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State Of California The Resources Agency of California

Memorandum

Date: October 8, 2019
Telephone: (916) 654-4545

To: Karen Douglas, Commissioner and Presiding Member
Janea A. Scott, Vice Chair and Associate Member

From: California Energy Commission – Lisa Worrall
1516 Ninth Street CEQA Lead Project Manager
Sacramento, CA 95814-5512

Subject: **CALIFORNIA ENERGY COMMISSION STAFF RESPONSES TO COMMENTS RECEIVED ON THE INITIAL STUDY/PROPOSED MITIGATED NEGATIVE DECLARATION AND ERRATA WITH DECLARATIONS AND RESUMES**

In accordance with the Committee's *Orders after July 23, 2019 Status Conference and Revised Scheduling Order*, California Energy Commission staff (staff) submits its Opening Testimony (TN 229584) (Initial Study and Proposed Mitigated Negative Declaration) with staff's declarations and resumes. Staff also submits errata for Aesthetics, Air Quality, Geology and Soils, Hazards and Hazardous Materials, Land Use and Planning, Population and Housing, and Transportation. None of the errata would alter the conclusion of the IS/Proposed MND that, with the implementation of staff's proposed mitigation, the project would not cause significant environmental impacts.

Responses to Comments Received on Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND)

On August 28, 2019, staff filed its IS/Proposed MND in the Laurelwood docket. The IS/Proposed MND was also sent to the State Clearinghouse on August 29, 2019 for distribution to state agencies and to begin a public review period that ended October 3, 2019. Staff received 12 total comments from the following respondents: Caltrans - District 4 (numbered CT-1, CT-2, etc.); the applicant (numbered Jacobs-1, Jacobs-2, etc.); and the City of San Jose Airport Department (numbered SJ-1, SJ-2, etc.). Each comment has been summarized and staff's response is provided below each comment. For some comments, staff has made corrections to the affected technical sections as provided in the CEC Staff Errata, below. The original comment letters are available for review in the Laurelwood docket (19-SPPE-01).[1]

Caltrans, District 4

CT-1: This parcel is designated on Geotracker (Waterboard's regulatory database) as a site with land use restrictions. This site has had a release of the solvent trichloroethene (TCE) to soil and groundwater. There is a plume of TCE impacted groundwater that extends offsite and cleanup is ongoing. Groundwater is being cleaned up via a groundwater extraction and treatment system. Further evaluation and necessary permits will be required to access and construct on this parcel.

[1] Robert Sarvey filed testimony to the project docket on October 3, 2019 which staff considers opening testimony.

Staff Response: Staff does not agree that further evaluation by the CEC would be needed for an SPPE to be issued for the project. The site is subject to the provisions of a Covenant and Environmental Restriction dated September 7, 2017, made by Siliconix for the benefit of the San Francisco Regional Water Quality Control Board (RWQCB) and recorded on September 19, 2017 as document number 23755872 in the Official Records of Santa Clara County. The Covenant and Environmental Restriction limits the type of redevelopment uses for the site to industrial, commercial or office space. In addition, the property owner shall not drill, extract, or use the ground water on site without permission from the RWQCB due to the soil and groundwater contamination. Staff concurs that additional local permits may be required on site once construction begins.

CT-2: Potential impacts to the state right-of-way from project-related temporary access points should be analyzed. Mitigation for significant impacts due to construction and noise should be identified in the MND.

Staff Response: As stated on **page 5.17-1** in the IS/Proposed MND, regional construction access would be from Montague Expressway and US-101. Montague Expressway is a county route. US-101, also called the Bayshore Freeway in the project area, is maintained by Caltrans. As stated on **page 5.17-2** in the IS/Proposed MND, project construction trips would result in a temporary, minimal (approximately 2 percent) increase in existing traffic volumes on US-101. Staff's analysis concluded on **page 5.17-2** that this minimal increase in traffic during the temporary 14-month construction period would not be expected to cause significant impacts to US-101. Also, all construction activities are expected to occur on the project site and would therefore not encroach into the state right-of-way. Noise impacts are discussed in Section 5.13, Noise in the IS/Proposed MND. Staff concluded that the project would have less than significant impacts related to noise.

CT-3: Project work that requires movement of oversized or excessive load vehicles on state roadways requires a transportation permit issued by Caltrans.

Staff Response: The City of Santa Clara, as the permitting agency, would ensure the applicant complies with this standard requirement.

CT-4: Prior to construction, coordination is required with Caltrans to develop a Transportation Management Plan to reduce construction traffic impacts to the State Transportation Network.

Staff Response: The City of Santa Clara, as the permitting agency, would work with the applicant to ensure that Caltrans' requirements are satisfied. The IS/Proposed MND only includes mitigation measures for potential environmental impacts.

CT-5: Please be advised that any work or traffic control that encroaches onto the state right-of-way requires a Caltrans-issued encroachment permit.

Staff Response: As discussed in the IS/Proposed MND on **page 5.17-3**, all project construction activities are expected to occur on the project site. However, the City of Santa Clara, as the permitting agency, would ensure the applicant obtains any necessary encroachment permits if circumstances change.

CT-6: As the Lead Agency, the California Energy Commission is responsible for all project mitigation, including any needed improvements to the State Transportation Network. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Staff Response: As the lead agency under the California Environmental Quality Act (CEQA), the Energy Commission has prepared the IS/Proposed MND for the project. The applicant is seeking an exemption from the Energy Commission's jurisdiction (Small Power Plant Exemption or SPPE) to proceed with local approval rather than obtaining an Energy Commission license. If the exemption is granted, the applicant would still need to secure the appropriate licenses and permits from relevant local, state, and federal agencies. Any needed improvements to the state transportation network would be coordinated between the applicant, Caltrans, the City of Santa Clara, and any other applicable agencies.

Applicant

Jacobs-1: On page 5.1-1, Aesthetics, Section 5.1.1 Setting, the project site is described as an 11.7-acre site. The actual area of the site is approximately 11.97 acres and we prefer the more generalized language of "approximately 12 acres."

Staff Response: Staff agrees with this comment and has included an errata to Aesthetics to reflect "approximately 12 acres" in CEC Staff Errata for Aesthetics, below.

Jacobs-2: The applicant agrees with staff's conclusions on page 5.4-10 in Section 5.4, Biological Resources in the IS/ MND regarding conclusions that project's potential nitrogen emissions (deposition) would be negligible at approximately 0.00 to 2.76 kilograms/hectare/year and would not significantly impact biological resources. The Applicant provides the additional analyses that support the conclusions in the IS/ MND related to potential impacts on San Tomas Aquino Creek:

- The key inquiry in a nitrogen deposition analysis is whether there are nitrogen-sensitive habitats potentially affected. Nitrogen deposition has the potential to be detrimental only when deposited in nitrogen-sensitive habitats. As confirmed by the studies set forth in the Application for this Small Power Plant Exemption, there are no nitrogen-sensitive biological resources or habitat within the adjacent San Tomas Aquino Creek.

- The LDC standby generators will emit nitrogen in the form of oxides of nitrogen,

which is not in a depositional form. The conversion of the gaseous nitrogen emissions to a depositional form requires sunlight, moisture, and time, precluding potential impacts for a location in such close proximity to the project site. Thus, the project-specific environmental conditions preclude the possibility of potentially significant nitrogen depositional impacts.

Staff Response: Staff agrees with the applicant's characterization that there are no nitrogen-sensitive biological resources or habitat within the adjacent San Tomas Aquino Creek as there is currently no research indicating this is the case in the region. However, San Tomas Aquino Creek feeds into salt marsh habitat which is nitrogen-sensitive habitat, about 2.2 miles to the northeast of the project. Staff employed a conservative approach to assessing potential nitrogen impacts to sensitive resources within the broader 6-mile radius from the project that was the biological resources study area used in preparing the IS/ Proposed MND.

Our analysis conservatively assumed 100 percent conversion of nitrogen oxides to a depositional form at the stack. But in reality, the conversion is much slower. Therefore, our analysis is conservative. A similar statement was used in staff's nitrogen deposition analyses for other projects. For example, on the Alamitos Energy Center staff used the following explanation:

> *Assuming 100 percent of the NOx and NH3 conversion to atmospherically-derived nitrogen (ADN) within the exhaust stacks ignores the fact that the conversion process requires sunlight, moisture, and time. Since staff analyzes habitat areas within a 6-mile radius of the project, it is unlikely that there would be sufficient time for all of the emitted nitrogen to convert to ADN. Therefore, it is likely that a less than significant amount of the project's nitrogen emissions would actually deposit on these habitat areas. However, at this time staff does not have refined data on the amount of time needed for this conversion to occur. Therefore, staff conservatively assumes total conversion at the stack. The project could contribute to annual nitrogen deposition, but not at the levels predicted by AERMOD due to the limited time it takes for the plumes to travel to the habitat areas and the conservative assumptions used for nitrogen formation and deposition.*

City of San Jose Airport Department

SJ-1: On page 5.9-1 in Section 5.9, Hazards and Hazardous Materials, the determination for item "e" in the checklist table in should be changed from "No Impact" to "Less than Significant Impact" per the following comment (SJ-2).

Staff Response: Staff agrees and has made changes that are captured in CEC Staff Errata for Hazards and Hazardous Materials, below. See the full response in SJ-2.

SJ-2: On page 5.9-2 in Section 5.9, Hazards and Hazardous Materials, the text under

"Airports" incorrectly states that the project height would not trigger FAA review. The analysis should have disclosed that Federal Aviation Regulations, Part 77, "Objects Affecting Navigable Airspace" (referred to as FAR Part 77), requires that the Federal Aviation Administration (FAA) be notified of certain proposed construction projects located within an extended zone defined by an imaginary slope radiating outward for several miles from an airport's runways ("notification surface"), or which would otherwise stand at least 200 feet in height above ground. For the project site, the FAR Part 77 notification surface is at an approximate height of 85 feet above ground. As the project proposes maximum building heights up to 120.5 feet, airspace safety review by the FAA is required.

Staff Response: On page 5.17-4 in Section 5.17, Transportation, the project's maximum height with the adiabatic coolers on the top of the building is approximately 117.5 feet above ground level (AGL). CEC staff calculated the 100 to 1 surface threshold at approximately 82 feet AGL at the project site. With the consideration of the project's maximum height with the coolers on top and the height of the notification surface at the project site, the building and coolers would exceed the 100:1 slope threshold. As a result, the project applicant would need to submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. Because the project's tallest structure would be far below the project site's FAR Part 77 (obstruction) surface of 212 feet above mean sea level, as identified in Figure 6 of the Comprehensive Land Use Plan for San Jose International Airport, staff anticipates the FAA would issue a Determination of No Hazard. Therefore, the project would not pose a safety hazard and would have a less than significant impact. To reflect this conclusion, ttaff has made changes that are captured in CEC Staff Errata for Transportation, below.

SJ-3: The text in Section 5.9, Hazards and Hazardous Materials under item "e" impact analysis should be corrected to state that FAA review of the proposed project structures exceeding the FAR Part 77 notification surface is required. FAA issuance of "determination of no hazard" clearances, and subsequent applicant compliance with any conditions set forth in such FAA determinations, would ensure that the project does not have an adverse impact on airspace safety.

Staff Response: Staff agrees with this comment and has made changes that are captured in CEC Staff Errata for Hazards and Hazardous Materials, below.

SJ-4: Section 5.11, Land Use and Planning should have expressly disclosed the project site is with the Santa Clara County Airport Land Use Commission's (ALUC) defined "Airport Influence Area (AIA)" of San Jose International Airport and included a more complete discussion of compatibility with the applicable policies of the ALUC's Comprehensive Land Use Plan (CLUP) for San Jose International Airport, including the policy requiring granting of an Avigation Easement to the City of San Jose setting forth acceptance of elevation limits and aircraft noise impacts prior to development.

Staff Response: Staff agrees that the project site's location within AIA of the San Jose

International Airport requires a more complete discussion of the project's compatibility with applicable polices of the ALUC's CLUP, including the policy requiring granting of an Avigation Easement to the City of San Jose. Staff has made changes that are captured in CEC Staff Errata for Land Use and Planning, below.

Opening Testimony

Staff submits the Initial Study and Proposed Mitigated Negative Declaration for the Laurelwood Data Center (19-SPPE-01) (TN 229584) filed on August 28, 2019, as modified below in the CEC Staff Errata.

CEC Staff Errata

~~Strikethrough~~ is used to indicate deleted text and **bold/underline** is used for new text.

Aesthetics

Staff discovered an error in one reference in Section 5.1, Aesthetics after releasing the IS/Proposed MND. Information in Santa Clara 2019a and Santa Clara 2019b was the same for both references; however, the information for Santa Clara 2019b should point to Santa Clara architectural review, not the city code. With the revised reference citation on page 5.1-8, the conclusions regarding the impacts of the project would not change.

Santa Clara 2019b – City of Santa Clara (Santa Clara). ~~City Code~~ **Architectural Review**. 2019. Available online at: **http://santaclaraca.gov/government/departments/community-development/planning-division/architectural-review**. Accessed on: April 4, 2019.

*Staff received a comment from the applicant in response to the IS/Proposed MND (TN 229957) on the project site acreage as listed on **page 5.1-**1 and **page 5.1-6** in Section 5.1, Aesthetics. For a summary of the comment and staff's response, see Reponses to Comments Received on the IS/Proposed MND, above. The following text is from staff's analysis with the corrections included as described by the applicant in their comments on the environmental document. The changed in reported acreage would not change staff's conclusions regarding impacts of the project.*

*Changes on **page 5.1-1** under the "setting" discussion:*

The **approximately 12**~~11.7~~ -acre project site currently includes an asphalt-paved area, and area where two buildings formerly used in the manufacturing of semiconductor products and passive components were removed. Mature trees and shrubs are along the perimeter.

*Changes on **page 5.1-6** under criterion "c" impact analysis for operations and maintenance:*

The MP zone district requires open landscaped area on a project site (Santa Clara 2019a, §18.46.120). Specifically, it requires that a lot have not less than 25 percent of the lot area developed into and permanently maintained as open landscaped area. The applicant has provided a site plan that shows the approximate **12**~~11.7~~-acre (509,652 square foot) project site would have open landscape area totaling 131,450 square feet: 25.8 percent of the lot (Jacobs 2019d, Figure 2-1R).

Air Quality Errata

Staff discovered an error in Table 5.3-12 in Section 5.3, Air Quality after releasing the IS/Proposed MND. Table 5.3-12 did not show the first highest 1-hour NO_2 impacts modeled over the five modeling years. Instead, the table showed the highest 1-hour NO_2 impacts averaged over the five modeling years. Therefore, staff is revising Table 5.3-12 to show the first highest 1-hour NO_2 impacts modeled over the five modeling years. These first highest 1-hour NO_2 impacts are from staff's existing modeling files. Staff did not re-run the model after releasing the IS/Proposed MND. The following text is from staff's analysis with the corrections included. With the revisions in Table 5.3-12, the conclusions regarding the impacts of the project would not change.

TABLE 5.3-12 EMERGENCY OPERATION, NO_2 IMPACTS FOR SENSITIVE RECEPTORS

Number of Engines Modeled	33	41
Engine Load	100 percent	75 percent
	Apartment Complex to the East Southeast	
Peak Modeled 1-hour NO_2 Impact with Background[1] (µg/m^3)	**257.6 to 279.5** ~~255.3 to 277.4~~	**274.3 to 306.0** ~~271.3 to 302.6~~
	Residential Neighborhoods to the North	
Peak Modeled 1-hour NO_2 Impact with Background[1] (µg/m^3)	**253.0 to 306.4** ~~245.5 to 292.0~~	**276.6 to 329.1** ~~262.8 to 308.~~7
	Sensitive Receptors	
Peak Modeled 1-hour NO_2 Impact with Background[1] (µg/m^3)	**264.1 to 279.3** ~~263.1 to 278.1~~	**272.2 to 313.9** ~~264.3 to 302.3~~

Note:
[1] The modeled 1-hour NO_2 impacts include project impact and a seasonal hour of day background.
Source: Staff analysis

Geology and Soils Errata

Staff discovered an error in one reference in Section 5.7, Geology and Soils after the release of the IS/Proposed MND. Staff erroneously referred to the Draft Geotechnical Investigation, 2201 Laurelwood Road, Santa Clara, California report prepared by Cornerstone Earth Group in February 21, instead of the final report prepared in March 2019. The final report was included in the Small Power Plant Exemption Appendices (TN 227626), referenced as Jacobs 2019c (presented below for informational

purposes). The following text is from staff's analysis with the corrections included. With the changed reference citation on page 5.7-17, the conclusions regarding the impacts of the project would not change.

Cornerstone 2019 – Cornerstone Earth Group, ~~Draft~~ **Final** Geotechnical Investigation, 2201 Laurelwood Road, Santa Clara, California. Project 1075-1-2. ~~February 21~~ **March 2019**.

Jacobs 2019c – Jacobs (Jacobs). (TN 227626). LDC Responses to Formal and Informal Data Requests. Data Response Set 1A, dated April 11, 2019. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-01.

Hazards and Hazardous Materials

Staff received a comment from the City of San Jose Airport Department in response to the IS/Proposed MND (TN 229957) that has triggered several changes to Section 5.9, Hazards and Hazardous Materials. For a summary of the comments and staff responses, see Reponses to Comments Received on the IS/Proposed MND, above. Staff has changed their level of significance impact conclusion for CEQA criterion e under Hazards and Hazardous Materials (page 5.9-1) from "No Impact" to "Less than Significant Impact" as shown below. While the level of significance of the impact is now less than significant, no mitigation would be required.

HAZARDS AND HAZARDOUS MATERIALS **Would the project:**	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☒

f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G

*On **page 5.9-2**, staff made the following changes to the discussion of airports. The following text is from staff's analysis with the corrections included.*

Airports

The Norman Y. Mineta San Jose International Airport, a public airport, is located within 2 miles of the proposed project **and has two runways that exceed 3,200 feet in length (AirNav 2019).** The Santa Clara County Airport Land Use Commission (SCCALUC 2016) plan shows that the project does not fall within an airport safety zone ~~and the height would not trigger the Federal Aviation Administration's (FAA) review~~. **The project's Federal Aviation Regulations (FAR) Part 77 (obstruction) surface is 212 feet above ground level (AGL), as identified in Figure 6 of the Comprehensive Land Use Plan for San Jose International Airport (SCCALUC 2016).**

*On **page 5.9-5**, staff made the following changes to the federal regulatory discussion, to include the Federal Aviation Administration and applicable regulations. The following text is from staff's analysis with the corrections included.*

Department of Transportation. The United States Department of Transportation is the primary federal agency responsible for regulating the proper handling and storage of hazardous materials during transportation (49 C.F.R. §§ 171-177 and 350-399).

Federal Aviation Administration. Title 14, Part 77.9 of the Code of Federal Regulations requires Federal Aviation Administration (FAA) notification for any construction or alteration of navigable airspace exceeding 200 feet above ground level (AGL). It also requires notification for construction or alterations within 20,000 feet of an airport with a runway more than 3,200 feet in length if the height of the construction or alteration exceeds a slope of 100 to 1 extending outward and upward from the nearest point of the nearest runway of the airport.

