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Before the Energy Resources Conservation and Development
Commission of the State of California
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**APPLICATION FOR A SMALL POWER PLANT
EXEMPTION FOR THE:**

**MCLAREN BACKUP GENERATING
FACILITY PROJECT**

Docket No. 17-SPPE-01

STAFF'S RESPONSE TO COMMENTS, RESPONSE TO MOTION TO DISMISS, RESPONSE TO MOTION FOR NEW SCHEDULE

I. Introduction

Vantage Data Centers proposes to construct the McLaren Data Center Project, which would include data center buildings and diesel generators in the McLaren Backup Generating Facility. The California Energy Commission (Energy Commission) is responsible for reviewing, and ultimately approving or denying, all thermal electric power plants 50 megawatts (MW) and greater proposed for construction in California. The Energy Commission has a regulatory process, referred to as the Small Power Plant Exemption (SPPE), which allows applicants with projects between 50 and 100 MW to obtain an exemption from the Energy Commission's jurisdiction and proceed with local approval rather than requiring an Energy Commission license. The Energy Commission may grant an exemption if it finds that the proposed project would not create a substantial adverse impact on the environment or energy resources. (Public Resources Code § 25541) On June 22, 2018, Energy Commission Staff (Staff) filed its Initial Study and proposed Mitigated Negative Declaration (IS/MND) recommending the granting of the SPPE because the project was under 100 MW and would have no substantial adverse impacts on the environment or energy resources.

On July 24, 2018, the Energy Commission received comments on Staff's IS/MND from Helping Hand Tools and Clean Coalition. On August 3, 2018, Helping Hand Tools filed a motion seeking to dismiss the proceeding, questioning whether the 100 MW threshold was exceeded. On August 10, 2018, Helping Hand Tools filed a second motion seeking to have the Committee amend the proceeding schedule, delaying the decision on the SPPE application.

In this document, Staff responds to both sets of comments as well as both motions. In summary, after reviewing the comments and consulting with the Air Resources Board, the Bay Area Air Quality Management District, and Silicon Valley Power, Staff

concludes its analysis in the Initial Study is sufficient and appropriately analyzes potential impacts, the project is appropriately calculated at under 100 MW and that the current proceeding schedule, as set forth by the Committee order, is adequate to ensure a timely decision and public participation.

It is important to recognize that the McLaren Data Center was previously subject to a separate IS/MND adopted by the City of Santa Clara. (See Attachment A to Staff's Initial Study, TN #223911) Given that the project has been subject to additional analysis and public review, there is no need to delay the current schedule.

II. Response to Comments

Staff identified 11 unique comments in the Helping Hands (HH) comment letter and 4 unique comments in the Clean Coalition (CC) comment letter. These comments are numbered (HH-1, HH-2, CC-1, etc.) and summarized. The original comment letters, with additional detail supplied by the commenters, are available for review in the project's docket 17-SPPE-01. Staff has addressed comments HH-4 and CC-1 in a single response since they involve the same issue.

The following introductory material is based on the IS/MND project description, (TN #223911, pp. 4-1 to 4-6) and will help address the issues raised in comments HH-1, HH-2, HH-3. The comment summaries and Staff responses follow this explanatory material.

Technical Background

Data centers, or server farms, are hubs where data is collected, stored, managed and disseminated for the needs of an individual, agency, or business. The security, preservation and access to the data are paramount to data owners, so the reliability of the access to the data and power supply to the facility is critical. Some data centers are data-owner owned and operated, while others are third-party providers of data and reliability services.

Data centers have banks of servers (dynamic or static data storage devices) with access to power via a utility grid interconnection and back-up power, and access for the data users/data streams. The servers generate incredible amounts of heat as they operate. Given that their performance deteriorates with increasing room temperature, and will ultimately fail if temperatures are not controlled, room and server cooling is a critical function of the data center. Room and server cooling require power and back-up power to ensure reliability of the building and cooling systems during a loss of grid power.

McLaren Data Center

The McLaren Data Center (MDC) would be located in Santa Clara, California. It would provide data and reliability services to data customers, who will rent or lease floor space

in server bays. MDC would provide high quality power to each server bay through a battery system uninterruptible power supply (UPS). Power would be from the dedicated on-site switch yards that would be connected to a dedicated 12,000 volt (12kV) “loop” in the Silicon Valley Power (SVP) service territory. The loop would provide two supply lines to each switch yard, ensuring isolation from faults, if they occur on one leg, while still having 100 percent power delivery from the other leg.

When both grid connections are disconnected or power quality deteriorates, the UPS isolates the bay from the grid and provides power while the back-up diesel-fired emergency generators (gensets) start and come up to speed in about a minute to then supply the electrical demand of the servers, and the building and cooling loads for that server bay. The UPS is limited in size to provide bridging power to the data servers only, and for a very limited amount of time. The diesel-fired gensets are capable, after an approximate one-minute start time, to supply both high quality power to the data servers and power to the building and cooling loads for that server bay.

McLaren Backup Generating Facility

The MDC gensets are collectively known as the McLaren Backup Generating Facility. (MBGF) Each genset has a nameplate MW rating and a continuous MW rating. For MBGF, these are 2.75 and 1.93 MW, respectively. A critical point is that the project owner has secured genset warranties that place an upper limit on operation of the gensets up to the continuous MW rating, or 1.93 MW. While operating the gensets at more than the continuous rating is possible, in this case, it would nullify the manufacturer’s warranty.

$$0.7 * 2.75 \text{ MW nameplate rating} = 1.93 \text{ MW continuous rating}^1$$

MDC is proposing to configure the gensets to operate in a “4 to make 3” configuration for each server bay. This means the load of a server bay could be met by up to three gensets operating at close to their continuous rating (TN 224450, top of page 7). MDC is advertised as a proposed 69 MW critical IT load² facility. MDC would be designed to have up to 6 MW of critical load per each of the 11 server bays and 3 MW for the small server bay. (TN223483, Page 2-3)

$$(11 * 6 \text{ MW per server bay}) + (1 * 3 \text{ MW per server bay}) = 69 \text{ MW of critical load}$$

This would be assuming that the server bay is carrying the maximum number of servers.

¹ Staff rounds off calculations and values to 1 or 2 significant digits for simplicity. Readers who do not do so in their calculations may arrive at slightly different values compared to Staff’s calculations, but the difference are not critical to understand the MDC data center or assessing its jurisdictional footprint.

² <https://vantagedatacenters.com/data-centers/>

Regarding the building loads and cooling demands for the hottest day, the Revised SPPE (TN #223483 pp. 1-3, 2-2 to 2-3) estimates that each of the 11 server bays would add 2.1 MW each and the small server bay would add 1.05 MW alone.

$$(11 * 2.1 \text{ MW bldng/ clng}) + (1 * 1.05 \text{ MW bldng/clng}) = 24.15 \text{ MW bldng/clng load}$$

Adding the three life safety engines, at a 70% continuous rating, adds 1.26 MW.

$$3 * 0.6 \text{ MW life safety} * 0.7 = 1.26 \text{ MW life safety continuous rating}$$

Therefore, the maximum load capable of being called upon by MDC from the 47 gensets in MBGF, plus the 3 generators, on the worst, hottest, most humid day would be:

$$69 \text{ MW} + 24.15 \text{ MW} + 1.26 \text{ MW} = 94.41 \text{ MW max load}$$

This would also be the maximum amount of power that the data center would need to draw from the grid.

However, under most scenarios, it is unlikely that all server bays would be full. For example, a data user would reserve server space adequate for current needs and future expansion, but only install (and power) enough servers needed for current business needs. Data owners are charged for the electricity they use, thus they would try to optimize servers and space for current needs, installing and powering only the servers they need at the present time. However, they would have an option or guarantee of access to the rest of the space in their server bay or to adjacent bays/bay space to allow for server additions.

The fourth (or third in one bay) genset in a “4 to make 3” configuration is there to ensure adequate MWs start when needed, and adequate MWs are available throughout the period when the server bay or facility does not have high quality power from the grid, or connection to the grid. Upon isolation from the grid, four gensets start to meet the total demand from the server bay and building. This means each genset starts and generates about 2.03 MW:

$$\begin{aligned} 8.1 \text{ MW bay load} / 4^3 \text{ gensets} &= 2.03 \text{ MW} \\ 2.03 \text{ MW} / 1.93 \text{ MW} &= 105 \% \text{ of continuous rating} \\ 2.03 \text{ MW} / 2.75 \text{ MW} &= 74 \% \text{ of nameplate rating} \end{aligned}$$

Or, for the smaller bay:

$$\begin{aligned} 4.05 \text{ MW bay load}^4 / 3 \text{ gensets} &= 1.35 \text{ MW} \\ 1.35 \text{ MW} / 1.93 \text{ MW} &= 70 \% \text{ of continuous rating} \\ 1.35 \text{ MW} / 2.75 \text{ MW} &= 49 \% \text{ of nameplate rating} \end{aligned}$$

³ 6 MW critical IT load + 2.1 MW building load and cooling demand

⁴ 3 MW critical IT load + 1.05 MW building load and cooling demand

It is clear that 2.03 MW is greater than the warranty level of 1.93 MW continuous rating, but the 8.1 MW combined server bay/building load is the worst case and is rarely, if ever, expected to occur.

