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Filer:	Robert Sarvey
Organization:	Robert Sarvey
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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

REPLY TESTIMONY OF ROBERT SARVEY FOR HELPING HAND TOOLS

Q1. Please state your name and qualifications for the record.

A1. My name is Robert Sarvey and my qualifications are attached to the end of this testimony.

Q2. What is the purpose of your testimony?

A2. I was retained by Helping Hand Tools to reply to the testimony of the CEC Staff contained in their comments dated August 13, 2018.

Q3. CEC Staff stated in its August 13 testimony that modeling the emergency operation of the McLaren Data Center is to speculative. Do you agree?

A 3. No. The stated purpose of the project is to support the need for the McLaren Data Center to provide uninterruptible power supply for its tenants' servers. It is hard to fathom that the project's purpose and need is to speculative for evaluation. Its also an astounding statement since Vantage has already had to conduct emergency operations at its existing Vantage Data Center in Santa Clara during its 8 years of operation. According to the applicant on May 29, 2016 the data center was required to operate some of its generators in emergency mode for over 19 hours.¹

¹ TN 224450 Data Clarification Questions and Responses for the McLaren Backup Generating Facility SPPE Application Review Page 31 of 31

Q4. Do other permitting agencies model the NO₂ impacts and health risk impacts of multiple data center backup generators in emergency operation mode.

A4. Yes, the State of Washington has a cluster of six data centers similar to Santa Clara but on a much smaller scale in Quincy, Washington.² The Washington State Department of Ecology recently reviewed Vantage Data Centers application for 17 back-up generators at its data center located in Quincy Washington. I have included the health risk assessment conducted for the project as attachment 1 to this testimony.

Q5. What were the predicted short term NO₂ impacts from the Vantage Data Centers 17 diesel back up generators operating in emergency mode?

A5. According to the results of the health risk assessment performed, *“the Vantage project, the maximum short-term ambient NO₂ concentration has been estimated to be 1,411 µg/m³, 1-hour average. Power outage emissions present the greatest potential for producing high enough short-term concentrations of NO₂ to be of concern for the general public and susceptible individuals, such as people with asthma.”*³

Q6. Were the other five data centers located in Quincy Washington evaluated for emergency operations of their backup diesel generators to examine the health risks and NO₂ impacts.

A6. Yes, the other data centers backup operations were modeled for emergency operations. Most of the data centers had limitations imposed on the operation of their back up diesel generators for testing **and emergency operations**. For example, the Microsoft Columbia Data Center Permit in Quincy limited, *“the duration of engine testing, maintenance and other usage. Each of the thirteen 2.5 MWe Caterpillar 3516C diesel engines will be tested for an average of **12 hours per year** (Table 1). Additionally, Microsoft will run each engine for up to 44 hours per year for storm avoidance and “electrical bypass,” to minimize electrical upset conditions, and **no more than 48 hours per year during power outage emergencies.**”*⁴ In addition the Quincy Washington data center generator applications were evaluated for cumulative NO₂ impacts and health risk impacts from all six data centers back up diesel generators operating in emergency mode simultaneously.

² Santa Clara Hosts 31 data centers <https://www.datacenters.com/locations/united-states/santa-clara>

³ Attachment 1 Revised Health Impact Assessment Review Document for Vantage Data Center Quincy, Washington Prepared by Air Quality Program Olympia, Washington May 11, 2017 Page 5 of 25

⁴ Attachment 3 Technical support document Microsoft Columbia Data Center Expansion Project Quincy, Washington August 20, 2010 Page 9 of 38

Q7. In 2013 Vantage proposed to outfit all seventeen diesel backup generators at its Quincy Data Center with diesel particulate filters and SCR for NOx control why did Vantage propose these Tier IV controls.