If a project's height exceeds 200 feet or exceeds the 100:1 surface, the project applicant must submit a copy of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The threshold for the FAA notification 100:1 surface exceedance height would be 82 feet for the project site.

*On page **5.9-10**, staff made the following changes to the impact analysis for CEQA criterion "e" under Hazards and Hazardous Materials. While the impact significance level has changed, the project would not require mitigation and impacts would be less*

than significant for criterion "e". The following text is from staff's analysis with the corrections included.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Demolition/Construction

~~NO IMPACT~~**LESS THAN SIGNIFICANT IMPACT**. The project site is located approximately 1.4 miles northwest of the Norman Y. Mineta San Jose International Airport. The project is located outside of any designated airport safety zones (SCCALUC 2016). **The FAA establishes a maximum structure height of 212 feet AMSL at the project site (SCCALUC 2016). Even when accounting for the varying 20 to 23-foot elevation of the project site AMSL, the LDC, at 117.5 feet AGL, would not exceed the FAA's height limit of 212 AMSL. The project site is subject to Title 14, Part 77.9 of the Code of Federal Regulations, Construction or Alteration Requiring Notice. With a maximum project height of 117.5 feet AGL, the project would exceed the FAA notification 100:1 surface threshold of 82 feet at the project site. As a result, the project applicant would need to submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. Because the project's tallest structure would be far below the project site's FAR Part 77 (obstruction) surface of 212 feet AMSL, as identified in Figure 6 of the Comprehensive Land Use Plan for San Jose International Airport, staff anticipates the FAA would issue a Determination of No Hazard (SCCALUC 2016).** ~~The project would not exceed the FAA's height limitation and would not require FAA review.~~ Therefore, the project would not **pose** ~~result in~~ a safety hazard and would have **a less than significant** ~~no~~ impact. Project demolition and construction would not result in excessive noise impacts for people residing or working in the project area, as described in a more detailed analysis in **Section 5.13, Noise**.

*On **page 5.9-10**, staff added the following associated reference. The following text is from staff's analysis with the corrections included.*

5.9.3 References

AirNav 2019 – AirNav. KSJC Norman Y Mineta San Jose International Airport. Available online at: https://www.airnav.com/airport/KSJC. Accessed on October 7, 2019.

Land Use and Planning

*Staff received a comment from the City of San Jose Airport Department in response to the IS/MND (TN 229957) that has triggered several changes to Section 5.11, Land Use and Planning on **page 5.11-1**. For a summary of the comments and staff responses,*

see Reponses to Comments Received on the IS/Proposed MND, above. The following text is from staff's analysis with the corrections included.

Local

Santa Clara County Airport Land Use Commission's Comprehensive Land Use Plan for Norman Y. Mineta San Jose International Airport. The Santa Clara County Airport Land Use Commission (ALUC) adopted the Comprehensive Land Use Plan (CLUP) for the San Jose International Airport on May 25, 2011 and most recently amended it on November 16, 2016. The project site is located within the ALUC's designated Airport Influence Area (AIA) for the San Jose International Airport, meaning that it is subject to the policies in the CLUP.

Relevant policies for this project include the following (Santa Clara County 2016):

- **G-5: Where legally allowed, dedication of an avigation easement to the City of San Jose shall be required to be offered as a condition of approval on all projects located within an Airport Influence Area, other than reconstruction projects as defined in paragraph 4.3.7. All such easements shall be similar to that shown as Exhibit 1 in Appendix A [in the CLUP].**
- **G-6: Any proposed uses that may cause a hazard to aircraft in flight are not permitted within the AIA. Such uses include electrical interference, high intensity lighting, attraction of birds (certain agricultural uses, sanitary landfills), and activities that may produce smoke, dust, or glare. This policy requires the height at maturity of newly planted trees to be considered to avoid future penetration of the Federal Aviation Administration (FAA) Federal Aviation Regulations (FAR) Part 77 Surfaces.**
- **G-7: All new exterior lighting or large video displays within the AIA shall be designed so as to create no interference with aircraft operations. Such lighting shall be constructed and located so that only the intended area is illuminated and off-site glare is fully controlled. The lighting shall be arrayed in such a manner that it cannot be mistaken for airport approach or runway lights by pilots.**
- **H-1: Any structure or object that penetrates the Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace, (FAR Part 77) surfaces as illustrated in Figure 6 [in the CLUP], is presumed to be a hazard to air navigation and will be considered an incompatible land use, except in the following circumstance. If the structure or object is above the FAR Part 77 surface, the proponent may submit the project data to the FAA for evaluation and air navigation hazard determination, in which case the FAA's determination shall prevail.**
- **H-2: Any project that may exceed a FAR Part 77 surface must notify the Federal Aviation Administration (FAA) as required by FAR Part 77, Subpart B on FAA Form 7460-1, Notice of Proposed Construction or Alteration. (Notification to the FAA under FAR Part 77, Subpart B, is required even for**

certain proposed construction that does not exceed the height limits allowed by Subpart C of the FARs).

- **O-1: All new projects within the AIA that are subject to discretionary review and approval shall be required to dedicate in compliance with state law, an avigation easement to the City of San Jose. The avigation easement shall be similar to that shown as Exhibit 1 in Appendix A [in the CLUP].**

City of Santa Clara 2010-2035 General Plan. The City of Santa Clara 2010–2035 General Plan (General Plan) was adopted on November 16, 2010. The project site is designated Low Intensity Office/Research and Development (R&D), as shown on the Land Use Diagrams for the General Plan's three planning phases. The Low Intensity Office/R&D designation is "intended for campus-like office development that includes office and R&D, as well as medical facilities and free standing data centers….The maximum FAR (floor area ratio) is 1.00" (Santa Clara 2010).

The General Plan includes the following policies relevant to the Norman Y. Mineta San Jose International Airport and proposed project:

- **5.10.5-P32: Encourage all new projects within the Airport Influence Area to dedicate an avigation easement.**
- **5.10.5-P33: Limit the height of structures in accordance with the Federal Aviation Administration Federal Aviation Regulations, FAR Part 77 criteria.**

*Under CEQA impact criterion "b" analysis on **page 5.11-3**, staff made the following changes.*

Operation and Maintenance

LESS THAN SIGNIFICANT IMPACT. **The project is generally consistent with the policies in the CLUP, the General Plan, and the Zoning Ordinance, as discussed below.**

Comprehensive Land Use Plan for Santa Clara County Norman Y. Mineta San Jose International Airport

The project would be consistent with the following applicable policies in the CLUP for projects located within the AIA.

- **G-5: Where legally allowed, dedication of an avigation easement to the City of San Jose shall be required to be offered as a condition of approval on all projects located within an Airport Influence Area, other than reconstruction projects as defined in paragraph 4.3.7. All such easements shall be similar to that shown as Exhibit 1 in Appendix A [in the CLUP].**

The City of Santa Clara, as the permitting agency for this project, would ensure consistency with this policy by requiring dedication of an avigation easement to the City of San Jose.

- **G-6: Any proposed uses that may cause a hazard to aircraft in flight are not permitted within the AIA. Such uses include electrical interference, high intensity lighting, attraction of birds (certain agricultural uses, sanitary landfills), and activities that may produce smoke, dust, or glare. This policy requires the height at maturity of newly planted trees to be considered to avoid future penetration of the FAA FAR Part 77 Surfaces.**

The project would not cause any of the above hazards to aircraft in flight. The data center would not create smoke, dust, electrical interference, bird attractants, or trees that would penetrate the FAA FAR Part 77 Surfaces at the site. It also would not create high intensity lighting, as discussed in a more detailed analysis in Section 5.1, Aesthetics.

- **G-7: All new exterior lighting or large video displays within the AIA shall be designed so as to create no interference with aircraft operations. Such lighting shall be constructed and located so that only the intended area is illuminated and off-site glare is fully controlled. The lighting shall be arrayed in such a manner that it cannot be mistaken for airport approach or runway lights by pilots.**

The project would not create a new source of substantial light or glare, as discussed in a more detailed analysis in Section 5.1, Aesthetics.

- **H-1: Any structure or object that penetrates the Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace, (FAR Part 77) surfaces as illustrated in Figure 6, is presumed to be a hazard to air navigation and will be considered an incompatible land use, except in the following circumstance. If the structure or object is above the FAR Part 77 surface, the proponent may submit the project data to the FAA for evaluation and air navigation hazard determination, in which case the FAA's determination shall prevail.**
- **H-2: Any project that may exceed a FAR Part 77 surface must notify the Federal Aviation Administration (FAA) as required by FAR Part 77, Subpart B on FAA Form 7460-1, Notice of Proposed Construction or Alteration. (Notification to the FAA under FAR Part 77, Subpart B, is required even for certain proposed construction that does not exceed the height limits allowed by Subpart C of the FARs).**

The project height would not exceed the FAR Part 77 surface at the project site of 212 feet above mean sea level (AMSL), shown in Figure 6 of the CLUP. However, the project is subject to Title 14, Part 77.9 of the Code of Federal Regulations, Construction or Alteration Requiring Notice. The project has a maximum structure height of 117.5 feet above ground level, which includes equipment at the top of the data center buildings not counted in the calculation of building height for zoning ordinance purposes. This structure height would exceed the FAA notification 100:1 surface threshold of 82 feet at the project site. As a result, the project applicant would need to submit Form

7460-1, Notice of Proposed Construction or Alteration, to the FAA. Staff anticipates the FAA would issue a Determination of No Hazard, as discussed in more detail in Section 5.17, Transportation. The City of Santa Clara, as the permitting agency for this project, would ensure consistency with these policies.

- **O-1: All new projects within the AIA that are subject to discretionary review and approval shall be required to dedicate in compliance with state law, an avigation easement to the City of San Jose. The avigation easement shall be similar to that shown as Exhibit 1 in Appendix A [in the CLUP].**

As discussed above, the City of Santa Clara, as the permitting agency for this project, would ensure consistency with this policy by requiring dedication of an avigation easement to the City of San Jose.

General Plan

The project is generally consistent with the City of Santa Clara's General Plan, and any minor inconsistencies would cause less than significant impacts. The project site's General Plan land use designation is Low Intensity Office/R&D, as shown on the Land Use Diagrams for the General Plan's three planning phases. The Low Intensity Office/R&D designation is "intended for campus-like office development that includes office and R&D, as well as medical facilities and free standing data centers" (Santa Clara 2010). The project's proposed data center use is consistent with the description of uses allowed in the Low Intensity Office/R&D land use designation. However, the project has a FAR[2] of 1.02, which slightly exceeds the General Plan's maximum FAR of 1.00 for the Low Intensity Office/R&D land use designation (Santa Clara 2010).

FAR regulations are often used by local governments to predict and limit the intensity of land uses and their resulting environmental impacts. A project with a higher than allowed FAR could result in environmental impacts unanticipated by the General Plan, such as increased vehicle miles travelled, a potential transportation impact under the CEQA Guidelines. However, the project's FAR of 1.02 is very close to the maximum allowed FAR of 1.00, and data centers have low employment density despite their large size. For these reasons, the slightly increased project FAR would not increase the number of employees and vehicle miles travelled beyond that anticipated by the City's General Plan. Furthermore, the project applicant would obtain a "minor modification" from the City's Zoning Administrator to allow this minor deviation from FAR requirements. According to Section 18.90.020 of the City of Santa Clara's zoning ordinance, the Zoning Administrator may grant approval of minor modifications of height, area, and yard regulations, where the allowed regulations are not exceeded by more than 25 percent (Santa Clara 2019b). The applicant is currently working with the City's Zoning Administrator on this minor

[2] The FAR, or floor area ratio, of a development is the total square footage of each floor of the building/s on the lot divided by the square footage of the lot area. To obtain the FAR for this project, the proposed total floor area of 533,952 square feet is divided by the total lot area of 521,511 square feet. The result is a FAR of 1.02.

modification, and the applicant anticipates that the City will grant the minor modification during building permit review. With City Zoning Administrator approval of a slightly increased FAR, the project would be consistent with FAR policies. Therefore, the project's inconsistency with the General Plan's maximum FAR would cause less than significant impacts.

The project would also be consistent with the General Plan policies related to the airport, as follows.

- **5.10.5-P32: Encourage all new projects within the Airport Influence Area to dedicate an avigation easement.**

The City of Santa Clara, as the permitting agency for this project, would ensure consistency with this policy by requiring dedication of an avigation easement to the City of San Jose.

- **5.10.5-P33: Limit the height of structures in accordance with the Federal Aviation Administration Federal Aviation Regulations, FAR Part 77 criteria.**

The project height would not exceed the FAR Part 77 surface at the project site of 212 feet AMSL, shown in Figure 6 of the CLUP. However, the project is subject to Title 14, Part 77.9 of the Code of Federal Regulations, Construction or Alteration Requiring Notice. Under Title 14, Part 77.9 of the Code of Federal Regulations, the applicant would need to file FAA Form 7460-1, Notice of Proposed Construction or Alteration, with the FAA. The project's maximum project height of 117.5 would exceed the FAA notification 100:1 surface threshold of 82 feet at the project site. Staff anticipates the FAA would issue a Determination of No Hazard, as discussed in more detail in Section 5.17, Transportation. The City of Santa Clara, as the permitting agency for this project, would ensure consistency with this policy.

*On page **5.11-7**, staff added an associated reference with the changed text above to the list of reference used by staff.*

5.11.3 References

Jacobs 2019a – Jacobs (Jacobs). (TN 227273-1). Application for Small Power Plant Exemption: Laurelwood Data Center, dated March 5, 2019. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-01.

Jacobs 2019f – Jacobs (Jacobs). (TN 228823). LDC Updated SPPE Project Description, dated June 21, 2019. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-01.

Santa Clara 2010 – City of Santa Clara (Santa Clara). 2010–2035 General Plan: Chapter 5 Goals and Policies, Land Use Diagrams Phases I, II, and III. Adopted November 16, 2010. Available online at: http://santaclaraca.gov/government/departments/community-development/planning-division/general-plan. Accessed on: March 29, 2019.

Santa Clara 2019a – City of Santa Clara (Santa Clara). City Code, Chapter 18.46: Regulations for MP- Planned Industrial Zoning Districts. Available online at: https://www.codepublishing.com/CA/SantaClara/#!/SantaClara18/SantaClara1846.html#18.46. Accessed on: April 18, 2019.

Santa Clara 2019b – City of Santa Clara (Santa Clara). City Code, Chapter 18.90: Zoning Administrator. Available online at: https://www.codepublishing.com/CA/SantaClara/#!/SantaClara18/SantaClara1890.html#18.90. Accessed on: April 18, 2019.

Santa Clara County 2016 – Santa Clara County Airport Land Use Commission (Santa Clara County). Mineta San Jose International Airport Comprehensive Land Use Plan for Santa Clara County. Adopted May 25, 2011, amended 11/16/2016. Available online at: https://www.sccgov.org/sites/dpd/DocsForms/Documents/ALUC_SJC_CLUP.pdf. Accessed on: October 7, 2019.

Population and Housing

Staff discovered an error in Table 5.14-1 in Section 5.14, Population and Housing after the release of the IS/Proposed MND. The year 2020 projected population presented in Table 5.14-1 on ***page 5.14-12*** *was in error. Staff has corrected the 2020 population projections as necessary. The following text is from staff's analysis with the corrections included. With the changed 2020 population data, staff's conclusions regarding the impacts of the project would not change.*

TABLE 5.14-1 HISTORICAL AND PROJECTED POPULATIONS

Area	2010[1]	2018[2]	2020[2-3]	2035[2-3]	Projected Population Change 2018-2035		
					Number	Percent (%)	Percent per Year (%)
Campbell	39,349	42,696	**43,715** ~~43,210~~	46,510	3,814	8.2	0.5
Cupertino	58,302	60,091	**63,540** ~~63,490~~	66,590	6,499	9.8	0.6
Milpitas	66,790	74,865	**90,680** ~~90,620~~	97,330	22,465	23.1	1.4
San Jose	945,942	1,051,316	**1,028,630** ~~1,028,450~~	1,283,845	232,529	18.1	1.1
Santa Clara	116,468	129,604	**131,710** ~~131,690~~	151,770	22,166	14.6	0.9
Sunnyvale	140,081	153,389	**149,995** ~~149,980~~	203,855	50,466	24.8	1.5
Santa Clara County	1,781,642	1,956,598	**1,983,860** ~~2,011,436~~	**2,384,600** ~~2,330,649~~	**428,002** ~~374,051~~	**17.95** ~~16.0~~	**1.06** ~~0.9~~

Sources: [1]US Census 2010; [2]CA DOF 2019a. **[3]ABAG 2018**

*The following is the associated reference for the corrected 2020 projection data added to the reference citations on **page 5.14-5**. The following text is from staff's analysis with the corrections included.*

ABAG 2018 – Association of Bay Area Governments (ABAG). Plan Bay Area 2040 Data, juris-level summary, March 15, 2018.

Transportation

Staff received a comment from the City of San Jose Airport Department in response to the IS/Proposed MND (TN 229957) that has triggered several changes to Section 5.17, Transportation. For a summary of the comments and staff responses, see Reponses to Comments Received on the IS/Proposed MND, above. None of the changes to Section 5.17, Transportation, would alter staff's conclusions that the project would not cause significant impacts.

*On **page 5.17-1**, under setting, additional information about the Norman Y. Mineta San Jose International Airport was added as well as Federal Aviation Administration (FAA) regulations under the Regulatory Background discussion. The following text is from staff's analysis with the corrections included.*

5.17.1 Setting

The proposed project would be located in the City of Santa Clara on an approximately 12 acre site at 2201 Laurelwood Road. Direct access to the project site would be from an existing driveway on the corner of Juliette Lane and Laurelwood Road and from an existing driveway on Juliette Lane at the northwest corner of the site. Regional access

would be provided by numerous urban roadways and freeways in the vicinity of the project, including U.S. Highway 101 (US-101) and Montague Expressway. Local roadways include Mission College Boulevard, Juliette Lane, and Laurelwood Road.

Other nearby transportation infrastructure includes bus transit and the Norman Y. Mineta San Jose International Airport. The closest bus stops to the site are located on each side of Mission College Boulevard, near the corner of Juliette Lane approximately 0.3 mile from the project site. The airport is located approximately 1.4 miles southeast of the site **and has two runways that exceed 3,200 feet in length (AirNav 2019). The Santa Clara County Airport Land Use Commission (SCCALUC 2016) plan shows that the project does not fall within an airport safety zone. The project's Federal Aviation Regulations (FAR) Part 77 (obstruction) surface is 212 feet above ground level (AMSL), as identified in Figure 6 of the Comprehensive Land Use Plan for San Jose International Airport (SCCALUC 2016).**

Regulatory Background

Federal

Title 14, Part 77.9 of the Code of Federal Regulations requires Federal Aviation Administration (FAA) notification for any construction or alteration of navigable airspace exceeding 200 feet above ground level (AGL). It also requires notification for construction or alterations within 20,000 feet of an airport with a runway more than 3,200 feet in length if the height of the construction or alteration exceeds a slope of 100 to 1 extending outward and upward from the nearest point of the nearest runway of the airport.

