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August 4, 2021

RECEIVED

AUG 05 2021

VIA EMAIL AND U.S. MAIL

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LASSEN COUNTY DEPARTMENT OF
PLANNING AND BUILDING SERVICES

VIA EMAIL

Stefano M. Richichi, Senior Planner
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**Re: Comments to Technical Advisory Committee re Calneva Battery
Energy Storage System and Photovoltaic Solar Energy System
Project (Use Permit #2020-004, Initial Study #2020-001, Hooper; SCH
2020100366)**

Dear Mr. Anderson, Members of the Technical Advisory Committee, Mr. Richichi:

We are writing on behalf of Citizens for Responsible Industry Energy ("Citizens") regarding the Lassen County ("County") Technical Advisory Committee's ("Committee") August 5, 2021 meeting regarding the Use Permit #2020-004, Initial Study #2020-001, Hooper - Calneva Battery Energy Storage System and Photovoltaic Solar Energy System Project ("Project"), proposed by Dr. Charles Hooper ("Applicant"). Citizens urges the Committee to continue this hearing until the County has responded to public comments on the Project's Initial Study / Mitigated Negative Declaration ("IS/MND"), and prepared an environmental impact report ("EIR") for the Project pursuant to the California Environmental Quality Act ("CEQA").

The public comment period for the IS/MND recently closed on July 28, 2021. Citizens filed written comments during the public comment period which identified 4961-009acp

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errors and omissions in the County's environmental review, and provided substantial evidence from Citizens' expert consultants demonstrating that the Project is likely to have significant, unmitigated impacts on air quality, biological resources, and from energy use, greenhouse gas ("GHG") emissions, and hazardous materials impacts associated with the Project construction, operation, and from the Project's battery energy storage system ("BESS").¹ Citizens has asked the County to prepare an EIR for the Project.

CEQA requires the County to respond to public comments, and to incorporate all additional feasible mitigation measures and alternatives available to reduce the Project's unmitigated impacts to less than significant levels before the County can consider approving the Project.² The County has not yet considered or responded to Citizens' comments, or to the comments of any other members of the public or agencies received during the IS/MND's comment period. The Committee's consideration of the Project, and its proposed Project approval recommendation, are therefore premature and violates the letter and intent of CEQA.

The County Code requires that the Committee "review all use permit applications and shall prepare appropriate conditions of approval for consideration by the county."³ The County Code provides that the Committee may solicit and consider recommendations from qualified sources concerning technical issues.⁴ Our comments, submitted July 28, 2021, to which the County has not yet responded, provided substantial evidence supporting a fair argument that the Project has significant, unmitigated impacts which must be addressed in an EIR, and with additional mitigation measures and conditions of approval, in order to mitigate existing Project impacts.

We urge the Committee to:

- 1) Continue this hearing until the County has an opportunity to consider all public comments on the IS/MND and prepare an EIR that considers and incorporates changes based on all public comments received on the IS/MND by the County.
- 2) Consider Citizens' comments, and the comments of Citizens' expert consultants, in any subsequent recommendation made to the Planning Commission.

¹ Citizens' July 29, 2021 comments in the IS/MND are attached hereto as **Attachment A**.

² 14 Cal. Code Regs. § 15074(a), (b).

³ Lassen County Code § 18.112.030.

⁴ *Id.*

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I. BACKGROUND

The Applicant is seeking a Use Permit for the Project issued by Lassen County, a discretionary action which triggers environmental review under CEQA. The Project proposes to construct a 50-megawatt (“MW”) photovoltaic solar array and a BESS that would store 25 MW or 100 MW hours of electricity, along with related infrastructure.⁵ Such infrastructure would include a substation, a dead-end tower up to 90 feet tall, 24 130-foot tall steel gen-tie line poles to interconnect with the Plumas-Sierra Rural Electric 120 kilovolt (kV) transmission line approximately 3 miles south of the project site, access roads, and perimeter fencing. The Project has an approximate footprint of 278 acres, not including the proposed gen-tie lines.⁶ The subject parcels (Assessor’s Parcel Numbers 137-170-12 and 137-170-13) are located approximately nine miles northeast of Herlong off of Calneva Road, adjacent to the Nevada Border, in Lassen County, California.

The Project is primarily located in Honey Lake Valley in Lassen County, Calneva, California. The Gen-tie component will connect the project to the Nevada Energy Fort Sage substation via the Plumas Sierra Rural Electric Cooperative (“PSREC”) intertie line between the Herlong Substation and Fort Sage Substation.⁷ The California Independent System Operator (“CAISO”) would control the dispatching of electricity from the Project.⁸ The Project site is zoned A-1 General Agricultural District with a general plan designation of Extensive Agriculture.⁹

II. THE COMMISSION’S PROPOSED RECOMMENDATION IS A PREMATURE ACTION IN VIOLATION OF CEQA

Lassen County Code provides that the planning department “shall incorporate the recommendations of the T.A.C. in preparation of a staff report to be submitted to the planning commission.”¹⁰ It would be premature for the Committee to make a recommendation to the Planning Commission at this early stage of the Project because the Project is in the middle of environmental review pursuant to CEQA.¹¹ The public comment period for the Project just closed last week. The

⁵ Initial Study #2020-001 for Use Permit #2020-004, Hooper, p. 3 of 66 (June 24, 2021) (“IS”).

⁶ Initial Study #2020-001 for Use Permit #2020-004, p. 3 (“IS for Use Permit”).

⁷ Calneva, Battery Energy Storage System (BESS) / Photovoltaic Solar Energy System (PSES) Project Biological Assessment (February 2021) p. iii.

⁸ IS, p. 1-1.

⁹ IS, p. 3-1.

¹⁰ Lassen County Code § 18.112.030.

¹¹ Pub. Resources Code §§ 21000 et seq.; 14 Cal. Code Regs. §§ 15000 et seq. 4961-009acp

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IS/MND cannot be approved until the County has received and considered all public comments submitted during the public comment period, and advisory bodies like the Technical Advisory Committee cannot make approval recommendations about the Project to the County's decision making body until they also consider the IS/MND.¹²

CEQA requires the lead agency to receive, consider, and meaningfully respond to public comments on the IS/MND.¹³ The purpose of the public comment period is to foster public participation.¹⁴ Public comments require the lead agency to consider additional mitigation measures, alternatives, and impact analysis recommended by commenters. Responses to comments may result in changes to the Project, additional analysis, or the adoption of new alternatives and mitigation measures that were not presented in the IS/MND.¹⁵ The County may also be required to prepare an EIR for the Project.

As an advisory body to the Planning Commission, the Committee is prohibited from offering a recommendation regarding Project approval until it has fully reviewed and considered the IS/MND and any public comments and expert analysis in the IS/MND comments. The Committee must therefore wait until after the County has considered and responded to all comments on the IS/MND before taking any action on the Project.

An agency may not commit itself to a definite course of action on a project before evaluating its environmental effects.¹⁶ The duty to perform CEQA review applies at the first instance that a public agency proposes to "approve" a project.¹⁷ For private projects (i.e., projects carried out by entities other than public agencies but requiring discretionary approval from one or more agencies), the lead agency must encourage project proponents to incorporate environmental considerations into project planning as early as feasible.¹⁸ Approval is deemed to occur "upon the earliest commitment to issue or the issuance by the public agency of a discretionary contract."¹⁹ The California Supreme Court in *Save Tara* reasoned that "postponing

¹² 14 Cal. Code Regs. § 15074(a); (b).

¹³ 14 Cal. Code Regs. § 15074(b).

¹⁴ 14 Cal. Code Regs § 15201.

¹⁵ 14 Cal. Code Regs. § 15074(b), (c), (d);

¹⁶ *Save Tara*, 45 Cal.4th at 139.

¹⁷ PRC § 21080(a); 14 CCR § 15352(a); *Save Tara*, 45 Cal.4th 116; *RiverWatch*, 170 Cal. App. 4th 1186.

¹⁸ 14 CCR § 15004(b)(3).

¹⁹ 14 CCR § 15352(b).

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environmental analysis can permit ‘bureaucratic and financial momentum’ to build irresistibly behind a proposed project, ‘thus providing a strong incentive to ignore environmental concerns.’”²⁰ CEQA requires early environmental review for precisely this reason.

In *Save Tara*, the City of West Hollywood entered into a draft development agreement to convey a historic residential property to a developer, provided the developer satisfied environmental requirements, as reasonably determined by the city manager.²¹ The agreement provided a loan to the developer, and required the developer to construct 35 housing units, to relocate existing tenants, and to “take all actions necessary to comply with CEQA.”²² The *Save Tara* agreement included a “CEQA compliance clause” which provided that “the agreement imposes no duty on City to approve any documents prepared pursuant to CEQA.”²³ The City Council in *Save Tara* approved the development agreement without CEQA review, in reliance on the future CEQA compliance provision with the condition that “all applicable requirements of CEQA...have been satisfied, as reasonably determined by the City Manager: and that the “developer shall have obtained all Entitlements.”²⁴

The *Save Tara* Court articulated a two-part test to determine whether the approval of this “conditional” conveyance and development agreement amounted to project approval. The Court stated:

[C]ourts should look not only to the terms of the agreement but to the surrounding circumstances to determine whether, as a practical matter, the agency has committed itself to the project as a whole or to any particular features, so as to effectively preclude any alternatives or mitigation measures that CEQA would otherwise require to be considered, including the alternative of not going forward with the project.²⁵

The Court examined the language of the agreement’s CEQA-Compliance provision, as well as the circumstances surrounding the approval of the development agreement. The Court found that the language of the agreement, coupled with the city’s public announcements that it was determined to proceed with the development, its preparations to relocate the existing tenants from the

²⁰ *Save Tara*, 45 Cal. 4th at 134-135, citing *Laurel Heights I*, 47 Cal.3d 376, 395 (1988).

²¹ *Save Tara*, 45 Cal. 4th 116.

²² *Id.* at 124.

²³ *Id.* at 126.

²⁴ *Id.* at 124.

²⁵ *Id.* at 139.

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property, a large at-risk financial contribution to the project, and its willingness to commit itself to going forward if the city manager found CEQA requirements were satisfied, demonstrated that the city had impermissibly “committed itself to a definite course of action regarding the project before fully evaluating its environmental effects.”²⁶ The *Save Tara* court held that the preliminary development agreement did, in fact, constitute a project approval that triggered the need for CEQA review prior to its approval, and voided the City’s approvals.

Here, the Committee’s potential action to recommend approval of the Use Permit to the Planning Commission violates the intent and spirit of CEQA and could limit the scope of issues considered by the Planning Commission. A premature recommendation may also impact the Commission’s ability to ensure that all feasible alternatives and mitigation measures for the Project are required prior to Project approval. The Project could also be modified in response to public comments received on the IS/MND, which would moot any approval recommendation made by the Committee at this time. Finally, the County could change course and prepare an EIR after the County considers public comments, which the Committee would be required to consider before making an approval recommendation.²⁷

The Committee also has a duty under the County Code to propose “appropriate conditions of approval” for the Project. The Committee has only reviewed the County’s proposed mitigation measures and alternatives in the IS/MND and has not considered any mitigation measures or alternatives that have been proposed by Citizens and may be proposed by other members of the public or responsible agencies. By taking this premature action, the Committee is choosing to ignore members of the public and their comments. The Committee should postpone this recommendation decision until the County has responded to comments on the IS/MND and an EIR is published.

²⁶ *Id.* at 142.

²⁷ 14 Cal. Code Regs. § 15074(a), 4961-009acp

III. THE STAFF REPORT FAILS TO IDENTIFY NECESSARY MITIGATION TO REDUCE PROJECT IMPACTS TO LESS THAN SIGNIFICANT LEVELS

Citizens' IS/MND comments provided substantial evidence that additional mitigation is required before Project approval is appropriate. The Staff Report includes proposed conditions of approval from the County Surveyor, but does not include any proposed conditions or mitigation measures to address the Project's significant environmental impacts. Citizens' experts recommended several additional mitigation measures that should be incorporated in an EIR for the Project. These measures should be considered by the Committee and recommended to the Planning Commission at a future date, after the County has corrected the existing errors in the IS/MND in a new environmental document.

First, Citizen's expert air quality engineer Dr. Phyllis Fox concluded that the batteries in the BESS facility must be charged with the energy from the adjoining solar power plant, in order to ensure the GHG emissions impacts from the Project are less than significant.

Second, Dr. Fox recommended a number of mitigation measures that may reduce significant fugitive particulate matter emissions from Project construction, including the following:²⁸

- 1) All diesel-powered construction equipment shall use Tier 4 Final construction equipment, to be confirmed on site by the on-site construction supervisor during each day of use. If a Tier 4 Final engine is not available for select construction equipment, controls shall be installed on the highest tier equipment available to achieve Tier 4 Final standards. Controls for particulate matter emissions include diesel particulate filters and use of alternative fuels.
- 2) Apply water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle track out.
- 3) Use a gravel apron, 25 feet long by road width, to reduce mud/dirt track out from unpaved truck exit routes.
- 4) Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition.
- 5) Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup.

²⁸ Fox Comments, p. 22.
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- 6) Apply water every 3 hours to disturbed areas within a construction site.
- 7) Require minimum soil moisture of 12% for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.
- 8) Limit on-site vehicle speeds (on unpaved roads) to 15 mph by radar enforcement.
- 9) Replace ground cover in disturbed areas as quickly as possible.
- 10) All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.²⁹
- 11) Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads.

Third, Dr. Fox determined that there are additional feasible mitigation measures to control significant NOx emissions from Project construction that the MND failed to include. Dr. Fox urges that the following measures should be implemented, including:

- 1) All diesel-powered construction equipment shall use Tier 4 Final construction equipment, to be confirmed on site by the on-site construction supervisor during each day of use. If a Tier 4 Final engine is not available for select construction equipment, controls shall be installed on the highest tier equipment available to achieve Tier 4 Final standards. Effective controls include selective catalytic reduction (SCR) for NOx.
- 2) Require the use of biodiesel in all construction equipment.
- 3) Purchase emission offsets.
- 4) Use Voluntary Emission Reduction Agreements (VERAs), which have been used as mitigation in other CEQA documents.³⁰
- 5) Employ an on-site construction site manager(s) to assure that all mitigation is achieved in practice and to verify that engines are properly maintained. Observation shall be documented in a log submitted weekly to Lassen County.

