DOCKETED	
Docket Number:	19-SPPE-02
Project Title:	Walsh Data Center
TN #:	232977
Document Title:	CEC Staff Responses to Committee Questions
Description:	CEC Staff Opening Testimony responsive to the Committee Questions on potential air quality, greenhouse gas emissions, and public health impacts. Additional staff declarations and resumes are included.
Filer:	Steve Kerr
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	5/13/2020 4:13:41 PM
Docketed Date:	5/13/2020

State of California **The Resources Agency of California**

M e m o r a n d u m

To: Commissioner Karen Douglas, Presiding Member
Commissioner Patty Monahan, Associate Member

Date: May 13, 2020

From: **California Energy Commission**
1516 Ninth Street
Sacramento, CA 95814-5512

Leonidas Payne
Project Manager
(916) 651-0966

Subject: **CEC STAFF RESPONSES TO COMMITTEE QUESTIONS REGARDING THE WALSH BACKUP GENERATING FACILITY (19-SPPE-02) APPLICATION FOR SMALL POWER PLANT EXEMPTION (SPPE) PROCEEDING**

In accordance with the Committee's NOTICE OF PREHEARING CONFERENCE AND EVIDENTIARY HEARING, REVISED SCHEDULING ORDER, AND FURTHER ORDERS docketed April 30, 2020 (TN 232878), California Energy Commission (CEC) staff submits its responses to the Committee's questions regarding Public Health and Greenhouse Gas Emissions (Attachment A).

Staff additionally submits a set of declarations covering this new testimony and associated resumes (Attachment B).

ATTACHMENT A: STAFF RESPONSES TO COMMITTEE QUESTIONS

Subject Area: Public Health Pertaining to Toxic Air Contaminants (TACs)

PH-1: *In "Staff's Responses to Comments Received on the Initial Study," Staff states that it will work with BAAQMD staff to resolve BAAQMD's comments on the TACs analysis and Health Risk Assessment (HRA). Has Staff resolved BAAQMD's comments regarding whether the analysis of TACs and the HRA is correct? Explain.*

Yes, CEC technical staff understands the basis for BAAQMD's comments on the TAC analysis and the direct and cumulative HRA. Staff completed and presented a discussion in the Walsh Initial Study/Proposed Mitigated Negative Declaration (IS/PMND) of the direct HRA consistent with past practices and section 2.3 of the BAAQMD 2017 CEQA Guidelines[1].

Section 2.3 of the BAAQMD CEQA Guidelines recommends an additional step staff does not usually undertake – a cumulative HRA of a proposed project and nearby (within 1,000 feet) TAC sources, both existing and proposed.

CEC staff usually conducts an HRA), especially for cancer, looking at incremental risk only, not a cumulative risk. The reasons are described in details below:

1. Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, (Health & Safety Code, §§ 25249.5 et seq.) for guidance in establishing significance levels for carcinogenic exposures. Title 22, California Code of Regulations, section 12703(b) states that "the risk level which represents no significant risk shall be one which is calculated to result in one or less excess cancer cases within an exposed population of 100,000, assuming lifetime exposure." This risk level is equivalent to a cancer risk of 10 in 1 million, which is also written as 10×10^{-6}. In other words, under state regulations, an *incremental* cancer risk greater than 10 in 1 million due to impacts from a project should be regarded as suggesting a potentially significant carcinogenic impact on public health. The 10 in 1 million risk level is also used by the Air Toxics "Hot Spots" (AB 2588) program as the public notification threshold for air toxic emissions from existing sources. BAAQMD also stated that "cancer risk is the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens from anthropogenic sources...[2]"

[1] https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

[2] https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/2020_02_20-methodology-risk-and-hazards-screening-tool-pdf.pdf?la=en

2. According to the explanation of background (non-site-related) exposures by the California Office of Environmental Health Hazard Assessment (OEHHA)[3], "a small incremental dose of a toxic constituent that would otherwise be of no concern, may become a concern if the exposed person is already receiving a background dose of the constituent and the combined exposures may exceed the toxic threshold. For this reason, risk managers may wish to take background exposures into account in their decision-making process. This is of primary importance for non-carcinogenic toxic effects, which are generally thought to exhibit a toxic threshold. Carcinogens, on the other hand are generally treated as exhibiting no threshold. Thus, the incremental risk posed by a given exposure to a carcinogen does not depend on the individual's background exposure to that or any other carcinogen."

3. When examining such risk estimates, it is important to note that the background cancer risk is already high. The overall lifetime risk of developing cancer for the average male in the United States is about 1 in 2, or 500,000 in 1 million and about 1 in 3, or 333,333 in 1 million for the average female (American Cancer Society 2020[4]). From 2012 to 2016, the annual cancer incidence rates in California were 43.5 in 1 million for males and 38.64 in 1 million for females. Also, from 2012 to 2016, the cancer death rates for California are 16.76 in 1 million for males and 12.43 in 1 million for females (American Cancer Society, Cancer Facts & Figures 2016, Table 4 and Table 5 [5]).

Therefore, given that the background cancer risk is already high, and consistent with other state agencies, staff usually uses the incremental cancer risk of 10 in one million as the threshold, and only conducts an incremental health risk assessment to evaluate impacts due to a proposed project. However, in response to the BAAQMD's comments, staff conducted a cumulative HRA for the Walsh project.

As an initial matter, assumptions contained in HRAs are conservative to ensure protection of public health and take into account the most sensitive individuals in the population, such as the elderly, infants, and people with pre-existing medical conditions. Staff incorporated every conservative assumption called for by state and federal agencies responsible for establishing methods for analyzing public health impacts (Initial Study, p. 5.3-30).

[3] https://oehha.ca.gov/media/downloads/crnr/schoolscreen5.pdf
[4] https://www.cancer.org/cancer/cancer-basics/lifetime-probability-of-developing-or-dying-from-cancer.html
[5] https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2020/cancer-facts-and-figures-2020.pdf

In addition, for purposes of determining the cancer, chronic and acute impacts associated with the testing and maintenance of the backup generators, staff assumed an exposure profile based on all 33 backup generators running at 100 percent for the maximum allowable time period of 50 hours a year (Initial Study, pp. 5.3-30 and 5.3-39). This results in a very conservative finding because actual testing would be performed on one generator at a time and most testing would be well below 100 percent of capacity (Initial Study, pp. 5.3-9 and 5.3-26).