If a project's height exceeds 200 feet or exceeds the 100:1 surface, the project applicant must submit a copy of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The threshold for the FAA notification 100:1 surface exceedance height would be 82 feet for the project site.

Local

The City of Santa Clara's level of service (LOS) standard, a measure of effectiveness for describing traffic flow and level of congestion on roadways, is LOS D or better for intersections during the AM and PM peak traffic periods. City intersections included as part of the Santa Clara County Congestion Management Plan (CMP) are expected to meet an LOS of "E" or better, unless they were already operating at LOS F as of 1991. In that case, LOS F is acceptable (VTA 2017).

*On **page 5.17-4** under impact analysis for CEQA criterion c, staff added an analysis of the project's exceedance of the FAA notification 100:1 surface threshold at the project site of 82 feet. The following text is from staff's analysis with the corrections included.*

Operation and Maintenance

LESS THAN SIGNIFICANT IMPACT. The project is located approximately 1.4 miles ~~southeast~~ **northeast** of the Norman Y. Mineta San Jose International Airport. Tall structures can potentially pose a hazard to occupants of aircraft, depending on the heights of structures and their proximity to air traffic. The highest point of the proposed LDC, the top of the adiabatic condenser cooling system, is approximately 117.5 feet ~~above ground level (~~AGL~~)~~. The ~~Federal Aviation Administration (~~FAA~~)~~ establishes a maximum structure height of 212 feet ~~above mean sea level (~~AMSL~~)~~ at the project site (SCCALUC 2016). Even when accounting for the varying 20 to 23-foot elevation of the project site ~~above mean sea level~~**AMSL**, the LDC, at 117.5 feet AGL, would not exceed the FAA's height limit of 212 AMSL. The project also does not meet the 200-foot threshold for FAA notification and review per Title 14, Part 77, Section 77.9 of the Code of Federal Regulations. The project is located outside all airport safety zones as depicted in the Norman Y. Mineta San Jose International Airport Comprehensive Land Use Plan for Santa Clara County (SCCALUC 2016). **However, the project is would exceed the FAA notification 100:1 surface threshold of 82 feet at the project site. As a result, the project applicant would need to submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. Because the project's tallest structure would be far below the project site's FAR Part 77 (obstruction) surface of 212 feet AMSL, as identified in Figure 6 of the Comprehensive Land Use Plan for San Jose International Airport, staff anticipates the FAA would issue a Determination of No Hazard (SCCALUC 2016).**

*On **page 5.17-6**, staff included the following associated reference. The following text is from staff's analysis with the corrections included.*

5.17.3 References

AirNav 2019 – AirNav. KSJC Norman Y Mineta San Jose International Airport. Available online at: https://www.airnav.com/airport/KSJC. Accessed on October 7, 2019.

CEC Staff Declarations and Resumes

Included on the following pages.

DECLARATION OF
AbdelKarim Abulaban, Ph.D., P.E.

I, AbdelKarim Abulaban, declare as follows:

I am presently employed by the California Energy Commission as an Associate Civil Engineer.

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

I prepared the staff testimony on **Utilities and Service Systems** as well as **Noise** impacts, for the **Laurelwood Data Center Project** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

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: 26 September 2019 Signed: 

At: Sacramento, California

AbdelKarim Abulaban

Education

Ph.D. Civil Engineering, University of Minnesota (*Hydrology and Water Resources)*.
Thesis title: Modeling the transport of sorbing chemicals in heterogeneous porous media.
M.S. Civil Engineering, Yarmouk University, Irbid, Jordan *(Water Resources).*
Thesis Title: Developing Intensity-Duration-Frequency Curves for Irbid Region.
B.S. Civil Engineering, Yarmouk University, Irbid, Jordan *(water resources stream).*
Senior Project: Design of Water Supply and Sewer Systems for the Northwestern Part of Irbid City (*population 100,000)*.

Registration:

Registered Professional Engineer (Civil) in the state of California (Lic. No. 76030)
Registered as a Qualified SWPPP Developer and Practitioner (QSD/QSP), California Stormwater Quality Association (CASQA) - Cert. # 1160.

Experience - Professional

June 2010-Present: ***Associate Civil Engineer*** CA Energy Commission, Sacramento, CA, USA.	❖ Reviewing and evaluating the construction, operation, and maintenance of energy facilities and power plants for water supply, wastewater disposal, waste, water quality, and stormwater to assess the potential impacts to human health and the environment. ❖ Reviewing sensitive project sites that may have issues involoving flooding and stormwater management, discharges to impaired water bodies, depleted groundwater and surface water resources, and wastewater management and disposal methods. ❖ Responding to soils or water resources issues that may arise regarding power plant operations. ❖ Conducting investigations to determine if any violations of the program's regulations, the Energy Commission's conditions of certification, or the CA Environmental Quality Act (CEQA) have occurred. ❖ Analysis of one of the largest solar projects in the world for environmental impacts on soil and water resources. This project is designed to generate 500 megawatts using solar energy to generate steam that runs a turbine to generate electricity. ❖ Analysis of another solar project, also one of the largest projects in the world, that uses photovoltaic (PV) technology and is designed to generate 1000 megawatts. ❖ Currently analyzing a cutting-edge project that proposes to minimize the green house impact of the project by injecting the generated CO2 gas underground for long term sequestration. The CO2 would be injected to depths of 5000 ft. or more below ground surface. This project is the first of its kind in the USA and would set the stage for other projects to store CO2 in geologic formations to reduce green house gas emissions.
Dec. 2006-May 2010: **Water Resources Engineer** CA Dept. Water Resources,	❖ In charge of hydraulic modeling and sediment transport for the San Joaquin River restoration project. ❖ Performed 1- and 2-D hydraulic analysis to support restoration

Fresno, CA, USA.	of the San Joaquin River for the purpose of improving spawning/rearing habitat, enhancing floodplain connectivity, and improving riparian corridor.
Dec. 2001-Dec. 2006: **Retained Hydrologist** J.L. Nieber & Associates, Hydrologic Consultants, Lindstrom, Minnesota, USA.	❖ Performed hydrologic analysis and assessment of environmental impact of comtamination incidents on ground water resources, as well as design of remediation plans. ❖ Contaminants analyzed included hydro-carbons, chlorinated solvents, as well as agrichemicals.
Dec. 90 – Dec. 93: **Retained Hydrologist**. BAUMGARTNER ENVIRONICS, INC, Olivia, Minnesota, USA.	❖ Performed assessment of the environmental impact of contamination incidents on groundwater resources, and design of action plans.

Experience - Teaching

Sep. 2003-Sep. 2005: Assistant Professor, Hashemite University, Zarqa, Jordan.	Taught the following courses: ❖ Water and Wastewater Treatment Mehods (Senior) – 1 semester ❖ Wastewater Engineering (Senior level) – 2 semesters ❖ Statics - 3 semesters ❖ Engineering Drawing - 4 semesters ❖ Visual Communication - 4 semesters
June – August, 96, 97, 98, 2000: Army High Performance Computing Research Center, Minneapolis, Minnesota.	❖ The Summer Institute is a summer course offered to promising upper class students from member institutions. The summer course included a ground water flow and transport group that normally had about 4 students from different backgrounds. ❖ Taught and helped teach the Summer Insitute course in hydrology and transport in porous media. ❖ Was part of the team that trained the students to use a particle tracking solute transport code which I developed. ❖ Also trained the group to use the DoD's Ground Water Modeling System, GMS. ❖ In the summer of 2000 I was fully in charge of the whole group. ❖ More infromation about the projects can be on the Summer Institute web site at: http://www.arc.umn.edu/education/SummerInst/
August, 1997: Short course for practitioners, University of Minnesota, Minneapolis, Minnesota, USA.	❖ Taught a short course on the application of the Department of Defense's Ground Water Modeling System, GMS, offered by the American Society of Agricultural Engineers and attended by about 40 professionals and academicians from around the United States as well as several countries around the world.
Mar. 88 - Dec. 92: Teaching Assistant, Dept. of Civil Engineering, University of Minnesota, Minneapolis, Minnesota.	❖ Teaching assistant for the senior courses of Hydrology and Hydrologic Design, and Water Resources Engineering.

DECLARATION OF
Gerald (Gerry) Bemis

I, Gerald Bemis, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Supervisor I.

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

3. I participated in the preparation, review and approval of the staff testimony on **Air Quality** and **Greenhouse Gas Emissions** Sections for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9-5-2019 Signed: GBemis

At: Sacramento, California

GERALD R. (Gerry) BEMIS, PE
Air Quality & Public Health Supervisor

Experience Summary

Over forty years of experience in the energy field, including electric power plant facility siting, advanced electricity production technologies, regulatory compliance; energy research and development; energy transportation technology and policy and analysis of regulatory issues.

Education

B.S.; Civil Engineering (CSU Sacramento, 1969)
M. Engr; Civil/Environmental Engineering (UC Davis, 1978).

Registered Professional Civil Engineer (California).

Experience (all at California Energy Commission)

2009-present – Air Resources Supervisor in the Siting, Transmission and Environmental Protection Division. Supervises and leads the review and environmental evaluation of power plant and other proposals, identifies issues and resolutions; coordinates with other agencies; and reviews and prepares expert testimony in the areas of:

- Air quality impacts and mitigation;
- Public health impacts;
- Transmission Line Safety and Nuisance.

Coordinates with local air quality districts, the Air Resources Board (ARB) and U.S. Environmental Protection Agency (U.S. EPA).

2001-2009 – Developed and updated the statewide California Greenhouse Gas (GHG) emissions inventory, including training ARB staff to take over responsibility for the GHG inventory as part of Assembly Bill 32 (in 2007). Developed a strategy to enable California's light-duty vehicle sector to do its "fair share" of GHG emissions reductions to meet a 2050 goal of reducing statewide GHGs 80 percent below 1990 levels.

1994-2001 – Managed Fuel Resources Office. This consisted of a staff of 23 professionals who performed various activities related to fuel supply adequacy, including natural gas for power plants and petroleum for transportation.

1991-1994 – Supervised Heavy-Duty Alternative Fuels Program. This group was responsible for the $100 million Safe School Bus Program and provided funding for several clean fuel transportation technology research and grant activities.

1982-1991 – Supervised or performed technical analyses and support for several activities, including the *Energy Technologies Status Report* used to document the commercial availability of advanced power plant technologies which were alternatives to conventional power plants during Energy Commission siting cases.

1977-1982 – Power plant siting air quality reviews and analysis. Evaluated large thermal power plant siting proposals, coordinating with the U.S. EPA, ARB and local air quality districts.

DECLARATION OF
J. Brewster Birdsall

I, James Brewster Birdsall, declare as follows:

1. I am employed by the California Energy Commission as a contractor at Aspen Environmental Group.

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

3. I prepared the staff testimony on **Air Quality** and **Greenhouse Gas Emissions** for the **Laurelwood Data Center Initial Study** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: Sept 30, 2019 Signed: J. Brewster Birdsall

At: San Francisco, California

Brewster Birdsall, PE, QEP

SENIOR ASSOCIATE, AIR QUALITY AND ENGINEERING

EDUCATION

MS, Civil Engineering, Colorado State University, 1993

BS with High Honors, Mechanical Engineering, Lehigh University, 1991

SUMMARY OF QUALIFICATIONS

Mr. Birdsall is an engineer and environmental scientist who specializes in analyses of air quality and greenhouse gas (GHG) emissions with extensive experience in the areas of energy facility siting and infrastructure planning, permitting, analysis, and special studies. He has over 20 years of consulting experience focusing on climate change, air resources, and air quality and noise-impact modeling, and assessment under the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and the Clean Air Act.

PROFESSIONAL EXPERIENCE

REGIONAL RENEWABLE ENERGY RESOURCE PLANNING AND TRANSMISSION STUDIES

Various Clients

2015-2018

Mr. Birdsall actively works with the energy policy issues that affect electric utilities, transmission, and generation. He provides senior-level analyses for landscape-scale energy resource planning, energy supply alternatives, transmission planning, and the impacts on greenhouse gas emissions and air resources. Mr. Birdsall recently served as a coordinator for statewide and region-wide environmental reviews for expanding California's access to renewable energy, and he has reported on long-range energy resource planning as it relates to California's disadvantaged communities.

POSEIDON SEAWATER DESALINATION AT HUNTINGTON BEACH PROJECT

California State Lands Commission

2017

Technical reviewer for topics of air quality, GHG emissions, noise, and underwater sound levels within a supplemental analysis of marine vessels and offshore installation of seawater intake and discharge.

GREENHOUSE GAS EMISSIONS THRESHOLD OF SIGNIFICANCE

Santa Barbara County, Energy Division

2015

Expert review to support the Planning Commission and Board of Supervisors formal adoption of a new significance threshold, guidelines, and potential mitigation strategies for the CEQA treatment of GHG emissions caused by industrial stationary sources in the unincorporated areas of Santa Barbara County.

Aspen environmental group

ATHOS RENEWABLE ENERGY PROJECT

Intersect Power

2018-2019

Prepared air quality, GHG, and noise topics and technical analyses for utility-scale solar power with battery storage on behalf of Riverside County and the BLM.

ANALYSIS OF OIL AND GAS WELL STIMULATION TREATMENTS IN CALIFORNIA EIR

Department of Conservation

2013-2015

Mr. Birdsall prepared the air quality and GHG impact assessments in the EIR evaluating oil and gas well stimulation treatments throughout California, as required by Public Resources Code Section 3161 (b)(3) and (4) (Senate Bill 4 [Pavley]), as signed into law on September 20, 2013. Section 3161 (b)(3) and (4) requires the Division of Oil, Gas and Geothermal Resources (DOGGR) to evaluate the impacts of well stimulation treatments that may occur from either existing or future oil and gas wells, including hydraulic fracturing, acid fracturing and acid matrix stimulation.

OIL AND GAS LEASING AND DEVELOPMENT, DRAFT RESOURCE MANAGEMENT PLAN AMENDMENT AND EIS

Bureau of Land Management

2015-2018

Developed background information on reasonably foreseeable oil and gas development trends in the BLM Central Coast Field Office territory of Monterey County, San Benito County, and Fresno County, and prepared impact analyses for air quality, atmospheric conditions, greenhouse gas emissions, and climate change.

PLAN TO PROVIDE RETAIL ELECTRIC SERVICE

South San Joaquin Irrigation District (SSJID)

2005-2006, 2010-2014

Project manager for full environmental analyses for new provider of electric distribution service. Topics of assessment include how GHG emissions and energy conservation programs could be affected by change in system ownership, assessment of concurrent Municipal Services Review and Sphere of Influence, and analysis of Community Choice Aggregation (CCA) and as an alternative to allowing a change in retail electric service provider in southern San Joaquin County.

DESERT RENEWABLE ENERGY CONSERVATION PLAN EIR/EIS

California Energy Commission

2014-2015

Mr. Birdsall provided senior review and analysis of the climate change and air quality topics, and he prepared responses to comments from the public and reviewing agencies and organizations.

SITING CASES – REVIEW OF APPLICATIONS TO CONSTRUCT POWER PLANTS

California Energy Commission

2001-2018

Mr. Birdsall assists the California Energy Commission (CEC) as a technical specialist by reviewing and providing testimony on Applications for Certification (AFC) for new power plants throughout California, including natural gas-fired combined cycle, peaking, solar, and geothermal facilities. As a contractor for the Engineering Office of the Siting, Transmission, and Environmental Protection Division, he provided precedent-setting testimony for the CEC on the implementation of the California Global Warming Solutions Act of 2006 (AB 32) in the electricity sector. This work addresses the potential effects of new power plants on overall electricity system operation, achieving California's GHG goals, avoiding deterioration of air resources, and offsetting power plant emissions.

- Humboldt Bay Generating Station (2016-2018). Air quality review of changes in diesel fuel firing.
- Redondo Beach Energy Project (2012-2014). Provided air quality and GHG assessment support for a proposed 496 MW replacement power plant using fast-starting combined cycle technology.
- Pio Pico Energy Center (2011-2012). Provided air quality assessment support for proposed 300 MW power plant in San Diego County adjacent to the existing Otay Mesa Generating Project.
- Mariposa Energy Project (2009-2011). Lead technical staff for a 200 MW fast-starting simple cycle power plant capable of integrating renewable resources in eastern Alameda County.
- Oakley Generating Station (2009-2011). Lead technical staff for air quality and greenhouse gas assessment for a 624 MW fast-starting combined cycle power plant in Contra Costa County.
- Marsh Landing Generating Station (2008-2010). Lead technical staff for air quality and greenhouse gas assessment for new 760 MW fast-starting power plant in Contra Costa County.
- Avenal Power Center (2002, 2008-2009). Prepared precedent-setting greenhouse gas impact evaluation and air quality assessment for 600 MW combined cycle power plant in Kings County. Identified the roles played by fossil-fueled and renewable resources together in furthering California's GHG reduction goals.
- Tracy Combined Cycle Power Plant (2008-2010). Lead technical staff for air quality and greenhouse gas assessment for new 314 MW power plant in San Joaquin County.
- Turlock Irrigation District Almond 2 Power Plant (2009-2010). Lead technical staff for air quality and greenhouse gas assessment for new 174 MW simple cycle power plant near Ceres.
- Lodi Energy Center (2008-2010). Lead technical staff for air quality and greenhouse gas assessment for new 255 MW combined cycle power plant in Lodi.
- Vaca Station Power Plant (2008-2009). Lead technical staff for air quality and greenhouse gas assessment for new 660 MW combined cycle power plant near Vacaville, Solano County.
- San Joaquin Solar 1 and 2 (2008-2010). Lead technical staff for air quality and greenhouse gas assessment for two new solar and biomass hybrid power plants in Fresno County.
- Carrizo Energy Solar Farm (2009). Provided air quality and greenhouse gas assessment for proposed 177 MW solar thermal power plant in San Luis Obispo County.
- Bottle Rock Geothermal Power Plant (2006). Prepared air quality assessment to allow the re-firing of this 55 MW renewable energy facility after 15 years of non-operation.
- Eastshore Energy Power Plant (2006-2008). Lead technical staff for air quality assessment for new 116 MW power plant with 14 natural gas–fired engine generators in Hayward, Alameda County.

- Humboldt Bay Repowering Project (2006-2008). Lead technical staff for air quality assessment for new 163 MW power plant with 10 dual-fuel diesel/natural gas–fired engine generators in Eureka.
- Inland Empire Energy Center (2001-2003, 2005-2006). Lead technical staff for air quality assessment for original 670 MW and amendment for 810 MW combined cycle power plant near Romoland in Riverside County. The project is the first use of the General Electric H System in the US.
- Blythe Energy Project Phase II (2002-2006). Lead technical staff for air quality assessment and technical staff for water conservation program including cooling water supply and dry cooling system studies for new 520 MW combined cycle power plant and affiliated 118-mile transmission line in the Mojave Desert and Coachella Valley of Riverside County.
- Tesla Power Plant (2001-2004). Lead technical staff for air quality assessment and analysis of visible plumes and established major emissions offset program for new 1,120 MW combined cycle power plant and 11-mile recycled water pipeline in rural eastern Alameda County near Tracy.
- Palomar Energy (2001-2003). Lead technical staff for air quality assessment and supporting staff for cooling system studies for new 540 MW combined cycle power plant in northern San Diego County.
- Kings River Conservation District Peaking Power Plant (2003-2004). Lead technical staff for air quality assessment of new 97 MW simple cycle power plant in Fresno County.
- Russell City Energy Center (2001-2002). Lead technical staff for noise assessment of new 600 MW combined cycle power plant adjacent to shoreline recreational areas in Hayward.
- Los Esteros Critical Energy Facility (2001-2002). Lead technical staff for impacts of noise and visible plumes from new 180 MW simple cycle power plant adjacent to recreational areas in San Jose.