Citizens' biological resource expert Scott Cashen recommended the following mitigation measures which should be implemented as binding mitigation measures.

²⁹ SCAQMD, Fugitive Dust Mitigation Measure Table XI-A, <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-table-xi-a.doc?sfvrsn=2>.

³⁰ SJVAPCD, Summary of Comments and Responses to Proposed Revisions to the GAMAQI-2012, May 31, 2012, p. 3; <https://www.valleyair.org/transportation/GAMAQIDRAFT-2012/GAMAQIResponsesToComments5-10-12%20.pdf>.

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In particular, Mr. Cashen concluded that the Applicant must develop:

- 1) A bird and bat monitoring plan to reduce incidences of bird deaths at solar sites including retrofitting of solar panels, placement of perch deterrent devices where indicated, a two-year minimum of a well-designed monitoring protocol that includes daily surveys of all birds. A bird and bat monitoring plan is an essential part of any mitigation strategy to enable better assessment of Project mortalities necessary for an appropriate Adaptive Management Plan, or for that matter any measurable mitigation of the impacts described above, with performance criteria for what reduced impacts will mean in respect to bird (and bat) mortalities.
- 2) Habitat restoration measures including enforceable mechanisms to successfully restore vegetation communities associated with construction impacts.
- 3) Enforceable measures to reduce habitat fragmentation.

These mitigation measures should be incorporated as binding mitigation measures in an EIR for the Project.

IV. CONCLUSION

The Committee's potential action to recommend approval of the Use Permit is premature. This discussion is taking place before the public has had an opportunity to comment and be heard by the County, robbing the public of the chance to suggest better, viable alternatives for protecting Lassen County's environmental resources. The Committee is acting in violation of CEQA. The Committee must continue this hearing until the County releases a Draft EIR for the Project.

Sincerely,



Kelilah D. Federman

Attachment

KDF:acp

ATTACHMENT A

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July 28, 2021

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**Re: Comments on the Initial Study / Mitigated Negative
Declaration for Use Permit #2020-004, Initial Study #2020-001,
SCH # 2020100366, Dr. Charles Hooper**

Dear Mr. Richichi, Mr. Anderson:

These comments are submitted on behalf of Citizens for Responsible Industry Energy ("Citizens") regarding the Initial Study / Mitigated Negative Declaration ("MND") prepared by the County of Lassen ("County") for the Calneva Battery Energy Storage System ("BESS") and Photovoltaic Solar Energy System ("PSES") Project (Use Permit #2020-004, Initial Study #2020-001, Hooper; SCH # 2020100366) ("Project"), proposed by Dr. Charles Hooper ("Applicant").

The Project proposes to construct a 50-megawatt ("MW") photovoltaic solar array and a battery energy storage system ("BESS") that would store 25 MW or 100 MW hours of electricity, along with related infrastructure.¹ Such infrastructure would include a substation, a dead-end tower up to 90 feet tall, 24 130-foot tall steel gen-tie line poles to interconnect with the Plumas-Sierra Rural Electric 120 kilovolt

¹ Initial Study #2020-001 for Use Permit #2020-004, Hooper, p. 3 of 66 (June 24, 2021) ("IS").
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(kV) transmission line approximately 3 miles south of the project site, access roads, and perimeter fencing. The Project has an approximate footprint of 278 acres, not including the proposed gen-tie lines.² The subject parcels (Assessor's Parcel Numbers 137-170-12 and 137-170-13) are located approximately nine miles northeast of Herlong off of Calneva Road, adjacent to the Nevada Border, in Lassen County, California.

The Project is primarily located in Honey Lake Valley in Lassen County, Calneva, California. The Gen-tie component will connect the Project to the Nevada Energy Fort Sage substation via the Plumas Sierra Rural Electric Cooperative ("PSREC") intertie line between the Herlong Substation and Fort Sage Substation.³ The MND states that the California Independent System Operator ("CAISO") would control the dispatching of electricity from the Project.⁴ However, the Project's point of interconnection with the grid is proposed to be outside of California with a non-California utility. The Project site is zoned A-1 General Agricultural District with a general plan designation of Extensive Agriculture.⁵

We have reviewed the MND, its technical appendices, and reference documents with assistance of Citizens' expert consultants, whose comments and qualifications are attached. Based on our review of the MND, it is clear that the MND fails as an informational document under CEQA and lacks substantial evidence to support its conclusions that the Project's significant impacts would be mitigated to the greatest extent feasible.

There is also substantial evidence to support a fair argument that the Project's potentially significant environmental impacts are far more extensive than disclosed in the MND. Citizens and their expert consultants have identified numerous potentially significant impacts that the MND either mischaracterizes, underestimates, or fails to identify. Moreover, many of the mitigation measures described in the MND will not, in fact, mitigate impacts to the extent claimed.

We prepared these comments with the assistance of air quality and hazards expert Dr. Phyllis Fox, Ph.D.; and expert conservation biologist and wildlife ecologist Scott Cashen. Dr. Phyllis Fox's technical comments and curriculum vitae

² Initial Study #2020-001 for Use Permit #2020-004, p. 3 ("IS for Use Permit").

³ Calneva, Battery Energy Storage System (BESS) / Photovoltaic Solar Energy System (PSES) Project Biological Assessment (February 2021) p. iii.

⁴ IS, p. 1-1.

⁵ IS, p. 3-1.

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are attached hereto as Exhibit A.⁶ Mr. Cashen's technical comments and curriculum vitae are attached hereto as Exhibit B.⁷ Both comment letters and all attachments thereto are incorporated by reference as if fully set forth herein.⁸ The County must address and respond to the comments of these experts separately.

Dr. Fox provides substantial evidence demonstrating that Project construction emissions will exceed applicable significance thresholds, that Greenhouse Gas ("GHG") emissions from Project construction and operation are underestimated, and that potentially significant GHG and energy impacts from the Project's BESS were not analyzed at all. Dr. Fox also determined that the risk of wildfire is significant and unmitigated. The MND fails to accurately disclose the severity of these impacts and fails to effectively mitigate them.

Finally, Mr. Cashen concluded that the County failed to conduct adequate baseline surveys to ascertain the current use of the Project site by numerous federally and state-listed special status species, failed to disclose that the Project site is located in critical recovery habitat for the federally endangered Carson wandering skipper butterfly, and failed to address the potentially significant impact that will be caused by avian collisions with solar panels and other facility equipment during Project operation, among other impacts. Mr. Cashen concludes, based on his review of the record and relevant scientific data, that the Project's impacts on these species are potentially significant and unmitigated.

I. STATEMENT OF INTEREST

Citizens is an unincorporated association of individuals and labor organizations with members who may be adversely affected by the potential public and worker health and safety hazards and environmental and public service impacts of the Project. The association includes Lassen County residents, California Unions for Reliable Energy ("CURE") and its local affiliates, and the affiliates'

⁶ See **Exhibit A**, Phyllis Fox, Ph.D., P.E., Comments on the Initial Study/Mitigated Negative Declaration for the CALNEVA Battery Energy Storage System/Photovoltaic Solar Energy System Project (Fox Comments").

⁷ See **Exhibit B**, Scott Cashen, M.S., Comments on the Initial Study and Mitigated Negative Declaration for the Hooper Solar Project ("Cashen Comments").

⁸ Citizens reserves the right to supplement these comments, and to file further comments at any and all future proceedings and hearings related to the Project. Gov. Code § 65009(b); PRC § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* ("Bakersfield") (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121. 4961-008acp

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members and their families, as well as other individuals who live, work and recreate in Lassen County.

Individual members of Citizens and its member organizations live, work, recreate, and raise their families in and around Lassen County, in the vicinity of the Project. Accordingly, they will be directly affected by the Project's environmental, fire, and health and safety impacts. Individual members may also work on the Project itself. They will be the first in line to be exposed to any health and safety hazards that exist onsite.

CURE is a coalition of labor organizations whose members encourage sustainable development of California's energy and natural resources. CURE's members help solve the State's energy problems by building, maintaining, and operating conventional and renewable energy power plants and transmission facilities. Since its founding in 1997, CURE has been committed to building a strong economy and a healthier environment. CURE has helped cut smog-forming pollutants in half, reduced toxic emissions, increased the use of recycled water for cooling systems, and pushed for groundbreaking pollution control equipment as the standard for all new power plants, all while helping to ensure that new power plants and transmission facilities are built with highly trained, professional workers who live and raise families in nearby communities.

Citizens has an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members that they represent. Environmental degradation destroys cultural and wildlife areas, consumes limited fresh surface and ground water resources, causes water pollution, and imposes other stresses on the environmental carrying capacity of the state. This in turn jeopardizes future development by causing construction moratoriums and otherwise reducing future employment opportunities for Citizens' members. Citizens therefore has a direct interest in enforcing environmental laws to minimize the adverse impacts of projects that would otherwise degrade the environment.

Finally, Citizens' members and organizational members are concerned about projects that risk serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits are weighted against significant impacts to the environment. It is in this spirit that we offer these comments.

II. LEGAL BACKGROUND

CEQA requires that lead agencies analyze any project with potentially significant environmental impacts in an EIR.⁹ “Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made. Thus, the EIR protects not only the environment, but also informed self-government.”¹⁰ The EIR has been described as “an environmental ‘alarm bell’ whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.”¹¹

CEQA’s purpose and goals must be met through the preparation of an EIR, except in certain limited circumstances.¹² CEQA contains a strong presumption in favor of requiring a lead agency to prepare an EIR. This presumption is reflected in the “fair argument” standard. Under that standard, a lead agency “shall” prepare an EIR whenever substantial evidence in the whole record before the agency supports a fair argument that a project may have a significant effect on the environment.¹³

In contrast, a mitigated negative declaration may be prepared only when, after preparing an initial study, a lead agency determines that a project may have a significant effect on the environment, but:

- (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review *would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur*, and
- (2) there is *no substantial evidence* in light of the whole record before the public agency that the project, as revised, *may* have a significant effect on the environment.¹⁴

⁹ See Pub. Resources Code, § 21000; CEQA Guidelines, § 15002.

¹⁰ *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564 (*Goleta Valley*), internal citations omitted.

¹¹ *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.

¹² See Pub. Resources Code, § 21100.

¹³ Pub. Resources Code, §§ 21080, subd. (d), 21082.2, subd. (d); CEQA Guidelines, §§ 15002, subd. (k)(3), 15064, subds. (f)(1), (h)(1); *Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1123 (*Laurel Heights II*); *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75, 82; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1601-1602 (*Quail Botanical*).

¹⁴ Pub. Resources Code, § 21064.5 (emphasis added).
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Courts have held that if “no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR.”¹⁵ The fair argument standard creates a “low threshold” favoring environmental review through an EIR, rather than through issuance of a negative declaration.¹⁶ An agency’s decision not to require an EIR can be upheld only when there is no credible evidence to the contrary.¹⁷

“Substantial evidence” required to support a fair argument is defined as “enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached.”¹⁸

According to the CEQA Guidelines, when determining whether an EIR is required, the lead agency is required to apply the principles set forth in Section 15064, subdivision (f):

[I]n marginal cases where it is not clear whether there is substantial evidence that a project may have a significant effect on the environment, the lead agency shall be guided by the following principle: If there is disagreement among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR.

Furthermore, CEQA documents, including EIRs and MNDs, must mitigate significant impacts through measures that are “fully enforceable through permit conditions, agreements, or other measures.”¹⁹ Deferring formulation of mitigation measures to post-approval studies is generally impermissible.²⁰ Mitigation measures adopted after Project approval deny the public the opportunity to

¹⁵ See, e.g., *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 319-320.

¹⁶ *Citizens Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754.

¹⁷ *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th, 1307, 1318; see also *Friends of B Street v. City of Hayward* (1980) 106 Cal.App.3d 988, 1002 (*Friends of B Street*) (“If there was substantial evidence that the proposed project might have a significant environmental impact, evidence to the contrary is not sufficient to support a decision to dispense with preparation of an EIR and adopt a negative declaration, because it could be ‘fairly argued’ that the project might have a significant environmental impact”).

¹⁸ CEQA Guidelines, § 15384, subd. (a).

¹⁹ Pub. Resources Code § 21081.6(b).

²⁰ *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308-309; Pub. Resources Code, § 21061.

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comment on the Project as modified to mitigate impacts.²¹ If identification of specific mitigation measures is impractical until a later stage in the Project, specific performance criteria must be articulated and further approvals must be made contingent upon meeting these performance criteria.²² Courts have held that simply requiring a project applicant to obtain a future report and then comply with the report's recommendations is insufficient to meet the standard for properly deferred mitigation.²³

With respect to this Project, the MND fails to satisfy the basic purposes of CEQA. The MND fails to adequately disclose, investigate, and analyze the Project's potentially significant impacts, and fails to provide substantial evidence to conclude that impacts will be mitigated to a less than significant level. Because the MND lacks basic information regarding the Project's potentially significant impacts, the MND's conclusion that the Project will have a less than significant impact on the environment is unsupported.²⁴ The County failed to gather the relevant data to support its finding of no significant impacts, and substantial evidence shows that the Project may result in potentially significant impacts. Therefore, a fair argument can be made that the Project may cause significant impacts requiring the preparation of an EIR.

III. THE COUNTY LACKS SUBSTANTIAL EVIDENCE TO APPROVE THE PROJECT'S LAND USE PERMITS

The Project requires a Conditional Use Permit to construct and operate the BESS and PSES Project elements. The Project is within the A-1 General Agricultural District and is designated as "Extensive Agriculture" land use by the Lassen County General Plan 2000 adopted September 21, 1999.²⁵ The issuance of a Conditional Use Permit requires the County to make findings regarding land use consistencies and other environmental factors. As discussed in our comments below, the MND fails to disclose the Project's potentially significant, unmitigated impacts on air quality, public health, biological resources, GHGs, and water quality. These impacts create inconsistencies with the Lassen County Zoning Code and General Plan.