The conservative assumptions built into the HRA and the fact that existing conditions resulting from common TAC sources like roads, rail lines, dry cleaners, airports, chrome plating operations, and other operations overwhelm a discrete new source like the Walsh project. A cumulative HRA that considers existing background does not change the findings of the direct HRA assessment. In addition, while air quality cumulative impacts could occur with sources within a 1,000 or 2,000-foot radius, cumulative public health impacts are usually not significant unless the emitting sources are extremely close to each other, within a few blocks.

After consulting with the BAAQMD, and discussing various methodologies for a cumulative HRA, including the treatment of background levels, staff selected emissions from existing sources within 1,000 feet of the project plus a portion of the airport. Based on this approach, incorporating BAAQMD suggestions, staff performed a supplemental analysis. (See response to PH-2).

PH-2: ***If Staff has not resolved BAAQMD's comments on the TACs analysis and HRA, is the analysis nonetheless CEQA compliant and consistent with the BAAQMD methodology? Explain.***

CEC technical staff have been working cooperatively with BAAQMD staff in an attempt to ensure a consensus HRA analytical approach that is CEQA compliant and consistent with BAAQMD guidelines. CEC staff believes that the Initial Study as published contained a robust HRA to determine whether the project would expose sensitive receptors to substantial pollutant concentrations and met the requirements of CEQA. Section 2.3 of the BAAQMD 2017 CEQA Guidelines contains additional thresholds for a 1000-foot cumulative assessment. The BAAQMD, in its comments, also suggested in this case, the CEC staff go beyond 1,000 feet to capture the potential emissions from a larger emitter, the San Jose International Airport. Therefore, staff's updated analysis, described below, includes the analysis to 1,000 feet from the property line, plus emissions from portions of the San Jose International Airport that are within 2,000 feet of the project.

The cumulative HRA conducted by staff in response to the BAAQMD's comments is an assessment of the proposed project's impact summed with the impacts of existing

sources located within 1,000 feet of the project and adding emissions from portions of the San Jose International Airport that are within 2,000 feet of the project. The results of staff's cumulative HRA are compared to the BAAQMD CEQA cumulative thresholds of significance in Tables 1, 2 and 3, below. The staff's cumulative HRA includes four major types of sources: (1) San Jose International Airport emissions sources located within 2,000 feet of the boundary proposed for the Walsh and Sequoia (19-SPPE-03) projects combined; (2) existing stationary sources; (3) surrounding highways, main streets, and railways; and (4) the proposed Walsh project.

1) San Jose International Airport

Although the Norman Y. Mineta San Jose International Airport is more than 1,000 feet away from the Walsh project boundary, staff included the impacts due to airport operations as requested by BAAQMD. In November 2019, the City of San Jose published a Draft Environmental Impact Report (EIR) for the airport master plan update, which is available on the city's website[6]. Staff obtained the modeling files for the airport from the City of San Jose.

Based on the modeling files from City of San Jose for baseline year 2018, staff performed an independent HRA of the airport sources located within 2,000 feet of Walsh and Sequoia combined, since the analysis would be used for both projects. This extends the area somewhat beyond the 2,000 feet distance for Walsh alone. The 2,000-foot zone area focuses on the northwestern portion of the airport. The results of staff's independent analysis are shown below in Table 1 for 30-year cancer risk for residential/sensitive receptors and 25-year cancer risk for worker receptors, Table 2 for chronic hazard indices, and Table 3 for annual PM2.5 concentrations.

2) Existing Stationary Sources

The cumulative cancer risk, chronic hazard index, and PM2.5 concentrations from existing stationary sources were obtained from BAAQMD'S Permitted Sources Risk and Hazards Map. Then the risks were calculated using BAAQMD's Health Risk Calculator to refine screen-level cancer risk, chronic health hazard index, and PM2.5 concentrations. The Health Risk Calculator incorporates factors such as risk associated with individual toxic air contaminants emitted from an existing stationary source and the distance that a stationary source is from the proposed project's Maximally Exposed Individual Worker (MEIW), Maximally Exposed Individual Sensitive Receptor (MEI SR), and Maximally

[6] https://www.sanjoseca.gov/your-government/department-directory/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/active-eirs/sjc-airport-master-plan-update

Exposed Individual Resident (MEIR) locations to calculate overall cancer risk, hazard index, and PM2.5 concentration from these existing stationary sources.

Staff searched for emissions data from existing stationary sources located within 1,000 feet of the proposed project's MEIW, MEI SR, and MEIR. Staff then estimated the distances of these stationary sources to the project's MEIW, MEI SR, and MEIR. Staff finally applied the distance adjustment multiplier in the Health Risk Calculator to get the refined cumulative cancer risk, chronic hazard index, and PM2.5 concentration of the stationary sources at the project's MEIW, MEI SR, and MEIR. The MEIW is located on the southeast corner of the project's fence line, the MEI SR is a school located to the northeast of the site at a distance of approximately 3,100 feet from the project fence line, and the MEIR is located to the south of the site at a distance of approximately 2,580 feet from the project fence line.

3) Surrounding Highways, Major Streets, and Railways

The cancer risk and PM2.5 concentration from highways, major streets, and railways located within 1,000 feet of the project were determined using BAAQMD "raster files" obtained from BAAQMD staff. These incorporate annual average daily traffic (AADT) per EMFAC 2014 data for the 2014 on-road fleet mix and include OEHHA's 2015 Guidance Methods.

4) The Proposed project

For the Walsh project, please see the result of the applicant's HRA for facility wide operation of the proposed project beginning on page 5.3-29 and presented in Table 5.3-10 of the Initial Study.

Tables 1 through 3 below summarize the results of the staff cumulative HRA and compare the results to corresponding BAAQMD thresholds of significance for cumulative risk and hazards. The cumulative cancer risk, hazard index, and PM2.5 concentration were conservatively calculated using the maximum value in relation to the MEIW, MEI SR, and MEIR. Results show that the cumulative cancer risk results (Table 1) and chronic hazard index results (Table 2) are below BAAQMD thresholds of significance.