8.1 MW bay load / 3 gensets = 2.7 MW
2.7 MW / 2.75 MW = 98 % of nameplate rating

In this case, for a server bay, staff assumes that the project owner would accept the loss of warranties on three gensets to continue to provide reliable power to a server bay. Overall, the MDC has a very conservative approach to providing adequate power to each server bay and building load to ensure that maximum server bay load would be met even if one genset failed to start or failed after starting.

Reliability of Silicon Valley Power and MDC

Staff considered the likelihood (and duration) of any expected SVP/MDC outage by reviewing the outage history of SVP, talking to SVP representatives, and discussing data center operations with owners and operators. SVP data was initially obtained from the City of Santa Clara's September 30, 2014 City Council Meeting agenda.⁵ The data was included in the Electric Department Activity Report for July 2014 and covered the years 2014 and 2013. Discussions with SVP staff confirmed the 99.99% availability of SVP to their customers from 2009 to September 2017. Additionally, SVP said that MDC would be interconnected to the SVP 12 kV system in a looped configuration, such that it was likely MDC would have a higher reliability connection than most customers. SVP staff pointed to power quality events⁶ tracked on their web page, indicating that these could cause a data center to isolate and operate back-up emergency equipment. These are limited to about 15 events per year and can be as short as 3 or 4 cycles (in a 60 Hz system, that would be 4/60 or 0.07 seconds). However, MDC is designed to condition grid power through the battery UPS specifically to damp out power quality deviations⁷ (frequency or voltage transient) before they can affect the server equipment or trigger the start of the gensets. SVP staff confirmed that some data center customers in their service area have never lost connection to the SVP and never had to operate their back-up gensets under emergency conditions.

SVP reports that they have about 40 data center customers in their service territory, which represent about 80 percent of the daily demand. Data centers represent a constant demand; for example MDC server load is a fairly constant 6 MW per bay, while building and cooling load can vary depending on ambient conditions, but are less than server loads per bay. Some data centers take advantage of the temperate conditions in

⁵<http://sireweb.santaclaraca.gov/sirepub/cache/2/40xbym4ewtziqnx0se01gfkq/69887308132018110911559.PDF>

⁶ <http://www.siliconvalleypower.com/svp-and-community/outages-and-alerts/power-quality/power-quality-events>

⁷ TN254450, response 1.e.

the Bay Area to use outside air rather than mechanical cooling, reducing building and cooling demand.

Public and Intervenor Comments

HH-1: *It is not clear whether the project will utilize three 900 kW safety generators or three 600 kW safety generators.*

Staff Response:

The project would include three life safety generators rated at 900 horsepower (hp), equivalent to 600 kilowatt (kW) of electric output. The IS/MND correctly distinguishes between hp and kW.

The three life safety generators (600 KW each) are included by Staff in the calculation of generating capacity even though they would not contribute directly to generation of power for delivery to the end user – the data servers and bay cooling. In a jurisdictional calculation of net capacity, the life safety generators address loads not directly related to the delivery of high quality, reliable power to the data servers and bay cooling. However, the life safety generators serve loads that are parasitic in the traditional sense; the kW's consumed by the control room at a traditional power plant would have been subtracted in calculating the net useable electricity. Note that most of the MBGF parasitic load is internalized, unlike a traditional power plant that has separate systems, for example, for air and fuel handling. Here, the oil, water and fuel pumps, the radiator fans, and controls are all part of the genset.

HH-2: *There is a discrepancy in the value provided for total generating capacity as published in the Project Description and Energy Resources section (91.7 MW vs 90.5 MW.)*

Staff Response:

Thank you for bringing this issue to Staff's attention. In the Project Description in the IS/MND, Staff used 91.7 MW which was an error that was carried forward from the applicant's revised SPPE application. In the Energy Resources chapter, 90.5 MW was used and is a rounding error. In addition, Staff uncovered an additional typo in the Hazardous Materials section, which references 98.7 MW. The correct figure in all sections should be **90.7 MW**, which reflects the rounded product of 47-2.75 MW generators running at 70 percent capacity.

These errors do not change any of Staff's environmental conclusions. The intent of the calculation was to show that the total MBGF genset fleet output is 90.7 MW, at their continuous MW rating:

1.93 MW continuous rating * 47 = 90.7 MW continuous rating of all MBGF gensets

This is not intended to suggest an operational level for the MBGF gensets to supply total MDC server bays and building and cooling loads or demand – that number is 69 MW of critical IT load, plus building and cooling loads, for a total of 94.41 MW, in the worst case scenario.

The IS/MND (TN 223911, page 1-1, page 1-2, and page 4-1) incorrectly describes the generating capacity at 91.7 MW. The correct value should be 90.7 MW.

The IS/MND (TN 223911 page 4-3) incorrectly describes the demand from a server bay at 9 MW, where three of the four 3-MW gensets could be used to make up to 9 MW, in a “4 to make 3” configuration. However, typical MDC server bay demand would be around 6 MW of critical load plus 2.1 MW of worst case building and cooling load, not 9 MW.

However, Staff has found that other preliminary calculations and designs assuming the use of 3 MW nameplate engines are still in the application and IS/MND. The upper limit of 99.8 MW (TN #222104 MBGF 2017a, Appendix E-1, p. ES-1) is probably an artifact of these preliminary design engines sizes (3 MW).

Since demand, and net generation vary, depending on the number of servers installed and cooling and building loads, and since server technology can improve (e.g., smaller sizes, less heat generated), the upper limit of not exceeding 99.8 MW total for MBGF allows for potential modifications to MDC without exceeding 100 MW.

In the current design, the maximum load requirement for the data center including the three MDC buildings combined when fully developed and 100 percent server space occupied would not exceed 94.41 MW of critical IT load and worst-case building and cooling load. Note that as the preliminary designs were finalized, the cooling design was optimized to reduce total demand, which is why the current design is 94.41 MW instead of an earlier worst-case limit of 99.8 MW.

HH-3: *What is the generating capacity of the McLaren Data Center?*

Staff Response:

Some sections of Staff's IS/MND (TN 223911, Hazardous Materials and Project Overview), and page 2-5 of the application for SPPE, are based on each backup engine having 3 MW of maximum generating capacity, which is in the old project description. After the submission of the SPPE application and prior to the Staff's final preparation of the IS/MND, the applicant revised the engine size to a slightly smaller engine (Caterpillar Model 3516E) with a nameplate maximum capacity of 2.75 MW each. Any references in the IS/MND to 3 MW should be changed to 2.75 MW nameplate to reflect the Caterpillar Model 3516E engines that would be used. Additionally, any references to 3 MW in the City of Santa Clara - Proposed Mitigated Negative Declaration and Initial Study (TN 223911, Appendix A) could be assumed to be 2.75 MW nameplate.

At the 2.75 MW nameplate rating, the 47 back-up gensets total cumulative capacity would appear to be 129.25 MW. Or, assuming all 47 gensets are operating up to their continuous rating, the cumulative capacity would be 90.7 MW. However, this is not determinant of the data center's maximum jurisdictional capacity.

Jurisdictional analyses are based on the net MW that can be delivered for "use", not the gross or nameplate rating. In a traditional power plant net useable electricity is that measured at the meter or at the switch yard. The calculation of net generation subtracts from the gross electricity generated on site the electricity used on site for fan and pump motors, heaters, controls and equipment that are necessary parts of the electricity production. The calculations assume normal conditions, where generation would be under average conditions, and assumes the onsite loads (often called parasitic loads) are also average (e.g., you would not include a filter backwash pumping load if that operation only occurs monthly or annually).

To determine the net generating capacity of a collection of backup gensets⁸ for data centers, the approach is slightly different than for a traditional power plant, because: 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 include redundant gensets or capacity to achieve a statistical reliability that can be marketed to data owners.

