the Arborist Report. However, these measures are not encapsulated in a mitigation measure incorporated into the project design. Please provide a new project design measure (PD BIO-2) that incorporates this information to protect trees on-site during construction.

71. The Arborist report in Appendix B states that there are 476 trees on the proposed project site; 321 trees are recommended for removal (317 live trees to be removed, 2 dead ones, and 2 stumps), and 155 trees are recommended to remain untouched. However, these numbers do not exactly align with the numbers specified on the Preliminary Tree Disposition Plan located in the same appendix nor with the numbers specified in Section 4.4 Biological Resources, pages 77, 78 and 82. Please explain and confirm the exact numbers.
72. Staff respectfully proposes the following alterations to the language of PD BIO-1 (new language is in **bold text** and deleted language is indicated by ~~strike-through text~~). Please provide a statement that the applicant will accept these changes and incorporate this version of PD BIO-1 into the project. If the applicant disagrees with any of these changes, please propose alternate language.

PD BIO-1: The project will incorporate the following measures to reduce impacts to nesting birds.

- If **possible construction activities, including removal of trees and vegetation clearing shall** ~~removal of the trees on site would take place between September and January. and September, If construction activities, including tree removal and vegetation clearing, must occur during the nesting season (February 1 through August 31)~~ a preconstruction 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 nesting ~~raptor~~-nests that may be disturbed during project implementation. Between **February 1 through August 31** ~~January and April (inclusive)~~ pre-construction surveys shall be conducted no more than 14 days prior to the initiation of construction activities, ~~or~~ **including tree removal** ~~relocation~~ **or vegetation clearing. Surveys will be repeated if project activities are suspended or delayed for more than 14 days during the nesting season.** ~~removal. Between May and August (inclusive), pre-construction surveys shall be conducted no more than 30 days prior to the initiation of these activities.~~ 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

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State of California, Department of Fish and Wildlife (CDFW), designate a construction-free buffer zone (typically 250 feet) around the nest until the end of the nesting activity. **The size of all buffer zones will initially be a 250-foot radius around the nest of non-raptors and a 500-foot radius around the nest for raptors. 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 will commence until the ornithologist and the City of Santa Clara, in consultation with CDFW, verify that the nest(s) are no longer active. If an active bird nest is discovered during construction, then a buffer zone shall be established under the guidelines specified.**

- The applicant **ornithologist** shall submit a **copy of the pre-construction nest survey report(s)** indicating the results of the survey and any designated buffer zones to the ~~satisfaction~~ of the **City of Santa Clara's** Director of Planning and Inspection prior to **the start of construction activities** or the issuance of a tree removal permit by the City Arborist. **The report(s) will 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 will be provided within 10 days of completing a pre-construction nest survey.**

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CULTURAL/TRIBAL CULTURAL RESOURCES

BACKGROUND

The SPPE application (TN 233041-1) references at least three different sources for the cultural resources literature search and associated report prepared for the applicant. Staff has to date not received a copy of those referenced materials and therefore has no way to independently verify the accuracy of the references in the application. The three different references in the SPPE application are listed below:

- Page 83, application part 1, section 4.5, states that Holman & Associates, Inc. conducted the records search in July 2018
- Page 84, application part 1, 4.5.1.2, states that the records search (unknown consultant) was completed July 2019
- Page 89, application part 1, Impact CUL-4, footnote 12, identifies Albion Environmental, Inc. (October 2018) as having conducted the records search

DATA REQUESTS

73. Please identify the consultant that prepared the literature search and report to eliminate the confusion in the application.
74. Please provide a copy of the Cultural Resources Assessment completed for this project.
75. Please provide copies of the reports and records from the literature search that provided the background for the Cultural Resources Report. Please ensure that the results include the request of the Information Center (IC) indicating the information requested by the applicant's consultant, and the search area radius indicated on maps as provided by the IC or prepared by the consultant using shape files provided by the IC.
76. Please provide a description of the project area of analysis, including the project site, adjacent areas and/or parcels and any linear routes.

BACKGROUND

The application contains other vague or potentially contradictory information about the records search. For instance, the letters to California Native American tribes state that the records search for the proposed project included a *0.25-mile* radius from the project site (TN 233041-2, Appendix C). The cultural and tribal cultural resources section of the application, however, states that two Native American sites are located within *0.50 mile* of the project site. Staff also notes that while these letters are dated November 8, 2019, the application states that the letters were mailed on November 15, 2019 (TN 233041-1, page 88; TN 233041-2, Appendix C). Additionally, the cultural resources section indicates that there are three recorded cultural resources "nearby" the project site, but only resource P-43-003529 (Santa Clara Public Works Building Maintenance Facility) is named. (TN 233041-1, page 84.)

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DATA REQUESTS

77. What was the radius employed during the records search? Why are two distances provided in the application?

78. Please clarify whether the letters were mailed on November 8th or 15th

79. What are the two unnamed, "nearby" recorded resources?

BACKGROUND

Assessment of potential impacts on cultural and tribal cultural resources hinges in part on knowing the extent and character of ground-disturbing activities associated with a project. The application describes in Section 2.3.7 the surface and below grade storm water drainage systems, including the use of bio-retention basins.

The application describes in Section 2.3.8 the potential for there to be as many as two tubular steel poles installed to connect Silicon Valley Power's South Loop to the new substation as part of the project.

DATA REQUESTS

80. Please describe the depth of excavation and scarification planned for preparation of the construction grade.

81. Please describe the extent of below grade excavation that would be required for installation of the drainage facilities in terms of depth below existing grade, and width and length.