²¹ *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1393; *Quail Botanical*, *supra*, 29 Cal.App.4th at p. 1604, fn. 5.

²² *Ibid.*

²³ *Ibid.*

²⁴ Pub. Resources Code, § 21064.5.

²⁵ IS, p. 1-1.
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Where a local or regional policy of general applicability, such as an ordinance, is adopted in order to avoid or mitigate environmental effects, a conflict with that policy constitutes a significant land use impact and, in itself, indicates a potentially significant impact on the environment.²⁶ Any inconsistencies between a proposed project and applicable plans must be discussed in an EIR.²⁷ A project's inconsistencies with local plans and policies also constitute significant impacts under CEQA.²⁸ An EIR must be prepared to adequately disclose and mitigate the significant land use impacts discussed below.

Lassen County Zoning Code Section 18.112.100 requires that the Planning Commission or Board of Supervisors find the following to approve a use permit application:

- (1) That the project will or will not, under the circumstances of the particular case, be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of such use, nor be detrimental or injurious to property and improvements in the neighborhood or to the general welfare.
- (2) That the project is or is not consistent with the Lassen County general plan, or any applicable area plan or resource plan adopted as part of the general plan. (Ord. 467-H § 2, 1991).

As discussed herein and in the attached expert comments, there is substantial evidence supporting a fair argument that the Project has potentially significant air quality, biological resources, GHG, energy, hazardous materials and fire risk impacts that are not disclosed or mitigated in the MND. If these impacts are not fully analyzed and mitigated in an EIR, they will be detrimental and injurious to the health, safety, and general welfare of the County and its residents.

As discussed below, the Project is inconsistent with the Agricultural Element of the General Plan. As currently proposed, the Project therefore violates mandatory requirements of Zoning Code Section 18.112.100(1) and (2) and cannot be approved.

²⁶ See *Pocket Protectors v. Sacramento* (2005) 124 Cal.App.4th 903.

²⁷ 14 CCR § 15125(d); *City of Long Beach v. Los Angeles Unif. School Dist.* (2009) 176 Cal. App. 4th 889, 918; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal. App. 4th 859, 874 (EIR inadequate when Lead Agency failed to identify relationship of project to relevant local plans).

²⁸ *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 783-4, 32 Cal.Rptr.3d 177; see also, *County of El Dorado v. Dept. of Transp.* (2005) 133 Cal.App.4th 1376. 4961-008acp

A. The Project Contravenes the General Plan

As currently proposed, the Project contravenes the General Plan. The Lassen County General Plan Agriculture Element includes a mandatory provision which provides that “[a]gricultural land in Lassen County *shall* be protected for its economic importance; its contribution to the character of the community; and its environmental values.”²⁹ The conversion of agricultural land for the Project contravenes the goals of the Agriculture Element. The Agriculture Element provides that “[c]onversion of agricultural land to non-agricultural uses not only removes or reduces the productive agricultural value of the land, it usually reduces other resource values such as wildlife habitat and water quality.”³⁰ Here, the conversion of agricultural land may substantially increase the risk to wildlife habitat and water quality.

The Environmental Setting and Land Use sections of a CEQA document are required to “discuss any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.”³¹ The MND’s failure to detail the inconsistency with the General Plan is an additional CEQA violation. An EIR must be prepared to adequately analyze and mitigate the potentially significant impacts from Project’s inconsistency with the General Plan.

IV. THE MND FAILS TO ADEQUATELY DESCRIBE THE PROJECT

The MND fails to meet CEQA’s requirements because it lacks an accurate, complete, and stable project description, rendering the entire environmental impacts analysis inadequate. California courts have repeatedly held that “an accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient [CEQA document].”³² CEQA requires that a project be described with enough particularity that its impacts can be assessed.³³ Accordingly, a lead agency may not hide behind its failure to obtain a complete and accurate Project description.³⁴

²⁹ Lassen County General Plan Agriculture Element (2000) p. 4-18 (emphasis added).

³⁰ Lassen County General Plan Agriculture Element (2000) p. 4-23.

³¹ CEQA Guidelines § 15125(d); CEQA Guidelines, Appendix G, Section XI.

³² *County of Inyo v. City of Los Angeles* (3d Dist. 1977) 71 Cal.App.3d 185, 193.

³³ *Id.* at p. 192.

³⁴ *See Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311.
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An accurate and complete project description is necessary to perform an adequate evaluation of the potential environmental effects of a proposed project. In contrast, an inaccurate or incomplete project description renders the analysis of environmental impacts inherently unreliable. Without a complete project description, the environmental analysis under CEQA will be impermissibly narrow, thus minimizing the project's impacts and undercutting public review.³⁵

It is impossible for the public to make informed comments on a project of unknown or ever-changing description. California courts have held that "a curtailed or distorted project description may stultify the objectives of the reporting process."³⁶ Furthermore, "only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost..."³⁷ Without a complete project description, the environmental analysis under CEQA is impermissibly limited, thus minimizing the project's impacts and undermining meaningful public review.³⁸

In *County of Inyo*, the court held that shifts among different project descriptions "vitiate[d] the City's EIR process as a vehicle for "intelligent public participation," because a "curtailed, enigmatic or unstable project description draws a red herring across the path of public input."³⁹ "[A] project description that gives conflicting signals to decision makers and the public about the nature and scope of the project is fundamentally inadequate and misleading."⁴⁰ The MND's failure to describe the location of the Gen-Tie line and the extent and location of grading required renders the MND's project description inaccurate, incomplete, and unstable, and a DEIR must be prepared to comply with CEQA.

A. The MND Fails to Adequately Describe the Location of the Gen-Tie Transmission Line

The MND fails to provide an adequate description of the location of the gen-tie transmission line. This is an informational deficiency, in violation of CEQA. CEQA Guidelines Section 15070 requires that an MND accurately describe the

³⁵ See, e.g. *id.*

³⁶ *County of Inyo v. City of Los Angeles* (3d Dist. 1977) 71 Cal.App.3d 185, 192.

³⁷ *Id.* at p. 192-193.

³⁸ See, e.g., *Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1988) 47 Cal.3d 376.

³⁹ *County of Inyo, supra*, 71 Cal.App.3d at p. 197, 198.

⁴⁰ *Citizens for a Sustainable Treasure Island v. City and County of San Francisco* (2014) 227 Cal.App.4th 1036.
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project and its location and boundaries, preferably on a map.⁴¹ The location of the gen-tie line is a critical Project fact which may impact the potential severity of air quality, hazards, and wildfire impacts associated with this Project component, and would invoke federal NEPA jurisdiction if the Gen-Tie line crosses federal Bureau of Land Management (“BLM”) land, as it appears it will. The MND’s failure to provide an accurate location for the Gen-Tie lines violates CEQA.

i. *The MND’s Failure to Describe the Location of the Gen-Tie Line Renders the Significance Analysis Unsupported by Substantial Evidence*

The failure to provide the location of the Gen-Tie Transmission Line renders the finding of no significant impact to vegetation communities unsupported by substantial evidence. Significant grading and habitat modification may occur as a result of the construction of the Gen-Tie Line. “The Gen-Tie and Service Line would have work areas around each structure location which may require grading and vegetation removal for various construction activities. Stringing sites would support required equipment to perform wire stringing and sagging operations.”⁴² “Dirt access roads and Calneva Road will be permanently impacted where a 30-foot-wide permanent strip of the permanent ROW centered on electrical infrastructure facilities will be maintained by Calneva BESS/PSES to keep the area free of deep-rooted vegetation for safety purposes.”⁴³ The MND’s failure to describe the location of the line renders the biological resources analysis unsupported by substantial evidence.

ii. *The MND’s Failure to Describe the Location of the Gen-Tie Line May Result in NEPA Violations*

The failure to mention that the Gen-Tie Transmission Line will cross BLM land renders the MND inadequate for failure to disclose federal jurisdiction issues under the National Environmental Policy Act (“NEPA”). NEPA applies to “major federal actions significantly affecting the quality of the human environment” unless they are expressly or impliedly exempted from such requirements.⁴⁴ For an action to be regarded as a “federal action”, it must be subject to a sufficient level of control

⁴¹ CEQA Guidelines § 15070(a), (b).

⁴² Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 22.

⁴³ *Ibid*, p. 45.

⁴⁴ 42 USC § 4332(2)(C).

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and responsibility, or “federal nexus”.⁴⁵ Federal actions tend to fall within one of the following categories: (1) Adoption of official policy, rules, or regulations; (2) Adoption of formal plans, upon which future agency actions will be based; (3) Adoption of programs to implement a specific statutory program or executive directive; (4) Approval of specific projects, such as construction or management activities located in a defined geographic area including private actions approved by permit or other regulatory decision as well as federal and federally assisted activities.⁴⁶

The courts have repeatedly determined that where projects are on federal land and require local permitting, both CEQA and NEPA apply.⁴⁷ Further, where a project is a public or private development with a substantial relationship to, or impact on, wetlands under the jurisdiction of the United States Army Corps of Engineers, NEPA analysis is required.⁴⁸ Here, the BLM may be required to approve the construction of the Gen-Tie Line on BLM land.

Further, BLM may be considered a cooperating agency for NEPA compliance. For most high-voltage electric transmission line projects, the BLM’s purpose and need for action will arise from the BLM’s responsibility under the Federal Land Policy and Management Act of 1976 to respond to a right-of-way (“ROW”) application requesting authorization to use public lands for the construction, operation, maintenance, and decommissioning of a transmission line.⁴⁹ Here, given that the transmission line will traverse BLM land, a ROW is required.

Given that the Gen-Tie Line will cross BLM land, federal authorization is required for construction of the Gen-Tie Line. The construction and operation of the Gen-Tie Line may constitute a major Federal action significantly affecting the quality of the human environment. The construction of the Gen-Tie Line will require brush clearing as described herein. BLM must be consulted as a cooperating federal agency over this portion of the Project, and all impacts from the transmission line must be adequately analyzed in both an EIR and a NEPA Environmental Impact Statement (“EIS”).

⁴⁵ 40 CFR § 1508.18.

⁴⁶ 40 CFR § 1508.18(b).

⁴⁷ See, e.g. *Nelson v. County of Kern* (2010) 190 CA4th 252.

⁴⁸ *Id.*

⁴⁹ BLM, Supplemental Guidance National Environmental Policy Act Compliance for High-Voltage Electric Transmission Lines, [https://www.blm.gov/sites/blm.gov/files/policies/Attachment-3 Supplemental-Guidance-NEPA.pdf](https://www.blm.gov/sites/blm.gov/files/policies/Attachment-3%20Supplemental-Guidance-NEPA.pdf).

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B. The MND Fails to Adequately Describe the Extent of Grading Necessary for Project Construction

The MND fails to provide a sufficiently detailed account of what areas will require grading and trenching and the extent of the grading and trenching. This project description information is critical to ensure that the Project's impacts can be assessed. The MND provides conflicting information about the extent of grading necessary for Project construction. The MND relies on CalEEMod modeling that assumes only 25 acres of the site would require grading.⁵⁰ But the Initial Study's Project Description states that "Project grading requirements are anticipated to be approximately 200 acres, of the Solar Field Area and in the locations of the substation, BESS, and laydown areas..."⁵¹ The Project's Biological Assessment ("BA"), states that the Project would require 11 to 16 acres of grading for the roadways, substation, battery energy storage container areas, laydown areas, and work areas associated with the gen-tie line structures.⁵² These inconsistencies do not meet CEQA's requirement of an accurate, stable, and finite Project Description.⁵³ The MND violates CEQA for failing to provide a definite and unambiguous project description.

i. The MND Fails to Adequately Analyze the Grading Necessary for the Gen-Tie Line, Solar Arrays, and Electrical Equipment

Project construction will require installation of transmission line, solar arrays and electrical equipment that will necessitate grading and trenching. The MND states that "[d]ue to the level topography of the proposed project area, no formal grading will be required."⁵⁴ But, Project construction and operation will require grading for installation of foundations for the Gen-Tie Line, the Solar Arrays and the Mechanical and Electrical Equipment.⁵⁵ The Gen-Tie Line "may be supported on cast-in-place drilled pier foundations", the solar arrays "can be founded on a steel racking system supported on driven steel piles," and the mechanical and electrical equipment "can be supported on reinforced concrete mat slab foundations".⁵⁶ These Project elements will necessarily require grading.

⁵⁰ Appendix E, pdf 9; Fox Comments, p. 12.

⁵¹ IS, p. 3-29.

⁵² Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). pp. 20 through 22.

⁵³ *County of Inyo, supra*, 71 Cal.App.3d at p. 193.

⁵⁴ MND, pdf p. 75.

⁵⁵ MND, Geotechnical Survey p. 15.

⁵⁶ *Id.*

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The MND's failure to analyze the impacts of grading result in an unsupported biological analysis. In particular, the MND's failure to describe the extent of the grading required to lay down the foundations for the Gen-Tie line, the solar arrays, and the electrical equipment renders the biological impact analysis not supported by substantial evidence.

ii. *The MND Fails to Adequately Analyze the Grading Necessary for Construction and Maintenance of Access Roads*

The Project description in the Special Status Plan Survey Report states that the Project will include "site access roads and maintenance of access roads", which will necessarily require substantial grading. But, the MND fails to describe the location and extent of grading required for construction of access roads. The Initial Study states that the "perimeter roads would be 26 feet wide and constructed of compacted native soil and gravel. Internal access roads would be provided to access critical equipment for ongoing operations and maintenance activities. These roadways would be 20 feet wide and constructed of compacted native soil and gravel."⁵⁷ The MND states that minimal grading is expected to be required, but the vicinity map is so vague as to be useless in providing the location of the access roads for which grading will be required. Additionally, the MND fails to indicate the location of access roads necessary for constructing the Gen-Tie line. This omission, when combined with the vague description of grading in the Project Description section, implicates a significant amount of ground disturbing activity for access roads alone that was not analyzed in the MND. Furthermore, the MND fails to describe the type of grading associated with access road creation.