Table 1 CANCER IMPACTS FROM CUMULATIVE SOURCES LOCATED WITHIN 1,000 FEET OF THE WALSH PROJECT AND PORTIONS OF THE SAN JOSE INTERNATIONAL AIRPORT LOCATED WITHIN 2,000 FEET OF THE WALSH PROJECT

Sources of Cumulative Impacts	Cancer Risk (per million) to Maximally Exposed Individual Worker (MEIW [1])	Cancer Risk (per million) to Maximally Exposed Individual Sensitive Receptor (MEI SR)	Cancer Risk (per million) to Maximally Exposed Individual Resident (MEIR)
San Jose International Airport (within 2,000 feet)	6.81	20.07	2.81
Existing Stationary Sources (within 1,000 feet)	0.33	7.58	2.67
Surrounding Highways, Major Streets, and Railways (within 1,000 feet)	18.66	58.31	46.94
Walsh Project	4.64	0.04	0.04
Sequoia Project	2.2 [2]	-- [3]	0.19 [4]
McLaren Project (17-SPPE-01)	2.29 [2]	-- [3]	0.69 [5]
Total - Cumulative Sources	34.93	86.0	53.35
Significance Threshold	**100**	**100**	**100**
Potential Significant Impact?	No	No	No

[1] Table 5.3-10 on page 5.3-31 of staff's Initial Study also includes results at the point of maximum impact (PMI), which is located on the southeast corner of the project fence line of the proposed project. Staff recommends not using this result because it is based on an assumption of exposure duration for 30 years and staff does not expect a receptor would be there for that long. In addition, with BAAQMD staff support, CEC staff also converted the 30-year residential cancer risks from the existing stationary sources and surrounding highways, major streets, and railways to 25-year worker cancer risks at the MEIW based on the ratio of exposure duration.

[2] MEIW from Sequoia and McLaren projects. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

[3] The Walsh MEI SR location is more than 3,000 feet away from both Sequoia and Walsh and more than 5,000 feet away from McLaren. Therefore, staff does not expect the impact of Sequoia or McLaren at Walsh MEI SR to be significant.

[4] The Walsh MEIR location modeled by the Walsh applicant is almost identical to the Sequoia MEIR location modeled by the Sequoia applicant. They are just about 14 meters (46 ft) apart. Therefore, staff adds the Sequoia MEIR results to the Walsh MEIR cumulative impacts. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

[5] The Walsh MEIR location modeled by the Walsh applicant is close to the McLaren MEIR location modeled by the McLaren applicant. They are about 103 meters (338 ft) apart. Therefore, staff adds the McLaren MEIR results to the Walsh MEIR cumulative impacts. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

Table 2 MAXIMUM CHRONIC HAZARD INDEX IMPACTS FROM CUMULATIVE SOURCES LOCATED WITHIN 1,000 FEET OF THE WALSH PROJECT AND PORTIONS OF THE SAN JOSE INTERNATIONAL AIRPORT LOCATED WITHIN 2,000 FEET OF THE WALSH PROJECT

Sources of Cumulative Impacts	Maximally Exposed Individual Worker (MEIW)	Maximally Exposed Individual Sensitive Receptor (MEI SR)	Maximally Exposed Individual Resident (MEIR)
San Jose International Airport (within 2,000 feet)	0.14	0.16	0.02
Existing Stationary Sources (within 1,000 feet)	0.0037	0.0477	0.02
Surrounding Highways, Major Streets, and Railways (within 1,000 feet)	No Data Available [1]	No Data Available [1]	No Data Available [1]
Walsh Project	0.004	0.00001	0.00001
Sequoia Project	0.007 [2]	-- [3]	0.00005 [4]
McLaren Project	0.007 [2]	-- [3]	0.00018 [5]
Total--Cumulative Sources	0.17	0.21	0.04
Significance Threshold	**10**	**10**	**10**
Potential Significant Impact?	No	No	No

[1] No data available—BAAQMD staff did not provide data for these sources; they indicated the following: "We did not include chronic HI because you would see an exceedance above the thresholds under risk and PM2.5 before you see a hazard exceedance since the primary pollutant is diesel PM. Diesel PM has higher chronic reference dose so that it has relatively lower chronic impact compared to its risk potency." See Table 3 below for PM2.5 impacts.

[2] MEIW from Sequoia and McLaren projects. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

[3] The Walsh MEI SR location is more than 3,000 feet away from both Sequoia and Walsh and more than 5,000 feet away from McLaren. Therefore, staff does not expect the impact of Sequoia or McLaren at Walsh MEI SR to be significant.

[4] The Walsh MEIR location modeled by the Walsh applicant is almost identical to the Sequoia MEIR location modeled by the Sequoia applicant. They are just about 14 meters (46 ft) apart. Therefore, staff adds the Sequoia MEIR results to the Walsh MEIR cumulative impacts. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

[5] The Walsh MEIR location modeled by the Walsh applicant is close to the McLaren MEIR location modeled by the McLaren applicant. They are about 103 meters (338 ft) apart. Therefore, staff adds the

McLaren MEIR results to the Walsh MEIR cumulative impacts. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

Table 3 PM2.5 IMPACTS FROM CUMULATIVE SOURCES LOCATED WITHIN 1,000 FEET OF THE WALSH PROJECT AND PORTIONS OF THE SAN JOSE INTERNATIONAL AIRPORT LOCATED WITHIN 2,000 FEET OF THE WALSH PROJECT

Sources of Cumulative Impacts	Annual Diesel Particulate Matter (PM2.5) Concentration for Maximally Exposed Individual Worker (MEIW)	Annual Diesel Particulate Matter (PM2.5) Concentration at Maximally Exposed Individual Sensitive Receptor (MEI SR)	Annual Diesel Particulate Matter (PM2.5) Concentration for Maximally Exposed Individual Resident (MEIR)
San Jose International Airport (within 2,000 feet)	0.04	0.04	0.01
Existing Stationary Sources (within 1,000 feet)	0.002	0.0001	0.93 [1]
Surrounding Highways, Major Streets, and Railways (within 1,000 feet)	0.58	1.074 [2]	0.403
Walsh Project	0.03	0.00006	0.00006
Sequoia Project	0.04 [3]	-- [4]	0.0003 [5]
McLaren Project	0.04 [3]	-- [4]	0.0009 [6]
Total--Cumulative Sources	0.73	**1.12**	**1.37**
Significance Threshold	**0.8**	**0.8**	**0.8**
Potential Significant Impact?	No	**Yes**	**Yes**

[1] The value provided by BAAQMD CEQA staff is 3.1. Upon CEC staff's investigation, this was determined to be total particulate matter (TPM), not PM2.5. Staff consulted with BAAQMD permit evaluation staff, who informed CEC staff that the specific source in question has operations that are very difficult to measure by source tests, but that similar facilities have been tested which show that PM2.5 is approximately 30 percent of TPM. The value represented here reflects this adjustment.