TECHNICAL STUDIES

California Energy Commission

2002-2018

Mr. Birdsall is also an author or contributor on special studies of energy issues.

- Energy Systems Planning: Siting, Transmission, and Environmental Protection Division (2016-2018). For the Strategic Transmission Planning Office, Mr. Birdsall provided deputy program management, engineering support, and technical assistance for energy facility and infrastructure planning, including technical support for the RETI 2.0 process.
- Transmission Options in Southern California (2013-2015). Prepared an environmental feasibility study for electric transmission options and potential corridor designations from Imperial County and Riverside County to Orange County and San Diego in response to closure of San Onofre Nuclear Generating Station (SONGS). Documented potential overland transmission line corridors and the feasibility of building offshore submarine high voltage direct current (HVDC) cable corridors in the Pacific Ocean to connect the Southern

California Edison (SCE) and San Diego Gas and Electric (SDG&E) electrical transmission systems.

- Biomethane Additionality Study (2012). Developed comparisons of landfill gas, digester gas, and other biogas emission factors in various applications as an alternative to pipeline quality gas.
- California Credit Policies: Lowering the Effective Cost of Capital for Generation Projects (2006). Prepared workshop report exploring policy options for transforming power procurement and credit policies to encourage power plant development in California and manage the risk of project failure.
- WESTCARB Environmental Documentation and PIER Global Climate Change Research (2006). Supporting technical staff for impact assessment of greenhouse gas sequestration test cases.
- Relative Cost Differences Between Anhydrous and Aqueous Ammonia Systems for Power Plants (2004). Supervising editor for cost comparison on air pollution control systems minimizing use of hazardous materials.
- 2003 Environmental Performance Report (2003). Technical and editorial review for environmental performance and natural gas market outlook portions of the first Integrated Energy Policy Report for the Governor and Legislature.
- Upgrading California's Electric Transmission System: Issues and Actions for 2004 and Beyond (2004). Technical author on Alternatives to Transmission chapter and overview of Transmission Planning in California in support of 2004 Integrated Energy Policy Report Update.
- Air Quality Compliance (2003). Analyzed modifications to permit conditions at the Moss Landing Power Plant. Prepared independent analysis of permit requirements and environmental consequences of increasing the capacity of the Midway-Sunset Cogeneration Project.
- Alternative Cooling Technology Studies (2002-2003). Supporting staff for analyses of water conservation through dry cooling and hybrid cooling alternatives for the Cosumnes Power Plant and Palomar Energy Project. Coordinated and edited documentation from design engineers and other specialists.

CEQA DOCUMENTS AND ENERGY STUDIES

California Public Utilities Commission

2002-2016

Mr. Birdsall is also an author or contributor on special studies of energy issues.

- West of Devers Upgrade (2013-2016). Coordinator for transmission planning and engineering alternatives in the environmental review to access desert-area generation. Directed the independent power flow modeling work and structural design review with the goal of identifying feasible alternatives to partially rebuild the corridor, develop the project in longer term phases, or provide a plan of service to replace the project altogether. Assessed noise, air quality, and GHG impacts.
- Embarcadero-Potrero 230 kV Transmission Project (2012-2014). Deputy Project Manager and coordinator of transmission planning

and engineering alternatives in the environmental review of this underground and submarine transmission line in the San Francisco Bay for improving reliability in downtown San Francisco. Conducted the review of health effects, noise, air quality, and GHG.

- Long-Term Procurement Plan Guidelines and Renewable Portfolio Standard Implementation (2008-2011). Developed timelines of permitting and identified barriers to implementing the 33 percent Renewable Portfolio Standard (RPS), including ranking and screening of available energy resources. Surveyed historical transmission build-out timelines, based on experiences of the California Independent System Operator (CAISO), CPUC, and other cooperating agencies. Mapped and scored renewable resources from the Renewable Energy Transmission Initiative (RETI) process and CPUC Energy Division database for environmental concern and permitting risk.
- Sunrise Powerlink 500 kV Transmission Line (2006-2011). Coordinator for transmission planning and engineering alternatives in the environmental review. Assessed GHG results of production cost modeling and analyzed net GHG emissions and climate change effects for multiple renewable and conventional generation and transmission scenarios. Developed mitigating actions and carbon offset strategies that were adopted in advance of AB 32 implementation.
- Colorado River Substation (2011). Analysis of GHG emissions, including indirect effects of renewable energy production and fossil fuel displacement, for the CPUC's Supplemental EIR evaluating new 500 kV substation design and location in eastern Riverside County.
- Desert Sunlight Solar Farm/Red Bluff Substation (2011). Peer review of fugitive dust issues and construction equipment controls for a 550 MW solar power plant near Joshua Tree National Park.
- Devers–Palo Verde 500 kV #2 Transmission Line (2005-2006). Coordinator for transmission planning and engineering alternatives in the environmental review of this major transmission upgrade between the Phoenix area and urban Riverside County to deliver low-cost, out-of-state power.
- San Onofre Nuclear Generating Station and Diablo Canyon Power Plant, Steam Generator Replacement Projects (2004-2005). Deputy Project Manager for two comprehensive Environmental Impact Reports to fulfill CEQA requirements for major investments in the Diablo Canyon and SONGS nuclear power plants, with analyses of potential shutdown, replacement facilities, and extension of life.
- Miguel-Mission 230 kV #2 Transmission Line (2003-2004). Conducted the air quality and noise review for a system that would reduce transmission constraints between San Diego County and generators within the US and Mexico. Supervised the engineers studying impacts to traffic and transportation, the transmission system design, and public health.
- Jefferson-Martin 230 kV Transmission Line (2003-2004). Prepared air quality and noise studies and provided oversight of health effects

analyses for construction and operation of a 27-mile transmission line through urban and rural San Mateo County. The project passes through the Cities of Burlingame, Millbrae, San Bruno, South San Francisco, Brisbane, Colma, and Daly City to serve the projected electric demand in San Francisco.

CONFIDENTIAL PROJECT(S)

Confidential Client(s)

2015-2018

Mr. Birdsall prepares analyses, technical studies, presentations, and reports on the feasibility and the impacts of developing renewable energy, energy storage, transmission and distributed energy resources as driven by California's RPS and GHG goals.

SAN LUIS TRANSMISSION PROJECT EIS/EIR

Western Area Power Administration/San Luis & Delta Mendota Water Authority

2015-2017

Air quality, general conformity, GHG, and noise analyses with Voluntary Emission Reduction Agreement (VERA) for construction and operation of 95 miles of new transmission lines in western San Joaquin Valley, to serve pumping and generating facilities along the California Aqueduct and the Delta-Mendota Canal.

SANTA MARGARITA QUARRY EXPANSION PROJECT EIR

San Luis Obispo County

2014-2015

Reviewed public records and baseline activities in order to prepare an emissions inventory and impact analysis for air quality and greenhouse gas emissions to expand the aggregate products quarry and add reserves.

RENEWABLE ENERGY STREAMLINING PROGRAM AND EIR

San Luis Obispo County

2013

Analysis of electric transmission and distribution systems and interconnection processes for a county-wide Opportunities and Constraints Technical Study to determine Renewable Energy Development Areas for siting of small-scale renewable energy. The analysis would be used for updating or establishing renewable energy policies, a Renewable Energy Combining Designation for the County General Plan Open Space Element, and a Renewable Energy Ordinance in a process funded by the CEC.

BURNING MAN 2012-2016 ENVIRONMENTAL ASSESSMENT

Bureau of Land Management

2011-2012

Developed technical memoranda on community noise, air quality, and a greenhouse gas emissions inventory for the annual Burning Man Event for the five-year review conducted by the BLM Winnemucca Field Office and Black Rock City LLC.

PREVIOUS EMPLOYMENT

EIP Associates (1998-2001). As a Senior Environmental Scientist at EIP Associates, Mr. Birdsall performed comprehensive analyses of air quality and noise impacts for Environmental Impact Reports/Statements and independent studies.

Trinity Consultants (1994-1998). Mr. Birdsall prepared compliance strategies, evaluated modeled impacts, and negotiated air permits while a Project Supervisor at Trinity Consultants, an environmental firm specializing in air quality. Mr. Birdsall advised clients in the industries of municipal solid waste

landfills and landfill gas to energy, independent power production, open-pit metallic mineral mining, major natural gas pipelines, and upstream natural gas processing.

PROFESSIONAL AFFILIATIONS AND AWARDS

- Panelist, Offsets for Environmental Mitigation, Navigating the American Carbon World 2014
- Professional Engineer (Mechanical, California #32565)
- Qualified Environmental Professional, Institute of Professional Environmental Practice (#03030005)
- 2001 Outstanding Performance Award presented by the California Energy Commission
- Air and Waste Management Association since 1994
- Tau Beta Pi, National Engineering Honor Society

NOISE IMPACT ASSESSMENT EXPERTISE

- Federal Highway Administration Traffic Noise Model
- California Department of Transportation Traffic Noise Model (SOUND32)
- FTA Transit Noise Assessment and Mitigation Methodology

AIR QUALITY MODELING EXPERTISE

AERMOD; CAL3QHCR; CALINE4; ISC; CTDM; CalEEMod; EMFAC; TANKS; Landfill Gas Emissions Model

ADDITIONAL TRAINING AND COURSES

- Climate Change, A New Age for Land Use Planning, U.C. Davis Extension
- Fundamentals of Noise and Vibration for the California Energy Commission
- Expert Witness Training, California Energy Commission
- Co-Instructor, Air Permitting Issues for Municipal Solid Waste Landfills, Trinity Consultants
- Fundamentals of New Source Review Workshop, Air and Waste Management Association
- Title V and Compliance Assurance Monitoring Workshops, Air and Waste Management Association
- NATO Advanced Studies Institute, Wind Climates in Cities
- Graduate-level Coursework: Solar Energy Conversion, Wind Engineering, Reciprocating and Centrifugal Engines, Computational Fluid Dynamics, Scalar Transport

DECLARATION OF
Edward Brady

I, Edward Brady, declare as follows:

1. I am employed by the California Energy Commission as a Mechanical Engineer.

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

3. I prepared the staff testimony on **Section 5.6** for the Laurelwood Data Center (LDC) based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/9/19 Signed: Edward Brady

At: Sacramento, California

Edward James Brady
Mechanical Engineer

Summary of Experience

Forty years of experience in the profession of mechanical engineering as a staff engineer to the California Energy Commission, engineering consultant, design group supervisor in a major power plant project, senior engineer for a gas and electric utility, sales and design engineer for a contractor, and instructor in a community college.

Education

- BSME, Santa Clara University, 1972
- Graduate Engineering Studies, Santa Clara University
- Graduate Business Studies, University of San Francisco
- Continuing Education, UC Extension

Professional Registration

- Mechanical Engineer (M17924) California
  (25505) Washington
  (33082) Colorado
  (9248, Inactive) Nevada
- Civil Engineer (C36194) California

Affiliations

- American Society of Mechanical Engineers (ASME), Member
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), Member
- International Code Council (ICC), Member
- International Association of Plumbing and Mechanical Officials (IAPMO), Member
- National Fire Protection Association (NFPA), Member

Curriculum Vitae

2011 – Present	**Staff Mechanical Engineer**, California Energy Commission, Siting, Transmission, and Environmental Protection Division (STEP). Performs analysis of generating capacity, reliability, efficiency, noise and vibration, and the mechanical, civil, electrical, and structural aspects of power plant siting and construction cases.
1988-2011	**Principal Mechanical Engineer,** Brady Engineering. Provided design and consulting services for the permitting and construction of industrial and commercial facilities, and residential buildings in the fields of heating, ventilating air conditioning (HVAC), plumbing, fire protection and energy analyses.
1984-1988	**Design Group Supervisor,** Joint PG&E and Bechtel Project. Worked as the mechanical group supervisor responsible for the design modifications required for the licensing of Diablo Canyon Power Plant, Units 1 and 2.
1980-1988	**Senior Mechanical Engineer,** PG&E Civil Engineering Department, Architectural Section. Provided work group supervision and design of building mechanical systems for common utility plant facilities (CUP) and balance of plant systems for power production facilities.
1977-1980	**Mechanical Engineer,** PG&E Civil Engineering Department, Architectural Section. Provided HVAC and plumbing design for CUP and power production facilities.
1974-1977	**Instructor,** San Francisco Community College District, John O'Connell Evening School. Provided apprenticeship training in the technical fields of HVAC and refrigeration.
1977	**Design Engineer,** Charles and Braun Consulting Engineers, San Francisco. Worked as a staff designer in the fields of HVAC and plumbing for commercials facilities include a sentence detention facilities and a proto-type regional facility for a federal agency.
1972-1976	**Sales and Design Engineer,** Scatena York Company, San Francisco. Worked as a sales and design engineer for a refrigeration contractor, which provided design and installation of refrigeration systems for supermarkets and cold storage facilities.

Power Plant/Utility Experience

California Energy Commission, Rio Mesa Solar Electric Generation Station (RMSEGS). 500 MW Solar Power Tower. Riverside County

, Hidden Hills Solar Electric Generating Station (HHSEGS). 500 MW Solar Power Tower. Inyo County.

, Hydrogen Energy California (HECA). 405 MW Combined Cycle, Fuel Gasification, CO_2 Sequestration, Ammonia Production. Kern County

, Quail Brush Generating Project (QBGP). 1100 MW Reciprocating Engine Electric Generation. City of San Diego

, Huntington Beach Energy Project (HBEP). 939 MW Combined Cycle. City of Huntington Beach.

, Redondo Beach Energy Project (RBEP). 496 MW Combined Cycle. City of Redondo Beach, Los Angeles County.

PG&E , Diablo Canyon Power Plant, Units 1 and 2. Licensing of safety related systems.
, Diablo Canyon Power Plant, Administration Building, SLO County Emergency Response Building

, Geysers Power Plant, Units 16, 17, 20, and 21. Ventilation and cooling for turbine building and hazardous waste disposal facilities, administration building.

, Helms Pumped Storage Facility, Kern County. Smoke control ventilation for underground transformer vaults.

, Humboldt No. 3, Eureka. Decommissioning of nuclear facility and construction of hazardous materials storage and handling.

, Moss Landing Power Plants, Units 1 through 6, Monterey County

, Morro Bay Power Plant, Morro Bay

, Hunters Point Power Plant, San Francisco

, Potrero Power Plant, San Francisco. Combined Cycle

, Gas Transmission Facilities, Line 300 and 400, Topock and Corning Compressor Stations, McDonald Island and Brentwood Gas Storage Facilities

, Central Computer Facilities, San Francisco and Vacaville

, 77 Beale Street, San Francisco. Energy Management System

, 215 Market Street, San Francisco. Boiler Replacement

, Underground Fuel Tank Replacement. Upgrade of more than 500 gallon fuel storage tanks to meet double containment requirements.

, Contra Costa Power Plants, Unit 1 through 6, Water Treatment

, Pittsburg Power Plants, Unit 1-5, Water Treatment Facilities

, Avon, Martinez and Oleum (AVO), Water Treatment Upgrade

, Tiger Creek Powerhouse, North Fork Feather River

, Kirchoff No. 2 Pump Storage Facility.

, Technical Support Services, Marketing Department

South Bay Sanitary Authority, 1400 Radio Road, Redwood Shores. Gas piping and boiler conversion.

DECLARATION OF
Huei-An (Ann) Chu, Ph.D.

I, Huei-An (Ann) Chu, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Engineer.

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

3. I prepared the staff testimony on the Public Health portion of **Air Quality Section** for the **Laurelwood Data Center Project** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/30/2019 Signed: Huei-An Chu

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
Mike Conway

I, Mike Conway, declare as follows:

1. I am employed by the California Energy Commission as an Engineering Geologist.

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

3. I prepared the staff testimony on **Hydrology and Water Quality** and **Wildfire** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: September 4, 2019 Signed: Mike Conway Digitally signed by Mike Conway Date: 2019.09.04 13:45:20 -07'00'

At: Sacramento, California

Resume for Mike Conway

Education: Master of Science in Geology, California State University, Sacramento, August 2012
Bachelor of Science in Geology, University of California, Davis, August 2003

Certifications: California Professional Geologist (PG), no. 9107
California Certified Hydrogeologist (CHG), no. 1024
Certified Professional in Erosion and Sediment Control (CPESC)
Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD) and Practitioner (QSP)
Leadership in Energy and Environmental Design Accredited Professional (LEED AP)

Experience:

Engineering Geologist: California Energy Commission, Sacramento, CA 2009-Present

- Serve as an expert witness in water resources and technical analyses for power plant siting cases
- Prepare expert testimony in subject areas of hydrogeology, soil erosion, surface water flow
- Lead technical reviewer for Yucca Mountain Waste Repository Environmental Impact Statement
- Prepare expert analyses of state law, ordinances, regulations, and standards applicable to water use
- Perform onsite evaluations of soil and water resource impacts pre- and post-project
- Construct hydraulic and hydrogeologic models (MODFLOW, GIS, WMS) to evaluate resource impacts

Environmental Scientist: Central Valley Water Board, Rancho Cordova, CA 2009

- Wrote municipal storm water permits for Phase I communities in the Central Valley
- Reviewed storm water annual reports for Phase I and II municipalities
- Conducted audits of industrial sites for compliance with storm water permits
- Conducted audits of municipalities for compliance with municipal permits
- Represented Water Board in large technical workshops and other public forums

Environmental Consultant: Wood Rodgers, Inc., Sacramento, CA 2006-2009

- Consulted clients on how to comply with Federal, State and local storm water quality regulations
- Helped public and private sector clients gain State Water Resources Control Board (SWRCB) permit coverage under Large and Small MS4 General Permits, NPDES Permits, CWA Section 401 Permits
- Consulted clients on Army Corps of Engineers, 404 Permitting
- Developed a storm water quality manual for Yolo County
- Prepared Caltrans environmental documentation and design for all project phases
- Drafted water pollution control exhibits using both AutoCAD and MicroStation
- Prepared Caltrans Storm Water Data Reports including cost estimates
- Designed landscaping plans for Caltrans' Modesto Ramp Rehabilitation Project
- Prepared Spill Prevention Control and Countermeasure (SPCC) plans

Storm Water Quality Consultant: Envirosafety Services, Elk Grove, CA 2004-2006

- Wrote site specific SWPPPs to include guidance specific to city, county, and geographical constraints
- Designed exhibits using AutoCAD
- Conducted inspectioas at construction sites throughout the Central Valley for (SWPPP) compliance
- Resolved storm water compliance issues in cooperation with site superintendents and inspectors

Post-Graduate Researcher: Dept. of Land, Air, and Water Resources, U.C. Davis, CA 2003

- Studied the affect of irrigation practices on wetland ecology and water quality
- Independently organized monthly analyses and data processing of selenium contaminated invertebrate, algae, and water samples from the Tulare Lake Drainage District
- Managed concentrated acids, carcinogenic solutions, and final fluorescence measurements
- Compiled research data and presented findings to a team of eight colleagues

DECLARATION OF
Brett Fooks

I, Brett Fooks, declare as follows:

1. I am employed by the California Energy Commission as a Mechanical Engineer.

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

3. I prepared the staff testimony on **Hazards and Hazardous Materials** for the **LAURELWOOD** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/4/19 Signed: Brett Fooks

At: Sacramento, California

-BRETT FOOKS, P.E.