A7. According to Vantage's response to comments on the 2013 permit Vantage stated, "*Vantage recognized that background air quality in the northeastern industrial area of Quincy has already been affected by permitted emissions from the existing (or permitted) emergency generators at the Yahoo Data Center, Intuit Data Center, and Sabey Intergate Data center. In order to comply with the federal National Ambient Air Quality Standards (NAAQS) for particulate matter and NO2, Vantage recognized its generators would have to be equipped with emission controls that are more efficient than the EPA Tier-2 controlled engines that have been installed at every other data center in Quincy.*"⁵

Q8. Microsoft Corporation has 26 back up diesel generators at their facility located at 2045 Lafayette Street in Sant Clara. The facility is located approximately 900 feet from the McLaren maximumly exposed residential receptor. Do you know what BAAQMD estimated the cancer risk from this data center which has only 26 diesel generators?

A8. BAAQMD has calculated the cancer risk from the Microsoft Data Center as 9,478 in a million. Emergency operation of the diesel generators was not evaluated.

Q9. What has BAAQMD done to reduce the cancer risk from these 26 generators at the Microsoft Data Center in Santa Clara?

A9. I have included the engineering evaluation for the Microsoft Data Center in Santa Clara as Attachment 2 to this testimony. Because the cancer risk was so high from just the testing of the 26 generators BAAQMD lowered the annual allowed hours of testing of each generator from 50 hours per year to 20 hours per year. BAAQMD also severely limited the times during the day that the generators could be tested.⁶

Q10. Has BAAQMD imposed other operating limitations on Data Center Backup Diesel Generators near the McLaren Data Center.

A10. Yes, the Santa Clara Data Center located at 555 Reed Street has 32 backup diesel generators. The project is very close to the McLaren Data Center. The project was recently

⁵ Washington State Department of Ecology Response to Comments Draft Air Quality Permit for Vantage Data Centers 12AQ-E450 March 2013 Publication no. 13-02-001 Page 271 of 524
<https://fortress.wa.gov/ecy/publications/documents/1302001.pdf>

⁶ Attachment 2 Microsoft Data Center Engineering Evaluation Plant 19686 Application 24737

licensed by the Energy Commission after the BAAQMD issued its ATC. BAAMD required that, “*Selective catalytic reduction (SCR) units will be installed on each engine*”⁷ BAAQMD also limited the “combined reliability-related operation for all 32 engines to 700 hours in any consecutive 12-month period essentially limiting each engine to approximately 20 hours per year average.”⁸

Q11. Does that conclude your testimony?

A11. Yes

⁷ Attachment 4 Energy Commission Decision SANTA CLARA SC-1 DATA CENTER, PHASE 2 Page 57 of 141

⁸ Attachment 4 Energy Commission Decision SANTA CLARA SC-1 DATA CENTER, PHASE 2 Page 11 of 141

RESUME OF ROBERT SARVEY

Academic Background

BA Business Administration California State University Hayward, 1975

MBA California State University Hayward, 1985

Experience

San Joaquin Valley Air Pollution Control District Citizens Advisory Board Industry

Representative: Analyzed proposed air quality regulations and made recommendations to the Governing Board for approval.

GWF Peaker Plant 01-AFC-16: Participated as an Intervenor in the project and helped negotiate and implement a 1.3 million dollar community benefits program. Successfully negotiated for the use of local emission reduction credits with GWF to offset local air quality impacts.

East Altamont Energy Center 01-AFC-14: Participated as an Intervenor and helped develop the conditions of certification for hazardous materials transportation, air quality, and worker safety and fire protection. Provided testimony on emergency response and air quality issues.

Tesla Power Project 01- AFC-04: Participated as an Intervenor and provided air quality testimony on local land use and air quality impacts. Participated in the development of the air quality mitigation for the project. Provided testimony and briefing which resulted in denial of the PG&E's construction extension request.

Modesto Irrigation District 03-SPEE-01: Participated as an Intervenor and helped negotiate a \$300,000 air quality mitigation agreement between MID and the City of Ripon.

Los Esteros: 03-AFC-2 Participated as an Intervenor and also participated in air quality permitting with the BAAQMD. Responsible for lowering the projects permit limit for PM-10 emissions by 20%.