[2] Surrounding highways contribute 0.675; surrounding major streets contribute 0.381 and surrounding railways contribute 0.018 to the total value of 1.074.

[3] MEIW from Sequoia and McLaren projects. This is just the worst-case addition for screening purposes and should not be used as precedent for future project.

[4] The Walsh MEI SR location is more than 3,000 feet away from both Sequoia and Walsh and more than 5,000 feet away from McLaren. Therefore, staff does not expect the impact of Sequoia or McLaren at Walsh MEI SR to be significant.

[5] The Walsh MEIR location modeled by the Walsh applicant is almost identical to the Sequoia MEIR location modeled by the Sequoia applicant. They are just about 14 meters (46 ft) apart. Therefore, staff

adds the Sequoia MEIR results to the Walsh MEIR cumulative impacts. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

[6] The Walsh MEIR location modeled by the Walsh applicant is close to the McLaren MEIR location modeled by the McLaren applicant. They are about 103 meters (338 ft) apart. Therefore, staff adds the McLaren MEIR results to the Walsh MEIR cumulative impacts. This is just the worst-case addition for screening purposes, and should not be used as precedent for future project.

While the PM 2.5 concentration at the MEI SR and MEIR exceed the BAAQMD's recommended significance threshold, that exceedance is an existing condition due primarily to roadways and in the case of the MEIR, other stationary sources. The Walsh project contributes essentially zero PM 2.5 to these receptors (that is, 0.00006) and therefore the project's contribution is not cumulatively considerable.

Subject Area: Greenhouse Gas Emissions (GHG)

GHG-1: *What is the CEC's legal obligation to evaluate potential impacts of GHG emissions from the Project, including operations of the Data Center, beyond calendar year 2020? What thresholds of significance must or may be applied?*

Relevant Time Period

The CEQA Guidelines under Title 14, section 15064.4(b) leave it up to the agency to determine the relevant period for a GHG analysis, stating in part, "The agency's analysis should consider a timeframe that is appropriate for the project." In this case staff used two time periods. For demolition and construction, staff used 21 months which is the expected time to complete the construction. (Initial Study, p. 5.8-7). For operations, staff used an indefinite annual time-period and did not limit its analysis to just 2020, which is not relevant since the facility will not be operating until after 2020.

Thresholds of Significance

For demolition and construction activities, staff estimated the total emissions over the 21 months would be 970 metric tons of carbon dioxide equivalent (MTCO2e). (Initial Study, p. 5.8-7) Section 2.6.2, page 2-6 of the BAAQMD 2017 CEQA Guidelines does not identify a GHG emission threshold for these short term construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed. BAAQMD further recommends incorporation of Best Management Practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable. BMPs may include use of alternative-fueled (for example, biodiesel or electric) construction vehicles and equipment for at least 15 percent of the fleet, use of at least 10 percent of local building materials, and recycling or reusing at least 50 percent of construction waste (Initial Study, p. 5.8-8).

The bulk of the direct operational emissions are the result of the testing and maintenance of the backup generators. (Initial Study, Table 5.8-2, p. 5.8-8) GHG emissions from testing, which is capped at 50 hours, is a static number and would not exceed 2,313 MTCO2e per year.

Section 2.2, page 2-4, of the 2017 BAAQMD CEQA Guidelines states:

> *For stationary-source projects, the threshold is 10,000 metric tons per year (MT/yr) of CO2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate.*

Because the BAAQMD threshold at issue is an annual amount, not a total lifetime amount, no specific time-period is necessary to apply the threshold. The testing of the generators would occur each year the facility is in operation and each year it would be below the BAAQMD threshold. Therefore, staff concluded there would be no significant impact. (Initial Study, p. 5.8-11)

Independent of this annual threshold, the diesel fuel producers are subject to various state laws and programs that would continue to drive down GHG emissions associated with the project's use of the diesel fuel. The policy drivers for long-term reductions in emissions of GHGs from fuels include Executive Orders B-55-18 and S-3-05, AB 32, SB 32, the Low Carbon Fuel Standard (LCFS), and the cap and trade program. Together these policies seek to achieve carbon neutrality by 2045 and statewide GHG emissions 80 percent below 1990 levels by 2050.

It is expected that due to these policy drivers, fuel suppliers will eventually be converting to a zero carbon fuel source such as biodiesel and fossil based diesel will no longer be available in the market. Based on the requirements in force on fuel suppliers to reduce carbon content, especially under the LCFS, the project's already low GHG emissions from the operational testing of the backup generators would reduce further and staff expects the project to be consistent with the long term state GHG emission goals as liquid fuels available in California become carbon neutral.

The primary indirect GHG emissions identified in the Initial study (Table 5.8-4, p. 5.8-11) would be emissions associated with electricity generation to service the project. The methodology for determining the GHG emissions from electricity with a mix of sources is to assign a carbon intensity factor that identifies the amount of CO2 equivalent (CO2e) produced per megawatt hour (MWh) of this mixed generation. As noted in the Initial Study at page 5.8-9, in 2017, Silicon Valley Power (SVP) had an estimated carbon intensity of 430 pounds of CO2e per MWh. By 2019 SVP's carbon intensity had fallen to 341 pounds of CO2e per MWh. (Walsh SPPE Application, pp. 105-106; Initial Study, p. 5.8-11)

Because the composition of electrical generation sources changes over time, the GHG emissions associated with electricity vary. Often, swings in hydro-generation result in swings in fossil fuel-fired generation, which directly affects GHG emissions in any one year, but the overall trend, while dynamic, is trending downward. Based on a carbon intensity of 341 pounds of CO2e per MWh the indirect GHG emissions from the project's electricity use is estimated at 108,396 MTCO2e/yr.

The BAAQMD threshold of 10,000 MTCO2e/yr only applies to the emissions from the project's stationary sources and does not cover indirect impacts such as the emissions associated with grid power. There are no specific thresholds of significance related to indirect GHG emissions from grid power.