MECHANICAL ENGINEER

PROFESSIONAL EXPERIENCE

California Energy Commission - STEP **Sacramento, CA** **2/2014 - Present**

The Commission ensures that energy facilities (power plants) are permitted in an acceptable manner. The STEP division prepares environmental documentation for the Commission as required by the California Environmental Quality Act (CEQA).

MECHANICAL ENGINEER

Provide independent engineering analysis for various technical areas with an emphasis on hazardous materials management, worker safety, & fire protection.

- Review, analyze and prepare engineering analysis for hazardous materials management, fire protection, and worker safety for gas-fired power plants.
- Provide written and oral expert witness testimony at commission hearings.
- Conduct power plant inspections during construction and operational phases.
- Investigate accident, fire, and hazardous materials incidents at licensed power plants.

Capital Engineering Consultants, Inc. **Rancho Cordova, CA** **6/2004 – 2/2014**

A leader in mechanical engineering design in Northern California since 1947 specializing in areas including K-12 Education, Higher Education, Civic and Justice, and Healthcare.

SENIOR ENGINEER, ASSOCIATE

Manage the design, project specification, calculations and cost estimations for new and renovated construction projects. Oversee and supervise the daily workload, mentoring, and quality control for an assigned junior engineer.

- Plan and monitor the workload of projects, while preparing and taking responsibility for the concept of and preliminary engineering solutions for the detailed design phase.
- Implement the detailed design engineering of HVAC systems; code review, heating and cooling load calculations, air-flow requirements, ductwork sizing and layout, piping sizing and layout, equipment selection, and system controls with an emphasis on healthcare facilities.
- Prepare and deliver calculations for Title 24 building compliance.
- Prepare and deliver calculations and documents for project LEED certification.

Select Accomplishments

- Assisted in the implementation and teaching of new 3-D modeling software, CAD-MECH, to team members for the Sutter Health Eden Medical Center.
- Worked with co-workers to create and implement standards for plumbing calculations firm wide leading to an increased efficiency.

EDUCATION

STATE OF CALIFORNIA ~ LICENSED PROFESSIONAL ENGINEER
UC DAVIS EXTENSION – WORKPLACE HEALTH & SAFETY CERTIFICATE (2016)

BACHELOR OF SCIENCE ~ MECHANICAL ENGINEERING (2004)
California Polytechnic State University, San Luis Obispo

Computer Literacy: Proficient in the use of various software applications including Microsoft Office (Word, Excel, PowerPoint, Outlook) AutoCAD 2012/2013, Revit 2013/2014, Visio, NavisWorks, and ProjectWise.

DECLARATION OF
Mark R. Hamblin

I, Mark R. Hamblin declare as follows:

I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection (STEP) Division, Environmental Protection Office as a Planner II.

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

I prepared the staff testimony on Visual Resources, for the Laurelwood Data Center based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

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: September 12, 2019 Signed: Mark R. Hamblin

At: Sacramento, California

CALIFORNIA ENERGY COMMISSION

MARK R. HAMBLIN
PLANNER II

Education

Master of Public Administration. California State University Bakersfield. Bakersfield, California. August 1988.

Bachelor of Science Public Administration. California State University Sacramento. Sacramento, California. May 1984.

Experience

California Energy Commission
Planner II November 2000 to present
I identify, describe, and analyze complex land use and planning or visual resource issues pertaining to the siting of a thermal power plant and transmission facilities using applicable federal, state, and local laws, ordinances, regulations and standards (including the California Environmental Quality Act [CEQA] and Guidelines), and the California Energy Commission siting regulations in a written analysis and/or testimony; participate in public workshops, and present sworn testimony during evidentiary hearing(s) before Commissioners, if requested.

Yolo County Planning and Public Works Department,
Associate Planner June 1992 to October 2000
I advised and assisted individuals in the processing of land use and planning proposals (general plan amendments, conditional use permits, subdivision maps, etc.). I reviewed the proposal for consistency and compliance with state environmental, planning and zoning law (e.g., CEQA Guidelines, state Subdivision Map Act, state Williamson Act Program, etc.), the county General Plan and the county government code for presentation in a staff report before the planning commission and/or board of supervisors. I served as a county representative/liaison to citizens' organizations and interagency committees (county airport advisory committee, county habitat conservation plan steering committee, and community general plan citizen advisory committee[s]). I drafted zoning ordinances. I hired and supervised consultants. I performed contract management in the preparation of land use and environmental assessment documents (e.g., general plan amendment, environmental impact report). I served as a zoning administrator deciding on minor land use proposals. I conducted zone code enforcement with cooperation from the district attorney's office. I reviewed building plans for compliance with county codes and issuance of the permit. I answered questions from individuals who visited the public counter and over the telephone regarding land use and development in the county.

1516 Ninth Street, MS 40◆Sacramento, CA 95814 ◆ (916) xxx-xxxx ◆ mark.hamblin@energy.ca.gov

DECLARATION OF
Mark Hesters

I, Mark Hesters, declare as follows:

1. I am employed by the California Energy Commission as a Senior Mechanical Engineer in the Energy Assessments Division.

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

3. I oversaw the preparation of the staff testimony on **Energy and Energy Resources and Project Description** for the **Laurelwood Data Center Initial Study** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: October 7, 2019 Signed: Mark Hesters

At: Sacramento, California

Mark Hesters

916-654-5049
mark.hesters@energy.state.ca.us

Qualifications

- Analyzed the reliability impacts of electric power plants for nine years.
- As an expert witness, produced written and oral testimony in numerous California Energy Commission proceedings on power plant licensing.
- Expertise in power flow models (GE PSLF and PowerWorld), production cost models (GE MAPS), Microsoft word-processing, spreadsheet and database programs.
- Contributing author to many California Energy Commission reports.
- Represented the Energy Commission in the development of electric reliability and planning standards for California.

Experience

Senior Electrical Engineer

2005-Present California Energy Commission, Sacramento, CA

- Program manager of the transmission system engineering analysis for new generator Applications of Certification.
- Lead the development of transmission data collection regulations.
- Overhauled the transmission data adequacy regulations for the Energy Commission's power plant certification process.
- Participated in the analysis of regional transmission projects.
- Technical lead for Commission in regional planning groups.
- Energy Commission representative to the Western Electric Coordinating Council Operations Committee.

Associate Electrical Engineer

1998–2005 California Energy Commission, Sacramento, CA

- Lead transmission systems analyst for power plant licensing under 12-month, 6-month and 21-day licensing processes.
- Provided expert witness testimony on the potential transmission impacts of new power plants in California Energy Commission licensing hearings.
- Authored chapters for California Energy Commission staff reports on regional transmission issues.
- Studied the economics of transmission projects using electricity production simulation tools.
- Analyzed transmission systems using the GE PSLF and PowerWorld load flow models.
- Collected and evaluated transmission data for California and the Western United States

Electric Generation Systems Specialist

1990–1998 California Energy Commission, Sacramento, CA

- Lead generation planner for southern California utilities.
- Analyzed electric generation systems using complex simulation tools.
- Provided analysis on the impact of resource plans on air quality and electricity costs for California Energy Commission reports.
- Developed modeling characteristics for emerging technologies.
- Evaluated resource plans.

Education

1985–1989 University of California at Davis Davis, CA

- B.S., Environmental Policy Analysis and Planning

DECLARATION OF
Jon R. Hilliard, AICP

I, Jon R. Hilliard, declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Office of the Siting, Transmission and Environmental Protection Division as an Energy Resource Specialist - Supervisor.

2. I prepared sections of staff's Initial Study on the Laurelwood Data Center addressing Biological Resources.

3. It is my professional opinion that the prepared sections are valid and accurate with respect to the issue(s) addressed therein.

4. 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: 9/11/19

At: Sacramento, California

Signed: 

Jon R. Hilliard

CALIFORNIA ENERGY COMMISSION

JON R. HILLIARD
Energy Commission Specialist III
(Supervisory)

Education, Certification & Associations

- Bachelor of Arts, Urban and Regional Planning, Texas State University (1987)
- Post-graduate courses in Project Management, Planning and Environmental Law, Resilience and Sustainability, Real Estate Development - UC Davis
- Completion of Project Management Body of Knowledge (PMBOK) Course – GW University
- American Institute of Certified Planners (AICP) Certification (since 2008)

Select Projects

CA Energy Commission (CEC) - from 2013 to Present

Puente Power Project - Oxnard, Ventura County, CA. Served as Project Manager (2015) and Biological Resources Supervisor for the siting process for a proposed 262 MW gas fired, simple-cycle replacement facility for an existing generation facility that must alter operations due to a state policy requiring phase-out of once-through ocean water cooling. Managed all facets of the CEC siting process for the project, later transitioning to Biological Resources director upon change in position, assuming responsibility for coordination and presentation of expert testimony before the public and commission committee conducting the project review.

Carlsbad Energy Center Project - San Diego County, CA. Served as a project manager for the review and environmental entitlements for a 600 MW rebuild of a gas fired, simple-cycle power plant on 37 acres of land in Carlsbad, California. Responsibilities included coordinating preparation of the Preliminary and Final Staff Assessment (equivalent to DEIR, FEIR), and representing the state's interest in the administrative hearings for the project.

Palen Solar Holdings, LLC – Riverside County, CA. Served as Cultural Resources team manager for the review and approval of applicant geoarchaeological studies, and in-house preparation of an ethnography evaluation, for a planned 500 MW solar energy facility on 3800 acres. Project entailed a landscape approach to cultural resources review, as required by DOI Order 3330 (10-31-2013).

Genesis Solar Electric Project – Riverside County, CA. Served as project lead for a multi-disciplined crew of archaeologists and ethnographers implementing a programmatic mitigation agreement between the State Cal SHPO, US DOI BLM and stakeholder Native American Tribes to address resources encountered during construction and compliance phase of a new solar generation facility on 1800 acres, including the goal of obtaining state and federal historic designation for an adjacent resource district (Ford Dry Lake).

CEC Rules of Practice and Procedure Update (Title 20, CCR, (Ch. 6 Environmental Protection) Sections 1970-2308). Lead the preparation of major revisions to the CEQA Cultural Resources and NHPA compliance components of the Commission facility siting review and approval statues and procedures.

Leidos (formerly SAIC) - from 2010 to 2013

State of California Emergency Functions Development - Cal Emergency Management Agency (OES). As Project Manager, oversaw the work and administration of a state-wide effort by a technical team of Subject Matter Experts (SME's) assisting in the development of eighteen discrete Emergency Functions annexes to be incorporated in a 2013 update to the State of California Emergency

Management Plan. Responsibilities included internal direction of staff resources, client representation, meeting facilitation, public and stakeholder outreach and project QA-QC and controls.

Butte Regional HCP/NCCP – Butte County Association of Governments. As Senior Planner, coordinated preparation of a Wetlands and Aquatics Resources program that will be used for Section 404 Clean Water Act (CWA) compliance and Section 1602 CA Fish and Game Code (FGC) compliance as part of a regional habitat conservation plan covering approximately 620,000 acres of lowland Butte County and including portions of the Feather River. The project required coordination among nine governmental agencies including BCAG, Butte County, the cities of Chico, Oroville, Gridley and Biggs, the USA Army Corp of Engineers, the US Fish and Wildlife Service and the California Department of Fish and Game. Responsibilities also included assisting in project administration and general support of documents addressing grasslands, wetlands (including vernal pools), oak woodlands, riverine and riparian habitats, and agricultural lands.

Yolo County Natural Heritage Program Plan – Yolo JPA. As Senior Planner, prepared programmatic strategy for CWA Section 404 compliance (Regional Permit) and assisted in project management and Quality Assurance/ Quality Control of documents for a habitat conservation plan of Yolo County, addressing a variety of natural communities including uplands, riparian, and agricultural lands and over 36 special statues species.

Bay Delta Conservation Plan (BDCP) – California Natural Resources Agency. As Senior Planner, provided technical support and management for a joint HCP/NCCP for the Sacramento-San Joaquin Delta to provide Federal and California Endangered Species Act compliance for water deliveries from Federal and State water projects supplying over 25 million people and 2.5 million acres of farmland. Responsibilities included assisting in project management and controls, pursuant to the requirements of the contract procurer, the State Department of Water Resources.

Marine Corp School of Infantry – USMC Base Camp Pendleton, San Diego County, CA. As Senior Planner and Environmental Analyst, prepared documentation for the Environmental Assessment and Description of Alternatives for a series of upgrades to the School of Infantry/ RECON Company Base Recon Course and Instruction Facilities. Project analyzed the potential impacts of a new classroom building and ancillary training fields on adjacent riparian habitats and endangered species (southwestern arroyo toad, *bufo californicus*) known to occur in the area.

Jacobs Engineering – from 2006 to 2009

San Luis National Wildlife Refuge, West Bear Creek Unit Access Improvements – US Fish and Wildlife Service. As environmental entitlements manager, prepared and coordinated the technical studies to assist the US Fish and Wildlife Service in obtaining encroachment permits and CEQA approvals from the California Department of Transportation (Caltrans) for access improvements from a State Highway into San Luis National Wildlife Refuge in Merced County, CA. His efforts moved the project forward after seven years of delay due to agency miscommunication.

North County Corridor (State Route 120) Route Adoption Program – Stanislaus Council of Governments. As Environmental Coordinator, prepared the Community Impact Assessment of potential physical, socioeconomic and public policy impacts associated with a 2,000 foot-wide corridor for the planned interregional route between Salida and Oakdale in Stanislaus County, CA. He coordinated with impacted cities to avoid sensitive areas and explore ways to adjust the corridor alignment to benefit strategic locations.

Solano County Expansion and Marsh Development Permit - Universal Propulsion Company. As Project Manager, directed the land use entitlements and environmental permitting for a major expansion to an existing industrial propulsion and testing operation in the unincorporated area of Solano County. Services provided include updating the client's five-year construction and improvement program, a drainage and erosion control analysis, preparation of environmental documents for compliance with

C.E.Q.A. (Mitigated Negative Declaration), and coordination of permitting between the county and the state San Francisco Bay Conservation and Development Commission.

Jackson Highway and Grant Line East Visioning Programs – Sacramento County. As Project Manager, led the efforts of a multi-disciplined team to complete the land use, environmental, economic development and policy plans for a large 30,000 acre study area in conjunction with the county's comprehensive General Plan update. The Visioning Program included targets for community development and building efficiency based on LEED standards, to align with State SB 375 policies that promote the integration of land use, housing and transportation decision-making to reduce vehicle miles travelled and resultant greenhouse gas emissions. The Visioning Program policies were incorporated in Phase 1 of the county's Climate Action Plan that received a US Environmental Protection Agency award of a $500,000 Climate Showcase Communities Grant to reduce the county's carbon emissions.

New Neighborhood Markets Planning, Entitlements and Environmental-CEQA, **Multiple Locations in Northern California.** As Project Manager, directed the land use permitting and entitlements for numerous grocery store locations planned as part of the entry of a multi-national fresh grocery retailer into the western United States. Services provided include advance site feasibility analysis, research of local permitting and impact fee requirements, and representing the project and client interests before local agencies.

Rinker/ Cemex Land Use Planning and Entitlements, Fairfield, California. As Project Manager, oversaw the preliminary land planning for a seventeen acre industrial property, positioned for redevelopment with a multifamily residential project. Services included a land yield assessment, preliminary environmental site reconnaissance, site planning and assisting the project proponent in selecting project building prototypes that would meet the project objectives and receive support from the local community.

Township 9, Sacramento, CA. As Senior Planner, prepared form-based Design Guidelines and PUD Plan elements for a mixed-use, urban in-fill development located on the south bank of the American River in the River District of Sacramento, California. Project responsibilities included coordinating with local planning and redevelopment agency staff to assure the land use and circulation plan met the city's vision for a vibrant mixed-use neighborhood developed to a human scale in accordance with principles of the New Urbanism, which will serve as a catalyst for a newly-emerging transit hub.

GSJ, Inc. - from 2005 to 2006

Morgan Place, Placer County, CA. As Project Director, directed the land use planning, entitlements and CEQA compliance for a planned 90-unit residential subdivision on a 10 acre infill development site, and worked with the surrounding neighborhood to address concerns with visual encroachment and aesthetic quality of project design to secure project approval.

Bakersfield Northeast Master Plan , Bakersfield, CA. As Project Manager, managed the land use and environmental entitlements for a 190 acre mixed-density residential development located in a sensitive hillside context. He negotiated amendments to the city's General Plan and Circulation Plan for a land exchange that furthered the city's master trails plan goals and allowed the project to move forward.

Fresno SW Residential Development, Fresno, CA. Directed the complete forward planning and land use approvals for a proposed 365 unit residential subdivision in the southwest Fresno growth area, from performance of site due diligence, engineering design and environmental study procurement, educating the local City Council of the project benefits, and guiding the public process to a successful project approval.

City of Fairfield – from 1989 to 2005

Solano County I-80 Reliever Route/Jepson Parkway, Fairfield, Solano County, California. Environmental Management and Impact Assessment. As senior planner, managed the consultant procurement and technical support for preparation of a combined mitigated negative declaration/FONSI for the local three-mile section of an inter-regional roadway improvements in Solano County designed to divert county through-traffic from the Interstate 80 and Interstate 680 confluence. Responsibilities included initiating agency contact and coordination, complete quality control of environmental studies, and assessment of the initial Area of Potential Effect (APE), to allow completion of environmental documents required to secure $2.5 M in project funding from the Metropolitan Transportation Commission (MTC).

Kinder-Morgan Fuels Pipeline, Fairfield, California. As Senior Planner for Fairfield was responsible for reviewing and coordinating the local components of an EIR prepared by the CA State Lands Commission (the Lead Agency) for a new regional fuels pipeline extending from Concord to Sacramento. Project responsibilities included coordinating review and comments on the EIR between affected City departments, preparing and presenting suggested mitigation measures to the State Lands Commission, and conducting the local review and outreach process mandated by CEQA. As the City's representative, was able to resolve potential conflicts between the proposed pipeline and local stakeholders including the City, County, and an independent sewer district.

Fairfield Corporate Commons, Fairfield, CA. As Senior Planner and Project Lead for the City of Fairfield, managed the land use and environmental permitting for a planned mixed use project containing 600,000 square feet of office and 450 residential units on 75 acres. Project responsibilities included managing the EIR, Development Agreement, land entitlements, outside agency permitting (Sec 404 and Sec 1602 Streambed Alteration Agreement) and public outreach.

