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Laurelwood Data Center (19-SPPE-01)

Data Response Set 3
(Responses to Data Requests 75 to 86)

Submitted to
California Energy Commission

Prepared by
MECP1 Santa Clara 1, LLC

with technical assistance from

JACOBS[®]

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Introduction

Attached are MECP1 Santa Clara 1, LLC's (MECP or the Applicant) responses to the California Energy Commission (CEC) Data Request, Set 3 regarding the Laurelwood Data Center (LDC) (19-SPPE-01) Small Power Plant Exemption (SPPE).

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Data Request numbers.

New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 28 would be numbered Table DR28-1. The first figure used in response to Data Request 28 would be Figure DR28-1, and so on. Figures or tables from the LDC SPPE that have been revised have "R1" following the original number, indicating revision 1.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

Air Quality (75–86)

Background: Emission Calculation Methodologies

The BAAQMD 2017 CEQA Guidelines recommends the use of the Urban Land Use Emissions Model (URBEMIS) to quantify operational-related criteria air pollutants and precursors. The BAAQMD 2017 CEQA Guidelines also recommends that direct and indirect greenhouse gas (GHG) emissions be estimated using the BAAQMD Greenhouse Gas Model. The applicant used other methodologies to calculate the emissions of the project, but did not justify the use of these methodologies.

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75. Please justify the methodologies used to calculate the emissions of the project, rather than the models recommended in the BAAQMD 2017 CEQA Guidelines. The justification could include a detailed comparison of the applicant's methodologies with the BAAQMD recommended models (e.g. emission factors, equipment use assumptions, and results, etc.). If the applicant's methodologies have been used for other projects and approved by BAAQMD, please provide approval documents from BAAQMD.

Response: The CalEEMod program was selected from the list of analytical tools recommended by the Bay Area Air Quality Management District (BAAQMD) (see, <http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools>) for evaluating air quality and greenhouse gas (GHG) impacts pursuant to the California Environmental Quality Act (CEQA). On this list of tools, the CalEEMod program is specifically identified as appropriate for estimating criteria pollutant and GHG emissions.

Furthermore, use of this recommended analytical tool ensures consistency among projects before the Commission. Specifically, the City of Santa Clara used the CalEEMod program in preparing the McLaren Data Center's Initial Study/Mitigated Negative Declaration (IS/MND) air quality evaluation. This analysis was accepted by the Commission and relied upon in approving the McLaren SPPE. Further, the BAAQMD did not question the City's use of the CalEEMod program during its review of the IS/MND, which was expected given its listing as recommended for evaluating air quality and greenhouse gas (GHG) impacts.

Background: Windblown Dust

The Laurelwood SPPE application (application) did not include emission estimates of fugitive PM10 and PM2.5 due to windblown dust. The PM10 and PM2.5 emissions during construction of the project could be underestimated. Staff needs such information to complete the analysis of the project emissions.

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76. Please provide emission estimates of fugitive PM10 and PM2.5 due to windblown dust for both daily and annual averaging periods.

Response: Construction of LDC is not expected to require soil piles to be placed onsite. Furthermore, implementation of the project design features noted in Section 3.3.3.1 of the SPPE Application ensures that potential windblown dust emissions will be controlled and thus less than significant.

77. *Please justify the assumptions of soil type, moisture content, wind speed, control methods, and control efficiency etc. to be used for the emission estimates of fugitive PM10 and PM2.5 due to windblown dust.*

Response: See the response to Data Request #76.

Background: ROG Emissions from Diesel Storage Tanks and Diesel Transfer

The application states that each standby generator would include an approximately 10,300-gallon diesel fuel tank, which would provide sufficient fuel storage to operate the generator at steady state continuous load for at least 48 hours. The application did not mention whether there would be any devices installed to control the ROG emissions from the tanks or during transfer of diesel into the tanks. The application did not provide the diesel refueling frequencies. The application did not provide estimates of evaporative emissions of ROGs from the diesel storage tanks or during transfer of diesel into the tanks. Staff needs such information to complete the analysis of the project emissions.