To reduce GHG emissions and the use of energy related to building operations, the project includes a variety of energy efficiency measures. The Walsh Data Center would comply with all applicable city and state green building measures, including Title 24, Part 6, and the California Green Building Standards Code, commonly referred to as CALGreen (California Code of Regulations, Part 11). (Initial Study, p. 5.8-10)

SVP is subject to various GHG reduction requirements and programs such as cap and trade, renewable portfolio standard (RPS), and SB 100. Staff concluded there would be no significant impacts related to the GHG emissions associated with the electricity consumed by the project as those emissions are expected to come down over time as more carbon free energy comes onto the system due to a number of state requirements. (Initial Study, pp. 5.8-10, 5.8-11, and 5.8-14)

GHG-2: ***Were any of the methodologies or thresholds identified in CEQA Guidelines sections 15064.4 or 15183.5, or the BAAQMD CEQA Guidance used? If so, identify where, using reference to docketed documents specifying titles, transaction numbers and specific page numbers. If not, explain why and the legal significance, if any, of not including the methodologies or thresholds identified in CEQA Guidelines sections 15064.4 or 15183.5, or the BAAQMD CEQA Guidance.***

Methodologies

Staff followed section 15064.4(a)(1) of the CEQA Guidelines which identifies quantification as a methodology for assessing the greenhouse gas emissions, stating in part:

> *A lead agency shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have*

> *discretion to determine, in the context of a particular project, whether to: Quantify greenhouse gas emissions resulting from a project*

The inventory of direct annual GHG emissions includes short term emissions related to demolition (of the existing structures on the site) and construction and operation of the project. Demolition and construction included emissions from project equipment, vendor and hauling truck trips, and worker vehicle trips. (Initial Study, p. 5.8-6) As described on Initial Study page 5.8-7, the applicant estimated the demolition and construction sources would generate approximately 970 MTCO2e during the estimated 21 months to complete construction.

Direct operational GHG emissions included testing and maintenance of the backup generators, offsite vehicle trips for worker commutes and material deliveries, and facility upkeep (such as architectural coatings, consumer product use, landscaping, water use, waste generation, and natural gas use for comfort heating. (Initial Study, p. 5.8-6)

Staff also used a quantitative methodology to determine the indirect GHG emissions from the project use of grid power delivered by SVP. The calculations are detailed on pages 5.8-9 through 5.8-11 of the Initial Study. Based on the carbon intensity of SVP's power mix, the emissions associated with the maximum annual electricity consumption would be 108,396 MTCO2e/yr.

Thresholds of Significance

Sections 15064.4 and 15183.5 do not contain specific thresholds of significance, which are left to agencies to determine.

> *A lead agency should consider the following factors, among others, when determining the significance of impacts from greenhouse gas emissions on the environment: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.* (CEQA Guidelines, section 15064.4(b)(2))

As described in the prior response, staff used the BAAQMD thresholds as set forth in their 2017 CEQA Guidelines. But those guidelines do not have thresholds for project level indirect GHG emissions from the grid. (Initial Study, p. 5.8-8)

Because the primary source of GHG emissions from operations of the project are indirect emissions associated with SVP's grid power and not emissions from the project itself, staff considered whether SVP is on track to meet statewide long term RPS and low carbon energy requirements as set forth in various laws such as SB 350, SB 100, Executive Orders, and state and local policies. (Initial Study, pp. 5.6-2, 5.8-2, 5.8-3,

5.8-4 5.8-10 and 5.8-14) Specifically, SB 100 requires that zero-carbon resources supply 100 percent of electric retail sales to end-use customers in the state by 2045.

Section 15064.4(b)(3) of the CEQA Guidelines:

> *In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.*

The threshold then is whether SVP is proceeding to reduce emissions associated with its electricity supply, which means the project would also be reducing its indirect emissions.

As stated in their 2018 Integrated Resource Plan (SVP 2020), SVP follows the state's preferred loading order in procuring new energy resources. First, the current load (customer) is encouraged to participate in energy efficiency programs to reduce their usage, thus freeing up existing resources (and any related emissions) for new load (electricity demand). In addition, both the City of Santa Clara and SVP encourage the use of renewable resources and clean distributed generation, and the local area has seen a significant increase in use of large and small rooftop photovoltaics. Demand displaced by customer-based renewable projects is also available to meet new loads. (Initial Study, p. 5.8-9)

The most salient data regarding SVP's downward trending GHG emission's profile is its low and decreasing carbon intensity or emission's factor. As noted in the Initial Study at page 5.8-9, in 2017, SVP had an estimated carbon intensity of 430 pounds of CO2e per MWh. By 2019, SVP's carbon intensity had fallen to 341 pounds of CO2e per MWh. (Walsh SPPE Application, pp. 105-106; Initial Study, p. 5.8-11) To compare, the 2017 California statewide average emissions factor of 1,004 pounds of CO2e per MWh or the PG&E average emissions factor value of 644 pounds of CO2e per MWh are much higher. SVP is also on track to meet the requirements of AB 32, cap and trade, and SB 100 as over 70 percent of SVP's electricity is already carbon free. (Initial Study, pp. 5.6-6, 5.8-10, and 5.8-15) SVP expects to be 100 percent carbon free by 2045 as required by SB 100.[7]

Therefore, based on the extensive legal and policy drivers reducing the GHG emissions associated with SVP electricity supply during the expected life of the project, staff found the indirect GHG emissions generated by the project would be below the threshold and

[7] https://www.siliconvalleypower.com/sustainability/commitment-to-renewable-energy

would not be a cumulatively considerable contribution under CEQA because the project by way of SVP, would conform with all applicable plans, policies, and regulations adopted for the purpose of GHG reductions. (Initial Study, p. 5.8-11)

For the same reasons staff finds the projects indirect GHG emissions from the use of electricity would be consistent with long-term state GHG emission reductions goals, specifically, SB 100, which requires that zero-carbon resources supply 100 percent of electric retail sales to end-use customers in the state by 2045.

CEQA Guidelines section 15183.5(a) allows an agency performing a project specific environmental analysis to rely on an EIR containing a programmatic analysis of greenhouse gas emissions. Typically the referenced programmatic EIR would cover a general plan or other long range city or county development plan. In this case there was no current programmatic EIR to tier from that staff was aware of or that would reduce the GHG emissions from the facility since the bulk of the project generated emissions are from grid electricity. Staff did consider the goals of the Climate Action Plan, which is an expiring programmatic level effort by the City of Santa Clara to address GHG emissions. The City of Santa Clara may utilize the provisions of section 15183.5 as applicable if a programmatic EIR is developed and if the project is exempted.

GHG-3: ***Explain whether and how the goal identified in the City of Santa Clara's 2020 Climate Action Plan, for data centers to achieve a power usage effectiveness below 1.2, is applicable to and whether it is feasible for the Project?***

The power usage effectiveness (PUE) set forth under the 2020 Climate Action Plan (CAP) is not applicable to this project because the facility already deploys energy efficient server technology resulting in a low rack power rating.