The maximum load being served is determinative and not the combined capacity of the generators. Consequently, for the MBGF, the maximum generating capacity would be limited by the combined load requirements of the data center bays including the three MDC building loads (mostly cooling). The MBGF would be exclusively connected to the MDC and would not be capable of delivering electricity to any other user or to the electrical transmission grid. MDC is advertised as a proposed 69 MW critical IT load⁹ facility. MDC would be designed to have up to 6 MW of critical load per each of the 11 server bays and 3 MW for the small server bay. (TN223483, page 2-3)

$$(11 * 6 \text{ MW per server bay}) + (1 * 3 \text{ MW per server bay}) = 69 \text{ MW of critical load}$$

This would be assuming that all bays are carrying the maximum number of servers.

Regarding the building loads and cooling demands for the hottest day, the Revised SPPE (TN #223483 pp. 1-3, 2-2 to 2-3) estimates each of the 11 server bays would add 2.1 MW each and the small server bay would add 1.05 MW alone.

$$(11 * 2.1 \text{ MW bldng/ clng}) + (1 * 1.05 \text{ MW bldng/clng}) = 24.15 \text{ MW bldng/clng load}$$

⁸ Backup generators have, 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 on onsite so the project can operate if "islanded".

⁹ <https://vantagedatacenters.com/data-centers/>

Adding the three life safety engines, at a 70% continuous rating, adds 1.26 MW.

$3 * 0.6 \text{ MW life safety} * 0.7 = 1.26 \text{ MW life safety continuous rating}$

The maximum load capable of being called upon by MDC from the 47 gensets in MBGF, plus the 3 life safety generators in MDC, on the worst, hottest, most humid day would be:

$69 \text{ MW} + 24.15 \text{ MW} + 1.26 \text{ MW} = 94.41 \text{ MW max load}$

The Staff calculated that the MBGF jurisdictional capacity would be between 50 to 100 MW net, and qualify for the SPPE process.

HH-4 and CC-1: *The Initial Study fails to examine the emergency operation of the back-up diesel generators. In order to identify the significant impacts from this project the initial study must analyze the project under its stated purpose which is to provide emergency back-up power to the data center operating all 47 diesel powered generators.*

Staff Response:

The primary concern raised by both commenters is the lack of analysis regarding air emissions from the emergency operations of the backup generators. As detailed below, Staff is unable to analyze the quantities of emissions or potential impacts from emergency operations because the generators do not run under normal operations. Thus by definition, essential information, such as hours of emergency operations, whether such operation is continuous, and climatic conditions during emergency operations are unavailable and forecasting is too speculative.

While drafting an environmental assessment necessarily involves some degree of forecasting, foreseeing the unforeseeable is not possible. An agency must use its best efforts to find out and disclose all that it reasonably can. (Cal. Code Regs, tit. 14 § 15144) But, as set forth in section 15145 of the CEQA Guideline:

If, after thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.

Staff uses a similar approach when analyzing diesel-fueled emergency equipment (e.g., a fire pump or back-up generator) located at a conventional power plant by analyzing emissions from annual engine testing and maintenance operations. Emergency operation is expected to only rarely occur, so it is not analyzed. Data centers are designed to avoid most power “blinks” and outages by using UPS systems to condition the electrical supply, or feed, and have redundant electrical supplies to the site. The reasonably expected outage event that should be modeled cannot be defined. For MBGF, the purpose of the diesel-fueled emergency engine generators is not to operate,

but to be available to operate if needed. Hence, the extensive testing to prove the readiness of the back-up emergency equipment to the data users and insurance companies. Staff evaluated the emissions from the MBGF monthly readiness tests and the annual 4-hour load tests in the IS/MND as the reasonably expected annual and lifetime operating scenarios.

After discussions with the California Air Resources Board, the Bay Area Air Quality Management District and Silicon Valley Power as well as confirming similar analysis for back-up generators at other data centers in the region, Staff confirms its conclusions in the IS/MND.

Public Health and Toxic Air Contaminant Issues

For the Public Health assessment of the IS/MND, per Bay Area Air Quality Management District (BAAQMD) Regulation 2-5-111 (BAAQMD Regulation 2-5-111 Limited Exemption, Emergency Standby Engines), the emissions from emergency engines resulting from emergency use, initial start-up testing and emission testing required by the District are not subject to review under BAAQMD Regulation 2 Rule 5. Only the emissions resulting from reliability-related operation (maintenance and testing) of the proposed emergency diesel engine generators are subject to review under this rule. Therefore, for regulatory purposes, it is not necessary to calculate the acute health risk for the scenario that the project is in emergency operation and all the 47 engines are emitting the toxic air at the same time. See also the text below the two graphs in the next Staff response. Any such assessment would be speculative because the hours of emergency operation are unknown.

HH-5. *During an outage it would be expected that all 47 generators would be operating concurrently. The IS and all other analysis in this proceeding only examine impacts from one generator at a time operating for 4 hours. Electrical outages will affect other facilities in the project area that also have backup diesel generators. For example, the Santa Clara Data Center located at 865 Matthew Street, is around 2,000 feet away with its 32 - 2.25 MW backup diesel generators.*

Staff Response:

The comment makes assumptions that are based on speculation, primarily that an electrical outage will affect other facilities. As discussed above, McLaren has its own substation on a loop that provides some level of independence from other parts of the grid. So an outage at one facility may or may not impact another. Even if it does, it is unknown how long the outage will be.

Complicating any assessment is that electricity service outages would shut down other adjacent businesses (if they do not have backup power) such as light industrial and fast food. Further, operations (and emissions) at the nearby San Jose airport could be curtailed during a service interruption. Cumulative impacts consider the overlap of operational emissions from a proposed emission source with operational emissions

from existing and other proposed new emission sources. How exactly local and regional emissions and ambient air quality would change when the proposed MBGF project is under emergency conditions, while other existing sources and those identified in a cumulative analysis are curtailed or not operating, is speculative.

Most data centers are designed to avoid most power “blinks” and outages by using UPS systems to condition the electrical supply, or feed, and having redundant electrical supplies to the site.

Criteria Pollutant Issues

In preparing the initial IS/MND, Staff submitted a data request to the applicant asking if there are any new sources (sources more recent than the most recent background pollutant data used in the analysis) within a 6-mile radius of the project site. The applicant submitted a request to the BAAQMD to find out if there are any new or foreseen projects in order for Staff to determine whether or not the project along with any new projects would have a cumulative effect. The applicant’s consultant included more recent background concentration data spanning the period from January 2013 to December 2017 in order to best capture any more recent sources and therefore get a better idea of cumulative project impacts, rather than using older background data. The applicant’s approach is adequate and the modeling impacts are shown in **Air Quality Table 5.3-3**.

Staff looked at a close, downwind ambient air monitoring station for hourly NO₂ values over the last 10 years (See Figure 1). There are about 120 data centers in the Bay Area, many of which are in the south bay (about 40 are in Santa Clara alone). The Jackson Street monitoring station could see spikes in NO₂ concentrations from widespread data center emergency engine use. While Staff does not know how often or which data centers tripped such that emergency engines ran during that time, the data in Figure 1 shows a distinct seasonal pattern (NO₂ levels tend to spike in the fall months, where days are short and local weather patterns are fairly stable) more so than spikes from any non-uniform utility outage leading to concurrent back-up engines operations and increased NO₂ levels.

The federal standard is 100 ppb (parts per billion, or 0.100 parts per million, the units used in the graph below). The monitoring data shows one reading up to 80% of the federal standard and a slight overall downward trend. The monitoring station is also downwind from the San Jose airport.

Staff compiled a summary of NO₂ values, for both the state and federal standards, shown in Figure 2. This graph is expressed in parts per billion (ppb). The Bay Area NO₂ values appear to be trending down (see the red federal line), despite a rebounding economy, population increases, and the fact that the Bay Area has northern California’s oil refineries. The trend in the state standard is less clear. But the Bay Area values are well below both the state and federal health-based ambient air quality standards. It

would appear that the build out of data centers in the Bay Area, and Santa Clara specifically, has not adversely affected local and regional hourly NO₂ trends.