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78. *Please clarify whether there would be any devices installed to control the ROG emissions from the tanks and during transfer of diesel into the tanks. If yes, please provide control efficiency of the devices to be installed.*

Response: The LDC standby generators' diesel fuel tanks are not required to include vapor control devices. The California Air Resource Board's Vapor Recovery Program - Frequently Asked Questions (FAQs) For Aboveground Storage Tanks¹ specifically states, "Note that ASTs storing diesel or jet fuel are not required to have vapor recovery systems."

79. *Please provide the diesel refueling frequencies.*

Response: Each LDC standby generator is expected to operate less than 15 hours per year. However, assuming each standby generator is operated for 50 hours per year with a fuel usage rate of 214.2 gallons per hour, each standby generator would consume 10,710 gallons of diesel annually. This assumes that each standby generator is operated at full load, which is not expected, absent prolonged outage of the electric grid. Under the unlikely case that each generator is operated 50 hours per year at full load, each standby generator storage tank could be refueled up to four times per year.

80. *Please provide emission estimates of ROGs from the diesel storage tanks and during transfer of diesel into the tanks. Please explain how many engines would be tested during annual tests to make sure the daily emissions would not exceed those specified in Table DR-40.*

Response: The South Coast Air Quality Management District's Supplemental Instructions for Liquid Organic Storage Tanks Annual Emissions Reporting Program (February 2017)² provides a diesel fuel storage tank emission factor of 0.028 pounds of VOC per 1,000 gallons for loading, storing, dispensing, and spills or leaks. Using this emission factor and the estimated annual fuel use of 10,710 gallons per year (214.2 gallons per hour for 50 hours) results in each standby generator storage tank

¹ See <https://www.arb.ca.gov/vapor/faq.htm>.

² See <http://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/supplemental-instructions-for-liquid-organic-storage-tanks.pdf>.

emitting 0.30 pounds of VOC per year, or a total of 8.4×10^{-3} tons per year for all 56 diesel storage tanks. Adding the potential diesel fuel tanks VOC emissions to Data Response Set 1A, Table DR-40 will not alter the table or conclusions in a material way and revisions to this table are not warranted.

Background: Construction Impacts Analysis

The applicant did not provide ground-level impacts analysis for criteria pollutants during construction of the project because the average daily emissions would not exceed the BAAQMD's significance thresholds. However, the significance thresholds do not assure compliance with National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), which are based on different averaging times. Staff needs ground-level impacts analysis using dispersion modeling to determine compliance with NAAQS and CAAQS during construction of the project. In addition, the application did not show the worst-case hourly or daily emission rates. In order to provide a conservative analysis of the project impacts during construction, the worst-case hourly and daily emission rates should be used, instead of average daily emission rates.

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81. Please provide ground-level impacts analysis using dispersion modeling to show compliance with NAAQS and CAAQS of the criteria pollutants during construction of the project. The worst-case hourly and daily emission rates should be used to provide a conservative analysis of the project impacts during construction.

Response: The BAAQMD has established significance thresholds for evaluating whether a project's individual emissions would be cumulatively considerable. According to the BAAQMD's CEQA Air Quality Guidelines (2017), "If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable threshold of significance..., the project would result in a significant cumulative impact," and additional analysis would be required. As shown in Table 3.3-3 of the SPPE Application and subsequent Data Request responses, the project's daily average construction emissions do not exceed the BAAQMD's CEQA significance thresholds. The BAAQMD Rules do not require the requested modeling. Therefore, project construction will not result in a significant cumulative impact and further analysis, including dispersion modeling to determine ground-level concentrations, is not warranted.

82. Please justify 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) to be used in the dispersion modeling.

Response: See the response to Data Request #81.

Background: Electric Vehicle Charging Spaces

City of Santa Clara's 2013 Climate Action Plan (CAP) Measure 6.3 recommends 5 percent of all new parking spaces be designated for electric vehicle charging. Page 2-20 in the Laurelwood SPPE application shows that there would be 150 total parking spaces at full buildout of the project. Therefore, the corresponding CAP recommended number of electric vehicle charging spaces would be 8 (rounded from $150 \times 5\%$) for the project.

Page 3.8-9 of the application states that the project would include two electrical vehicle charging stations. However, Page 3.11-7 of the application states that the project will include four electrical vehicle charging

stations that would serve nine electrical vehicle parking spots. Staff needs to confirm which of the statements is applicable to the Laurelwood project. Staff needs to confirm whether the project would comply with the City of Santa Clara's 2013 CAP Measure 6.3.