82. Please describe the typical excavation required for the installation of the tubular steel poles in terms of depth below existing grade, and width and length.

83. How deep would the contractor have to excavate to build foundations for the backup generators, data center buildings, and substation?

- a. If the project design has the aforementioned features placed on a substrate of imported, engineered fill, please so state and indicate the depth of excavation from the top of the new grade.

BACKGROUND

Section 2.3.4 of the application describes the potential removal of 4,000 cubic yards of soil and undocumented fill and replacement with 34,000 cubic yards of imported fill. It is unclear to staff what the disposition of removed soil and fill would be. Similarly, the application does not appear to identify the source(s) of imported fill. Disposal of excavated soil and acquisition of soils from off-site sources could cause impacts to cultural, tribal cultural, and other kinds of resources through burial, equipment traffic, and excavation.

DATA REQUESTS

84. Please describe the locations where the applicant plans to dispose of soil and fill that would be excavated from the project site.

- a. Include the name(s) and location(s) of the disposal site(s), if known.

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- b. If the applicant has not yet identified the specific disposal site(s), please describe their type (such as active construction site or commercial disposal site).
85. Please describe the locations from which the applicant expects to obtain fill for construction of the proposed project.
- a. Include the name(s) and location(s) of the fill source(s).
 - b. If the applicant has not yet identified the specific fill source(s), please describe their type (such as construction site, other property owned by the applicant, or commercial soil supplier).

REFERENCES

Powers 2020-David J. Powers & Associates, Inc. Small Power Plant Application Lafayette Data Center. TN 233041-1, 233041-2. May, 2020.

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HAZARDS

BACKGROUND: Fuel Tank Replenishment Strategies

The project design calls for a separate diesel fuel tank for each emergency generator. Each diesel engine would be readiness tested on a regular schedule, consuming a portion of its fuel.

DATA REQUEST

86. Please provide the fuel tank replenishment strategy and frequency, and the estimated frequency of fuel trucks needing to visit the facility for refueling.

BACKGROUND: Diesel Fuel Degradation Precautions

Stored diesel fuel is subject to degradation over time, which can render it unsuitable for use and potentially requiring it to be changed-out for fresh fuel.

DATA REQUEST

87. Please describe what measures are planned to maintain adequate quality of the stored fuel. Is the generator equipped with a fuel filtration system? How often might the stored fuel need to be changed-out for new? If needed, how would this be accomplished? How many fuel truck visits would be required?

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POPULATION AND HOUSING

BACKGROUND: PROJECT CONSTRUCTION

Staff needs to know more about the construction of the project, that is, both the LBGF and LDC. The SPPE application notes on page 14 that construction of LBGF is expected to take 6 months and require 10-15 construction workers including one crane operator. The SPPE application notes on page 16 that "Demolition and construction activities are estimated to last approximately 24 months to the initial occupancy of the building. Construction activities are estimated to last an additional 60 months indoors to bring the building to full occupancy." There is no indication of the number of construction workers necessary for the project as a whole. Staff has the following associated questions and requests:

DATA REQUEST

88. What is the estimated number of construction workers during peak activities and on average for the project (LDC inclusive of LBGF)?

BACKGROUND: PROJECT CONSTRUCTION AND OPERATION WORKFORCE

Staff needs to know about the assumptions used for the construction and operations workforce for the project. No assumptions were discussed in the SPPE application.

DATA REQUESTS

89. From where are the project construction and operation workforce expected to be derived from, locally within the Greater Bay Area or non-locally (beyond a two-hour commute of the project site)?
90. What portion of the construction and operation workforce does the applicant anticipate would be local and what portion would be non-local?

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TRANSPORTATION

BACKGROUND: Project's Conformance with CLUP Policy S-4

The project is located within the Turning Safety Zone and Inner Safety Zone of the Norman Y. Mineta San Jose International Airport, as designated by the Santa Clara County Comprehensive Land Use Plan (CLUP) for the airport. According to Policy S-4 of the CLUP, above-ground fuel storage and hazardous materials facilities are not permitted in these zones. The project has above-ground diesel storage tanks (total capacity 284,600 gallons). The Transportation/Traffic, Land Use and Planning, and Hazards sections of the SPPE application do not address this issue.

DATA REQUESTS

91. Please provide an analysis of the project's conformance with CLUP Policy S-4 as it relates to the CEQA Guidelines Appendix G questions in the areas of Transportation, Land Use and Planning, and Hazards and Hazardous Materials.
92. If the analysis cannot demonstrate the project as proposed is consistent with CLUP Policy S-4, please submit an alternative design for the fuel storage tanks that would be consistent.

BACKGROUND: Communication with Union Pacific Railroad

Union Pacific Railroad tracks run in a north-south direction adjacent to the eastern side of the project site.

DATA REQUEST

93. Please state:
 - a) Whether Union Pacific has been notified of the project;
 - b) Methods of notification used and person contacted; and
 - c) Any comments received from Union Pacific

BACKGROUND: Vehicle Miles Traveled

As a result of recent updates to the CEQA Guidelines, which include analyzing transportation impacts pursuant to Senate Bill 743, staff requests information on the vehicle miles traveled for the demolition, construction, and operation generated trips.

DATA REQUESTS

94. Please provide the estimated one-way trip lengths for the workers, deliveries, and truck haul trips generated by the project's demolition and construction activities.
95. Please provide the estimated one-way trip lengths for the workers, deliveries, and truck haul trips generated during project operation.