Figure 1

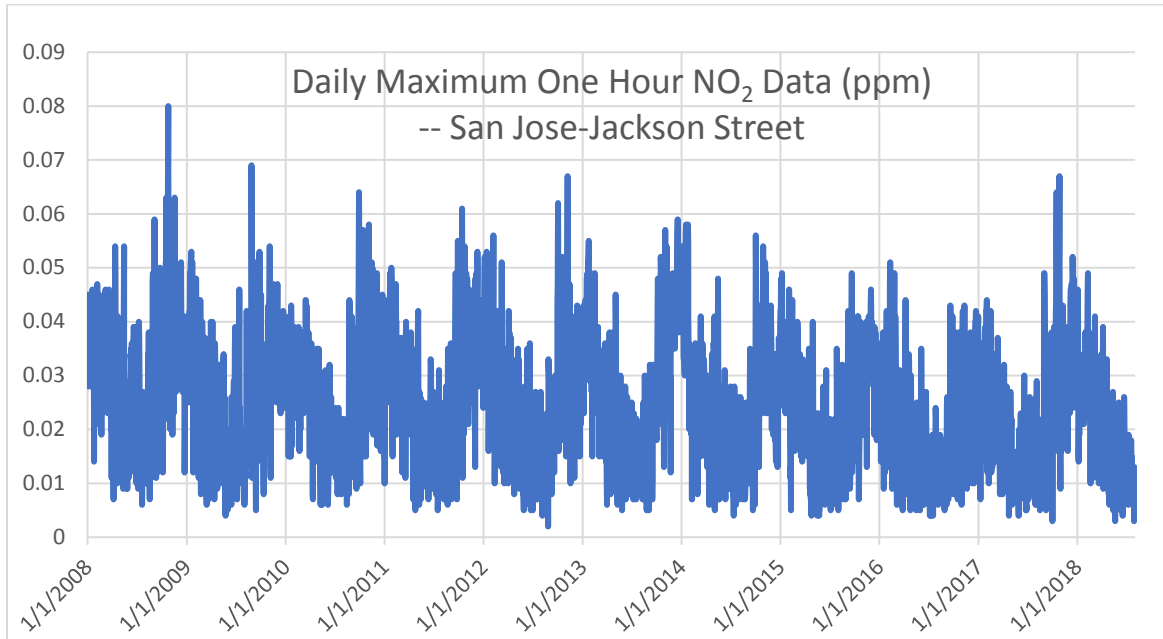
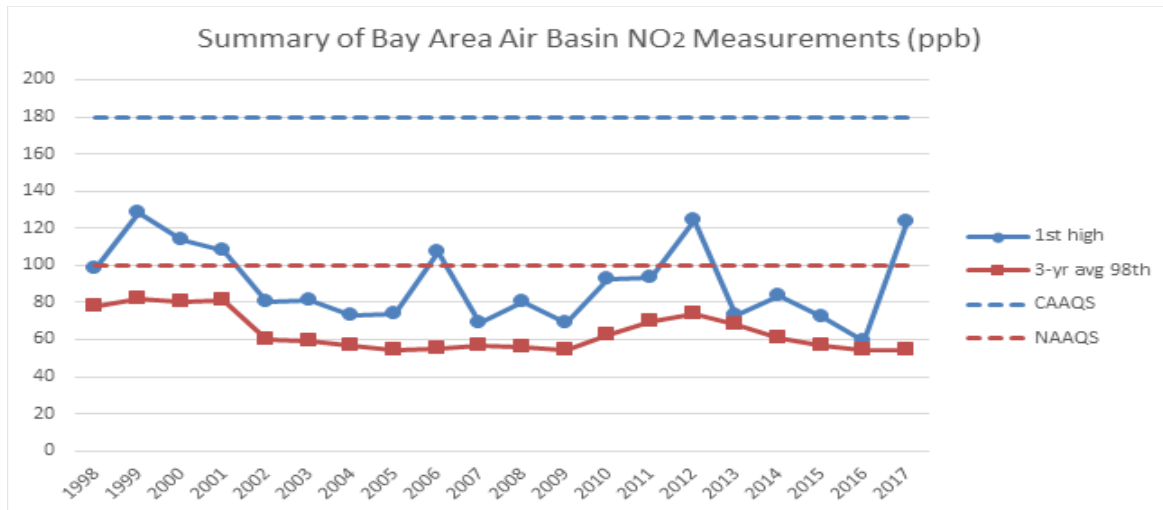


Figure 2



One historical SVP outage event lasted for an extended period of time on May 29, 2016. An SVP power pole guy wire got tangled with the SVP 60kV line. Information from that event for the Vantage data center (Santa Clara Campus 1) at Walsh Ave and Northwestern Parkway (TN 224450) indicates that two of their engines operated for seven hours and four of their engines for 19 hours. Staff does not know if other data centers locally or regionally also operated emergency engines.

Staff reviewed ambient air quality data for the nearest monitoring station (San Jose—Jackson Street), located approximately 4.5 miles southeast of the Santa Clara Campus site. The downwind NO₂ and ozone concentrations did not change appreciably before, during or after the outage and the potential operation of some, or numerous, data center emergency engines. Neither the NO₂ concentrations nor the ozone concentrations approached their respective ambient air quality standards on May 29, 2016 and likewise these standards were not approached on May 30, 2016 or May 31, 2016. **Figure 3** below shows NO₂ concentrations the day before, during (see dark line) and immediately after that event. Note that NO₂ concentrations are well below the one-hour California ambient air quality standard of 0.18 ppm. These data indicate that the operation of these six engines at Vantage Santa Clara Data Center 1, and potentially other engines at other data centers, did not lead to increases of ambient emissions. However, NO₂ is an ozone precursor, and because ozone requires some time to form, the San Jose--Jackson Street monitoring site might show an ozone impact from this event.

Figure 4 below shows corresponding ozone concentrations over the same time period. Note that these data also remained below the California 1-hour ozone standard of 0.09 ppm. Ozone levels for the two days after the event (May 30, 2016 and May 31, 2016) were actually lower than the day before the event (May 28, 2016). Again, data for the day of the event are shown in black.

Figure 3

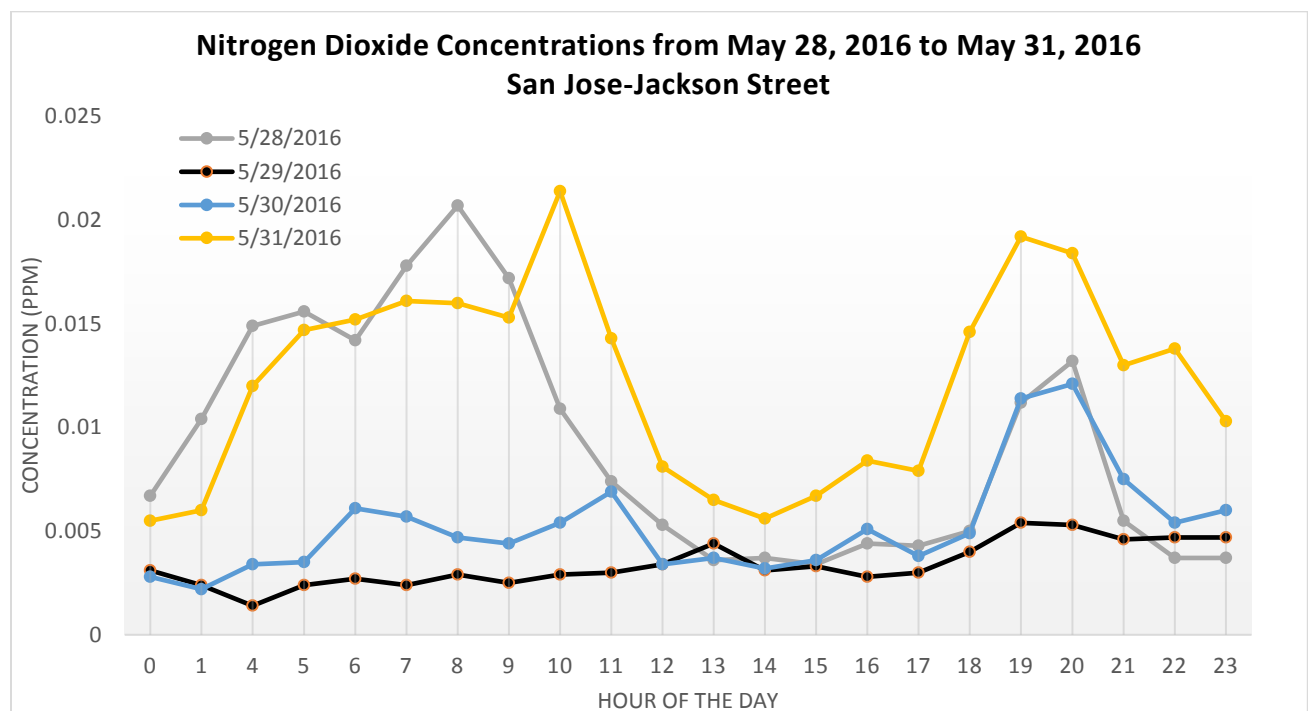
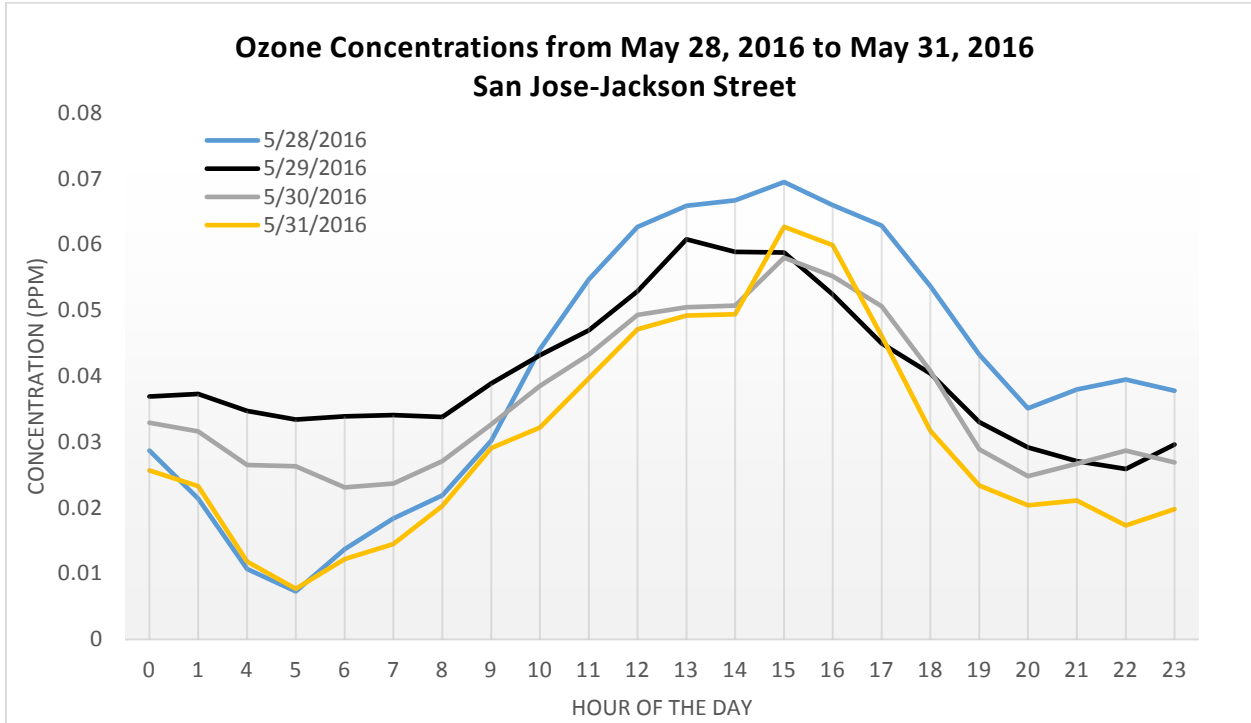