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83. *Please confirm which statement regarding the electrical vehicle parking spaces is applicable to the project.*

Response: The statement on page 3.11-7 is applicable to the project.

84. *Please confirm whether the project would comply with the City of Santa Clara's 2013 CAP Measure 6.3 regarding the number of electric vehicle charging spaces.*

Response: Measure 6.3 contains recommended revisions to the City's Zoning Code to accommodate EV charging facilities that the City should adopt, and is not in and of itself a LORS applicable to the project. Measure 6.3 recommends that the City revise the Zoning Code to require "a minimum of one parking space, and a recommended level of 5% of all new parking spaces, be designated for electrical vehicle charging." The five percent figure cited in the Background is a City-wide recommendation, and is neither a LORS nor a project specific development requirement.

Notwithstanding the fact that Measure 6.3 is not an applicable LORS, the project is consistent with Measure 6.3 because it will more than meet the recommended requirement that a minimum of one parking space be designated for electric vehicle charging. Further, the proposed number of charging stations is consistent with the assumptions set forth in the 2013 CAP that 2.5 percent of future parking spots for various types of developments provide EV charging stations. Finally, the final number of electrical vehicle spaces that will be provided by the project will be determined in consultation with the City.

Background: Consistency with GHG Reduction Strategy

The application concludes the GHG impacts from the project's standby generators to be less than significant by comparing the GHG emissions from the standby generators with the BAAQMD's threshold of 10,000 metric tons of CO₂e per year (MT CO₂e/yr). To evaluate the GHG impacts from all other project-related emission sources, the application states that these GHG impacts would be considered to have a less-than-significant impact if the project is consistent with the Santa Clara CAP and applicable regulatory programs and policies adopted by ARB or other California agencies.

However, the application failed to demonstrate consistency with the following control measures or policies from City of Santa Clara CAP, City of Santa Clara General Plan, and Bay Area 2017 Clean Air Plan.

a. City of Santa Clara CAP:

Measure 6.1 Transportation demand management program

Require new development located in the city's transportation districts to implement a TDM program to reduce drive-alone trips.

The CAP states that the City will require all new developments greater than 25 housing units or more than 10,000 nonresidential square feet to draft and implement a VMT reduction strategy that reduces drive-alone trips. The total project building square footage would be 737,093 square feet (shown in Figure 1-3 of the application). The application did not discuss whether the project would comply with this mitigation measure.

Response: The Project Owner will develop a Transportation Demand Management Program as required by the City of Santa Clara. As noted above, the project's square footage is intended to house computer equipment and will be staff 24-hours per day by the 54 operational employees, a less intensive use.

Measure 7.2 Urban cooling

Require new parking lots to be surfaced with low-albedo materials to reduce heat gain, provided it is consistent with the Building Code.

Page 3.8-11 of the application states that the project would have a "Cool Roof," using reflective surfaces to reduce heat gains. However, the application did not mention whether the parking lots would use "cool" surfaces as well.

Response: Measure 7.2, as with other measures in the CAP, are policy recommendations and paths that the City can adopt and implement over time. For example, Measure 7.2 provides for the City to "phase in adoption of a requirement for new nonresidential parking lots." The LDC is being designed to achieve Leadership in Energy and Environmental Design (LEED) standards. In addition, the Project Owner will install all energy efficiency requirements, including the applicable parking lot surface, as specified by the City of Santa Clara during the design review process.

Solar panels

The City adopted a 2035 reduction target of 834,400 MT CO₂e/yr, to be met by additional measures beyond those proposed for 2020. These include customer-installed 10,000 kW of solar on about 2,000 residential homes, nonresidential buildings, parking garages, parking lots, and other feasible areas (Page 59 of the CAP).

Page 3.8-12 of the application states that the project could further reduce its GHG impacts by installing solar panels over parking spaces and any roof area not being used for cooling towers or other equipment. However, the application did not identify how much capacity or commit to a timeline for the solar panel installation that would help the City to meet its 2035 GHG reduction target.