Fairfield Employment Center/ Green Valley Corporate Park, Fairfield California. As Project Lead, prepared the environmental studies and land entitlement documents required as part of the transfer of a 220 acre business park between the Redevelopment Agency and a private developer. Project responsibilities included drafting a public-private Development Agreement guaranteeing approvals for up 2 million square feet of office development on the property.

Gold Ridge Planned Community, Fairfield, CA. As Project Lead for the City, collaborated with the City leadership and project proponent in devising an acceptable land planning approach for a 600 acre new growth area encumbered with significant environmental and political constraints. Managed the full breadth of environmental and land planning entitlements for the 1200 unit master planned, mixed- density community ultimately approved for the site, and assisted the City Attorney in compiling and presenting the project review record that was used to successfully prevail in legal challenges to the project approvals.

Solano County Government Center, Fairfield, CA. As Senior Planner, served as the City of Fairfield's liaison in the planning, environmental review and design procurement of the $120 million Solano County Government Center. Responsibilities throughout this four-year project included participation in design charrettes for the initial land planning and building form studies, commenting and review on the project Environmental Impact Report, sitting on the interview and selection committee for the project architectural and engineering consultants, and coordination of the project construction of a City-owned plaza within the site improvements. The project included extensive community involvement and public contact at each stage off review, approval and development, including regular presentations at City Council and Board of Supervisors workshops.

DECLARATION OF
Steven Kerr

I, Steven Kerr, declare as follows:

1. I am employed by the California Energy Commission as an Energy Resources Specialist III - Supervisor.

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

3. I supervised the preparation of staff testimony on **Aesthetics**, **Agriculture and Forestry Resources**, **Environmental Justice**, **Land Use and Planning**, **Mandatory Findings of Significance**, **Population and Housing**, **Public Services, Recreation**, **Transportation**, and **Visual Resources** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/26/2019 Signed: Steven A. Kerr

At: Sacramento, California

CALIFORNIA ENERGY COMMISSION

Steven Kerr
Energy Resources Specialist III

Education

California State Polytechnic University, San Luis Obispo, CA
Degree: Bachelor of Science in City and Regional Planning, 2005

Experience

California Energy Commission — Sacramento, CA
Community Resources and CEQA Unit — *Energy Resources Specialist III-Supervisor*
2012-Present

- Supervise the project management of Siting, Transmission, and Environmental Protection Division staff environmental analyses.
- Supervise the preparation of alternatives, environmental justice, land use, mandatory findings of significance, socioeconomics, transportation, and visual resources staff technical analyses.
- Review thermal power plant applications and amendments for environmental impacts.
- Evaluate projects in accordance with CEQA, the California Energy Commission siting regulations, and federal, state and local laws, ordinances, regulations, standards.
- Participate in public workshops and provide testimony at hearings regarding project proposals.
- Write environmental analysis documents.

TPK Inc. — Sacramento, CA
2011-2012 — *Property Manager/Associate Consultant*

- Management of properties and assets throughout California and Oregon.
- Assist in the preparation of mobile home park closure impact report for Port of San Luis.
- Use various software applications to produce and review billing and financial records.
- Work with local agencies to coordinate infrastructure improvements.

City of Sacramento — Sacramento, CA
Development Services Department — *Assistant Planner*
2007-2009

- Project manager for various residential, commercial, industrial, and office development projects.
- Assist customers with zoning, design review, preservation, environmental, subdivision code, and sign questions, both at the public counter and by phone/email.
- Provide customers with required entitlement information, fee estimates, and accept applications for proposed development projects.
- Review applications and plans for consistency with city codes, general plan, and applicable community plans, specific plans, and planned unit development guidelines.
- Present projects at community meetings and work with neighborhood association leaders on controversial projects.
- Write staff reports and conditions of approval.
- Present projects at Zoning Administrator, Planning Commission, and City Council public hearings.
- Research development and entitlement histories of parcels.

City of Atascadero — Atascadero, CA
Community Development Department — *Planning Intern*
2005-2006

- Prepare environmental review documents.
- Review business licenses and building permits.
- Draft letters and staff reports.
- Respond to questions from the public on planning and zoning related issues.
- Access and update information in GIS and Excel.

DECLARATION OF
Shahab Khoshmashrab, PE

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 oversaw the preparation of the staff testimonies in the Generation System Facility Design and Geo Sciences units of the Engineering Office for the **Laurelwood Data Center Initial Study** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: October 7, 2019 Signed: 

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
Eric Knight

I, Eric Knight, declare as follows:

1. I am employed by the California Energy Commission as an Energy Resources Specialist III (Managerial).

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

3. I oversaw the preparation of the staff testimonies on **aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, land use and planning, population and housing, public services, recreation, transportation, mandatory findings of significance, and environmental justice** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

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

5. I am personally familiar with the facts and conclusions in the testimonies 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: 10/1/19 Signed: _____

At: Sacramento, California

Eric Knight

Energy Resources Specialist III (Managerial)

Professional Experience

Twenty years of experience in permitting of energy facilities and preparing environmental documentation in compliance with the California Environmental Quality Act (CEQA).

Environmental Office Manager (Energy Resources Specialist III (Managerial))
Siting, Transmission, and Environmental Protection Division (STEP), California Energy Commission (CEC)
August 2009-present

Responsible for planning, organizing and directing the activities of the staff of the Environmental Office. Office staff are primarily responsible for managing the staff's review of energy facility applications and preparing environmental impact analyses in the areas of land use, transportation, aesthetics/visual resources, socioeconomics (recreation, population/housing, public services), alternatives, biological resources, and tribal/cultural resources as required by CEQA, for thermal electric generating facilities (50 MWs and greater) and related facilities (including electric transmission lines and natural gas and water supply pipelines); identifying feasible measures to mitigate significant impacts; and providing expert witness testimony at evidentiary hearings. Responsible for quality control of all Office work products, including ensuring staff's analyses are complete, accurate, and defensible, and ensuring regulatory procedures are met. Advise the STEP Division Deputy Director, CEC Executive Director, and Commissioners on a broad range of issues related to energy facility siting and the Office's responsibilities. Represent the Office/STEP Division in meetings, workshops, and hearings with energy facility applicants, project owners, intervenors, federal, state, and local agency representatives, Native American tribes, interest groups, Commissioners, and the public. Review and analyze proposed legislation related to the division's programs.

Siting & Dockets Office Manager (Office Manager I)
Siting, Transmission, and Environmental Protection Division, CEC
June 2008-August 2009

Was responsible for planning, organizing and directing the activities of the staff of the Siting & Dockets Office, which included project managers and project assistants assigned to power plant licensing cases and the staff responsible for maintaining the CEC's regulatory and non-regulatory official records (Dockets). The Siting Office was responsible for coordinating the environmental and engineering assessments of proposed energy facilities conducted by the STEP Division technical offices (Environmental, Engineering, and Transmission). Advised the Deputy Director, Executive Director, and Commissioners on a broad range of issues related to energy facility siting and the Office's responsibilities. Represented the Office/Division in meetings, workshops, and hearings with energy facility

applicants, intervenors, federal, state, and local agency representatives, interest groups, and the public.

Siting Program Manager (Planner III)
Energy Facilities Siting Division, Siting & Compliance Office, CEC
February 2008-June 2008

Was responsible for managing the Energy Facilities Siting Program and supervising and directing the work of project managers overseeing division staff's review and analysis of power plant siting cases. Represented the division in meetings, workshops, and hearings with project applicants, intervenors, federal, state, and local agency representatives, interest groups, and the public. Advised the Siting & Compliance Office Manager and Deputy Director on technical, procedural, and legislative issues.

Community Resources Unit Supervisor (Planner III)
Energy Facilities Siting Division, Environmental Office, CEC
January 2007-February 2008

Was responsible for supervising and directing the work of technical staff in the Community Resources Unit and consultants performing environmental impact assessments of power plants and related facilities as required by CEQA and the Warren-Alquist Act. The unit was responsible for preparing environmental impact assessments in the areas of land use/agricultural resources, traffic and transportation, visual resources, and socioeconomics; identifying feasible measures to mitigate significant impacts and ensure compliance with applicable laws, ordinances, regulations and standards; and presenting expert witness testimony at evidentiary hearings. Was responsible for quality control of products originating from the unit, including ensuring staff's analyses were complete, accurate and defensible, and completed on schedule. As Unit Senior, was responsible for completing the most complex analyses and addressing the most difficult technical issues related to the unit's responsibilities. Advised the Environmental Office Manager and Deputy Director on technical, procedural, and legislative issues.

Energy Commission Specialist II
Special Projects Office, Fuels & Transportation Division, CEC
July 2006-January 2007

Provided recommendations on complex, sensitive, and technical problems related to energy infrastructure assessments, particularly liquefied natural gas (LNG) projects. Was responsible for leading the Special Projects Office's LNG assessment activities. Was responsible for briefings for management, Commissioners (Natural Gas Committee), and the LNG Interagency Working Group on LNG assessment activities and projects. Was responsible for preparing reports, correspondence, and presentations related to LNG proposals. Represented the Energy Commission at the "LNG: When East Meets West - The Unfolding of the LNG Trade in the Pacific" conference.

Project Manager (Planner II)
Energy Facility Siting Division, Siting Office, CEC
November 2004-July 2006

Was responsible for managing division staff's review and analysis of applications for certification to construct and operate thermal electric power plants and related facilities. Was responsible for briefings for the Executive Director, Deputy Director, office managers, supervisors, and technical staff on the schedule, strategy, progress, and issues throughout the siting case. Provided direction to project team members and was responsible for ensuring quality control on all published staff products, including the staff's assessment covering 22 environmental and engineering technical disciplines. Was responsible for organizing, scheduling, and conducting public workshops and preparing correspondence.

Environmental Planner (Planner I/II)
Energy Facility Siting Division, Environmental Office, CEC
October 1998-November 2004

Was primarily responsible for preparing independent analyses of the visual, land use, and transportation impacts of power plant projects and related facilities. Evaluated project compliance with applicable laws, ordinances, regulations and standards, and identified feasible measures to mitigate significant adverse impacts as required by CEQA. Other duties included preparing data requests, conducting field visits, participating in public workshops, preparing written testimony, presenting expert witness testimony at hearings before the Commissioners, and monitoring compliance with conditions of certification in the Final Commission Decision.

Assistant Project Manager (Energy Analyst)
Energy Facility Siting Division, Siting & Permit Assistance Unit, CEC
June 1995-October 1998

Worked with project manager to promote local government use of an urban planning tool emphasizing energy efficiency. Authored a chapter to the National Wind Coordinating Committee's handbook *Permitting of Wind Energy Facilities*. Assisted in the preparation of several Energy Commission publications, including the *Energy Aware Planning Guide II: Energy Facilities* and *The Energy Yardstick: Using PLACE^{3}S to Create More Sustainable Communities*.

Program Technician
Department of Toxic Substances Control, Cal/EPA
June 1994-June 1995 (Student Assistant, March 1993-January 1994)

Provided regulatory assistance to hazardous waste generators, transporters and storage facility operators. Compiled an instructions manual for telephone hotline staff to refer to

while assisting hazardous waste handlers and the general public. Issued identification numbers to hazardous waste generators. Entered facility information into the department's database of hazardous waste handlers.

Student Intern
Sacramento Valley Toxics Campaign
January 1992-June 1992

Filed public record requests with state and federal agencies. Conducted research and authored an article for the campaign newsletter. Helped to organize community meetings, press conferences and public outreach events.

Education
Bachelor of Arts – Environmental Studies, California State University, Sacramento, 1993
Minor – Government, CSUS, 1993

Professional Education (Partial List)
Introduction to Legislature and Bill Analysis, CEC Office of Governmental Affairs, 2019
Advanced CEQA Workshop, Association of Environmental Professionals, 2016
Expert Witness and CEQA Training, CEC Chief Counsel's Office, 2014 and 2011
EIR/EIS Preparation and Review, UC Davis Extension, October 2009
Defensible CEQA Documents, Lorman Education Services, August 2007
Airports and Land Use Compatibility Planning, UC Davis Extension, April 2007
Managing LNG Risks, ioMosaic Corporation, November 2006
Applied Project Management, DTS Training Center, May 2006
CEQA Workshop, Association of Environmental Professionals, Feb. 2004 and 1999
CEQA Overview and Update, UC Davis Extension, June 1998
Land Use Planning for Environmental Professionals, UC Davis Extension, May 1996
Introduction to ArcView and Avenue (GIS), ESRI, August 1995 and May 1998

DECLARATION OF
Andrea Koch

I, Andrea Koch, declare as follows:

1. I am employed by the California Energy Commission as an Environmental Planner II.

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

3. I prepared the staff testimony on **Land Use** for the **LAURELWOOD DATA CENTER** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/6/19 Signed: Andrea Koch

At: Sacramento, California

CALIFORNIA ENERGY COMMISSION

ANDREA KOCH
PLANNER II – ENERGY FACILITY SITING

Education, Certification & Associations

- Bachelor of Science Degree, Wildlife, Fish and Conservation Biology, University of California, Davis (2002)
- Master of City and Regional Planning, Cal Poly San Luis Obispo (2004)

Experience

California Energy Commission (CEC) – from 12/2009 to Present

Planner II – Traffic and Transportation

Review power plant applications for: traffic and transportation and land use impacts; and compliance with applicable laws, ordinances, regulations, and standards. Coordinate with other staff and agencies to conduct environmental reviews. Write environmental analysis documents. Perform compliance oversight of power plants during construction and operation. Assist junior colleagues with environmental review.

City of Sacramento – from 6/2007 to 7/2009

Assistant Planner – Long-Range Planning

Performed long-range planning for the City of Sacramento. Coordinated review of the Draft 2030 General Plan, a comprehensive citywide land use plan. Prepared Ben Ali and Hagginwood neighborhood plans. Worked with City staff and community members to identify strategies for resolving neighborhood issues, such as infrastructure deficiencies. Reviewed 70 development applications, analyzing their consistency with City policy and providing written feedback to applicants.

County of Santa Cruz – from 6/2005 to 6/2007

Resource Planner II – Current Planning

Reviewed development permit applications to ensure their consistency with regulations for creeks, wetlands, grading, geologic hazards, erosion control, and sensitive plant and animal species. Wrote staff reports analyzing development proposals and providing recommendations to the Environmental Planning Division Manager. Performed an average of 5 weekly pre-construction meetings and final inspections at project sites to ensure that development was consistent with County regulations and required mitigations. Regularly assisted the public with resource planning questions, both in-person and over the phone.

County of Monterey – from 11/2004 to 6/2005

Assistant Planner – Current Planning

1516 Ninth Street, MS 40 ◆ Sacramento, CA 95814 ◆ (916) 654-3850 ◆ andrea.koch@energy.ca.gov

Reviewed development permit applications for consistency with County regulations. Prepared and presented staff reports for development applications. Reports provided recommendations to the Zoning Administrator. Assisted the public with zoning questions, both in-person and over the phone.

DECLARATION OF
Matthew S. Layton

I, Matthew S Layton, declare as follows:

1. I am employed by the California Energy Commission as a Supervising 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 oversaw the preparation of the staff testimonies as the Engineering Office Manager for the **Laurelwood Data Center Initial Study** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: Sept 30, 2019 Signed: 

At: Sacramento, California

MATTHEW S. LAYTON
1516 Ninth Street, MS-40 Sacramento, CA 95814
(916) 654-3868 matthew.layton@energy.ca.gov

Experience Summary

Thirty eight years of experience in the electric power generation field, including regulatory compliance and modification; research and development; licensing of nuclear, coal-fired, peaking and combined cycle power plants; and engineering and policy analysis of regulatory issues.

Education

B.S., Applied Mechanics, University of California, San Diego.

Registered Professional Engineer - Mechanical, California.

Experience

2009-present – Supervising Mechanical Engineer, Engineering Office, Siting, Transmission and Environmental Protection Division, California Energy Commission; managing a multidiscipline program providing engineering and public health assessments of complex energy systems.

1987-2009 – Senior Mechanical Engineer, STEP Division, Energy Commission. Review and evaluate power plant proposals, identify issues and resolutions; coordinate with other agencies; and prepare testimony, in the areas of:

- Air quality resources and potential impacts, and mitigation measures;
- Public Heath;
- Soil and Water Resources; and
- Transmission Line Safety and Nuisance.

Prepared Energy Commission demonstration project process; contributed to the Energy Technology Status, Energy Development, and Electricity Reports; Project Manager for demonstration projects; evaluated demonstration test plans, procedures, data and reports; disseminated test results; and managed research and development contracts.

1983-1986 – Control Systems Engineer, Bechtel Power Corporation. Part of a multi-disciplined effort to environmentally qualify client's safety related nuclear plant equipment - performed analyses, calculations and reviews against vendor test reports, NRC guidelines and plant normal and postulated accident conditions.

1981-1983 – Engineer, GA Technologies, Inc. Supervised design and procurement of full-scale test assembly used to evaluate design changes to operating reactor graphite core assembly. Conducted experiment to determine the relationship of graphite oxidation rate to water concentration, temperature, and helium pressure. Environmentally qualified essential and safety related nuclear power plant equipment to comply with NRC guidelines.

DECLARATION OF
Ellen LeFevre

I, Ellen LeFevre, declare as follows:

1. I am employed by the California Energy Commission as a Planner II.

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

3. I prepared the staff testimony on **Transportation** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/12/19 Signed: Ellen LeFevre

At: Sacramento, California

Ellen LeFevre

(916) 651-2907

Ellen.lefevre@energy.ca.gov

Professional Experience:

Planner II

California Energy Commission, State of California

- Prepare socioeconomic, environmental justice, land use, and transportation assessments for proposed Applications of Certifications, Small Power Plant Exemptions, and transmission projects.
- Evaluate the licensee's compliance with conditions of certification for power plant facilities.
- Prepare written testimony for multiple energy projects

Planner I

California Energy Commission, State of California

- Evaluate and analyze environmental and socioeconomic effects of proposed energy facilities to ensure the requirements of the Warren-Alquist Act and California Environmental Quality Act are satisfied.
- Prepare socioeconomic, environmental justice, and land use assessments for proposed and existing energy facility sites.
- Evaluate the licensee's compliance with conditions of certification for power plant facilities.
- Prepare written testimony for multiple energy projects

Education:

Sacramento State

Degree: Bachelor of Science in Geology with minor in Anthropology

American River College

Degree: Associate in Science in Mathematics with emphasis in General Science

DECLARATION OF
Geoffrey C. Lesh

I, Geoffrey C. Lesh, 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 oversaw the preparation of the staff testimony on Hazards and Hazardous Materials for the **Laurelwood Data Center Initial Study** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: October 7, 2019 Signed: 

At: Sacramento, California

Geoffrey Lesh, PE

WORK HISTORY

California Energy Commission Senior Mechanical Engineer 2002 - Current

- Analyze siting permit applications for gas-fired and solar-thermal power plants in the technical areas of hazardous materials management, fire safety, security, and worker safety plans
- Provide written and oral expert witness testimony at commission hearings on power plant fire protection plans, risk assessments, and adequacy of local fire departments
- Recommend mitigations as needed
- Inspect power plants during construction and operational phases
- Investigate accident, fire, and hazardous materials incidents at power plants

Self-Employed Independent Investor 2000 - 2002

- Wrote market analysis computer software

Read-Rite Corp Wafer Engineering Manager 1994 - 2000

- Designed and developed wafer manufacturing processes for computer data storage systems. Managed team of engineers and technicians responsible for developing wet and dry chemical processes for manufacturing, including process and safety documentation
- Managed process and equipment selection for manufacturing processes
- Processes included vacuum processed metals and ceramics, grinding-polishing, plating, etching, encapsulation, process troubleshooting, and SPC reporting

Dastek Corp (Komag Joint Venture Start-up) Wafer Engineering Manager 1992 - 1994

- Developed wafer processes for new-technology recording head for hard disk drives
- Managed team of engineers and technicians
- This position included start-up of wafer fab, including line layout, purchase, installation, and startup of new process equipment, etc.