The MND's failure to provide basic information regarding the access road causes the Project's construction emissions to be underestimated. Emissions from access road construction was not included in the MND's CalEEMod analysis. Dr. Fox determined that construction vehicles would generate emissions from travel over compacted soil and gravel access roads, but these emissions were not included in the analysis. An EIR must be prepared to adequately lay out the description of the grading required for Project construction. An EIR must be prepared that adequately analyzes and mitigates resultant impacts.

⁵⁷ IS, p. 3-27.
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V. THE MND FAILS TO ADEQUATELY DESCRIBE THE ENVIRONMENTAL SETTING

The MND describes the existing environmental setting inaccurately and incompletely, thereby skewing the entire impact analysis. The existing environmental setting is the starting point from which the lead agency must measure whether a proposed project may cause a significant environmental impact.⁵⁸ CEQA requires the lead agencies to include a description of the physical environmental conditions in the vicinity of a project, as they exist at the time environmental review commences.⁵⁹ CEQA defines the environmental setting as the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, from both a local and *regional* perspective.⁶⁰

Describing the environmental setting accurately and completely for each environmental condition in the vicinity of the Project is critical to an accurate, meaningful evaluation of environmental impacts. Courts are clear that, “[b]efore the impacts of a Project can be assessed and mitigation measures considered, an [environmental review document] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined.”⁶¹ In fact, it is:

a central concept of CEQA, widely accepted by the courts, that the significance of a Project’s impacts cannot be measured unless the DEIR first establishes the actual physical conditions on the property. In other words, baseline determination is the first rather than the last step in the environmental review process.⁶²

The MND must also describe the existing environmental setting in sufficient detail to enable a proper analysis of Project impacts.⁶³ Section 15125 of the CEQA

⁵⁸ See, e.g., *Communities for a Better Env’t v. S. Coast Air Quality Mgmt. Dist.* (March 15, 2010) 48 Cal.4th 310, 316; *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1277 (“*Fat*”), citing Remy, et al., Guide to the Calif. Environmental Quality Act (1999), p. 165.

⁵⁹ CEQA Guidelines, § 15125(a); see also *Communities for A Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 321; see also, 40 C.F.R. § 1502.15.

⁶⁰ CEQA Guidelines §15125(a) (emphasis added); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453 (“*Riverwatch*”).

⁶¹ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.

⁶² *Save our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.

⁶³ *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1122. 4961-008acp

Guidelines provides that “[k]nowledge of the regional setting is critical to the assessment of environmental impacts.”⁶⁴ This level of detail is necessary to “permit the significant effects of the Project to be considered in the full environmental context.”⁶⁵ The impacts of a project must be measured against the “real conditions on the ground.”⁶⁶ The description of the environmental setting constitutes the “baseline” physical conditions against which the lead agency assesses the significance of a project’s impacts.⁶⁷ “[A]n inappropriate baseline may skew the environmental analysis flowing from it, resulting in an [environmental review document] that fails to comply with CEQA.”⁶⁸ The description of the environmental setting in the MND is inadequate because it omits highly relevant information. The County must gather the relevant data and provide an adequate description of the existing environmental setting in an EIR.

A. The Project Fails to Describe the Existing Biological Resources Setting Against which Impacts Should be Measured

The MND’s treatment of the Project’s existing biological resources setting is grossly inadequate. The MND provides no analysis regarding the potential presence of the federally endangered Carson wandering skipper butterfly. Substantial evidence from readily available scientific data demonstrates that the only extant population of the Carson wandering skipper butterfly is in Lassen County, California. The failure to accurately evaluate the environmental baseline of biological resources in the Project area violates CEQA. Likewise, the MND fails to analyze identify the biological resources along the ten-tie transmission line poles which will interconnect with the Plumas-Sierra Rural Electric 120-kV transmission line approximately 3 miles south of the Project site.

Further, the MND portrays most (250 acres) of the biological impacts as “temporary,”⁶⁹ contrary to CDFW guidance⁷⁰ and CEQA documents for other solar energy facilities in California. According to the Biological Assessment:

⁶⁴ CEQA Guidelines § 15125(c).

⁶⁵ *Id.*

⁶⁶ *CBE v. SCAQMD*, 48 Cal.4th at 321; *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121–122; *City of Carmel-by-the-Sea v. Bd. of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229, 246.

⁶⁷ 14 CCR § 15125(a); *CBE v. SCAQMD*, 48 Cal.4th at 321.

⁶⁸ *San Franciscans for Livable Neighborhoods v. City & County of San Francisco* (“SFLN”) (2018) 26 Cal.App.5th 596, 615 (citations omitted).

⁶⁹ *Ibid.* p. 47.

⁷⁰ See IS/MND, Attachment 4, CDFW comment letter (dated March 26, 2021), p. 4. 4961-008acp

Potential temporary construction impacts may include loss of foraging and/or nesting habitat, decreased habitat value, disturbance of nesting sites, or habitat fragmentation. However, the majority of these impacts will be temporary, as Calneva BESS/PSES plans to restore all disturbed habitats within the project lease area following construction. Temporary impacts resulting from construction activities will be reduced to less than significant levels with the implementation of the avoidance, minimization, and mitigation measures outlined in Section 8 of this report.⁷¹

Habitat restoration is not incorporated into the Project Description or any of the MND's mitigation measures. Even if the Applicant voluntarily attempts habitat restoration, the Applicant has not established performance standards for the restored habitats. As a result, there are no assurances that habitat restoration would occur, or that it would be successful. Furthermore, even if the Applicant successfully restores the *vegetation communities* associated with the "temporary construction impacts," there would be permanent impacts to *habitat*. For example, mammals would no longer be able to access the Project site due to the proposed security fence, and the solar arrays would eliminate habitat for birds (e.g., burrowing owl) that depend on open habitat conditions for predator avoidance and prey acquisition.

i. The MND Fails to Describe the Existing Setting for Natural Areas

The MND states that "no officially designated natural areas exist within one (1) mile of the proposed project lease area."⁷² This statement is not correct and is not supported by substantial evidence.⁷³ The Doyle Wildlife Area is located approximately 0.5 mile south of the proposed site for the photovoltaic solar array and battery energy storage system.⁷⁴ In addition, the northern boundary of the proposed solar field would be located 300 to 350 south of lands that are owned in fee and protected for open space purposes by the California State Lands Commission.⁷⁵ Furthermore, a portion of the proposed gen-tie line route would be enveloped by lands that are owned in fee and protected for open space purposes by the Bureau of

⁷¹ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 47.

⁷² MND, Attachment 11 (Draft Biological Section Submitted by Applicant), *Field Survey* (no page number).

⁷³ Cashen Comments, p. 5.

⁷⁴ Data obtained from California Protected Areas Database. Available at: <<https://www.calands.org/cpad/>>. (Accessed July 24, 2021).

⁷⁵ *Ibid.*

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Land Management (“BLM”) and California Department of Fish and Wildlife (“CDFW”) (See Figure 1 below).⁷⁶ The proposed Project includes permanent removal of “deep-rooted vegetation” within a 30-foot-wide strip centered on electrical infrastructure facilities.⁷⁷ Accordingly, if the electrical infrastructure facilities associated with the Gen-Tie are located at the edge of Calneva Road, permanent impacts to vegetation would extend at least 15 feet into protected lands owned by the BLM or CDFW (depending on whether the gen-tie is installed on the east or west side of Calneva Road).⁷⁸

The entire Project area is located within the Honey Lake Valley Important Bird Area (“IBA”).⁷⁹ IBAs are officially designated places of international significance for the conservation of birds and other biodiversity.⁸⁰ In addition, IBAs are:

- Recognized world-wide as practical tools for conservation.
- Distinct areas amenable to practical conservation action.
- Identified using robust, standardized criteria.
- Sites that together form part of a wider integrated approach to the conservation and sustainable use of the natural environment.⁸¹

⁷⁶ *Ibid.*

⁷⁷ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 48.

⁷⁸ Cashen Comments, p. 5.

⁷⁹ See National Audubon Society. 2013. Important Bird Areas: Honey Lake Valley, California [online]. Available at: <<https://www.audubon.org/important-bird-areas/honey-lake-valley>>. (Accessed July 23, 2021).

⁸⁰ See BirdLife International. 2021. Important Bird and Biodiversity Areas (IBAs) [website]. Available at: <<http://www.birdlife.org/worldwide/programme-additional-info/important-bird-and-biodiversity-areas-ibas>>. (Accessed July 23, 2021).

⁸¹ *Ibid.*

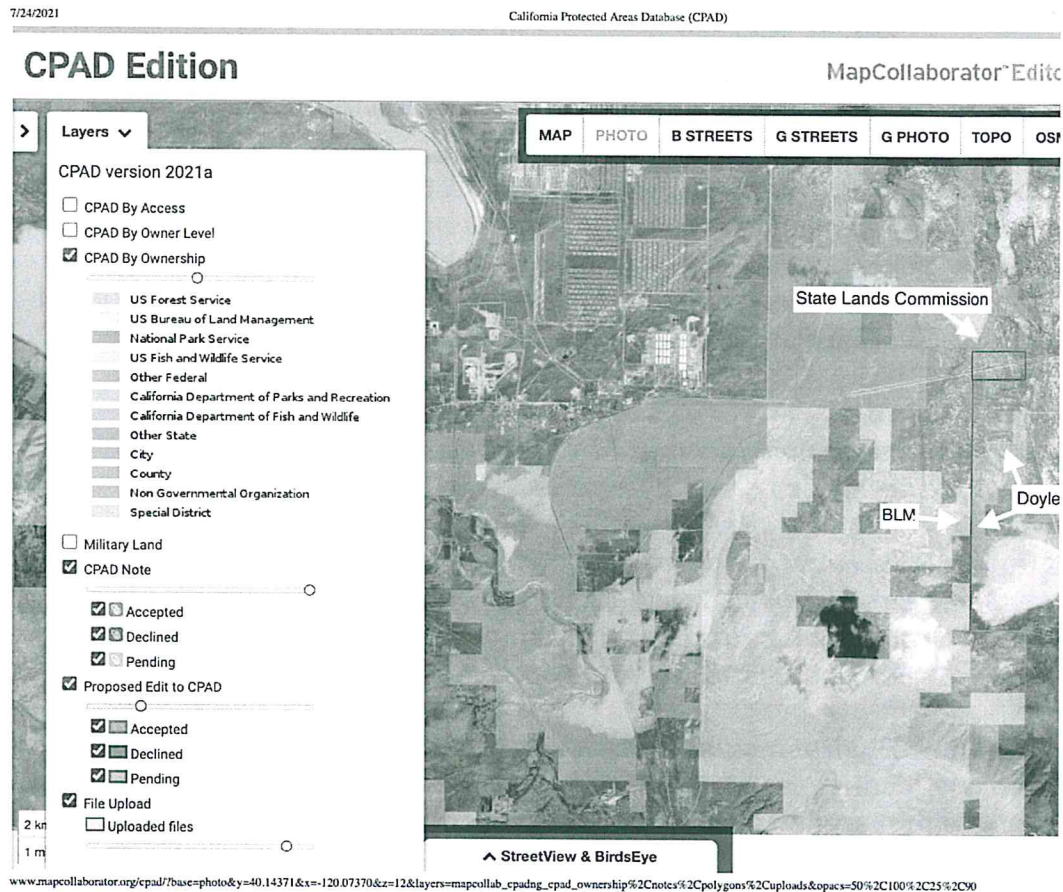


Figure 1. Proposed Project site and gen-tie (red lines) in relation to lands owned in fee and protected for open space purposes by the BLM, CDFW, and CA State Lands Commission.

By omitting these lands from the MND’s description of environmental setting, the MND omits critical details regarding the Project’s impacts. These impacts must be disclosed and analyzed in an EIR.

ii. *The MND Fails to Describe the Existing Setting for Sensitive Vegetation Communities*

The MND states that the “vegetation on the project lease area is not sensitive and is not considered a significant biological resource for analysis purposes in this

report.”⁸² This statement is not supported by substantial evidence. The Applicant’s consultant failed to use adequate methods recommended by the CDFW to classify vegetation communities. The Applicant failed to utilize the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (“Protocols”).⁸³ The CDFW comments submitted to the County informed the Applicant that the Protocols should be implemented to provided a thorough assessment of rare plants and rate natural communities onsite.

Mr. Cashen determined that based on the description of the plants at the Project site, Sensitive Natural Communities may occur at the Project site, including: .⁸⁴

- *Artemisia tridentata* / *Distichlis spicata*
- *Leymus cinereus*
- *Sarcobatus vermiculatus* – *Atriplex confertifolia* – (*Picrothamnus desertorum*, *Suaeda moquinii*)
- *Sarcobatus vermiculatus* / *Leymus cinereus*
- *Sarcobatus vermiculatus* / *Distichlis spicata*
- *Sarcobatus vermiculatus* – *Artemisia tridentata*⁸⁵

The Environmental Setting Analysis in the MND is inadequate for failure to correctly identify the sensitive natural communities on the Project site. An EIR must be prepared with an updated Environmental Setting to satisfy CEQA.

iii. *The MND Fails to Describe the Existing Setting for Rare Plants*

The MND’s analysis regarding the lack of special status species on the Project site is not supported by substantial evidence. Mr. Cashen determined that the Project area contains the following special-status plant species which were detected during surveys conducted for the nearby Tuscarora Natural Gas Pipeline including: Hillman’s cleomella (*Cleomella hillmanii* var. *hillmanii*); Dugway wild

⁸² Biological Assessment, p. 41.

⁸³ California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. p. 9.

⁸⁴ See IS/MND, p. 36 and Attachment 10 (Draft IS/MND), p. 6-35.