Measure 2.3 of the CAP encourages completion of a feasibility study of energy efficient practices for new data center projects with an average rack power rating of 15 kilowatts or more to achieve a PUE of 1.2 or lower. The project would have an average rack power rating range of only 4 kilowatts (Walsh SPPE Application, p. 107), so a feasibility study of energy efficient practices would not be required. (Initial Study, p. 5.6-5)

The project would be consistent with the CAP by saving energy at the server level. The lower the rack power value the more information can be processed per unit of electricity consumed.

While targeting a PUE of 1.2 is not required, it is expected that the facility will have a PUE of around 1.30. (Initial Study, p. 5.6-5). Staff defers to the applicant who would be in the best position to discuss the feasibility of a PUE of 1.2. Regardless of whether

achieving a PUE of 1.2 is feasible, it is not necessary to conclude the project would have a less than significant impact on energy resources or GHG emissions.

GHG-4: ***If the GHG emissions impacts from Project operation are found to be significant, what, if any, mitigation measures could be adopted to bring the GHG emissions below the threshold of significance?***

As discussed above, the project's direct operational GHG emissions are low, and well below the BAAQMD's threshold of significance. Because the majority of the emissions associated with the operations of the data center, are indirect, and comes from the generation of electricity provided by SVP, the most impactful measure would be increasing the percentage of carbon free power procured by SVP. The other option would be to reduce the size of the project.

As stated above, SVP's downward trending GHG emission's profile is due to its low and decreasing carbon intensity or emission's factor and compliance with various renewable and low carbon energy requirements.

ATTACHMENT B: CEC STAFF DECLARATIONS AND RESUMES

DECLARATION OF
Ann Chu

I, Ann Chu, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Engineer in the Siting, Transmission and Environmental Protection Division.

2. My professional qualifications and experience were previously filed in this proceeding and are incorporated by reference herein.

3. I am sponsoring the **Public Health** portion of the **Air Quality** response to Committee Questions for Walsh Data Center. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 13, 2020 Signed: /s/

At: Sacramento, California

Huei-An (Ann) Chu

1516 Ninth Street, MS-46, Sacramento, CA 95814
Phone: 916-651-0965, Email: Ann.Chu@energy.ca.gov
Citizenship Status: U.S. Citizen

EDUCATION

PhD, Environmental Sciences and Engineering, 05/2006
School of Public Health, University of North Carolina at Chapel Hill
Area of Specialization: Environmental Risk Assessment, Environmental Management and Policy, Risk-Based Regulation, Biostatistics, Environmental Epidemiology

MEM, Environmental Management, 05/2000
School of Forestry and Environmental Studies, Yale University, New Haven, CT

MS, Environmental Engineering, 06/1998
National Taiwan University, Taipei, Taiwan

BA, Geography, with honors, 06/1996
National Taiwan University, Taipei, Taiwan

SKILLS

Language: Fluent in Chinese and English.

Computer software and programming skills: Hotspot Analysis Reporting Program (HARP), SAS, Stata, Minitab, ArcGIS, Stella, Crystal Ball, ISC, Microsoft Excel, PowerPoint, Word.

WORK EXPERIENCE

Air Resources Engineer, California Energy Commission, 1/12/2012 - Present
- Independently performs responsible, varied analyses assessing impacts from thermal power plants 50 megawatts and larger and the plants related facilities such as emergency engines and transmission lines, etc.
- Task scopes include public health impacts and transmission line safety and nuisance.
- Model air quality and public health impacts of stationary sources using HARP (Hot Spot Analysis and Reporting Program).
- Identify air quality and public health impacts of stationary sources and measures to mitigate these impacts following California Environmental Quality Act and regulations of US EPA (including the National Environmental Policy Act), ARB, and the Districts.
- Identify safety issues and nuisance impacts of transmission lines and measures to mitigate these impacts following guidelines of California Public Utilities Commission (CPUC) and Federal Aviation Administration (FAA).
- Collect, analyze, and evaluate data on the effects of air pollutants and power plant emissions on human health, and the environment.
- Ensure conditions of certification are met and recommending enforcement actions for violations.

Research Associate, Taiwan Development Institute, 10/01/2010 – 12/31/2011
- Provided professional consultation for the environmental risk assessment of Taiwan's techno-industrial development initiatives
- Reviewed the environmental risk assessment reports of Taiwan's techno-industrial development initiatives
- Presented in various distinguished lecturer series about environmental risk assessment

Consultant, Chu Consulting, 08/2007 - 07/2010
- Conducted a cumulative risk assessment to evaluate the risk associated with the emissions of VOCs from a petrochemical plants in southern Taiwan
- Used EPA's ISC3 model (based on Gaussian dispersion model) to simulate the dispersion and deposition of VOCs from this petrochemical plant to the neighboring areas, then used ArcGIS to spatially combine the population data and VOC simulation data (and further calculated risks)
- Built a framework of risk-based decision making to set the emission levels of VOCs to reduce people's exposure and the risk of experiencing health problems
- Presented in conference: SRA 2007
- Awarded: CSU-Chico BBS Faculty Travel Funds (2007)

Environmental Justice Intern, Clean Water for North Carolina (CWFNC), Summer, 2005
- Reviewed and critiqued key state environmental policies and the federal EPA Public Participation Policy.
- Interviewed impacted communities, member organizations of the NC Environmental Justice Network, state policy officials about how those policies are actually implemented.
- Wrote a report about the survey and review of environmental justice needs for key state policies.
- Report Publication: "Achieving Environmental Justice in North Carolina Public Participation Policy" (Aug, 2005).

Volunteer, New Haven Recycles and Yale Recycling, 08/1998 – 05/2000
- Promoted recycling and conservation
- Checked trash cans (chosen randomly) and recycling bins at each entryway of residential college, then gave grades.

Volunteer, Urban Resource Initiative (URI), Summer, 1998
- Planted trees for local community of New Haven for a better and sustainable environment

RESEARCH EXPERIENCE

Postdoctoral Research

Department of Public Health Sciences, University of California, Davis, 07/01/2010 – 09/30/2012
Research advisor: Dr. Deborah H. Bennett and Dr. Irva Hertz-Picciotto
- Work on two projects: NIEHS-funded ***Childhood Autism Risks from Genetics and Environment (CHARGE)*** and EPA-funded ***Study of Use of Products and Exposure Related Behavior* (*SUPERB)***.
- Perform statistical and quantitative analyses with SAS to analyze collected house dust data and children's urine concentrations of metabolites.
- Conduct exposure assessment to investigate if pesticides, flame retardants, and phthalates are risk factors for children autism.
- Conduct exposure assessment to explore the relationships between children's exposure to phthalate, benzophenone-3 (oxybenzone), triclosan, and parabens, and the use of personal care products.
- Produce scholarly peer-reviewed publications of methodology and findings, and write the final reports of both projects.