Figure 4



Public Health and Toxic Air Contaminant Issues

Staff reviewed the health risk assessment (HRA) for the MGBF construction and operation. The cancer risks, chronic, and acute hazards of all receptors remain below the BAAQMD CEQA thresholds of significance. Therefore, there would not be public health and toxic air contaminant issues for the construction and operation of the project.

HH-6. *There is a lack of analysis of transportation accidents and spills as related to Environmental Justice (EJ) communities. A materials safety transportation plan is needed.*

Staff Response:

The transportation of the diesel fuel to the site would be minimal after the start of operations. The generators and three life safety engines would require only minimal usage of diesel fuel to meet the yearly and monthly testing requirements for the generators. As diesel fuel has a long history of being routinely transported and used as a common motor fuel, Staff has determined that it is appropriate to rely upon the extensive regulatory program that applies to the shipment of hazardous materials on California highways and roads to ensure safe handling in general transportation (see Federal Hazardous Materials Transportation Law 49 USC §5101 et seq., DOT regulations 49 CFR subpart H, §172–700, and California Department of Motor Vehicles (DMV) regulations on hazardous cargo). Thus, the transportation of diesel fuel would

pose a less than significant risk to the surrounding public and would not have a disproportionate impact on the EJ population.

HH-7: *The Commission should require use of underground storage tanks for diesel storage, in light of residential and EJ community.*

Staff Response:

The bulk of the on-site diesel fuel for the generators would be divided among 47 individual tanks, limiting each tank to approximately 2 percent of the total on-site diesel storage. The three 600 kW life safety engines would have three separate and much smaller diesel tanks compared to the backup generator systems. Each generator's integrated fuel tank would be of a double-walled high integrity design and would have continuous monitoring for any leaks of the inner tank into the between-wall space which provides full secondary containment for the tank. The risk of release of the contents of even one tank is extremely low, and the risk of release of contents of more than one tank would be much lower still. The generator units would be housed within an enclosure that would prevent the intrusion of storm water. With the above safety precautions, Staff determined that the risk of impact to the off-site public from a hazardous material release would be less than significant and would not have a disproportionate impact on the EJ population. Therefore, Staff has determined that the diesel fuel storage would not need to be placed underground.

HH-8: *According to the initial study, the worst-case construction noise at the nearest residence, 400 feet away, could be up to 68 dBA Leq. Both the initial study and the Santa Clara MND claim that noise limits under the City of Santa Clara's noise ordinance limit noise from exceeding 50 dB between 10 pm and 6 am. Can the project comply with the limit? The initial study is silent as it doesn't recognize the 50 dBA nighttime limit?*

Staff Response:

The noise limits in the local laws, ordinances, regulations and standards, ("LORS") do not apply to construction. Construction would occur during the daytime hours in compliance with the city's construction hours' restriction. Also, the 68 dBA level does not take credit for noise attenuation provided by ground effect or intermediate shielding provided by structures.

The noise LORS limits only apply to operations. For operational noise to meet the 50 dBA nighttime LORS limit, specific steps could be taken to ensure this. They include a host of measures that can be employed, which are typically determined in the final design stage of a project. Some are listed below.

Within the facility yard, for chillers and cooling towers:

- enclosures;
- low-speed fans;
- duct and transition silencer; and
- acoustic louvers.

For the diesel-fired generators sets (gensets)

- three-sided enclosure.

Within the MDC buildings housing the data servers:

- acoustical building panels, tiles, and baffles; and
- sound dampening server cabinets.

Also, in the southern generator yard, there would be a 28-foot-tall masonry wall designed to blend into the surrounding building forms (MBGF 2017a, City's IS/MND Section 4.12.2.3). Additional sound barriers can be installed throughout the facility if needed.

The gensets would operate to feed the facility only when the transmission grid fails. This scenario is considered emergency operation. As provided in the City of Santa Clara Noise Ordinance Section 9.10.070 (a), an exception to the noise regulation thresholds is made for "the performance of emergency work, including the operation of emergency generators and pumps or other equipment necessary to provide services during an emergency."

Gensets would be tested periodically, but only a few at a time, limiting the operational noise produced by the facility. Also, this testing would occur during the day. Nighttime operational activity that would be subject to the City's noise level threshold for nighttime would occur without the gensets, only when the remaining parts of the facility are operating (i.e., cooling systems and data servers). Under this scenario, the noise level would be less and would be easier to control and mitigate.

The project would be able to meet the city's noise thresholds when applicable.

HH-9: *Staff only considered engine testing and maintenance emissions for GHG emission estimates. Potential emergency use of the diesel fired engines was not evaluated.*

Staff Response:

See response to HH-4, CC-1 above.

In evaluating GHG emission estimates, Staff evaluated 50 hours per year per engine which is consistent with the evaluation performed by the City of Santa Clara in their Initial Study for computing GHG emissions. As shown in **GHG Table 5.7-2**, emergency generator testing of the engines would generate an additional 5,044 metric ton CO₂e per year, based on 50 hours per year per engine. (TN #223911 pp. 5.7-6, 5.7-9) Emissions from the emergency engines are below BAAQMD's stationary source threshold and are therefore considered less than significant.

Approximately 99 percent of the greenhouse gas emissions are estimated to come from MDC, mostly grid-based electricity from SVP under normal operations, not the emergency generators proposed to be used for backup power (MGBF). Staff compared the diesel-fueled MGBF, including emergency operations up to the permit limit, to MDC. MGBF is estimated to be 4.7 percent of MDC, computed from **GHG Tables 5.7-2 and 5.7-3**.

Staff concludes that adding the diesel-fueled MGBF back-up engines to the MDC would not significantly increase GHG emissions.