⁸⁵ California Department of Fish and Wildlife. 2020 Sep 9. California Sensitive Natural Communities. Available at: <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline>>. (Accessed July 23, 2021).

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buckwheat (*Eriogonum nutans* var. *nutans*); and Nelson's evening-primrose (*Eremothera minor*).⁸⁶

Sierra Geotech conducted focused surveys for special-status plants in the Project area on April 22, April 30, May 4, and May 15, 2021. The MND states:

According to the biological assessment, the special status plant-focused surveys “carried out in the blooming season of 2021 did not find any special status plant species on the proposed project area.” Therefore, the existing environmental conditions, the baseline at the project site, is that there are no known special status plant species that exists at the project site.⁸⁷

There are several errors in the County’s determination. First, the statement that the surveys were conducted during the peak blooming periods is not supported by evidence because, contrary to the CDFW Protocols, Sierra Geotech did not visit reference sites to verify that special-status plants known to occur in the region were identifiable at the time of the surveys.⁸⁸ The failure to visit reference sites is a critical error because Sierra Geotech’s surveys were conducted during a drought year, and many of the special-status species that have potential to occur at the Project site may not be evident and identifiable during drought years.

Second, it appears Sierra Geotech made no effort to relocate the special-status plant populations that had been detected in the Project area during surveys conducted for the Tuscarora Natural Gas Pipeline. Nevertheless, the CDFW Protocols state: “[t]he failure to locate a known special status plant occurrence during one field season does not constitute evidence that the plant occurrence no longer exists at a location, particularly if adverse conditions are present.”⁸⁹ Because Sierra Geotech’s surveys were limited to one field season during a drought year, the County must assume Hillman’s cleomella, Dugway wild buckwheat, and Nelson's evening-primrose continue to occupy the Project site.

Third, the IS/MND fails to provide evidence that the botanical field surveyors had the qualifications needed to identify sensitive botanical resources in the Project area.⁹⁰

⁸⁶ Cashen Comments, p. 6.

⁸⁷ MND, p. 33.

⁸⁸ California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 6.

⁸⁹ *Id.*, p. 7.

⁹⁰ *Id.*, p. 11.

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Fourth, it appears the botanical surveys were limited to area for the proposed photovoltaic solar array and battery energy storage system, and did not encompass areas that would be impacted by installation of the gen-tie line. The survey area should have included the entire Project area, even offsite elements, like the Gen-Tie Line. The failure to include the analysis of the environmental setting around the Gen-Tie line and the presence of rare plants causes the biological resources analysis to not be supported by substantial evidence and constitutes a violation of CEQA.

An EIR must be prepared to adequately analyze the environmental setting regarding rare plants.

iv. The MND Fails to Describe the Existing Setting for Vegetation Surrounding the Gen-Tie Poles

The County provided survey data and the map of vegetation only for the solar array and battery energy storage system. The County failed to adequately describe the environmental setting surrounding the 24 130-foot tall steel gen-tie transmission line poles Project element. The MND fails to provide a full list of taxa as required by CDFW Protocols. Per the CDFW Protocols, botanical survey reports submitted with project environmental documents should contain: “[a] list of all plant taxa occurring in the project area, with all taxa identified to the taxonomic level necessary to determine whether or not they are a special status plant.”⁹¹ A list of all plant taxa identified in the Project area is essential to understanding: (a) the environmental setting; (b) adverse conditions that may have prevented the field surveyors from adequately capturing the floristic diversity of the Project area; and (c) habitat conditions for the Carson wandering skipper.⁹²

v. The MND Fails to Describe the Existing Setting for Carson Wandering Skipper Butterfly

The County’s failure to provide an environmental setting with analysis of the Carson wandering skipper butterfly reveals that the environmental setting analysis is not supported by substantial evidence, as required by CEQA.⁹³ The MND fails to reference the potential presence of the federally endangered Carson wandering skipper butterfly (*Pseudocopaeodes eunus obscurus*). A population was present in

⁹¹ California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 10.

⁹² Cashen Comments, p. 10 -11.

⁹³ CEQA Guidelines § 15125(a)(1).
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Lassen County at the time the Carson wandering skipper was listed under the Endangered Species Act.⁹⁴ There are believed to be only four extant populations of the Carson wandering skipper, three in Nevada, and one in Honey Lake Valley, California.⁹⁵ The Project site and gen-tie line ROW are within the range of the Carson wandering skipper (Figure 2).⁹⁶



Figure 2. Proposed Project site (yellow rectangle) in relation to the geographic range of the Carson wandering skipper (shaded blue).

The MND states that “[t]he approximately +/- 278 acre proposed project area is predominately flat with regional habitats comprised mainly of big sagebrush, greasewood scrub, and saltgrass flats.”⁹⁷ The Project site is within the range of the federally endangered Carson wandering skipper butterfly, which is dependent on

⁹⁴ Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Carson Wandering Skipper, 67 Fed. Reg. 51116 (Aug. 7, 2002).

⁹⁵ United States Fish and Wildlife Service. 2012. Carson Wandering Skipper (*Pseudocopaeodes eunus obscurus*), 5-Year Review: Summary and Evaluation. 44 pp.

⁹⁶ United States Fish and Wildlife Service. 2021. ECOS Environmental Conservation Online System. Carson wandering skipper (*Pseudocopaeodes eunus obscurus*). Available at: <<https://ecos.fws.gov/ecp/species/674>>. (Accessed July 24, 2021).

⁹⁷ IS, p. 6-35.

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saltgrass.⁹⁸ An EIR must be prepared which adequately analyzes the environmental setting surrounding the potential presence of Carson wandering skipper butterfly.

Further, CEQA provides that “[s]pecial emphasis should be placed on environmental resources that are rare or unique to that region and would be affected by the project.”⁹⁹ CEQA requires the Applicant to “demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and must permit the significant effects of the project to be considered in the full environmental context.”¹⁰⁰ The Applicant fails to comply with CEQA by omitting the potential presence of the federally endangered Carson wandering skipper butterfly population. An EIR must be prepared to adequately analyze the presence of the Carson wandering skipper and potential impacts to this endangered butterfly.

vi. *The MND Fails to Describe the Existing Setting for American Badger*

The MND states “It appears then that some burrow habitat may exist at the project site; however, at the time of survey, said burrows were unoccupied.”¹⁰¹ The MND subsequently suggests that determining occupancy requires “a game camera at the den(s) for three (3) days and three (3) nights to determine if the den is in use.”¹⁰² The Applicant’s consultant did not install game cameras at the burrows to infer vacancy. Therefore, the MND’s conclusion regarding the vacancy of burrows is not supported by substantial evidence.¹⁰³

vii. *The MND Fails to Describe the Existing Setting for Long-Eared Owl and Burrowing Owl*

The MND concludes that “[t]he project lease area provides no suitable habitats for nesting and roosting. The project lease area only provides potential for foraging areas.”¹⁰⁴ In most locations long-eared owls nest almost exclusively in

⁹⁸ Cashen Comments, p. 11.

⁹⁹ CEQA Guidelines § 15125(c).

¹⁰⁰ *Id.*

¹⁰¹ Biological Assessment, p. 33.

¹⁰² *Id.* at 55.

¹⁰³ See Cashen Comments, p. 8.

¹⁰⁴ IS, p. 34.

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trees.¹⁰⁵ However, the Honey Lake Valley contains a breeding population of long-eared owls that nest under sagebrush (which occurs at the Project site).¹⁰⁶ According to Audubon: "A breeding population of Long-eared Owls occurs here [in the Honey Lake Valley], nesting under sagebrush, and a colony of Burrowing Owls persists on the Sierra Army Depot."¹⁰⁷ As a result, the County cannot assume absence of nesting habitat, and thus, that the Project would have a less than significant impact on the long-eared owl.¹⁰⁸ There is substantial evidence supporting a fair argument that there are long-eared owls on the Project site, and an EIR, with an adequate environmental setting analysis is required.

The MND does not address the burrowing owl, which is a California Species of Special Concern.¹⁰⁹ The overriding characteristics of burrowing owl habitat are burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs or taller vegetation.¹¹⁰ Burrowing owls have been observed nesting along the Herlong lateral, which passes through the Project site.¹¹¹ Portions of the Project site provide suitable nesting and foraging habitat for burrowing owls.

As Mr. Cashen explains, burrowing owls can be difficult to detect due to their cryptic coloration, extensive use of burrows, and tendency to flush (fly away) when approached.¹¹² As a result, burrowing owl researchers and the CDFW have concluded that four independent breeding season surveys are necessary to provide

¹⁰⁵ Cashen Comments, p. 8.

¹⁰⁶ National Audubon Society. 2013. Important Bird Areas: Honey Lake Valley, California [online]. Available at: <<https://www.audubon.org/important-bird-areas/honey-lake-valley>>. (Accessed July 23, 2021).

¹⁰⁷ Audubon, Important Bird Areas: Honey Lake Valley California, (2008) <https://www.audubon.org/important-bird-areas/honey-lake-valley>.

¹⁰⁸ Cashen Comments, p. 8.

¹⁰⁹ *Id.*

¹¹⁰ Gervais JA, DK Rosenberg, LA Comrack. 2008. Burrowing Owl (*Athene cunicularia*). Pages 218-226 *In*: Shuford WD, T Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

¹¹¹ Federal Energy Regulatory Commission and California State Lands Commission. 1995 Apr. Final EIR/EIS: Tuscarora Natural Gas Pipeline Project. p. ES-14.

¹¹² Cashen Comments, p. 8; Klute DS, LW Ayers, MT Green, WH Howe, SL Jones, JA Shaffer, SR Sheffield, TS Zimmerman. 2003. Status assessment and conservation plan for the western Burrowing Owl in the United States. Bio Tech Pub FWS/BTP-R6001-2003. Washington: US Fish and Wildlife. Available at: <<https://www.fws.gov/mountain-prairie/migbirds/species/birds/wbo/Western%20Burrowing%20Owlrev73003a.pdf>>. 4961-008acp

reliable information on the presence of burrowing owls.¹¹³ Data from the four surveys (termed “detection surveys” in CDFW’s Staff Report on Burrowing Owl Mitigation) are essential to avoiding, minimizing, and properly mitigating the direct and indirect effects of the Project on burrowing owls. Sierra Geotech did not conduct any “detection surveys” for burrowing owls, and because burrowing owls that nest at higher elevations (e.g., Modoc Plateau) migrate to lower elevations in winter, it is unlikely Sierra Geotech would have incidentally detected burrowing owls during their biological reconnaissance surveys (conducted in September 2019, December 2019, and February 2021). As a result, the County lacks the information needed to properly disclose and evaluate Project impacts to burrowing owls, and perhaps more importantly, to ensure effective mitigation.¹¹⁴ The environmental setting analysis is therefore not supported by substantial evidence. An EIR must be prepared that fully and adequately analyzes the environmental setting with respect to burrowing owls.

viii. The MND Fails to Describe the Existing Setting for Swainson’s Hawk

The MND fails to analyze the potential presence of Swainson’s Hawk which is listed as threatened under the California Endangered Species Act. As Mr. Cashen explains, this is a major omission in the MND’s impact analysis. Studies have shown that Swainson’s hawks may travel up to 18 miles from the nest to forage.¹¹⁵ To reverse the decline of Swainson’s hawk populations, it is CDFW’s policy that new development projects that adversely modify nesting or foraging habitat within 10 miles of an active nest should mitigate the project’s impacts by providing compensatory mitigation.¹¹⁶ According to CDFW, the 10-mile foraging radius recognizes the need to strike a balance between the biological needs of reproducing pairs (including eggs and nestlings) and the economic benefit of development(s) consistent with Fish and Game Code Section 2053.¹¹⁷

¹¹³ California Department of Fish and Wildlife. 2012. Staff Report on Burrowing Owl Mitigation. Appendix D (Breeding and Non-breeding Season Surveys and Reports).

¹¹⁴ *Id.* at pp. 5, 6 and 29.

¹¹⁵ California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson’s hawks (*Buteo swainsoni*) in the Central Valley of California.

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.* p. 2.

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Several Swainson's hawk nest sites (or nest territories) have been detected within 10 miles of the Project site.¹¹⁸ Although the Project site does not provide nesting habitat for Swainson's hawks, it provides foraging habitat for Swainson's hawks that nest in the area. Loss of foraging habitat is one of the primary threats to Swainson's hawks in California.¹¹⁹ In addition to generating a potentially significant impact under CEQA, the loss of foraging habitat from the Project site may result in the take (killing) of Swainson's hawks, which would be a violation of Section 2080 of California Fish and Game Code.¹²⁰ Because the IS/MND does not incorporate mitigation for the loss of foraging habitat from the Project site, Project impacts on the Swainson's hawk remain potentially significant. An EIR must be prepared which adequately analyzes the environmental setting, impacts to Swainson's hawks, and sufficiently mitigates significant impacts.

ix. *The MND Fails to Describe the Existing Setting for Loggerhead Shrike*

Loggerhead shrikes are a California species of special concern and were observed during the 2021 survey of the Project site, according to the California Department of Fish and Wildlife ("CDFW").¹²¹ But, the MND provides no analysis or mitigation for potentially significant impacts to loggerhead shrike, which was detected onsite. The CDFW letter to the County states: "A major threat to this species is habitat loss both breeding and wintering grounds."¹²² The Project's Biological Assessment states the Project could have direct and indirect impacts on the loggerhead shrike and its habitat.¹²³ Nevertheless, the MND fails to disclose or analyze the significance of Project impacts on the loggerhead shrike. Substantial evidence supports a fair argument that the Project will have significant impacts on the loggerhead shrike species. An EIR is required to adequately analyze and mitigate impacts to loggerhead shrike.

¹¹⁸ California Natural Diversity Database. 2021. RareFind 5 [Internet]. California Department of Fish and Wildlife [July 6, 2021].

¹¹⁹ California Department of Fish and Wildlife. 2016. Status Review: Swainson's Hawk (*Buteo swainsoni*) in California.