Komag, Inc Alloy Development Manager 1989 - 1992

- Developed new vacuum-deposited recording alloys
- Responsible for planning and carrying-out tests, designing experiments, analyzing results, managing test lab conducting materials characterizations
- Extensive process modeling, experiment design and data analysis

Verbatim Corp (Kodak) Process Development Manager 1983 – 1989

- Mechanical/materials engineering for computer disk manufacturing, including product, process, and equipment including metal-ceramic-plastic processes for optical disk development
- Production processes included metal plating, metal evaporation, reactive sputtering, laser-based photolithography, injection molding
- Steering Committee Member, Center for Magnetic Recording Research, UC San Diego
- Steering Committee Member, Institute for Information Storage Technology, Santa Clara University

IBM Corp Mechanical/Process Engineer 1977 - 1983

- Product development for photocopiers, semiconductors, and computer data tape-storage systems

EDUCATION

Stanford University, Master of Science Degree	Materials Science and Engineering
UC-Berkeley, Bachelor of Science Degree (Double Major)	Mechanical Engineering, Materials Science and Engineering
University of Santa Clara, Graduate Certificate	Magnetic Recording Engineering

PROFESSIONAL LICENSES and CERTIFICATIONS

Registered Professional Engineer, California (PE)	Mechanical #M32576 Fire Protection #FP1827 Metallurgical #MT1940
Certified Safety Professional (CSP)	Board of Certified Safety Professionals
Certified Fire Protection Specialist (CFPS)	Certified Fire Protection Specialist Board of NFPA
Certified Fire and Explosion Investigator (CFEI)	Board of National Association of Fire Investigators

OSHA 40-hr HAZWOPER Hazardous Materials Incident Training

PROFESSIONAL ASSOCIATIONS

American Society of Safety Engineers – Professional Member
Society of Fire Protection Engineers – Professional Member
National Fire Protection Association – Member
National Association of Fire Investigators – Member

PUBLICATIONS

All-Solid Lithium Electrodes with Mixed-Conductor Matrix, J. Electrocchem. Soc. 128, 725 (1981).
Proc. Symp. on Lithium Batteries, H.V. Venkatasetty, Ed., Electrochem Soc (1981), p. 467.

PATENTS

Method of Preparing Thermo-Magneto-Optic Recording Elements, US Patent# 4,892,634, (assigned to Eastman Kodak Co.)

DECLARATION OF
Garry Maurath, Ph.D., P.G.

I, Garry Maurath, declare as follows:

1. I am employed by the California Energy Commission as Engineering Geologist.

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

3. I prepared the staff testimony on Section 5.7 Geology and Soils, and Section 5.12 Mineral Resources for the Laurelwood Data Center project based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 4 September 2019 Signed:

Recoverable Signature

X 

Garry Maurath, Ph.D., P.G.
Engineering Geologist (P,G. # 8346)
Signed by: Garry Maurath

At: Sacramento, California

Garry Maurath, Ph.D., P.G., CHG
Engineering Geologist

Experience Summary

Dr. Maurath has 40+ years of experience in the design, management, and execution of geologic, hydrogeologic, geotechnical, geophysical, geothermal, and environmental investigations. Dr. Maurath has conducted numerous licensing studies and performed feasibility studies, site assessments, and construction support for power plants, hazardous waste facilities, dams, canals, tunnels, levees, high-temperature geothermal projects, strategic fuel depots, solid waste landfills, hazardous, toxic and radioactive waste (HTRW) facilities, and both permanent and tactical military infrastructure. He has been responsible for examining and evaluating present and potential geology, paleontology, hydrogeology, and environmental conditions for the planning, design, construction, maintenance, and/or clean-up of numerous facilities. This work has been performed in urban, rural, and remote settings.

His work has included CERCLA and RCRA site remedial investigations and feasibility studies, surface geologic mapping in volcanic, metamorphic, and sedimentary terrain, surface geophysical surveys, borehole siting, drilling, logging, aquifer evaluation and testing, subsurface mine evaluations, mine sampling, construction dewatering, and mercury soil surveys. Dr. Maurath has been responsible for the execution of hazardous waste, low-level, and high-level radioactive waste projects within local, state and federal regulatory guidelines in US EPA regions III, V and IX. He has been involved in the preparation of NEPA and CEQA documentation, EISs, EIRs, NDs, MNDs, NPDES permits, and numerous license applications for the Federal Energy Regulatory Commission and the California Energy Commission.

Dr. Maurath has been a senior scientist and managed projects for small, medium, and large size companies; local, state, and federal government agencies; and non-profit organizations. He has worked with or for SMUD, PG&E, Calpine, LADWP, MWD, DWR, California Geological Survey, U.S. Army Corps of Engineers, and several DOE facilities/national laboratories, including Los Alamos, SANDIA, INEL, Savannah River, Maxey Flats, and Hanford. His career has given him the opportunity to work in more than 26 states and 21 countries throughout the world.

Selected Project Experience [technical position/project name/location/lead agency or owner]

- Engineering Geologist, North of the Delta Off-stream Storage (NODOS) Project [Sites], US Bureau of Reclamation
- Engineering Geologist, North Umpqua River Project, Roseburg, Oregon
- Engineering Geologist, Piñon Pine Power Project, Sierra Pacific Power Company
- Engineering Geologist, Protected Fuel Depots Feasibility Study, Kuala Lumpur, Malaysia, Malaysian Ministry of Defense
- Engineering Geologist, Sanitary Landfill Siting Investigation, Fort Drum, New York, US Army Corps of Engineers
- Engineering Geologist, Sharp Army Depot Building S-4 Geohazard Assessment, US Army Corps of Engineers
- Engineering Geologist, Site Characterization of Superconducting Super-Collider (SSC) Sites, New York, NY UDC.
- Engineering Geologist, Union Valley Penstock Bifurcation Study, Upper American River, CA, SMUD
- Engineering Geologist, Upper Gorge Bypass Power Plant, Los Angeles Department of Water and Power
- Environmental Geologist, Gardena Sumps, Gardena, California, Atlantic Richfield
- Environmental Geologist, Low-level Radioactive Waste Disposal Site, Moorehead, KY, Maxey Flats Steering Committee.
- Environmental Geologist, Regulatory Compliance and Emergency Reporting Requirements, EG&G
- Field Coordinator, Feather River West Levee Rehabilitation Project, Sutter Butte Flood Control Agency and CA DWR
- Geochemist, Office of Nuclear Waste Isolation Licensing Project Manager, Columbus, OH, Battelle Memorial Institute
- Geologist – Geology and Soils, Supplemental CEQA Document - Slab Creek, SMUD.
- Geologist, Alternative Energy Feasibility Study, Ohiopyle State Park, Pennsylvania, PA Department of Natural Resources
- Geologist, Assessment of Geothermal and Precious Metal Prospects, Western United States, AMAX Exploration
- Geologist, Clearlake Hot Dry Rock Demonstration Project, Clearlake, CA, California Energy Commission
- Geologist, Hydropower Relicensing EIS's, California, Federal Energy Regulatory Commission
- Geologist, Paleoliquefaction Studies along the Eastern Seaboard of the United States, Nuclear Regulatory Commission
- Geologist, Public Hearings on the North Carolina Low-Level Waste Siting
- Geologist, Rocky Point Pumped Storage Project, Taylor Park, Colorado, Natural Energy Resource Company
- Geologist, Statewide Liquid Geothermal Resource Evaluation, California, California Energy Commission
- Geologist/Paleontologist, Alamitos Energy Center, Huntington Beach, California, California Energy Commission
- Geologist/Paleontologist, Blyth Solar Power Project, Blyth, California, California Energy Commission
- Geologist/Paleontologist, Carlsbad Energy Center Project, Carlsbad, California, California Energy Commission
- Geologist/Paleontologist, El Segundo Power Project, El Segundo, California, California Energy Commission
- Geologist/Paleontologist, Gateway Generating Station, Antioch, California, California Energy Commission
- Geologist/Paleontologist, Geysers (Lakeview; NCPA #2), Calistoga, California, California Energy Commission
- Geologist/Paleontologist, Humboldt Bay Project, Humboldt, California, California Energy Commission
- Geologist/Paleontologist, Huntington Beach Energy Center, Huntington Beach, California, California Energy Commission
- Geologist/Paleontologist, Mission Rock Energy Center, Santa Paula, California, California Energy Commission
- Geologist/Paleontologist, Oakley Power Project, Oakley, California, California Energy Commission
- Geologist/Paleontologist, Pomona Repower Project, Pomona, California, California Energy Commission
- Geologist/Paleontologist, Pio Pico Energy Project, California, California Energy Commission
- Geologist/Paleontologist, Puente Power Project, Oxnard, California, California Energy Commission

- Geologist/Paleontologist, Ravenswood-Cooley Landing Reconductoring, Menlo Park and East Palo Alto, CPUC
- Geologist/Paleontologist, Stanton Energy Reliability Center, Stanton, California, California Energy Commission
- Hydrogeologist, Arco 5550 – City of Pomona Well-29, California, BP/Atlantic Richfield
- Hydrogeologist, ARCO Alegria/Gaviota Marine Terminal, Gaviota, California, BP/Atlantic Richfield
- Hydrogeologist, Assessment of 14 U.S. EPA Superfund Sites, CA, NJ, VA, OH, PA, and NY, US EPA
- Hydrogeologist, Auburn Tunnel Pumping Project, Auburn, California, City of Auburn
- Hydrogeologist, Defense Fuel Supply Point Ozol, Benicia, California, U.S. Army Corps of Engineers
- Hydrogeologist, Delta Habitat Conservation and Conveyance Project (DHCCP), CA DWR
- Hydrogeologist, Destruction of Wells N-11, N-18, & N-19, Sacramento, CA, Sacramento Suburban Water District
- Hydrogeologist, Diamond Valley Reservoir, Hemet, CA, Metropolitan Water District of Southern California
- Hydrogeologist, Geff Alternative Site Aquifer Characterization, Chicago, IL, State of Illinois
- Hydrogeologist, Groundwater Modeling of Alternative Low-level Waste Vault Designs, Savannah River, Westinghouse
- Hydrogeologist, Groundwater Monitoring in the Globe Mining District, Globe Arizona, Gila River Indian Community
- Hydrogeologist, Hydrogeologic Assessment of Potential Hazardous Waste Sites, San Francisco Bay Area, CA, PG&E
- Hydrogeologist, Kern Water Bank Evaluation Project, Kern Water Bank
- Hydrogeologist, Lake Skinner Groundwater Seepage Adjudication, Metropolitan Water District of Southern California
- Hydrogeologist, Los Baños Grandes Groundwater Resource Evaluation, Los Baños, California, CA DWR
- Hydrogeologist, Municipal Water Supply Well Siting, Design, & Construction, Alleghany County Water District
- Hydrogeologist, Mt. Hope Pumped Storage Project, Mt. Hope, New Jersey, Federal Energy Regulatory Commission
- Hydrogeologist, Platte River EIS, Wyoming and Nebraska, Federal Energy Regulatory
- Hydrogeologist, Sacramento Ethanol and Power Cogeneration Project, Sacramento, CA, ARK Energy
- Hydrogeologist, Sutter Power Plant AFC with the California Energy Commission, Sutter County, Calpine
- Hydrogeologist, Upper Rio Grande Flood Control Sys. Replacement, TX, Int. Boundary & Water Com.- US & Mexico
- Hydrogeologist, Vinvale Terminal, Southgate, California, BP/ARCO
- Hydrogeologist, Well 23 Assessment, Sacramento, CA, Sacramento Suburban Water District
- Hydrogeologist, Well 6 Destruction and Re-design, Sacramento, CA, Sacramento Suburban Water District
- Hydrogeologist, Well15 Rehabilitation, Rio Linda, CA, Rio Linda Elverta Community Water District, Rio Linda
- Independent Technical Reviewer, Calaveras Dam Replacement Project
- Independent Technical Reviewer, Diablo Canyon Nuclear Power Plant, Diablo Canyon, California, CEC
- Independent Technical Reviewer, Panama Canal Pacific Access Channel Project #4, Panama Canal Authority.
- Independent Technical Reviewer, Searchlight Wind Energy Project EIS, Bureau of Land Management
- Program QA/QC Manager, Urban and Non-Urban Evaluation Program (ULE/NULE), Sacramento, California, CA DWR
- Project Manager, Castaic Power Plant FERC Relicensing, Los Angeles Department of Water and Power (LADWP
- Project Manager, Dos Pueblos Pipeline Removal Project, Goleta, California, BP/Atlantic Richfield
- Project Manager, Hanford, Technical Baseline Studies, Hanford, Washington, Westinghouse Hanford Company
- Project Manager, Los Angeles Terminal, Los Angeles, California, Conoco-Phillips
- Soils Analyst, Soil Trafficability Surveys, Federal Republic of Germany, U.S. Army Corps of Engineers
- Subject Mater Expert - California Geology, CA Board of Professional Engineers, Land Surveyors, and Geologists
- Subject Mater Expert - Hydrogeology, CA Board of Professional Engineers, Land Surveyors, and Geologists
- Task Order Manager, Non-Urban Levee Evaluation Project (NULE), Sacramento Delta, California, CA DWR

Education

- PhD/Geology/1989/Kent State University, OH
- MS/Geology/1980/Kent State University, OH
- BS/Geology/1974/Lehigh University, PA

Registration

- 2008/Certified Hydrogeologist/CA/#906
- 1992/Professional Geologist/CA/#8346
- 1985/HAZWOPER/OHSA
- 1991/HAZWOPER Supervisor Certification/OHSA

Professional Societies/Affiliates

- Sigma Xi, Scientific Research Society, Life Member
- Association of Environmental and Engineering Geologists (former Finance Committee co-chair and member of the Board of Directors)
- Groundwater Resources Association of California

Publications

Dr. Maurath has more than 40 publications covering topics including paleoliquefaction, terrestrial heat flow, numerical modeling, hydrogeology, nuclear waste, hazardous waste, and geothermal energy. He is co-editor of *Geology of Sacramento*, scheduled to be published in November 2019.

Academia

Dr. Maurath has taught undergraduate courses in Physical Geology, Hydrogeology, Environmental Habitats, and Laboratory Safety; and graduate level courses in Geology of the Bahamian Platform, Carbonate Deposition, Reef Ecology, Data Management, and ICP Laboratory Techniques for Trace Element Geochemistry. Dr. Maurath has been affiliated with Kent State University, University of California at Davis, California State University Sacramento, Monmouth College, and the University of St. Francis.

DECLARATION OF
Melissa Mourkas

I, Melissa Mourkas, declare as follows:

1. I am employed by the California Energy Commission as a Planner II, Cultural Resources.

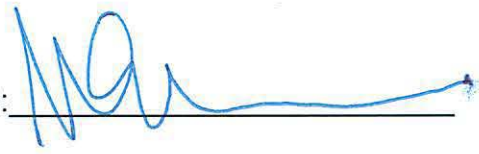
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony for the built environment in **Section 5.5** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: September 6, 2019 Signed: 

At: Sacramento, California

MELISSA MOURKAS

EDUCATION

MASTER OF ARTS, LANDSCAPE DESIGN & PLANNING, 1994
CONWAY SCHOOL OF LANDSCAPE DESIGN, CONWAY, MASSACHUSETTS

Graduate landscape design program providing professional training in site design and land-use planning. Curriculum emphasis is on sustainable landscape planning and design. Graduate projects included: Master Plan for a 45-acre historic resort, original landscape designed by F.L. Olmsted and Performance Standards for a proposed industrial park.

BACHELOR OF ARTS, HISTORY OF ARCHITECTURE & ART, 1981
SCRIPPS COLLEGE, CLAREMONT, CALIFORNIA

Major studies in Art and Architectural History, Urban Development. Senior thesis: documentation and analysis of the innovative residential designs and construction techniques of California modern architect Rudolf M. Schindler. Minor studies in Art and the Humanities.

PROFESSIONAL EXPERIENCE/QUALIFICATIONS

- Licensed Landscape Architect, California # 5139
- Qualified Architectural Historian, Secretary of the Interior's Standards for Historic Preservation, Code of Federal Regulations, 36 CFR Part 61.

PLANNING AND HISTORIC PRESERVATION:

April 2010 to Present: Planner II, California Energy Commission, Siting, Transmission and Environmental Protection Division. Provide technical environmental analysis of proposed energy facilities and development. Review of EIR/EIS documents prepared by other agencies under NEPA. Specific tasks include: the assessment of potential impacts of new electric power plants on both Visual and Cultural Resources; identification of suitable mitigation measures under CEQA; preparation of written testimony; participation in public workshops; presentation of sworn testimony during evidentiary hearings, and project monitoring to ensure compliance with local, state and federal environmental laws and regulations. Cultural Resources specialty in the built environment, architectural and landscape history. Section 106 review of federally-funded energy efficiency upgrades under Programmatic Agreement with California OHP.

2008-2014: Member, City of Sacramento Preservation Commission (Chair 2013-2014)

2005 to 2008: Assistant Planner, Historic Preservation Office, City of Sacramento, CA
Responsible for design review and approval for private and public development projects involving rehabilitation, preservation and restoration of historic resources and districts under CEQA. Prepared staff reports for Preservation Commission and Council, and coordinated with other planning staff on concurrent entitlements. Staff liaison on municipal development projects involving historic resources.

LANDSCAPE ARCHITECTURE:

1994 to Present: Landscape Architecture and Design. Experience in landscape architecture, landscape construction estimating, site planning, historic landscapes and landscape master plans. Provide landscape architecture and consulting services to private clients, public organizations, contractors, and design firms. Preparation of Cultural Landscape Reports. Frequent speaker to various groups on landscape design, construction and cultural landscapes.

DECLARATION OF
Laiping Ng

I, Laiping Ng, declare as follows:

1. I am employed by the California Energy Commission as an Associate Electrical Engineer.

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

3. I prepared the staff testimony on **Energy and Energy Resources and Project Description** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/5/2019 Signed: Laiping Ng

At: Sacramento, California

Laiping Ng
Associate Electrical Engineer

Education:

Master of Science: Electrical Engineering - Power
California State University, Sacramento

Bachelor of Science: Electrical Engineering - Power
California State University, Sacramento

Power Certificate – EPRI

Experience:

April 1999 – Present:

- Review and evaluate electrical transmission system sections of the application to ensure that the transmission engineering aspects of the power plant, switchyards, substations, and the related facilities comply with applicable laws, ordinances, regulations, and standards (LORS).

- Prepare written analysis, which address the issues of the adequacy of proposed projects to meet applicable LORS.