HH-10. *The McLaren Data Center as proposed fails to achieve a power usage effectiveness rating of 1.2 or lower and the commenter disagrees that facility GHG emissions would be less than significant and believes the emissions would be inconsistent with the City of Santa Clara's Climate Action Plan (CAP).*

Staff Response:

Staff evaluated the addition of the MGBF emergency engines and relied on the City of Santa Clara's already adopted IS/MND for the MDC portion of the evaluation. Helping Hand Tools comment is based on a comment the City of Santa Clara received from the BAAQMD on the city's IS/MND. The following discussion is based on responses from the City of Santa Clara to comments from the BAAQMD on the city's IS/MND which can be found at pages 2-5. (<http://santaclaraca.gov/home/showdocument?id=51500>)

PUE

Power Usage Effectiveness, or PUE, is a metric used to compare the efficiency of facilities that house computer servers. PUE is defined as the ratio of total facility energy use to Information Technology (IT) (i.e., server) power draw (e.g., $PUE = \text{Total Facility Source Energy} / \text{IT Source Energy}$). The ideal PUE is one where all power drawn by the facility goes to the IT infrastructure. (TN #223911 p. 5.7-10)

The project's PUE depends on customer demand and, as such, is more difficult to manage for a multi-tenant data center like the project, as compared to a single-user data center. The average data center PUE in 2014 was 1.7, down from 1.89 in 2011. With a PUE of 1.5, the project would be below the 2014 average PUE (the most recent year for which data is available), resulting in a more efficient than average facility.

The project includes various features to reduce energy consumption, including lighting control to reduce energy usage for new exterior lighting and air economization for building cooling. If the downward trend in average PUE continues, as it has since 2011, the project's PUE would decrease over time, further reducing GHG emissions.

It should also be noted that the PUE of 1.5 for the proposed project would be the design maximum PUE at design conditions, which is under 100 percent load at the 50-year high temperature. It is highly unlikely that those conditions would ever be reached during the life of the project. Therefore, the annual operating PUE would be close to 1.2 and will strive to meet the PUE goal of 1.2. There will be periods of operation during which the PUE will be below 1.2, but over the course of a year, the PUE will fluctuate.

CAP

The city's Climate Action Plan (CAP), adopted in 2013, provides a comprehensive emissions reduction strategy that will allow the city to achieve its fair share of statewide emissions reductions through 2020, consistent with AB 32.

Approximately 99 percent of the greenhouse gas emissions are estimated to come from MDC, mostly grid-based electricity from SVP under normal operations, not the emergency generators proposed to be used for backup power. In 2016, SVP's power mix included approximately 28 percent renewable power and the entire California electrical grid included approximately 25.5 percent renewable power (TN #223911 p. 5.7-9, **GHG Table 5.7-1**). As discussed in the response to comments, the City of Santa Clara states¹⁰:

"...since the proposed project will not be complete until 2023, it is not eligible to tier from the city's CAP for purposes of analyzing GHG impacts under CEQA. However, consistency with the CAP framework is still a relevant consideration in the analysis of the project's GHG impacts because many of the policies will be carried forward by the City to address post-2020 emissions in its next CAP update."

"the GHG analysis appropriately includes a discussion of the project's consistency with the City CAP but does not limit the analysis to this single threshold. As discussed on page 72 of the IS/MND, the GHG analysis considers five threshold approaches recommended in the California Supreme Court's decision in *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204 (henceforth referred to as the *Newhall Ranch* decision)."

The decision adds

"As stated on page 73, based on this review, the lead agency determined that GHG impacts from the proposed project's emergency generators

¹⁰ <http://santaclaraca.gov/home/showdocument?id=51500> page 3 to 6.

would be considered less than significant if emissions are below the BAAQMD's bright-line threshold of 10,000 metric tons CO₂e per year. GHG impacts from all other project emission sources would be considered less than significant if the project is consistent with the city's CAP and applicable regulatory programs and policies adopted by ARB or other California agencies. While the comment disputes the applicability of the city's CAP, it does not acknowledge or raise questions or concerns about the other components of the IS/MND's GHG analysis."

With implementation of the efficiency measures to be implemented with the project and in combination with the green power mix utilized by SVP, GHG emissions related to the proposed project would not conflict with the Santa Clara CAP or other plans, policies or regulations adopted for the purpose of reducing the emissions of GHG. Stationary source emissions evaluated by Staff would be less than BAAQMD's bright-line threshold of 10,000 MTCO₂e/yr. Staff agrees with the City of Santa Clara's conclusion that the project would be consistent with the city's CAP and applicable regulatory programs adopted by ARB or other California agencies due to the vast majority of its estimated GHG emissions would come from electricity consumption.

HH-11. *The data center also continues the use of dirty diesel fired back-up engines, another commitment of BAAQMD's strategy to reduce GHG and TAC emissions in the air district.*

Staff Response:

See Staff response to HH-10. In addition, the use of diesel fuel for such infrequent operations would not significantly affect diesel fuel use in the Bay Area (increasing diesel demand by 14,555 barrels per year or 0.0044 percent, see page 5-7 of Greenhouse Gas portion of IS/MND), and would not make a significant contribution to GHG or TAC emissions.

CC-1. [Addressed above with HH-4]

CC-2. *The Initial Study identifies a key impact but fails entirely to analyze the impacts of those emissions. The IS must assess the impacts of these peak emissions near soccer fields and in environmental disadvantaged communities and evaluate whether less polluting alternatives may mitigate those impacts.*

Staff Response:

As discussed in the **Environmental Justice** section of Staff's IS/MND, the minority population in the six-mile radius around the proposed project constitutes an EJ population. **Environmental Justice Figure 1** shows the presence of an EJ population based on race and ethnicity within the six-mile radius of the project site. **Environmental Justice Figure 2 and Table 1** show that the below-poverty-level population in the City of Santa Clara constitutes an EJ population based on poverty.

Criteria Pollutant Issues

The air quality impact assessment found the proposed project is not likely to cause adverse impacts to air quality. With respect to ozone and particulate matter less than 2.5 microns in diameter (PM2.5), Staff's evaluation concludes that ozone and PM2.5 impacts would be less than significant. However, these air quality impacts could potentially cause disproportionate impacts on EJ communities by contributing to the cumulative risks of existing pollution sources. Furthermore, environmental risks could potentially burden those of the community who are vulnerable due to health conditions or socioeconomic factors (e.g., individuals with poor diets, limited or no access to healthcare). This subsection discusses impacts on the EJ populations on the overall population within the project area.

Disadvantaged Communities

The CalEnviroScreen indicators are used to measure factors that affect the potential¹¹ for pollution impacts in communities (OEHHA 2017). Staff used CalEnviroScreen 3.0 to identify disadvantaged communities¹² in the vicinity of the proposed project that may have been missed when screened by race/ethnicity and poverty (see **Environmental Justice Figure 1**). Because a CalEnviroScreen score evaluates multiple pollutants and factors collectively, Staff examined individual contributions of indicators that are relevant to air quality (see **Environmental Justice Table 1**). Values are shown as percentiles, which indicate the percent of all census tracts with a lower score. A higher percentile indicates a higher potential relative burden.¹³ The census tract where the McLaren site is located is shaded in the tables below.

¹¹ It is important to note that CalEnviroScreen is not an expression of health risk and does not provide quantitative information on increases of impacts for specific sites or project. CalEnviroScreen uses the criteria of "proximity" to a hazardous waste site, a leaking underground tank, contaminated soil, an emission stack (industry, power plant, etc.) to determine that a population is "impacted". It does not address general principles of toxicology: dose/response and exposure pathways. For certain toxic chemicals to pose a risk to the public, offsite migration pathways must exist (through ingestion, inhalation, dermal contact, etc.) and contact to a certain amount – not just any amount – must exist.

¹² The California Environmental Protection Agency (CalEPA), for purposes of its Cap-and-Trade Program, has designated "disadvantaged communities" as census tracts having a CalEnviroScreen score at or above the 75th percentile (CALEPA 2017). As a comparative screening tool, it is not intended to be used as a health or ecological risk assessment for a specific area or site.

¹³ Each census tract was assigned a score based on the relative concentrations of different contaminants and whether multiple contaminants are present. A census tract with a drinking water contaminant score in the 75 percentile indicates that its burden is higher than 75 percent of all California census tracts.