¹²⁰ California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.

¹²¹ Letter from Curt Babcock, Habitat Conservation Program Manager, California Department of Fish and Wildlife, to Stefano Richichi, Senior Planner, County of Lassen (Mar. 26, 2021) (https://files.ceqanet.opr.ca.gov/265389-2/attachment/NMXmWSETJZSsONzZqMmJY8H_xqdY3Kf-PTXp9s5hMWDVhxbZnib_CJNXiQYkIXh0goxdfqVARlcd6Bvs0).

¹²² *Id.*

¹²³ Biological Assessment, p. 47.
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x. *The MND Fails to Describe the Existing Setting for Nesting Birds*

According to the IS/MND: “[n]o nesting birds were found during the biological assessments conducted by Sierra Geotech. The current baseline conditions, then, are that there are no nesting birds on-site.”¹²⁴ These statements are misleading and misrepresent the value of the Project site to nesting birds.¹²⁵ The surveys for the biological assessments were conducted outside of the avian nesting season, which is not a reliable approach for detecting bird nests. Most bird species construct well-concealed or camouflaged nests.¹²⁶ As a result, finding bird nests generally requires observations of bird behaviors (e.g., territorial defense behavior, food deliveries) that are only evident during the breeding season.¹²⁷ Whereas Sierra Geotech’s special-status plant surveys were conducted during the avian breeding season, the survey report provides no evidence that the biologists searched for bird nests.¹²⁸ Despite these limitations, the BA states that a loggerhead shrike nest was detected onsite during the February 26, 2021, field survey, but that the biologist *believed* (i.e., did not confirm) the nest was inactive.¹²⁹ Mr. Cashen concluded that it was impossible that a 278-acre site does not support any nesting birds.¹³⁰ The environmental setting analysis regarding nesting birds is not supported by substantial evidence. An EIR must be prepared which adequately analyzes and addresses Project impacts to nesting birds.

xi. *The MND Fails to Describe the Existing Setting for Jurisdictional Waters*

The Project site may contain jurisdictional surface water features which qualify as Waters of the State and federal Waters of the United States.¹³¹ “Waters of the State” means any surface water or groundwater, including saline waters,

¹²⁴ IS for Use Permit, p. 37.

¹²⁵ Cashen Comments, p. 13.

¹²⁶ DeSante DF, GR Geupel. 1987. Landbird productivity in central coastal California: the relationship to annual rainfall and a reproductive failure in 1986. *Condor*. 89:636-653.

¹²⁷ *Ibid.* See also Martin TE, GR Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. *J. Field Ornithol.* 64(4):507-519. See also Rodewald AD. 2004. Nest-Searching Cues and Studies of Nest-Site Selection and Nesting Success. *J. Field Ornithol.* 75(1):31-39.

¹²⁸ Cashen Comments, p. 13.

¹²⁹ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 40.

¹³⁰ Cashen Comments, p. 13.

¹³¹ Cashen Comments, p. 13.

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within the boundaries of the state.¹³² The CDFW submitted comments to the County indicating it considers the alkali playas at the Project site to be State wetlands until the Project applicant can demonstrate otherwise with updated wetland surveys.¹³³

Commenters' experts demonstrated substantial evidence that supports a fair argument that the site contains jurisdictional wetlands. The presence of jurisdictional wetlands is an extraordinary circumstance which requires preparation of an EIS.¹³⁴ NEPA regulations provide that potentially adverse or uncertain impacts to protected resources such as wetlands or other Waters of the United States regulated under the Clean Water Act require "heightened review of proposed actions."¹³⁵

Per section 404 of the CWA, any discharge of dredged or fill material into navigable waters/waters of the United States requires a permit issued by the U.S. Army Corps of Engineers ("USACE").¹³⁶ 40 C.F.R. § 230.10 similarly requires that permits issued under section 404 of the CWA include "appropriate and practicable" mitigation measures to reduce the environmental impact of permitted activities.¹³⁷

The MND consultant, Sierra Geotech, argues the playas do not qualify as wetlands. The MND expresses the County's determination that, based on Sierra Geotech's analysis, the playas are not wetlands.¹³⁸ However, this statement is not supported by substantial evidence and is contradicted by substantial evidence from regulatory agencies.

The California Water Boards define wetlands as follows:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.¹³⁹

¹³² Water Code § 13050(e).

¹³³ IS/MND, Attachment 4.

¹³⁴ 7 C.F.R. § 799.33; 40 CFR § 1501.4.

¹³⁵ 7 C.F.R. § 799.33(a)(2)(iv).

¹³⁶ 33 U.S.C. § 1344.

¹³⁷ 40 C.F.R. § 230.10(d).

¹³⁸ IS/MND, p. 36.

¹³⁹ IS/MND, p. 34.

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First, the Applicant argues that the “entire project site is made up of Epot-Ragtown Playas complex soils, which is ‘incapable of continuous or recurrent saturation of the upper substrate caused by groundwater,’ as it well-drained with very high runoff characteristics.”¹⁴⁰ This argument conflicts with soil survey data provided by the Natural Resources Conservation Service. Detailed soil maps are comprised of map units. Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small area that they cannot be shown separately on the maps.¹⁴¹ For example, the Epot-Ragtown-Playas complex has three components: (1) Epot, (2) Ragtown, and (3) Playas.

“Surface runoff” refers to the loss of water from an area by flow over the land surface.¹⁴² Surface runoff classes are based on slope, climate, and vegetative cover. Epot soils have medium surface runoff, whereas Ragtown soils have high surface runoff. Playas have *negligible* surface runoff.¹⁴³ Thus, none of the components of the soils at the Project site have “very high runoff characteristics” as asserted in the Applicant’s argument.

“Drainage class” refers to the frequency and duration of wet periods under conditions similar to those under which the soil developed. Soils in the Epot component are “well drained” (water is removed from the soil readily but not rapidly).¹⁴⁴ Soils in the Ragtown and Playas components are “moderately well drained” (water is removed from the soil somewhat slowly during some periods of the year).¹⁴⁵ Thus, the MND’s argument that the soils are “incapable of continuous or recurrent saturation [because they are] well-drained with very high runoff characteristics” is false.

The MND contends that: “[t]he alkali basins/flats/playas on the lease area do not qualify as jurisdictional wetlands because of the lack of hydrophytic vegetation

¹⁴⁰ IS/MND, p. 35.

¹⁴¹ See Natural Resources Conservation Service. 2004. Soil Survey of Susanville Area, Parts of Lassen and Plumas Counties, California. p. 8.

¹⁴² Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey [online]. Available at: <<http://websoilsurvey.sc.egov.usda.gov/>>. (Accessed July 24, 2021).

¹⁴³ *Ibid.*

¹⁴⁴ University of California at Davis, University of California Agriculture and Natural Resources, and USDA Natural Resources Conservation Service. SoilWeb [online application]. Available at: <<https://casoilresource.lawr.ucdavis.edu/gmap/>>. (Accessed July 24, 2021).

¹⁴⁵ *Ibid.*

and lack of wetland hydrology and hydric soils.”¹⁴⁶ Mr. Cashen explains that this is not a valid argument because: (1) the Playas component of the Epot-Ragtown-Playas complex is classified as a hydric soil;¹⁴⁷ (2) the lack of hydrophytic vegetation cannot be used to eliminate the potential for State wetlands (which encompass areas that lack vegetation); and (3) efforts to evaluate hydrology were limited to evaluation of a single indicator (i.e., visual observations of inundation).¹⁴⁸

The MND next argues: “[i]n addition, borings conducted by Sierra Geotech and monitoring wells within the vicinity of the project site indicate that groundwater is not present until approximately 30 feet below the surface.”¹⁴⁹ It may be true that groundwater is not present until approximately 30 feet below the surface. However, the criterion used to define State wetlands is: “the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or *shallow surface water*, or both.”¹⁵⁰ Because of their physical properties, the playas in the Project area have recurrent saturation of the upper substrate due to *shallow surface water* that ponds within the playas after precipitation events. As discussed previously and in Mr. Cashen’s comments, ponding of playas in the Epot-Ragtown-Playas complex is “frequent” and for “long” durations (7-30 days) between February and September.¹⁵¹

Indicators of wetland hydrology include but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gage data and flood predictions, historic records, visual observation of saturated soils, and visual observation of inundation.¹⁵² Sierra Geotech’s efforts to investigate wetland hydrology were limited to visual observations of inundation. According to the BA: “[w]ater has been observed to collect temporarily during rain events, and then dry within 24 hours (reconnaissance survey December 2019 and February 2021) in the alkali basin/flats/playa areas of the project lease area.”¹⁵³ Visual observations from

¹⁴⁶ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. *iii*.

¹⁴⁷ University of California at Davis, University of California Agriculture and Natural Resources, and USDA Natural Resources Conservation Service. SoilWeb [online application]. Available at: <<https://casoilresource.lawr.ucdavis.edu/gmap/>>. (Accessed July 24, 2021).

¹⁴⁸ Cashen Comments, p. 15.

¹⁴⁹ IS/MND, p. 35.

¹⁵⁰ Cashen Comments, p. 15.

¹⁵¹ *Id.*

¹⁵² Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. pp. 30 and 31.

¹⁵³ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. *iii*.
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these two surveys cannot be used to disqualify the playas as wetlands. The BA provides no evidence of a rain event prior to the February 2021 survey, and according to Sierra Geotech: “[t]he December field survey had *a few short rain events* during the visit.”¹⁵⁴ According to the soil survey data, ponding of the playas at the Project site occurs between February and September, and the chance of ponding is more than 50 percent in a given year. Thus, visual observations from a single visit between February and September does not provide conclusive evidence, especially because: (a) the February 2021 survey was conducted during a drought year; and (b) as reported by Sierra Geotech: “puddling is sporadic and unpredictable from one year to the next.”¹⁵⁵

Most importantly, the Army Corps of Engineers’ *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* states:

Hydrology indicators are often the most transitory of wetland indicators. Those involving direct observation of surface water or saturated soils are usually present only during the normal wet portion of the growing season and may be absent during the dry season or during drier-than-normal years. The Arid West is characterized by extended dry seasons in most years and by extreme temporal and spatial variability in rainfall, even in “normal” years. Many wetlands in the region are dry for much of the year and, at those times, may lack hydrology indicators entirely. Therefore, *lack of an indicator is not evidence for the absence of wetland hydrology.*¹⁵⁶

Furthermore, Sierra Geotech’s claim that the playas were dry within 24 hours of rain events conflicts with the photos provided in the Biological Assessment and Phase I Environmental Site Assessment.¹⁵⁷ Several of the photos depict inundation, or at a minimum, saturated soil conditions (an indicator of wetland hydrology).¹⁵⁸ Sierra Geotech conducted a geotechnical exploration, which consisted of 14 borings in the Project area. These borings were sent to a laboratory for testing. The MND and technical appendices point to the borings as evidence that:

¹⁵⁴ IS/MND, Attachment 11 (Draft Biological Section Submitted by Applicant), *Field Survey* (no page number). [emphasis added].

¹⁵⁵ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 27.

¹⁵⁶ U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center. p. 58.

¹⁵⁷ Cashen Comments, p. 15.

¹⁵⁸ *Ibid*, pp. A-9 and A-10. See also Sierra Geotech. 2019 Dec 30. Phase I Environmental Site Assessment. p. A-5 (Photograph No. 7).
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“project site soils do not meet the first criteria of the California State Water Resources Control Board definition of a wetland.”¹⁵⁹ The MND provides no evidence that any of the borings were in a playa, therefore this analysis is not based on substantial evidence. Furthermore, although the borings demonstrated absence of groundwater within 24.5 feet of the ground surface, the borings cannot be used to demonstrate absence of recurrent saturation caused by shallow surface water.¹⁶⁰

Criterion number two for identifying state wetlands is whether the duration of soil saturation is sufficient to cause anaerobic conditions in the upper substrate. Identifying anaerobic conditions in the upper substrate requires digging soil pits (approximately 16 inches deep) and carefully examining the soil cores for hydric soils indicators.¹⁶¹ Sierra Geotech did not implement these procedures, and no wetland data forms were completed. Instead, Sierra Geotech merely asserted: “[t]here is no data available that establishes the proposed project site soils have anaerobic conditions in the upper substrate.”¹⁶² The MND’s conclusions regarding the presence of wetlands on the Project site is not based on substantial evidence. Substantial evidence supports a fair argument that, in fact, the site hosts jurisdictional wetlands.

The MND fails to adequately analyze these impacts. An EIR and EIS must be prepared which fully details, analyzes, and mitigates impacts to wetlands.

VI. AN EIR IS REQUIRED FOR THE PROJECT BECAUSE THERE IS SUBSTANTIAL EVIDENCE SUPPORTING A FAIR ARGUMENT THAT THE PROJECT WILL HAVE SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACTS

A negative declaration is improper, and an EIR must be prepared, whenever it can be fairly argued on the basis of substantial evidence that the project may have a significant environmental impact.¹⁶³ “[S]ignificant effect on the

¹⁵⁹ For example, see Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 28.

¹⁶⁰ Cashen Comments, p. 16.

¹⁶¹ See Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Appendix D.

¹⁶² Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 29.

¹⁶³ PRC § 21151; 14 CCR § 15064(f); *Citizens for Responsible Equitable Envt’l Dev. v. City of Chula Vista* (“CREED”) (2011) 197 Cal.App.4th 327, 330-31; *Communities for a Better Env’t v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 319 (“CBE v. SCAQMD”).

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environment” is defined as “a substantial, or potentially substantial, adverse change in the environment.”¹⁶⁴ An effect on the environment need not be “momentous” to meet the CEQA test for significance; it is enough that the impacts are “not trivial.”¹⁶⁵ Substantial evidence, for purposes of the fair argument standard, includes “fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact.”¹⁶⁶

Citizens’ experts have presented direct and substantial evidence raising a fair argument that the Project will have significant impacts on air quality, biological resources, energy, GHG emissions, hazardous materials, wetlands, and wildfires. An EIR must be prepared to further evaluate and mitigate the significant impacts to less than significant levels.