Carolina Environmental Program, University of North Carolina at Chapel Hill, 01/01/2006 – 12/31/2006
Research advisor: Dr. Douglas J. Crawford-Brown
- Applied a framework of risk-based decision-making to perchlorate in drinking water. (Awarded: SRA Annual Meeting Travel Award 2006)
- Conducted a material and energy flow analysis (MEFA) to quantify the overall environmental impact of Bank of America operations, and quantitatively analyze the strategies BOA might adopt to reduce these impacts and achieve sustainability. (Report Publication: "Environmental Footprint Assessment")

Doctoral Research, 08/2000-12/2005

Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina at Chapel Hill
Research advisor: Dr. Douglas J. Crawford-Brown

- Dissertation topic: "**A framework of Risk-Based Decision Making by Characterizing Variability and Uncertainty Probabilistically: Using Arsenic in Drinking Water as an Example**".
- Conducted risk assessment for arsenic in drinking water.
- Conducted theoretical analysis on the variability and uncertainty issues of risk assessment.
- Conducted a meta-analysis to improve dose-response assessment.
- Conducted analytical and numerical analysis to build a new framework of risk-based decision-making which can be applied coherently across the regulation decisions for different contaminants.
- Presented in conferences: APPAM (2004), SRA (2004, 2005 and 2006), DESE Seminar (2005), CEP Symposium on Safe Drinking Water (2006).
- Awarded: SRA Annual Meeting Student Travel Award (2004 & 2005), UNC-CH Graduate School Travel Grants (2004), UCIS Doctoral Research Travel Awards (2002).

Master's Research

School of Forestry and Environmental Studies, Yale University, 08/1999 - 06/2000
Research advisor: Dr. Xuhui Lee

- Master's project: "**Forest Stand Dynamics and Carbon Cycle**".
- Research project: "Monitoring Forest CO_2 Uptaking"
- Used remote sensing (ERMapper) to investigate the role of forest in the uptake of CO_2.
- Awarded from Teresa Heinz Scholars for Environmental Research Program (2000) and Klemme Award (1999).

Graduate Institute of Environmental Engineering, National Taiwan University, 06/1996 - 06/1998
Research advisor: Dr. Shang-Lien Loh

- Master's thesis: "**The Loads of Air Pollutants from Urban Areas on a Neighboring Dam and its Water Quality**"
- Research Projects: "Research on Air Pollutant Deposition in Urban Areas" and "the Fate and Flow of Recyclable Materials"
- Used Gaussian's Dispersion model (ISC3) to investigate the loads of air pollutants on dam water.

TEACHING EXPERIENCE

Lecturer

Department of Environmental Studies, California State University at Sacramento

- Environmental Politics and Policy, Fall 2011

Department of Geological & Environmental Science, California State University at Chico

- Environmental Risk Assessment, Spring 2009 & 2010
- Applied Ecology, Spring 2008
- Pollution Ecology, Fall, 2007

Department of Geography & Planning, California State University at Chico

- Seminar in Applied Geography & Planning – Environmental Regulation and Policy, Fall, 2007

Department of Forestry and Environmental Resources, North Carolina State University

- Environmental Regulation, Fall, 2006

Teaching Assistant

Department of Environmental Sciences and Engineering, UNC-Chapel Hill
- Environmental Risk Assessment, Spring, 2002
- Introduction to Environmental Science, Fall, 2001
- Analysis and Solution of Environmental Problems, Fall, 2001

Lab Instructor

Department of Environmental Sciences and Engineering, UNC-Chapel Hill
- Biology for Environmental Science, Fall, 2000

Graduate Institute of Environmental Engineering, National Taiwan University
- Water Quality Analysis, Fall, 1997

AWARDS and HONORS

- CSU-Chico BBS Faculty Travel Funds, 2007
- Member of Society of Risk Analysis (SRA), 2006-2008
- SRA Annual Meeting Student Travel Award, 2004-2006
- UNC-CH Graduate School Travel Grants, 2004
- Member of Association for Public Policy Analysis and Management (APPAM), 2004-2005
- UCIS Doctoral Research Travel Awards, 2002
- Graduate Student Teaching and Research Assistantships, 2000-2005
- Teresa Heinz Scholars for Environmental Research Program, 2000
- Yale Forestry & Environmental Studies, Klemme Award, 1999

DECLARATION OF
Tao Jiang

I, Tao Jiang, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Engineer in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am sponsoring the **Air Quality** and **Greenhouse Gas Emissions** portion of the response to Committee Questions for Walsh Data Center. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 13, 2020 Signed: /s/

At: Sacramento, California

Tao Jiang, Ph.D., P.E.

Professional Experience

Air Resources Engineer ***(Jan. 2009 – Present)***

California Energy Commission, Siting Transmission and Environmental Protection Division

Act as air quality technical lead on power plant siting projects and related linear facilities, including Abengoa Mojave Solar, Ridgecrest Solar Millennium, Almond 2 Power Plant, Pio Pico Energy Center, Huntington Beach Energy Project, Sonoran Energy Project, Pomona Repower Project and Stanton Reliability Energy Center. Also be responsible for compliance work of 26 power plants in construction and operation. Specific responsibilities include the following:

- Analyze the impacts of the construction and operation of large power generation projects and related linear facilities on air quality, Green House Gas and climate change
- Determine the conformance to applicable U.S. EPA, CARB and local air district regulations and standards
- Investigate and recommend appropriate emission mitigation measures
- Prepare air quality staff assessments and technical testimony
- Develop and monitor air quality compliance plans
- Review and evaluate U.S. EPA, CARB, and local air district air quality rules and regulations
- Collect, analyze and evaluate data for the effects of air pollutants and power plant emissions on human health, vegetation, wildlife, water resources and the environment
- Develop, recommend, and implement statewide planning and policy initiatives for the Energy Commission and Governor