Response: The 2035 reduction target identified by Staff is a recommendation to the City of Santa Clara and not a current mandate. The Project Owner will install solar panels consistent with a City of Santa Clara design review condition, should one be issued.

b. City of Santa Clara General Plan:

Air Quality Policy 5.10.2-P4

Encourage measures to reduce greenhouse gas emissions to reach 30 percent below 1990 levels by 2020.

Table 3.8-5 on page 3.8-11 shows an air quality policy named "Executive Order B-30-15 and SB 32 extended the goals of AB 32 and set a 2030 goal of reducing emissions 40 percent from 2020 levels. This Plan establishes a path that will get California to its 2030 target." Staff is not able to identify this policy in the City's General Plan. Staff believes this is meant to be the "Air Quality Policy 5.10.2-P4 Encourage measures to reduce greenhouse gas emissions to reach 30 percent below 1990 levels by 2020".

To be consistent with the policy, Table 3.8-5 states that water conservation and energy efficiency measures included in the project would reduce GHG emissions associated with the generation of electricity. Staff needs detailed description of the energy efficiency measures that are going to be included in the project to demonstrate consistency with the Air Quality Policy 5.10.2-P4 in the City's General Plan.

Response: The LDC is being designed to achieve LEED standards to reduce energy, water, air, and GHG impacts of the development. In addition, the Project Owner will satisfy the GHG reduction policy as specified by the City of Santa Clara during the design review process.

Energy Policy 5.10.3-P1

Promote the use of renewable energy resources, conservation and recycling programs.

Page 3.8-12 of the application states that the project could significantly reduce GHG emissions by purchasing all of its electricity from Santa Clara Green Power, which is available through SVP. Staff needs to know whether there is any contract or agreement between the applicant and SVP to purchase all of its electricity from Santa Clara Green Power.

Response: The LDC is being designed to achieve LEED standards to reduce energy, water, air, and GHG impacts of the development. It is not clear that the Santa Clara Green Power purchase is a mandate; however, the Project Owner will satisfy any applicable requirements as specified by the City of Santa Clara during the design review process.

Energy Policy 5.10.3-P3

Maximize the efficient use of energy throughout the community by achieving adopted electricity efficiency targets and promoting natural gas efficiency, consistent with the CAP.

Staff needs detailed description showing how the project would be consistent with the Energy Policy 5.10.3-P3 in the City's General Plan.

Response: The Project Owner believes that Policy 5.10.3 is intended to be implemented by the City (“...the efficient use of energy throughout the community...”) and not individual property owners/developers. This intent to be an obligation of the City as a whole and not any individual project alone is confirmed by the following statement from the City's General Plan, Section 5.10:

“The City has some control over the production and supply of energy resources through its ownership and operation of SVP. In addition, the General Plan includes policies to address energy consumption through a mix of land uses and alternate transportation options which support an increase in the efficient movement of people and goods. Through the implementation of sustainably oriented goals and policies (Appendix 8.13), Santa Clara can also positively affect energy supply and consumption by encouraging sound investments and behaviors that promote the use and expansion of renewable energy resources.”

Water Policy 5.10.4-P6

Maximize the use of recycled water for construction, maintenance, irrigation and other appropriate applications.

Table 3.8-5 on page 3.8-11 of the application states that the project would use recycled water for landscape irrigation and the cooling towers, as available. Staff needs to confirm whether recycled water would be used for construction as well.

Response: The LDC is being designed to achieve LEED standards to reduce energy, water, air, and GHG impacts of the development. The potential availability of recycled water is still being determined at the City of Santa Clara. Once the City has completed its review and assuming recycled water is determined to be “available” as defined by the California Water Code, it will be used by the project, consistent with applicable law.

c. Bay Area 2017 Clean Air Plan:

ECM-1 Energy Efficiency

Decrease the amount of energy consumed in the Bay Area through increased efficiency and conservation to reduce the amount of fossil fuel needed to produce the electricity that the region uses.

Page 3.8-11 of the application states that due to the relatively high electrical demand of the LDC, energy efficiency measures are included in the design and operation of the onsite electrical and mechanical systems. Staff needs detailed description of the energy efficiency measures that are going to be included in the project to demonstrate consistency with the control measure ECM-1 Energy Efficiency in the Bay Area 2017 Clean Air Plan.