A. The Project’s Construction Emissions Impacts Are Significant and Unmitigated

The Project’s construction emissions are significant and unmitigated. The Lassen County Air Pollution Control District (“District”) recognized that “[t]he District is in nonattainment of the state air quality standards for particulate matter and is impacted by the effects of toxic air contaminants, including diesel particulate matter and other pollutants from mobile sources.”¹⁶⁷

The MND concludes, absent substantial evidence, that the “air quality violations are less than significant.”¹⁶⁸ This statement is absurd, a violation of an air quality threshold constitutes a significant impact under CEQA.

The MND states that “there is no quantified threshold provided by the LCAPCD for mobile sources.”¹⁶⁹ Thresholds of significance may not be applied “in a way that forecloses the consideration of any other substantial evidence showing there may be a significant effect.”¹⁷⁰ Here, the County’s failure to create or cite to a

¹⁶⁴ PRC § 21068; 14 CCR § 15382; *County Sanitation Dist. No. 2 v. County of Kern* (2005) 127 Cal.App.4th 1544, 1581.

¹⁶⁵ *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 83.

¹⁶⁶ PRC § 21080(e)(1) (emphasis added); *CREED*, 197 Cal.App.4th at 331.

¹⁶⁷ Lassen County Air Pollution Control District Governing Board, (May 12, 2020) Agenda Packet p. 23, <http://www.lassenair.org/files/134229374.pdf>.

¹⁶⁸ IS, p. 6-30.

¹⁶⁹ IS, p. 6-28.

¹⁷⁰ *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114.

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significance threshold does not shield the County from analyzing substantial evidence in the record that supports a fair argument that the Project has significant air quality impacts. Such impacts must be analyzed in an EIR.

Dr. Fox determined that the Project's particulate matter (PM10, PM2.5) and NOx emissions are underestimated and significant due to the failure to require Tier 4 construction equipment, the use of an erroneously low grading area, and the omission of fugitive dust emission data.

CEQA Guidelines section 15064 requires the agency to answer two questions in its initial study in order to assess whether a cumulative effect triggers the need for an EIR – whether the cumulative impact itself may be significant, and whether the project's incremental contribution to that effect would be “cumulatively considerable.”¹⁷¹ Appendix G of the CEQA Guidelines similarly requires a cumulative impacts analysis for all initial studies. With regard to air quality impacts, Appendix G specifically requires the agency to make a finding that project has significant cumulative impacts if it will “result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment.”¹⁷² Here, the Air District is in nonattainment for particulate matter. But the MND does not adequately analyze and mitigate these or other air quality impacts. Substantial evidence supports a fair argument that an EIR is required to analyze and mitigate Project impacts related to air quality.

*i. The MND Fails to Adequately Analyze and Mitigate
Construction Emissions from Diesel Off-road Engines*

Dr. Fox concluded that construction emissions are significant and unmitigated. The MND fails to provide the engine tier utilized in construction equipment for the Project. Moreover, the MND and Mitigation Monitoring and Reporting Program fail to mandate Tier 4 engines (or any other high-level tiered off-road engines), which would reduce the Project's construction emissions to less-than-significant.

Without identifying the tier of the construction equipment assumed in the CalEEMod construction emission calculations and requiring it as mitigation, the Applicant is free to use the cheapest, highest-emitting, Tier 1 equipment to build the Project. Tier 1 construction equipment would emit over 7 times more NOx and

¹⁷¹ 14 CCR § 15064(h)(1).

¹⁷² Appendix G, Section III.c.
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15 times more PM10 than the most efficient Tier 4 construction equipment. As Dr. Fox explains, the Applicant has a significant financial incentive to use lower-tier, higher-polluting equipment as it is much cheaper than the newer, better controlled Tier 4 construction equipment. Thus, unmitigated increases in NOx and PM10 from construction equipment could exceed significance thresholds for NOx and particulate matter, even if all feasible BACT/BMPs are applied. The MND fails as an informational document under CEQA for failing to disclose the assumed engine tier in the CalEEMod analysis, and Dr. Fox provides substantial evidence supporting a fair argument that these emissions are likely to be significant and unmitigated. Absent enforceable limits on engine tiers, construction NOx emissions are significant and unmitigated.

ii. *The MND Fails to Adequately Analyze and Mitigate Impacts from Grading*

The MND provides conflicting information about the extent of grading necessary for Project construction. The MND relies on CalEEMod modeling that assumes only 25 acres of the site would require grading.¹⁷³ But the MND states that “Project grading requirements are anticipated to be approximately 200 acres, of the Solar Field Area and in the locations of the substation, BESS, and laydown areas...”¹⁷⁴ This inconsistency in the modeling and Project Description renders the MND inadequate under CEQA.

Dr. Fox determined that if the emissions modeling had included the correct figure of 200 acres of grading, the emissions reported in the MND would be eight times higher than reported.¹⁷⁵ Dr. Fox determined that this will increase NOx emissions from 19.1 lb/day to 152.8 lb/day, which exceeds the IS/MND’s NOx significance threshold of 150 lb/day and is a significant construction air quality impact requiring mitigation.¹⁷⁶ Further, Dr. Fox concluded that the higher graded acreage will also increase particulate matter emissions (PM10, PM2.5) from 109.59 lb/day to 876.72 lb/day, exceeding the IS/MND’s particulate matter significance threshold of 150 lb/day and is a significant impact requiring mitigation.¹⁷⁷

¹⁷³ Appendix E, pdf 9; Fox Comments, p. 12.

¹⁷⁴ IS, p. 3-29.

¹⁷⁵ IS, Table 6.3-8, p. 6-29.

¹⁷⁶ Fox Comments, p. 13.

¹⁷⁷ IS, Table 6.3-8, p. 6-29; Fox Comments, p. 13.

The MND asserts that “BMPs [best management practices] would reduce any temporary issue of fugitive dust emissions...”¹⁷⁸ But this statement is not supported by substantial evidence. Dr. Fox determined that the fugitive dust measures would not reduce particulate matter emissions below the threshold of significance. Over the course of Project construction, fugitive dust would increase PM10 emissions by up to 102 to 816 ton/yr. The upper end of this range exceeds the particulate matter significance threshold of 150 lb/day relied on in the IS/MND for wind erosion alone.¹⁷⁹ PM10 emissions from wind erosion fugitive dust alone exceed the significance threshold and is a significant unmitigated impact.¹⁸⁰ These impacts must be analyzed in an adequate DEIR to satisfy CEQA.

iii. *The MND Fails to Adequately Analyze Impacts from Helicopter Emissions*

The MND states that helicopters may also be utilized to support wire stringing operations in construction of the Gen-Tie transmission line. But, the MND and the Appendices fail to analyze potential emissions of helicopters used in Project construction. Helicopter emissions are substantial and were excluded from the MND’s analysis in violation of CEQA. An EIR must be prepared to adequately analyze all off-site Project impacts, including jet fuel and particulate matter emissions from helicopters.

iv. *The MND Fails to Adequately Analyze Emissions over the Duration of Construction*

The MND states that Project construction will be conducted 10 hours per day, 6 days per week, beginning in Spring 2022 and lasting through Fall 2022.¹⁸¹ But, the CalEEMod analysis is based on operation of construction equipment for 6 to 8 hours per day between August 3, 2020, and May 28, 2021.¹⁸² Dr. Fox determined that this miscalculation caused the construction emissions to be underestimated by over a factor of two. Therefore, the MND’s conclusion that construction emissions impacts would be less than significant is not supported by substantial evidence.¹⁸³ An EIR must be prepared that provides the same construction hours in the modeling and analysis, in order to comply with CEQA.

¹⁷⁸ *Id.*

¹⁷⁹ IS, Table 6.3-8, p. 6-29.

¹⁸⁰ Fox Comments, p. 13.

¹⁸¹ Biological Assessment, p. 22.

¹⁸² Appendix F, p. 2, 4.

¹⁸³ IS, p. 6-83.

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v. *The MND's Construction Mitigation Measures do not Reduce Air Quality Impacts to Less than Significant*

The MND provides only five air quality mitigation measures. Dr. Fox concluded that the measures would not reduce the significant NO_x and fugitive dust PM emissions to below the threshold of significance. Dr. Fox determined that the measures are too general and are not enforceable. Further, Mitigation Measure AQ-1 will not fully mitigate fugitive dust particulate matter emissions. Mitigation Measure AQ-3 requires a minimum idling time of ten minutes.¹⁸⁴ The inclusion of the mitigation measure is bizarre. California law limits idling time to 5 minutes or fewer.¹⁸⁵

Mitigation Measure AQ-4 is not an enforceable mitigation measure. CEQA requires mitigation measures be “fully enforceable through permit conditions, agreements, or other measures.”¹⁸⁶ Mitigation Measure AQ-4 requires replacing fossil-fueled equipment with electrically driven equivalents when possible.¹⁸⁷ The MND indicates that “[e]lectricity during construction and operations would be obtained from portable, fuel-powered on-site generators.”¹⁸⁸ The CalEEMod analysis is not based on an electric construction fleet powered by diesel generators. Diesel generators are significant sources of ROG, NO_x, particulate matter, and other emissions that were not included in the CalEEMod analysis.¹⁸⁹ Further, these generators would not be adequate to power large pieces of construction equipment, particularly when multiple pieces of equipment are operating simultaneously across the 268-acre site without significantly increasing emissions, defeating the purpose of using electric construction equipment.

The MND is silent on the source of electricity that would be used to power electric construction equipment, should it be required. The MND did not consider any method(s) to generate the electricity required to operate electric construction equipment. Producing this electricity would increase emissions, which were not considered in the MND's analysis. Mitigation measure AQ-4 is unenforceable

¹⁸⁴ IS, p. 6-29.

¹⁸⁵ 13 CCR § 2449(d)(2)(A).

¹⁸⁶ Pub. Resources Code § 21081.6(b).

¹⁸⁷ Mitigation Monitoring and Reporting Program, Calneva Battery Energy Storage System/ Photovoltaic Solar Energy System Project, p. 13 (“MMRP”).

¹⁸⁸ IS, p. 3-29.

¹⁸⁹ Fox Comments, p. 21.

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unless the specific equipment that would be electric and the source of electricity are identified and required as enforceable mitigation in an EIR.

vi. *The MND Should Include the Following Enforceable
Construction Emissions Mitigation Measures in an EIR*

Dr. Fox prepared a number of mitigation measures that may reduce significant fugitive particulate matter emissions from Project construction:¹⁹⁰

- 1) All diesel-powered construction equipment shall use Tier 4 Final construction equipment, to be confirmed on site by the on-site construction supervisor during each day of use. If a Tier 4 Final engine is not available for select construction equipment, controls shall be installed on the highest tier equipment available to achieve Tier 4 Final standards. Controls for particulate matter emissions include diesel particulate filters and use of alternative fuels.
- 2) Apply water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle track out.
- 3) Use a gravel apron, 25 feet long by road width, to reduce mud/dirt track out from unpaved truck exit routes.
- 4) Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition.
- 5) Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup.
- 6) Apply water every 3 hours to disturbed areas within a construction site.
- 7) Require minimum soil moisture of 12% for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.
- 8) Limit on-site vehicle speeds (on unpaved roads) to 15 mph by radar enforcement.
- 9) Replace ground cover in disturbed areas as quickly as possible.

¹⁹⁰ Fox Comments, p. 22.
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- 10) All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.¹⁹¹
- 11) Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads.

Additionally, Dr. Fox determined that there are additional feasible mitigation measures the MND failed to include. Dr. Fox urges that the following measures should be implemented to control significant NOx emissions from Project construction including:

- 1) All diesel-powered construction equipment shall use Tier 4 Final construction equipment, to be confirmed on site by the on-site construction supervisor during each day of use. If a Tier 4 Final engine is not available for select construction equipment, controls shall be installed on the highest tier equipment available to achieve Tier 4 Final standards. Effective controls include selective catalytic reduction (SCR) for NOx.
- 2) Require the use of biodiesel in all construction equipment.
- 3) Purchase emission offsets.
- 4) Use Voluntary Emission Reduction Agreements (VERAs), which have been used as mitigation in other CEQA documents.¹⁹²
- 5) Employ an on-site construction site manager(s) to assure that all mitigation is achieved in practice and to verify that engines are properly maintained. Observation shall be documented in a log submitted weekly to Lassen County.

¹⁹¹ SCAQMD, Fugitive Dust Mitigation Measure Table XI-A, <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-table-xi-a.doc?sfvrsn=2>.

¹⁹² SJVAPCD, Summary of Comments and Responses to Proposed Revisions to the GAMAQI-2012, May 31, 2012, p. 3; <https://www.valleyair.org/transportation/GAMAQIDRAFT-2012/GAMAQIResponsetoComments5-10-12%20.pdf>.

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B. The Project's Cumulative Air Quality Impacts are Significant and Unmitigated

The MND states that the BESS/PSES facility's contribution to cumulative air quality impacts were not cumulatively considerable, as these emissions have been incorporated into the adopted Clean Air Plan in terms of the overall emissions inventory for construction activities.¹⁹³ But, since the air district is in non-attainment for NOx, the impact would be deemed significant and is unmitigated.

Further, the MND fails to analyze and mitigate the impacts related to the air basin's nonattainment status for ozone (severe), Respirable particulate matter (PM10) and fine particulate matter (PM2.5).¹⁹⁴ According to the Lassen County Air Pollution Control District, the District is in nonattainment of the state air quality standards for particulate matter.¹⁹⁵ Therefore, the MND's statement that the basin is not in nonattainment for any criteria pollutants is not supported by substantial evidence. CEQA Appendix G specifically requires the agency to make a finding that project has significant cumulative impacts if it will "result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment."¹⁹⁶ Here, substantial evidence supports a fair argument that the Project will have significant cumulative air impacts because it will result in a cumulatively considerable net increase in particulate matter emissions for which the basin is in nonattainment. The MND fails to adequately address or mitigate these impacts. An EIR must be prepared which addresses these potentially significant impacts.