Research assistant ***(Sep. 2004 – Dec. 2008)***

University of California, Riverside, Chemical & Environmental Engineering

- Investigated phase behavior of colloidal particles
- Study mediated colloidal interactions in the particle dispersions
- Build and evaluate models for gas molecules and particulate matters
- Conduct computer simulation and modeling for gas molecules and particulate matters

Education

PhD Chemical & Environmental Engineering, University of California, Riverside (August, 2008)
ME Materials Science and Engineering, Beijing University of Chemical Technology (June, 2003)
BE Materials Science and Engineering, Beijing University of Chemical Technology (June, 2000)

DECLARATION OF
Shahab Khoshmashrab

I, Shahab Khoshmashrab, declare as follows:

1. I am employed by the California Energy Commission as a Senior Mechanical Engineer in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared staff testimony for the Walsh Data Center Initial Study in the technical area of **Energy Resources**. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 13, 2020 Signed: /s/

At: Sacramento, California

Shahab Khoshmashrab, P.E.
Senior Mechanical Engineer

Professional Experience

2001-Current—Senior Mechanical Engineer – Siting, Transmission, and Environmental Protection Division – California Energy Commission

- Perform analysis of, and address complex engineering issues related to, generating capacity, power plant reliability, energy efficiency, noise and vibration, jurisdictional determination, and the mechanical, civil, electrical, and structural aspects of power plants' licensing, construction, and operation.

- Review and evaluate projects to ensure compliance of power plants and related facilities with applicable laws, ordinances, regulations, and standards and California Environmental Quality Act.

- Assist the California Energy Commission in policy making related to electricity generation.

1998-2001—Structural Engineer – Rankin & Rankin

Engineered concrete foundations, structural steel and sheet metal of various building structures including energy related structures such as fuel islands. Performed energy analysis/calculations of such structures and produced both structural plans and detailed shop drawings using AutoCAD.

1995-1998—Manufacturing Engineer – Carpenter Advanced Technologies

Managed manufacturing projects of various mechanical components used in high tech medical and engineering equipment. Wrote and implemented QA/QC procedures and occupational safety procedures. Conducted developmental research of the most advanced manufacturing machines and processes including writing of formal reports. Developed project cost analysis. Developed/improved manufacturing processes.

Education

- California State University, Sacramento-- Bachelor of Science, Mechanical Engineering
- Registered Professional Engineer (Mechanical), California License No. M 32883, Exp. 9/30/2018

DECLARATION OF
Wenjun Qian, Ph.D., P.E.

I, Wenjun Qian, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Engineer in the Siting, Transmission and Environmental Protection Division.

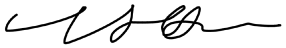
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am sponsoring the **Public Health** portion of the **Air Quality** response to Committee Questions for Walsh Data Center. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 13, 2020 Signed: 

At: Sacramento, California

Wenjun Qian, Ph.D., P.E.

Education

Ph.D., Mechanical Engineering, University of California, Riverside, 2010
M.S., Mechanical Engineering, George Washington University, 2005
B.S., Mechanical Engineering, Shanghai Jiao Tong University, China, 2004

Professional Experience

Air Resources Engineer ***(July 2010 – Present)***
California Energy Commission, Siting Transmission and Environmental Protection Division

Technical expert responsible for completing environmental analysis on thermal power plant project (including linears) applications seeking a California Energy Commission license, or an amendment to an existing license, in addition to determining ongoing compliance for facilities operating under existing Energy Commission licenses. Specific responsibilities, by technical area, include the following:

Air Quality

- Reviewing modeling protocols to make sure they comply with current modeling guidance documents.
- Reviewing project applications to verify engineering data, including worst case emissions during construction/demolition, commissioning, and various operating profiles.
- Completing air dispersion modeling to identify the worst case project impacts, and determining whether the project would result in any significant air quality related impacts.
- Determining whether the project would comply with all federal, state, and local air quality laws, ordinances, regulations, and standards.
- Coordinating with local Air Quality Management Districts and incorporating Determinations of Compliance into Energy Commission Staff Assessments.
- Investigating and recommending appropriate emission mitigation measures under California Environmental Quality Act requirements.
- Managing ongoing air quality compliance for power plant facilities during construction and operation.

Greenhouse Gases

- Reviewing project applications and quantifying potential greenhouse gases emissions associated with construction/demolition, commissioning, and operation of the proposed facilities.
- Determining whether the project would comply with all federal, state, and local greenhouse gases laws, ordinances, regulations, and standards.
- Analyzing the implications the proposed facility may have on California's electricity sector, and how it may affect greenhouse gases emissions in California and globally.

Visible Water Vapor Plume

- Assisting the technical experts authoring the Visual Resources section to identify potential visual impacts as a result of visible water vapor plumes.
- Reviewing operational design data from visible water vapor plume emitting sources and calculating visible plume frequencies and sizes.

Vertical Plume Velocity

- Assisting the technical experts authoring the Traffic and Transportation section to identify potential hazards to aircrafts as a result of vertical plume velocities.
- Reviewing operational design data from vertical plume emitting sources and calculating the vertical plume velocities at various heights.
- Identifying at what height above the plume sources the vertical plume velocities drop below the threshold of concern set by the Federal Aviation Administration.

Nitrogen Deposition

- Assisting the technical experts authoring the Biological Resources section to identify potential nitrogen deposition impacts.
- Reviewing and completing air dispersion modeling to identify nitrogen deposition impacts to sensitive habitats.

Worked on the following AFCs/SPPEs:
Mariposa Energy Project, Laurelwood Data Center, McLaren Backup Generating Facility, Pio Pico Energy Center, Pomona Repower Project, Puente Power Project, Quail Brush Generation Project, Redondo Beach Repower, Rio Mesa Solar Electric Generating System, etc.

Worked on the following project amendments:
El Segundo Energy Center, Huntington Beach Energy Project, Ivanpah Solar Electric Generating System, Orange Grove Energy Power Project, Otay Mesa Energy Center, Palomar Energy Project, Russell City Energy Center, etc.

Research Assistant ***(Sept. 2005 – June 2010)***
University of California, Riverside, Mechanical Engineering

- Evaluated air quality impacts of distributed generations in South Coast Air Basin of California.
- Estimated air quality impacts from the key power plant of Los Angeles Department of Water and Power in shoreline urban areas.
- Improved AERMOD performance during low wind stable conditions.
- Prepared and presented multiple comprehensive reports, journal papers, and conference papers.

Licensures

Professional Engineer, Mechanical (California License No. M 36370)

Awards

2013 Superior Accomplishment Award – California Energy Commission