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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of McLaren Backup Generating Facility	Docket Number 17-SPPE-01

HELPING HAND TOOLS (2HT) RESPONSE TO COMMITTEE QUESTIONS

1.Is the CAT 3526E diesel-fired generator set a turbine generator?

The Diesel Generator chosen for the project is the CAT 3516E not the CAT 3526E. Whether the engine is a diesel fired generator or a turbine generator is irrelevant to the determination of generating capacity. Section 2001 of Title 20 provides**, "**In addition to the definitions found in Chapter 2 (beginning with Section 25100), Division 15, Public Resources Code and the definitions found in Section 1201 of chapter 2, **the definitions contained in this article shall apply to all commission determinations of megawatt capacity thresholds, including the 50 megawatt jurisdictional threshold, the 100 megawatt threshold for a small powerplant exemption**, and the 300 megawatt threshold for a small powerplant exemption, and the 300 megawatt threshold for a cogeneration or solar thermal powerplant exemption from the notice of intention requirement." The commission rules do not differentiate between different power plant cycles. PRC Section **25120 states** "Thermal powerplant" means any stationary or floating electrical generating facility using **any source of thermal energy**, with a generating capacity of 50 megawatts or more, and any facilities appurtenant thereto. Without any definitive language excluding diesel engines from Section 2003 no argument can be made to exclude them from the section.

According to the applicants testimony, "The proposed plan for the Project includes forty seven (47) 2.75-megawatts (MW) emergency generators and three one (3) 600-kilowatts (kW) life safety generators to provide back-up power for the data center which may draw up to 74 MW critical and 99.8 MW total of power from the grid.[1] The applicant has stated that the project's PUE is likely to be 1.5. If the critical power needed to run the servers is 74 MW then the project will be drawing up to 111 MW. Since the average PUE is projected to be 1.5 by the applicant there are times when it will be higher and therefore the projects electrical needs will be even higher than 111 MW.

In all the proceedings I have seen utilizing IC engines no applicant has ever used anything other than the maximum power rating to determine total generating capacity. The only evidence in this proceeding is the Commission's decision on the Sant Clara Data Center where the generating capacity was determined by multiplying the generators 100% output times the number of generators. In that case the Santa Clara Data Center utilized 32- 2.25 MW diesel generators for a total generating capacity of 72 MW.[2] There is no support in the Commission's rules of practice and procedure or any where else for the generating capacity treatment advocated by McLaren Data Center.

2. Is there a warranty or other specific limitation that should be used to calculate generating capacity for the proposed facility?

The warranty would not limit the operation of the facility above 100 MW for the 47 diesel engines. The warranty is listed in the application. The warranty allows for 24 months or 1000-hours for standby and mission critical rating.[3] Mission critical rating is 85% of the projects potential output[4] of 129.25 MW or 109.87 MW. The engines are also warranted for 12 months/unlimited hour warranty for prime and continuous ratings.[5] If those warranties are not

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[1] Exhibit 21 TN 223484 Vantage Data Centers Revised SPPE application Air Quality and Public health. Page 19 of 155

[2] https://www.energy.ca.gov/sitingcases/santaclara/

[3] Exhibit 20 **TN #:** 223483 Vantage Data Center's Revised SPPE Application for McLaren Backup Generating Facility Page 20 of 39

[4] Exhibit 20 **TN #:** 223483 Vantage Data Center's Revised SPPE Application for McLaren Backup
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[5] **Mission Critical** Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical power rating. Typical peak demand up to 100% of rated

adequate, "**Extended service protection is also available to provide extended coverage options."**[6]

Its clear from the application that the applicant intends to run the engines at 100 % output in the event that 1 of the units in the four-unit subset fail. According to the applicant's testimony, *"Four individual generators will each be connected to four individual N Unit 2MW UPS Critical Loads and supporting Mechanical equipment, in a distributed redundant distribution, sharing 6MW of critical IT load. All four systems share the approximate 3MW of mechanical load for a total load of 9MW.* ***Should any one system fail, the surviving systems will have enough capacity to completely share the 9MW of total load at the maximum capacity of the surviving generators.*** *During a utility outage, all four generators will start and be connected to their dedicated loads. If none of the generator systems fail during the utility outage, the total maximum load of 9MW will still be shared between the four generators, and will only be running at about 66% of the full capacity of the generator."*[7]

3. In the Initial Study and Proposed Mitigated Negative Declaration (IS/MND)2 published by the Energy Commission staff (Staff) and in Staff's responses to comments on the IS/MND, Staff indicates that determining a number of hours for operation (as opposed to hours for testing the equipment) is too speculative. Why is this determination speculative in light of data from Silicon Valley Power, the local power provider, showing historic outage data?3 Are there other factors, including, but not limited to, the characteristics of the transmission system, that render analyzing emissions from the operations of the backup generators speculative?

There is no reason at all why staff cannot model emergency operation of the project. As in all siting cases staff uses the highest emission rates and the worst-case background conditions to determine if the project will violate any air quality standard. The applicant used this approach in this proceeding when modeling the CO emissions from this project. As the applicant's testimony states, "*CO modeling used maximum 1-hour and 8-hour emissions from emergency*

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power for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year. Exhibit 20 **TN #:** 223483 Vantage Data Center's Revised SPPE Application for McLaren Backup
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[6] Exhibit 20 **TN #:** 223483 Vantage Data Center's Revised SPPE Application for McLaren Backup Generating Facility 20 of 39

[7] Exhibit 20 **TN #:** 223483 Vantage Data Center's Revised SPPE Application for McLaren Backup Generating Facility Page 10 of 39

generator use."[8] *"The CO concentrations analysis is conservative in that it assumes all 50~~48~~ emergency generators are in use at the same time during the worst meteorological conditions for the respective averaging periods."*[9]

As evinced by the two Washington State Department of Ecology permits that I included as Exhibits 301 and 303 modeling emergency operations is a routine and necessary part of the Washington State Department of Ecology's procedures in permitting data centers. To determine if the project has a significant impact the emergency operations of the McLaren Data Center must be evaluated.

[8] Exhibit 21 TN 223484 Vantage Data Centers Revised SPPE application Air Quality and Public Health. Page 23 of 155

[9] Exhibit 21 TN 223484 Vantage Data Centers Revised SPPE application Air Quality and Public health. Page 22 of 155