Response: This policy statement focuses on the BAAQMD. The District, not individual projects, are to strive to “[d]ecrease the amount of energy consumed in the Bay Area....” The LDC is being designed to achieve LEED standards to reduce energy, water, air, and GHG impacts of the development, with a Power Usage Effectiveness of 1.25 and an average rack power rating range of 8 to 10 kilowatts. Additionally, the Project Owner will incorporate additional energy efficiency measures specified by the City of Santa Clara during the design review process to ensure compliance with applicable energy efficiency laws, ordinances, regulations, and standards.

EN1 Decarbonize Electricity Production

Engage with PG&E, municipal electric utilities and CCEs to maximize the amount of renewable energy contributing to the production of electricity within the Bay Area as well as electricity imported into the region. Work with local governments to implement local renewable energy programs. Engage with stakeholders including dairy farms, forest managers, water treatment facilities, food processors, public works agencies and waste management to increase use of biomass in electricity production.

Staff needs detailed description showing how the project would be consistent with the control measure EN1 Decarbonize Electricity Production in the Bay Area 2017 Clean Air Plan.

Response: The Project Owner is uncertain how this Energy Control Measure EN1 is applicable to the LDC project as it is directed at the BAAQMD and not individual emission sources. The policy encourages the BAAQMD, not individual projects, to “[e]ngage with PG&E, municipal electric utilities and CCEs to maximize the amount of renewable energy contributing to the production of electricity within the Bay Area as well as electricity imported into the region.

The measure includes language confirming this BAAQMD focus. Specifically, the paragraphs preceding Table 5-3, which includes Energy Control Measures EN1 and EN2, as excerpted below, provide as follows.

The strategy to decrease demand focuses on promoting energy efficiency and conservation. To that end, the **Air District** will:

- Conduct education and outreach about energy efficiency programs and financing available to residents and businesses in the Bay Area.
- Increase consumer awareness about energy efficiency benefits by incorporating this message into existing outreach programs such as Spare the Air, outreach to Bay Area schools, booths at fairs, etc.
- Work with utilities and community choice energy providers to develop messaging to decrease electricity demand during peak times.
- Distribute information on state and local energy efficiency programs to permitted sources.

To further decarbonize the energy sector, the **Air District** will:

- Engage with electric utilities and CCE providers to maximize the amount of renewable energy supplied to the Bay Area.

- Support the formation or expansion of CCE programs.
- Support the development of bioenergy to displace electricity generated from fossil fuels for applications where renewable electricity is unsuitable.
- Expedite Air District permitting for new renewable energy, and high-efficiency combined heat and power (CHP) facilities, as well as for biofuel facilities where necessary. (Emphasis added.)

Proposed energy measures are briefly described in Table 5-3:

EN2 Decrease Electricity Demand

Work with local governments to adopt additional energy efficiency policies and programs. Support local government energy efficiency program via best practices, model ordinances, and technical support. Work with partners to develop messaging to decrease electricity demand during peak times.

Staff needs detailed description showing how the project would be consistent with the control measure EN2 Decrease Electricity Demand in the Bay Area 2017 Clean Air Plan.

Response: The BAAQMD, not any individual project, is encouraged to “[w]ork with local governments...” See the response above.

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85. *Please provide detailed analysis of the effectiveness and likely implementation for each component of the control measures/policies mentioned above as well as those in the application.*

Response: See the responses above, following the description of each control measure/policy identified by Staff.

86. *Please explain how the GHG control measures/policies would be enforced for this project. Will the applicant submit building design plans to City of Santa Clara for review and approval before construction begins?*

Response: The Project Owner will incorporate measures specified by the City of Santa Clara during the design review process to ensure compliance with applicable laws, ordinances, regulations, and standards. The Project Owner has stated in the SPPE Application³ that it will apply for building permits from the City of Santa Clara and conformance with the applicable design codes and policies will be enforced by the City of Santa Clara.

³ Laurelwood Data Center SPPE Application, Page 3.5-4 - The project would be required to obtain building permits, which would be issued by the City. The issuance of the building permits and oversight provided by the City would ensure that the project complies with the applicable building codes.