- Perform load flow studies and fault analysis.

- Coordinate with CAISO, WSCC and other regulatory agencies and coordinate with utilities companies in the review and evaluation of the power plant siting process.

May 1991 – April 1999:

- Prepared engineering bid specifications for recommended lighting and HVAC projects. Evaluated contractor bids and recommended contractors to customers. Reviewed RFPs and RFQs. Evaluated, selected, and managed engineering consultants. Administrated and coordinated contracts.

- Designed electrical systems for indoor and outdoor lighting and lighting controls. Assisted in design cooling systems and controls for school buildings and office buildings. Reviewed and checked electrical lighting designs and drawings. Analyzed designs and made recommendations for effective actions.

- Performed facility energy audits and field surveys on schools, offices, hospitals and county jail facilities to identify energy efficiency improvements and cost estimate with respect to lighting and HVAC systems. Inspected lighting and HVAC system equipment installation.

- Worked in a Nonresidential Energy Efficiency Standards development team. Prepared and updated Standards concentrating on interior building illumination and indoor and outdoor flood lighting.

DECLARATION OF
Scott Polaske

I, Scott Polaske, declare as follows:

1. I am employed by the California Energy Commission as a Planner II.

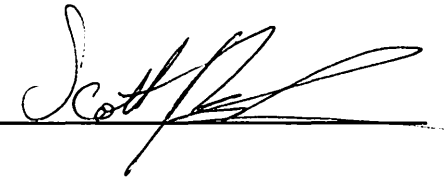
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Mandatory Finding of Significance** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 10/3/19 Signed: 

At: Sacramento, California

CALIFORNIA ENERGY COMMISSION

SCOTT POLASKE
PLANNER II

Education, Certification & Associations

- Bachelor of Arts, Environmental Studies, University of California at Santa Barbara (2014)

Experience

California Energy Commission (CEC) – from 5/2015 to present

Planner II

As community resources staff with the Energy Commission, Mr. Polaske analyzes the transportation, land use and visual components of energy facilities siting applications to assess resource impacts, develop mitigation, and to evaluate compliance with applicable federal, state, and local, laws, ordinances, regulations, and standards. Mr. Polaske also takes lead on cumulative impact analyses, requiring coordination with local planning juristictions as well as with Energy Commission staff to ensure the best available information on cumulative projects is include in staff analyses.

Projects

- Puente Power Project – assisted in cumulative and alternatives analysis
- Alamitos Energy Center – assisted in cumulative and alternatives analysis
- Chemehuevi Community Center Solar Grant Proposal – assisted in grant review
- Pomona Repower Project SPPE – land use analysis
- Mission Rock Energy Center – transportation analysis
- Stanton Energy Reliability Center – visual resources analysis
- McLaren Backup Generating Facility SPPE – cumulative analysis
- Hesperia Farm Solar Photovoltaic Project Initial Study – grant review
- Fly Monterey Solar Program Initial Study – grant review
- Del Mar EIR for Civic Center Energy Efficiency Enhancements – grant review
- Operational Power Plant Amendments – amendement impact review

DECLARATION OF
WENJUN QIAN

I, Wenjun Qian, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Engineer.

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

3. I prepared sections of the staff testimony on **Air Quality**, **Greenhouse Gases**, and modeling of **Nitrogen Deposition Impacts** for the **LAURELWOOD DATA CENTER** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/16/2019 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, 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

DECLARATION OF
Jacquelyn Leyva Record

I, Jacquelyn Leyva Record, declare as follows:

1. I am employed by the California Energy Commission as Air Resources Engineer.

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

3. I prepared the staff testimony on **Environmental Justice for Air Quality and Thermal Plumes** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 10/7/19 Signed: Jacquelyn Leyva Record

At: Sacramento, California

Jacquelyn Leyva Record

916.654.3846
jrecord@energy.ca.gov

Education

California State University, Irvine, 2003-2008
Irvine, Ca
***Bachelor of Science, Chemical Engineering**, June 2008*

Experience

California Energy Commission, March 2009-Present
Sacramento, Ca

Air Resources Engineer
Technical regulatory expert responsible for completing engineering and environmental analysis on thermal (utility scale 50MW or greater) power plant project siting applications seeking a California Energy Commission license amendment or project modification to an existing license. In addition to determining ongoing operational compliance for facilities operating under existing Energy Commission licenses. Specific responsibilities include the following:

- Identifying, assessing and analyzing greenhouse gas impacts of power generation development, emission and fuel use data analysis, to assess the local reliability areas around the power plants. Assisted in determining the role of aging power plants for the Energy Commission Integrated Energy Policy Report.
- Identifying, assessing and analyzing air quality impacts, along with thermal plume impacts, of stationary sources through the use of complex dispersion modeling and measures to mitigate these impacts following California Environmental Quality Act (CEQA) and regulations of U.S. Environmental Protection Agency, California Air Resources Board, and local air pollution control districts.
- Independently perform responsible, varied analysis assessing environmental impacts of energy resource use and large electric power generation projects in California.
- Managing ongoing engineering and environmental compliance for operational power plant facilities and recommending enforcement actions for violations.
- Presenting complex technical staff reports and planning/policy recommendations at evidentiary hearings, business meetings, committee meetings, publicly-noticed workshops, and meetings with project developers.
- Testifying as an expert witness at committee held evidentiary hearings.

Preparation of Staff Assessments for the following Applications for Certification (AFCs) and project amendments of the following: Puente Power Project, Ivanpah Solar Electric Generating System, Rice Solar Energy Project, Blythe Solar Power Project, Palen Solar Power Project, Los Esteros Critical Energy Facility, Mariposa Energy Project, Roseville Energy Park, Metcalf Energy Center, Donald Von Raesfeld (Formerly Pico Power), Delta Energy Facility, Los Medonos (Pittsburg) Energy, Colusa Generating Station, Colusa Generating Station, Campbell Cogeneration Project and Sutter Energy Center.

Environmental Remediation Resources Group (ERRG), August 2008-2009
Sacramento, Ca

Engineering Assistant

- Assisted with both technical and field duties for a variety of environmental investigations.
- Assisted on an environmental site assessment, preliminary assessments (PA), site inspections, and remedial investigations feasibility studies.
- Field duties performed include groundwater sampling and air sampling

Tetra Tech EC, Inc., June 2007-2008
Santa Ana, Ca

Engineering Assistant Intern

- Assisted with both technical and field duties for a variety of environmental investigations.
- Assisted on an environmental site assessment, preliminary assessments (PA), site inspections, and remedial investigations feasibility studies.
- Field duties performed include groundwater sampling and air sampling

SF Regional Water Board, June 2005- September 2005
Oakland, Ca

Contract Work – Special Project

- Wrote a memorandum regarding total petroleum hydrocarbons showing up as false positives in submitted quarterly monitoring reports for NPDES FUEL permit.
- Researched various EPA methods of testing for VOC, and Fuel constituents in water.
- Communicated with consultants from Weiss Associates and state funded laboratories to come to a conclusion for memorandum.
- Site inspections, site reports.

Affiliated Associations

MAES (Mexican American Engineers and Scientists) – Vice Chair 2004-2005

DECLARATION OF
Gabriel Roark

I, Gabriel Roark, declare as follows:

1. I am employed by the California Energy Commission as a senior environmental planner.

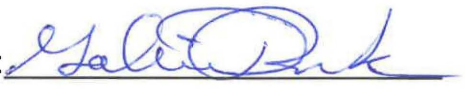
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the staff testimony on **Cultural and Tribal Cultural Resources** (archaeological and tribal cultural resources) for the **LAURELWOOD DATA CENTER** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: September 11, 2019 Signed: 

At: Sacramento, California

GABRIEL ROARK, M.A.

Archaeologist

Since 1999, Mr. Roark has directed and conducted cultural resource investigations for projects involving the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and Section 106 of the National Historic Preservation Act (NHPA). Mr. Roark possesses extensive professional experience in prehistoric archaeology, historical archaeology, and regulatory compliance, routinely serving as the project manager and technical lead on several projects simultaneously. He specializes in the design and implementation of archaeological monitoring programs, archaeological surveys and excavations, archival research, and CEQA and Section impact analyses. His Section 106 experience includes drafting memoranda of agreement, programmatic agreements, and historic properties treatment plans.

Mr. Roark currently serves as the technical senior in the Cultural Resources Unit of the California Energy Commission's Siting, Transmission, and Environmental Protection Division. In addition to cultural resource analyses for power plant applications under the Warren-Alquist Act, Mr. Roark is provides quality control and assurance for the work of the Cultural Resources Unit staff.

Professional Employment History

State Energy Resources Conservation and Development Commission (California Energy Commission). Senior Environmental Planner (Cultural Resources). May 1, 2019–present.

State Energy Resources Conservation and Development Commission (California Energy Commission). Planner II (Cultural Resources). June 1, 2012–April 30, 2019.

ICF International. Senior Associate (Archaeologist). February 23, 1999–May 30, 2012.

Years of Experience

- Professional start date: 02/23/1999

Education

- MA, Anthropology, California State University, Sacramento, 2009
- BA, Anthropology, California State University, Sacramento, 1999

Special Training

- Cascade Range Archaeological Project, Crew Chief, California State University, Sacramento, 1999
- Archaeological Field School, Mammoth Lakes, California State University, Sacramento (Dr. Mark E. Basgall, Director), 1999
- Anthropology 199: Introduction to Analysis of California Gold Rush Chinese Ceramics, Independent Study, California State University, Sacramento (Dr. Jerald J. Johnson, Instructor), 1999
- Anthropology 195A and 192: Fieldwork and Laboratory Work in Archaeology, Coloma, California State University, Sacramento (Dr. Jerald J. Johnson and Dr. Tom Strasser, Instructors), 1997

DECLARATION OF
Tia Mia Taylor

I, Tia Mia Taylor, declare as follows:

1. I am employed by the California Energy Commission as a Staff Biologist/ Planner 1.

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

3. I prepared sections of staff testimony on **Biological Resources** for the **Laurelwood Data Center** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/26/19 Signed: Tia Mia A. Taylor

At: Sacramento, California

CALIFORNIA ENERGY COMMISSION

TIA MIA TAYLOR
STAFF BIOLOGIST/ PLANNER I

Education, Certification & Associations

- Bachelor of Science, Environmental & Resource Science, University of California Davis (2010)
- Associate of Science, Mathematics & Physical Science, American River College, (2007)

Experience

California Energy Commission (CEC) – from 2015 to Present

Staff Biologist

Under Warren-Alquist Act, Ms. Taylor reviews applications to permit and build new thermal power plants throughout California, and performs California Environmental Quality Act (CEQA) equivalent analyses to assess effects on biological resources. Ms. Taylor serves as an in-house expert in project approval, construction and compliance monitoring on projects ranging in scale from 50 megawatts (MW) to 1,100 MW in generating capacity. Her work includes establishing and maintaining relationships with colleagues at other government agencies such as California Department of Fish and Wildlife (CDFW), US Fish and Wildlife Service (USFWS), US Army Corps of Engineers (USACE) and coordinating with these contacts to make sure power plants are in compliance with CDFW 1600 and 2081 permits, USFWS Section 7 consultations and Section 10 permits, and Clean Water Act 404 permits and 401 certifications.

Select Projects

Palmdale Power Plant - Palmdale, San Bernardino County, CA. Served as lead author of the biological resources analysis for a petition to amend the original CEC license for a 645 MW power generation facility. Ms. Taylor was responsible for coordinating the biological resources review with outside agencies including CDFW and USFWS, and completing a complex review and mitigation plan for potential take resulting from the project of southwestern willow flycatcher based upon new evidence for the species not known at the time of the original Decision. In addition, during the review of the amended project Ms. Taylor recognized inadvertent errors which were overlooked in the original Decision's computation of required mitigation acres for the Mohave ground squirrel and Swainson's hawk. The correction of these errors for the amended project resulted in an additional 10 mitigation acres required for Mohave ground squirrel and 61 mitigation acres required for Swainson's hawk. In order to accurately determine the total amount of acres of each vegetation community permanently lost Ms. Taylor created an ArcGIS map comparing the original project to the amended project which was published in the Final Staff Assessment.

Alamitos Energy Center – Long Beach, Los Angeles County, CA. Ms. Taylor was a contributing author in writing the biological resource section of the CEC license, which included analysis of the application for certification provided by the project owner. Ms. Taylor serves as lead for the biological resources mitigation monitoring and compliance activities for this 1,040 MW gas-fired generating facility currently in the final stages of construction. In this role her responsibilities include monthly assessment of compliance with project conditions of approval pertaining to plant and wildlife avoidance and conservation, coordinating with the owner's

1516 Ninth Street, MS 40 ◆ Sacramento, CA 95814 ◆ (916) 654-4892 ◆ tia.taylor@energy.ca.gov

biological experts to resolve issues requiring attention at the site, and conducting regular field visits to assess implementation of and adherence to project mitigation measures. Most recently she is working with the CDFW and the Designated Biologist onsite to adjust current best practices concerning the protection and monitoring of the burrowing owl due to the project site now being recognized as burrowing owl habitat.

Huntington Beach Energy Center (HBEP) – Huntington Beach, Orange County, CA. The HBEP is a 844 MW gas-fired power facility currently under final stages of construction within an existing power plant site proximate CA Highway 1 and the State Beach. In addition to her compliance and monitoring responsibilities for the construction as lead biologist for this facility, she serves as the lead on CEC coordination, review and approval of activities and an annual budget on the adjacent Huntington Beach Wetlands Conservancy, a restoration project required as mitigation for the original facility. Ms. Taylor conducts monthly review of monitoring reports and activities and participates in construction site visits to confirm adherence to the project Biological Resources Mitigation Implementation and Monitoring Plan. Most recently she is working with the CDFW and the Designated Biologist onsite to adjust current best practices concerning the protection and monitoring of the burrowing owl due to the project site now being recognized as burrowing owl habitat.

Stanton Energy Reliability Center – Stanton, Orange County, CA.

Ms. Taylor was a contributing author of the Preliminary Staff Assessment for the submitted application to build this 98 MW facility consisting of two Hybrid EGT™ General Electric LM6000-based Electric Gas Turbines and a 10-megawatt integrated battery storage component. She assisted in reviewing and editing documents pertaining to the CEC licensing process. Ms. Taylor attended the initial site visit and public hearing for support or opposition of the power plant by community members in Stanton, CA. Ms. Taylor now serves as lead for the biological resources mitigation monitoring and compliance activities for this energy center, which began construction on January 31, 2019. Ms. Taylor has also analyzed and processed two staff approved project modifications for additional construction laydown and parking areas since site mobilization.

McLaren Advantage Data Center – Santa Clara, Santa Clara County, CA.

Ms. Taylor was a contributing author for the process of completing an Initial Study and Mitigated Negative Declaration for this 98.7MW facility comprised of multiple diesel back-up generators that qualifies for the Small Power Plant Exemption (SPPE) with the CEC since it will produce less than 100MW in energy. This includes responsibilities of analyzing, reviewing, writing and editing documents pertaining to this CEC SPPE process.

DECLARATION OF
Lisa Worrall

I, Lisa Worrall, declare as follows:

1. I am employed by the California Energy Commission as a Planner II.

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

3. I assisted in the management of the preparation of the Initial Study/Proposed Mitigated Negative Declaration and assisted in staff testimony on **Population and Housing**, **Public Services**, **Recreation**, and **Environmental Justice** sections for the **LAURELWOOD DATA CENTER** based on my independent analysis of the Application for Small Power Plant Exemption and supplements hereto, 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: 9/4/19 Signed: Lisa Worrall

At: Sacramento, California

LISA WORRALL
916-884-1603 ~ lovecwdans@gmail.com

Summary

- Seasoned environmental analyst with experience navigating through projects with varying levels of complexity while under budgetary pressure and very demanding schedules.
- Adept at making complex projects and concepts clear and easy to understand.
- Testified as a subject-matter expert in Socioeconomics, Land Use, and Environmental Justice subject areas in power plant certification proceedings.

Employment Experience

California Energy Commission
Planner II Sacramento, California
January 2010 to Present

- Manage very complex energy facility projects from the preparation of the technical sections to the publication of the environmental document and participation in hearing proceedings.
- Bring a wide array of technical staff together to solve problems as soon as they arise.
- Review technical sections, ensuring clarity, consistency, and accuracy.
- Ensure project quality control while managing project scheduling.
- Prepare an independent analysis of environmental impacts from electric facilities as a deep subject matter expert in the technical areas of agriculture/forestry, land use and planning, public services, recreation, transportation, and environmental justice (disadvantaged communities).
- Contribute technical analysis to the alternatives analysis section in environmental documents.
- Develop mitigation measures for energy facility projects.
- Evaluate projects in accordance with the California Environmental Quality Act (CEQA), Warren Alquist Act, the California Energy Commission siting regulations, and federal, state and local laws, ordinances, regulations, and standards.
- Review information provided by the project applicant and research other resources to assess the environmental effects of energy facility proposals.
- Testify in hearings during project license proceedings as a subject matter expert in addition to presenting during project workshops for the public.
- Contribute deep subject matter expertise to policy and planning documents.
- Mentor new staff and collaborate with colleagues with a variety of technical expertise.
- Consistently and routinely go above and beyond what is asked of me as supported by the four awards I received for superior accomplishment.
- Selected as part of a project development team tasked with improving existing and creating new procedures that promote the division.

Sacramento County Planning and Environmental Review
Associate Environmental Analyst Sacramento, California
April, 2006 – May, 2009

- Prepared a variety of environmental documents in compliance with CEQA, National Environmental Policy Act (NEPA) and other federal, state, and local LORS.
- Conducted project site assessments, reviewed engineering plans, and researched and interpreted scientific data for project impact analysis.
- Managed multiple public works and private development projects with a variety of environmental concerns and overlapping deadlines.
- Maintained effective relationships with other Sacramento County departments, agencies, and service providers to ensure comments and recommended conditions of project approval were obtained and any associated environmental impacts assessed.

Analytical Environmental Services Sacramento, California
Associate April, 2004 – October, 2005

- Interpreted highly technical traffic impact studies, utilizing the information to develop a traffic impact assessment chapter for use in a variety of environmental documents complying with CEQA, NEPA, and county and city transportation policies and codes.
- Managed the preparation of traffic studies, including developing the scope of study, securing the contract, and reviewing the work product.
- Managed multiple private development projects simultaneously under tight deadlines. Clients included Native American tribes and cities.
- Coordinated with state, county and city officials in the development of traffic study methodology, parameters and assumptions for proposed projects.
- Worked closely with transportation engineers to understand the complexities of each project's specific traffic impacts.

California Department of Transportation (Caltrans) Fresno, California
Associate Environmental Planner March, 2003 – March, 2004
Environmental Planner August, 2000 – March, 2003

- Prepared all levels of environmental documentation for transportation projects in compliance with CEQA and NEPA.
- Coordinated and interpreted environmental technical studies for incorporation into the environmental document and for explanation to other team members, agencies, and the public.
- Managed and represented environmental concerns with other functional units.
- Led and participated in public outreach events.
- Coordinated project development with other Caltrans departments, agencies and the public.

Education

California State University, Northridge May, 2000
Bachelor of Arts in Geography