Air Quality Table EJ-1
CalEnviroScreen 3.0 Indicator Percentile Scores

Census Tract ¹	Overall Score Range ²	Ozone Concentration ³ (µg/m ³)	Ozone Percentile ⁴ (%)	PM2.5 Concentration ⁵ (µg/m ³)	PM2.5 Percentile ⁴ (%)
6085503601	85-90%	0.035	17	10.37	53
6085503110	80-85%	0.038	22	10.37	53
6085503113	75-80%	0.038	22	10.37	53
6085503602	80-85%	0.038	22	10.37	53
6085503105	90-95%	0.038	22	10.37	53
6085500100	85-90%	0.035	17	10.37	53
6085505202	75-80%	0.035	17	10.37	53
6085501501	75-80%	0.038	22	10.37	53
6085501401	75-80%	0.035	17	10.37	53
6085501502	70-75%	0.035	17	10.37	53
6085503117	75-80%	0.038	22	10.37	53
6085501600	80-85%	0.035	17	10.37	53
6085503122	85-90%	0.038	22	10.37	53
6085501102	80-85%	0.035	17	10.37	53
6085504318	85-90%	0.035	17	10.37	53
6085504602	80-85%	0.035	17	9.96	43

(Source: CalEnviroScreen 3.0 Data, <https://oehha.ca.gov/calenviroscreen/maps-data/download-data>)
Notes:

1. Census tract locations are shown in **Environmental Justice Figure 1**.
2. Overall Score Range incorporates all indicators shown in **Environmental Justice Table 1**.
3. Ozone concentrations are below the 8-hour ambient air quality standard of 0.070 ppm.
4. Census tracts were ordered by concentration values and assigned a percentile based on the statewide distribution of values. Only concentrations over the federal standard from 2012-2014 were used by CalEnviroScreen to determine a percentile.
5. PM2.5 concentrations are all below the Annual Mean ambient air quality standard of 12 µg/m³.

The indicator scores presented in **Air Quality Table EJ-1** are similar among census tracts.

Ozone Impacts

Ozone is known to cause numerous health effects which can potentially affect EJ communities due to:

- Adverse effects of ozone, including lung irritation, inflammation and exacerbation of existing chronic conditions, can be seen at even low exposures (Alexis *et al.* 2010, Fann *et al.* 2012, Zanobetti and Schwartz 2011).;
- Studies have shown that the increased risk of asthma is higher among children under 2 years of age, young males, and African American children that have been exposed to ambient ozone concentrations (Lin *et al.*, 2008, Burnett *et al.*, 2001); and,
- Increases in ambient ozone levels have also been associated with higher mortality, particularly in the elderly, women and African Americans (Medina-Ramon, 2008).

Ambient air quality standards (AAQS) are established to protect the health of even the most sensitive individuals in our communities. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. Both the California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (U.S. EPA) are authorized to set ambient air quality standards. **Air Quality Table EJ-1**, identifies 16 census tracts near the proposed project site that have been determined to have a higher than 75% CalEnviroScreen score range. Even though ozone is not directly emitted from the emission sources such as at McLaren, the precursor pollutants that create ozone such as nitrogen oxides (NOx) and volatile organic compounds (VOCs) are expected to be emitted.

For CalEnviroScreen, the indicator ozone is determined by the amount of daily maximum 8-hour ozone concentration over the California 8-hour standard (0.070 parts per million (ppm)), averaged over three years (2012-2014). According to CalEnviroScreen data from 2002-2014, ozone concentrations in the census tracts in **Air Quality Table EJ-1** were all below the 8-hour ozone health-based standard of 0.070 ppm.

For this reason, the proposed project would not individually or cumulatively contribute to disproportionate ozone air quality impacts to the EJ population

PM2.5 Impacts

Particulate matter (PM) is a complex mixture of aerosolized solid and liquid particles including such substances as organic chemicals, dust, allergens and metals. These

particles can come from many sources, including cars and trucks, industrial processes, wood burning, or other activities involving combustion. The composition of PM depends on the local and regional sources, time of year, location and weather¹⁴.

PM2.5 refers to particles that have a diameter of 2.5 micrometers or less. Particles in this size range can have adverse effects on the heart and lungs, including lung irritation, exacerbation of existing respiratory disease, and cardiovascular effects.

PM2.5 is known to cause numerous health effects which can potentially affect EJ communities.

For CalEnviroScreen, the indicator PM2.5 is determined by the annual mean concentration of PM2.5 (average of quarterly means), averaged over three years (2012-2014). According to CalEnviroScreen data from 2012-2014, PM2.5 concentrations in the census tracts in **Air Quality Table EJ-1** were all below the annual mean PM2.5 health based ambient air quality standard of 12 µg/m³.

For this reason, the proposed project would not individually or cumulatively contribute to disproportionate PM2.5 air quality impacts to the EJ population.

Environmental Justice Air Quality Conclusion

Staff has considered the minority population surrounding the site and reviewed **Environmental Justice Figure 1** and **Figure 2** and **Environmental Justice Table 1** (see the **Environmental Justice** section of this document for further discussion of environmental justice), which shows the minority population within portions of the 6-mile radius around the proposed site. Staff does not expect an adverse impact to members of the public, recreational users or any environmental justice community.

Air quality impacts, specifically with regards to ozone and PM2.5, would not contribute to disproportionate impacts to the EJ population. Also, air quality impacts from the project on the EJ population would be less than significant.

Public Health and Toxic Air Contaminant Issues

The following section responds to the portion of the comment that focuses on toxic air contaminant issues. This focus includes ozone and PM2.5, but also includes additional public health indicators. See **Public Health Table EJ-2**.

¹⁴ California Communities Environmental Health Screening Tool, Version 3.0 (CalEnviroScreen 3.0) Guidance And Screening Tool, January 2017.

Public Health Table EJ-2

CalEnviroScreen 3.0 Indicator Percentile Scores of Disadvantaged Communities by Census tract in the Project's Six-Mile Radius ¹											
Census Tract	Total Population	CES 3.0 Percentile	Ozone	PM 2.5	Diesel PM	Pesticides	Toxic Release	Traffic Density	Asthma	Low Birth Weight	Cardiovascular Disease
6085503601	2992	85-90%	17	53	88	0	44	83	57	64	51
6085503110	4618	80-85%	22	53	88	0	36	97	65	37	81
6085503113	4760	75-80%	22	53	91	0	33	76	38	47	35
6085503602	4741	80-85%	22	53	89	0	40	92	74	87	71
6085503105	2484	90-95%	22	53	89	0	35	88	51	81	53
6085500100	6339	85-90%	17	53	92	0	48	82	71	49	65
6085505202	5867	75-80%	17	53	90	0	57	72	35	80	52
6085501501	4278	75-80%	22	53	89	0	40	96	64	20	57
6085501401	3295	75-80%	17	53	89	0	43	90	53	68	38
6085501502	4549	70-75%	17	53	89	0	39	96	44	42	31
6085503117	3120	75-80%	22	53	89	0	35	55	65	12	82
6085501600	6854	80-85%	17	53	89	0	37	96	68	77	52
6085503122	3449	85-90%	22	53	90	0	32	44	28	92	14
6085501102	4477	80-85%	17	53	89	0	44	64	68	42	60
6085504318	5265	85-90%	17	53	92	0	54	88	41	61	44
6085504602	2144	80-85%	17	43	26	38	35	88	80	100	34

¹Disadvantaged Communities census tracts that intersect or are within a six-mile radius of the project site. Indicators with percentiles that are shown as **bold** text are in the 90 percentile or higher. **Source:** OEHHA 2017

Diesel PM

This indicator represents how much diesel particulate matter (PM) is emitted into the air within and near the census tract. The data are from 2012 California Air Resources Board's (ARB's) emission data from on-road vehicles (trucks and buses) and off-road sources (ships and trains, for example). Among these 16 census tracts, five are higher than the 90th percentile. The highest percentile is 92 (in census tracts 6085500100 and

6085504318), meaning these two are higher than 92 percent of the census tracts in California. However, according to the results of the health risk assessment (HRA) conducted for this project, impacts associated with diesel PM from the proposed project construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to the diesel PM levels in the disadvantaged communities.

Pesticide Use

This indicator represents the reported use of 70 hazardous and volatile pesticides in the years 2012-2014 collected by the California Department of Pesticide Regulation. Only pesticides used on agricultural commodities are included in the indicator. Among these 16 census tracts, none are higher than the 90th percentile; therefore, pesticide use is not a concern.

Toxic Releases from Facilities

This indicator represents modeled air concentrations of chemical releases from large facility emissions in and near the census tract. The U.S. Environmental Protection Agency (US EPA) provides public information on the amount of chemicals released into the environment from many facilities. This indicator uses the modeled air concentration and toxicity of the chemical to determine the toxic release score. The data are from 2010. Among these 16 census tracts, none are higher than the 90th percentile; therefore, toxic releases from facilities are not a concern.