SFERP 4-AFC-01: Participated as an Intervenor and also participated in the FDOC evaluation. My comments to the BAAQMD resulted in the projects PM -10 emission rate to be reduced from 3.0 pounds per hour to 2.5 pounds per hour by the District. Provided testimony on the air quality impacts of the project.

Long Beach Project: Provided the air quality analysis which was the basis for a settlement agreement reducing the projects NOx emissions from 3.5ppm to 2.5ppm.

ATC Explosive Testing at Site 300: Filed challenge to Authority to Construct for a permit to increase explosive testing at Site 300 a DOE facility above Tracy. The permit was to allow the DOE to increase outdoor explosions at the site from 100 pounds per charge to 300 pounds per charge and also grant an increased annual limit on explosions from 1,000 pounds of explosive to 8,000 pounds of explosives per year. Succeeded in getting the ATC revoked.

CPUC Proceeding C. 07-03-006: Negotiated a settlement with PG&E to voluntarily revoke Resolution SU-58 which was the first pipeline safety waiver of GO112-E granted in the State of California. Provided risk assessment information that was critical in the adoption of the Settlement Agreement with PG&E which, amongst other issues, resulted in PG&E agreeing to withdraw its waiver application and agreeing to replace the 36-inch pipeline under the sports park parcel after construction.

East shore Energy Center: 06-AFC-06: Intervened and provided air quality testimony and evidence of cancellation of Eastshore's power purchase agreement with PG&E.

Colusa Generating Station: 06-AFC-9: Participated as air quality consultant for Emerald Farms. Filed challenge to the PSD Permit.

CPUC proceeding 08-07-018: Tesla Generating Station CPCN participated in proceeding which was dismissed due to motion by IEP. Reviewed all filings, filed protest, signed confidentiality agreement and reviewed all confidential testimony.

GWF Tracy Combined Cycle 08-AFC-07: Participated in negotiation of the Air Quality Mitigation Agreement with the San Joaquin Valley Air Pollution Control District and GWF.

CPUC Proceeding 09-09-021: Provided Testimony on behalf of Californians for Renewable Energy. Demonstrated PG&E failed to follow its environmental protocol in the LTPP. Provided testimony and evidence that PG&E's need had fallen since 2007 and that the Commission should limit PG&E's procurement to the 950-1000 MW Range.

CPUC Proceeding A. 09-04-001: Represented Californians for Renewable Energy in the proceeding. Demonstrated PG&E had violated terms of Mariposa Settlement Agreement. PG&E was fined \$25,000 for breach of settlement.

CPUC Proceeding A. 09-10-022: Provided Testimony on behalf of Californians for Renewable Energy. Provided confidential evaluation of PPA value. Provided testimony and evidence that PG&E had violated the Mariposa Settlement. Provided testimony that demonstrated PG&E's demand had fallen sharply since the issuance of D. 07-12-052.

Oakley Generating Station 09-AFC-04: Participated as an intervenor. Provided testimony in Alternatives, Air Quality, Environmental Justice, and Water Quality. Negotiated settlement with CCGS to not use ERC's and instead exclusively use 2.5 million dollars to create real time emission reductions through BAAQMD real time emission reduction programs.

Pio Pico PSD Permit: Participated in the Pio Pico PSD permit. Comments resulted in a remand to the air district and a lowering of particulate matter emission limits by 10%

CPUC Proceeding A.11-12-003: Was credited by the decision for demonstrating that an additional 5 MW of firm capacity was not needed from the Thermal Energy Biomass Plant.

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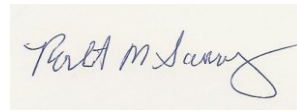
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Declaration of Robert Sarvey

I Robert Sarvey Declare as Follows:

1. I prepared the attached REPLY TESTIMONY OF ROBERT SARVEY FOR HELPING HAND TOOLS.
2. A copy of my professional qualifications and experience is included with this Reply Testimony and is incorporated by reference in this Declaration.
3. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Tracy, California on August 20, 2018.



Robert Sarvey