Traffic Density

This indicator represents the sum of traffic volumes adjusted by road segment length. It is calculated by dividing the traffic volumes by the total road length within 150 meters of the census tract boundary. It is not a measure of level of service (LOS) on roadways. The data are from 2013. Among the 16 census tracts of Staff's focus, five are higher than the 90th percentile. The highest one is 97 (in census tract 6085503110), meaning it is higher than 97 percent of the census tracts in California. Traffic Density is related to the diesel PM emitted from vehicles. However, according to the results of the HRA conducted for the project, impacts associated with diesel PM from the proposed project construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to the diesel PM-related traffic density in the disadvantaged communities.

Asthma ER Visits

This indicator is a representation of an asthma rate. It measures the number of emergency room visits for asthma per 10,000 people over the years 2011 to 2013. The information was collected by the California Office of Statewide Health Planning and Development. Among these 16 census tracts, none are higher than the 90th percentile; therefore, asthma is not a concern.

Low Birth Weight Infants

This indicator represents the percent of low birth weight babies in the census tract. It measures the percentage of babies born weighing less than 2500 grams (about 5.5 pounds) out of the total number of live births over the years 2006 to 2012. The information was collected by the California Department of Public Health. Among these 16 census tracts, Census Tract 6085504602 has the highest potential relative burden. The low birth weight percentile for this census tract is 100, meaning the percent low birth weight is higher than all other census tracts in California. In its total of 2,144 people, 10.38 percent of births in this census tract were of low birth weight. Staff's HRA was based on a highly conservative health-protective methodology that accounts for impacts on the most sensitive individuals in a given population. According to the results of the HRA, the risk of the nearest sensitive receptor (i.e. Maximally Exposed Individual Sensitive Receptor [MEISR]) is below health-based thresholds. Therefore, the toxic emissions from the project would not cause significant health effects for the low birth weight infants in these disadvantaged communities or have a significant cumulative contribute to these disadvantaged communities.

Cardiovascular Disease

This indicator represents the rate of heart attacks. It measures the number of emergency department visits for acute myocardial infarction (or heart attack) per 10,000 people over the years 2011 to 2013. Among these 16 census tracts, none are higher than the 90 percentile; therefore, cardiovascular disease is not a concern.

Environmental Justice Public Health Conclusion

Staff concluded that no one (including the public, off-site nonresidential workers, recreational users, and EJ populations) would experience any acute or chronic cancer or non-cancer effects of health significance during construction and operation of the proposed project and construction and operation of the project would not cause significant adverse direct, indirect, or cumulative public health impacts from the project's toxic air emissions. As the public health impacts are calculated for sensitive populations, including the EJ population, and the project's toxic air emissions would not have a significant impact on the most sensitive population, the project's impact would not disproportionately impact the EJ population represented in **Air Quality Table EJ-1** or **Public Health Table EJ-2**.

Staff concludes that the project would not have a significant cumulative contribution to the indicators of diesel PM, pesticide use, toxic releases from facilities, traffic density, asthma ER visits, low birth weight infants, or cardiovascular disease in the disadvantaged community census tracts of Staff's focus.

CC-3: *The applicant has not received BAAQMD approval for the entire size of the project.*

Staff Response:

Staff understands that the applicant submitted an application to the BAAQMD to construct (ATC) 32 of the 47 emergency generators. This was because they do not expect to be able to construct all 47 emergency generators before the ATC would expire and they will need to go back to the BAQMD for another ATC for the remaining generators. The decision at issue in an SPPE is not whether to approve the project but to grant the exemption. The Commission's drafting and adoption of the IS/MND does not depend on BAAQMD issuing an ATC.

CC-4: *The Energy Commission should evaluate mitigating these impacts with some amount of solar and storage to reduce both the need and impact from diesel emissions.*

Staff Response:

The purpose of alternatives analysis is to identify feasible ways to substantially lessen the significant environmental effects of a project. (Cal. Code of Regs., tit. 14, § 15126.6, subd. (b)) In order to develop a list of appropriate alternatives, there must be an identified significant environmental effect that drives the creation of a reasonable range of alternatives. In this case, no significant environmental effects have been identified, which is a necessary prerequisite for an alternatives analysis and is why Staff recommends a mitigated negative declaration. (See Initial Study 5.1-1 to 5.21-1) In addition, impacts that are too speculative for evaluation do not trigger a requirement to further analyze them or develop alternatives. (Cal. Code of Regs., tit. 14, § 15145)

Under normal operations, the backup diesel generators do not operate making it highly speculative as to operating time and impacts. The speculative nature of emergency generator operations for data center backup generators is consistent with the findings of other data center projects in the region which Staff reviewed.

References

CalEPA 2017 – California Environmental Protection Agency, Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De Leon), April 2017, <<https://www.calepa.ca.gov/files/2017/04/SB-535-Designation-Final.pdf>>.

OEHHA 2017 – California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, California Communities Environmental Health Screening Tool, Version 3.0, Guidance and Screening Tool. January 2017. Available at: <<http://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>>.

Vantage 2018f – Vantage Data Centers, LLC. Vantage Data Center's Revised SPPE Application for McLaren Backup Generating Facility. Vantage Data Center's Revised NO2 Modeling Report for McLaren Backup Generating Facility. TN 223769, docketed June 11, 2018.

III. Staff's Reply to Helping Hand Tools' Motion to Dismiss

In its Motion to Dismiss, Helping Hand Tools argues that the gross rating of the 47 generators totals 129.25 MW and that there is no listed parasitic load so the 47 generators alone exceed the Commission's 100 MW limit for a SPPE. Helping Hand Tools cites to the Santa Clara data center proceeding, (11-SPPE-01) and the methodology utilized there to calculate generation, as support for its position.

The Santa Clara data center proceeding is not relevant to the MBGF proceeding. Neither performing a simple calculation of the number of generators multiplied by the generator capacity nor utilizing maximum building demand resulted in exceeding the 100 MW limit. Thus, there was no need to consider the special characteristics of data centers and how they operate compared with power plants in that proceeding.

California Government Code section 11425.60 states that "...An agency may designate as a precedent decision a decision or part of a decision that contains a significant legal or policy determination of general application that is likely to recur. The Commission did not bestow any such designation on any part of the decision to exempt the Santa Clara data center.

As detailed in the Response to Comments above, for a data center, the essential factor is the maximum demand of the data center, not the total name plate capacity of all the generators. California Code of Regulations, title 20, section 2003 sets out a framework for calculating power plant generation to determine Energy Commission jurisdiction. The framework is geared towards thermal power plants, especially those with turbine generators, typically connected to the grid for electricity delivery. Staff's approach to determining generation for back-up generators, which are not turbine generators, for a data center is consistent with section 2003. Section 2003 does not prohibit the use of the building load as a factor in determining generation.

Considering section 2003 and the special application to data centers, Staff calculated the total MW as described above in Response to Comments as:

The maximum load capable of being called upon by MDC from the 47 gensets in MBGF, plus the 3 generators in MDC, on the worst, hottest, most humid day would be:

$$69 \text{ MW} + 24.15 \text{ MW} + 1.26 \text{ MW} = 94.41 \text{ MW max load}$$

This would also be the maximum amount of power that the data center would need to draw from the grid.

In its motion Helping Hands highlights Section 2003(b)(3), which states

The maximum gross rating cannot be limited by an operator's discretion to lower the output of the turbine generator(s) or by temporary design modifications that have no function other than to limit a turbine generator's output.

This section has little meaning in the context of a data center with a set demand level based on building design and size. The purpose of the backup generators is not to deliver electricity to the grid at a maximum level, but to power the data center in the event of total power loss. There is no operational discretion of the generator output which would not be running under normal conditions and in an emergency is limited by building load. (See IS/MND Project Description)

Staff concludes that section 2003 provides Staff with an appropriate framework for determining the generating capacity of the MBSG's proposed genset engines and that using the building load as a limiting factor is consistent with section 2003.

IV. Staff's Response to Motion to Amend the Procedural Schedule

The McLaren project has been subject to environmental review since at least February 16, 2017, when the City of Santa Clara publish notice of its IS/MND which was followed by the December 2017 filing of the SPPE application with the Energy Commission and Staff's publication of its IS/MND on June 22, 2018. Staff has responded thoroughly to the Intervenor's comments. Given the extensive environmental review and extensive comment periods, the public has had a full opportunity to participate. Staff recommends the Committee maintain the current schedule.

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Respectfully submitted,

Original signed by

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