C. Biological Resources Impacts are Significant and Unmitigated

The MND's statement that Species Impact would be less than significant with mitigation incorporated is not based on substantial evidence because the County provided no mitigation for the primary impact to the species, habitat loss. The MND also provides no analysis or mitigation for impacts related to potential mortality of birds attracted to solar PV panels. The MND also provides no analysis of potential lizards that may be attracted to water at construction sites. Mr. Cashen cites extensive evidence from his own personal observations of these impacts and recent studies by biological regulatory agencies, which disclose that

¹⁹³ IS, p. 6-31.

¹⁹⁴ *Id.* at 6-22.

¹⁹⁵ Lassen County Air Pollution Control District Governing Board, (May 12, 2020) Agenda Packet p. 23, <http://www.lassenair.org/files/134229374.pdf>.

¹⁹⁶ Appendix G, Section III.c.

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avian collision and lizard attraction are concrete significant impacts caused by construction and operation of industrial-scale solar farms like this Project.

i. Impacts from Avian Collisions and Electrocutions May be Significant

In his comments on the MND, Mr. Cashen concluded that the Project is likely to have a significant impact on avian species due to collisions with the Project's solar PV panels and cables that the MND failed to adequately disclose and mitigate. The Project's gen-tie would have an optical ground wire and fiber optic cable strung above the 120 kV to 345 kV conductor.¹⁹⁷ In his attached letter, Mr. Cashen explains that these wires are especially hazardous to birds because they are the highest wires and are smaller in diameter than phase conductors, making them more difficult to see.¹⁹⁸ The MND does not disclose or analyze the avian collision and electrocution hazard associated with the Project's gen-tie line, nor does it require implementation of the bird-friendly design strategies recommended by Avian Power Line Interaction Committee ("APLIC").¹⁹⁹ As a result, installation of the new gen-tie line represents an unexamined, potentially significant impact to birds (especially raptors and waterfowl).

The USFWS and their own forensics specialists documented numerous reports of collisions and mortalities at solar power facilities, including facilities with PV panel design like the Project.²⁰⁰ The USFWS reports explain that "[s]ome species of birds, such as waterbirds, may perceive the solar field as a water body (commonly referred to as the "Lake effect"). Many avian species are attracted to

¹⁹⁷ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). Table 2.

¹⁹⁸ Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C. Available at:

<https://www.aplic.org/uploads/files/15518/Reducing_Avian_Collisions_2012watermarkLR.pdf>.

¹⁹⁹ Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute and APLIC. Washington, D.C. Available at: <[https://www.aplic.org/uploads/files/2613/SuggestedPractices2006\(LR-2watermark\).pdf](https://www.aplic.org/uploads/files/2613/SuggestedPractices2006(LR-2watermark).pdf)>. See also Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C. Available at:

<https://www.aplic.org/uploads/files/15518/Reducing_Avian_Collisions_2012watermarkLR.pdf>.

²⁰⁰ Kagan RA, TC Viner, PW Trail, EO Espinoza. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. National Fish and Wildlife Forensics Laboratory. 28 pp. Retrieved from: <https://www.ourenergypolicy.org/wp-content/uploads/2014/04/avian-mortality.pdf>.

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permanent and ephemeral water sources, especially in arid environments. **Based on information collected at existing solar facilities, solar panels and other project components are likely to present a collision hazard to migratory birds** (emphasis added).²⁰¹ The County cannot turn a blind eye to this evidence.

The MND provides that the PV modules would be “non-reflective and black or blue in color”²⁰², the County may argue that this is sufficient mitigation to prevent bird strikes, but it is not. Mr. Cashen determined that there is no existing scientific evidence to support the conclusion that a non-reflective coating would reduce impacts.

The presence of dead and injured birds at solar facilities operating in California demonstrates that solar facilities present a collision hazard to birds.²⁰³ At photovoltaic (“PV”) facilities, birds appear to mistake the broad reflective surfaces of the solar arrays for water, trees, and other attractive habitat.²⁰⁴ When this occurs, the birds become susceptible to mortality by: (a) colliding with the solar panels; or (b) becoming stranded (often injured) on a substrate from which they cannot take flight, thereby becoming susceptible to predation and starvation.²⁰⁵

There is also substantial evidence demonstrating that PV solar panels produce polarized light pollution that attracts insects, which in turn attract insectivores (insect-eating birds).²⁰⁶ Those birds then become susceptible to injury or death when they attempt to prey upon the insects that have been attracted to the PV solar panels. Dead and injured insectivores then attract avian predators and scavengers, which too become susceptible to collision with the PV panels and other project features. This creates an entire food chain vulnerable to injury and death.

²⁰¹ *Ibid.* (emphasis added).

²⁰² IS, p. 3-25.

²⁰³ Kagan RA, TC Viner, PW Trail, EO Espinoza. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. National Fish and Wildlife Forensics Laboratory. 28 pp.

²⁰⁴ *Ibid.*

²⁰⁵ *Ibid.*

²⁰⁶ *Ibid.* See also Horváth G, Kriska G, Malik P, Robertson B. 2009. Polarized light pollution: A new kind of ecological photopollution. *Frontiers in Ecology and the Environment* 7:317–325. See also Horváth G, M Blaho, A Egri, G Krista, I Seres, B Robertson. 2010. Reducing the Maladaptive Attractiveness of Solar Panels to Polarotactic Insects. *Conservation Biology* 24(6):1644-1653. See also Lovich JE, JR Ennen. 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. *Bioscience* 61(12):982-992.

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A recent study completed by the National Fish and Wildlife Forensics Laboratory (2014) reported: “solar facilities appear to represent “equal-opportunity” hazards for the bird species that encounter them.²⁰⁷ Although solar facilities kill all types of birds, monitoring reports have documented an unexpectedly high proportion of waterbird deaths at recently constructed solar energy facilities, including those that use PV solar panels. This phenomenon appears to be due to waterbirds mistaking the PV arrays for a lake (or other water body).²⁰⁸ A letter from the USFWS confirms that this “lake effect” is a growing concern for all types of solar projects:

“Incidental fatalities are increasingly being documented and reported at a range of solar projects. . . All [solar] technology types appear to present a hazard to water-associated bird species from the lake effect, based on the species composition of avian mortalities documented at ISEGS, Genesis (solar trough), and Desert Sunlight (photovoltaic) projects. The magnitude of this lake effect remains unclear, but may be location specific and may be correlated with migratory flyways or the availability of other habitat for migratory stopovers.”²⁰⁹

The USFWS concluded in its analysis of another solar facility that, given the large sizes of existing and proposed PV facilities, and the lack of opportunity for effective adaptive management measures and other design modifications sufficient to avoid take of birds, PV facilities could have significant effects on migratory birds.²¹⁰

Mr. Cashen’s comments demonstrate that the County lacks substantial evidence to support a finding that the Project will not result in significant impacts from avian collisions.

USFWS recommends that a project-specific Bird and Bat Conservation Strategy be developed for this type of Project and other solar facilities.²¹¹ Pursuant

²⁰⁷ *Ibid.*

²⁰⁸ U.S. Fish and Wildlife Service. 2018 May 2. Energy Development: Energy Technologies and Impacts – Solar Energy [web page]. Available at: <<https://www.fws.gov/ecological-services/energy-development/solar.html>>. (Accessed June 15, 2020).

²⁰⁹ Letter from Kennon Corey, U.S. Fish and Wildlife Service, to Christine Stora, California Energy Commission dated August 7, 2014. [emphasis added].

²¹⁰ U.S. Fish and Wildlife Service. 2014 Aug 4. Comments on the Draft Environmental Impact Report (EIR 529) for the Blythe Mesa Solar Project (CUP 2685), Riverside County, California.

²¹¹ USFWS, 2011. Monitoring Migratory Bird Take at Solar Power Facilities. Retrieved from: http://www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/Soitec-Documents/Final-EIR-Files/references/rtcref/ch9.0/rtcrefaletters/F1%202014-12-19_Nicolaietal2011.pdf. 4961-008acp

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to USFWS recommendations, each Strategy should include a detailed monitoring plan that fully addresses and monitors construction and operation-related mortalities at all project features. USFWS also recommends an adaptive management program to assist in mitigation efforts.²¹² These measures, at a minimum, should be required for the Project.

ii. *Impacts to American Badgers May be Significant and Unmitigated*

American badger has numerous observations in the CNDDDB within and adjacent to this Project.²¹³ The Department recommends as part of the basic biological survey a burrow survey also be conducted to determine if habitat is present for the badger and/or other fossorial specialists.²¹⁴ The MND states that the Project “may effect but is not likely to adversely effect the special status species American badger.”²¹⁵ This statement is not supported by substantial evidence. This Project may adversely effect American badgers by disrupting their habitat, nesting, and foraging areas.

The mitigation measures proposed by the MND are insufficient to adequately mitigate impacts to badgers. The provisions of measure BR-2 conflict with those of BR-1, which allow installation of one-way doors (i.e., disturbance) at burrows regardless of season. In addition, the breeding and non-breeding season dates reported in BR-2 are incorrect. Although badgers mate in the summer or fall, they do not give birth until the following March and April, and young badgers do not disperse to their own burrows until July or August.²¹⁶ The buffers proposed in BR-2 might be sufficient for badger burrows located less than 160 feet (non-breeding season) or 250 feet (breeding season) from the Project boundary. However, they would not be effective for badger burrows located in interior portions of the Project site. After traveling 160 feet (or 250 feet) through the buffer zone, the badgers would need to travel through the construction zone to reach habitat unaffected by construction activities. These badgers would be subject to being killed or injured by

²¹² *Id.*; Exhibit B, pp. 9-10.

²¹³ Letter to Stefano Richici, Senior Planner County of Lassen, from Curt Babcock, Habitat Conservation Program Manager, California Department of Fish and Wildlife (Nov. 13, 2020) Use Permit Attachment 4.

²¹⁴ *Id.*

²¹⁵ Biological Assessment, p. 6.

²¹⁶ *Ibid.* See also California Department of Fish and Wildlife. California Interagency Wildlife Task Group. 2005. CWHR version 9.0 personal computer program. Sacramento, CA. Life history account for American badger.

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construction vehicles and heavy equipment. This constitutes a substantial unmitigated impact to the badgers. There is substantial evidence to support a fair argument that an EIR must be prepared to adequately address and mitigate impacts to American badgers.

iii. *Impacts to Lizards and Reptiles May be Significant*

Lizards are directly and immediately attracted to roads on and around construction sites where trucks spraying water and other erosion control liquids are used to reduce airborne dust. A variety of species of lizards are attracted to the higher moisture levels on the roads, resulting in increased lizard mortality and injury due to being hit by construction site traffic that use the roads after the water trucks pass. The Project site may contain the zebra-tailed lizard, and long-nosed leopard lizard, among others.²¹⁷ These impacts must be analyzed in an EIR.

iv. *Impacts to the Endangered Carson Wandering Skipper Butterfly May be Significant*

The MND fails to reference the potential presence of the endangered Carson wandering skipper butterfly (*Pseudocopaeodes eunus obscurus*). The MND fails to mention the potential presence of the federally endangered butterfly. A population was present in Lassen County at the time the Carson wandering skipper was listed under the Endangered Species Act.²¹⁸ The MND does not clarify whether the Carson wandering skipper butterfly habitat is within the Project area. This is an informational omission in violation of CEQA. CEQA requires that

The California Natural Diversity Data Base ("CNDDB") classifies the Carson wandering skipper as a S1S3 species, which identifies this subspecies as one that is extremely endangered with a restricted range within California.²¹⁹

The Recovery Plan for the Carson Wandering Skipper provides that "management has been established in perpetuity to effectively address threats to the species and ensure persistence of the population, unless we conclude (through intensive, comprehensive surveying) that additional populations or metapopulations

²¹⁷ Biological Assessment, p. 25.

²¹⁸ Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Carson Wandering Skipper, 67 Fed. Reg. 51116 (Aug. 7, 2002).

²¹⁹ Cashen Comments, p. 23.
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do not exist and it would not be ecologically feasible to establish/reestablish one or more of them within Carson wandering skipper historical range.”²²⁰

Section 9 of the Endangered Species Act makes it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt any such conduct). Regulations further define harm to include significant habitat modification or degradation that results in the killing or injury of wildlife by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering.²²¹

Activities that directly or indirectly result in the death or injury of adult Carson wandering skippers, or their pupae, larvae or eggs, or that modify Carson wandering skipper habitat and significantly affect their essential behavioral patterns including breeding, foraging, sheltering, or other life functions that result in death or physical injuries to skippers would violate Section 9.²²² Otherwise lawful activities that incidentally take Carson wandering skipper specimens, but have no Federal nexus, will require a permit under section 10(a)(1)(B) of the Act.²²³

Section 10 of the Endangered Species Act provides for the issuance of two types of permits. These permits authorize actions that would otherwise be prohibited under section 9. Section 10(a)(1)(B) permits are available for incidental take in connection with otherwise lawful activities. Any project that has a federal nexus, such as a project that receives federal funding, a federal permit, or other federal authorization requires the federal agency to ensure that the continued existence of a federally endangered or threatened species is not jeopardized.²²⁴ Given that this Project will provide construction for offsite elements on BLM land, this Project has a federal nexus. Further, this Project may cause incidental taking of Carson Wandering Skipper butterflies. The Applicant must

²²⁰ Recovery Plan for the Carson Wandering Skipper (*Pseudocopaeodes eunus obscurus*) (June 2007) California/Nevada Operations Office US Fish and Wildlife Service https://www.fws.gov/nevada/protected_species/inverts/documents/cws/CWS_Final_RecoveryPlan_2007.pdf.

²²¹

²²² Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Carson Wandering Skipper, 67 Fed. Reg. 51116 (Aug. 7, 2002).

²²³ *Id.*

²²⁴ U.S. Fish and Wildlife Service, Energy Development – Permits, Policies, and Authorities (Dec. 16, 2020) <https://www.fws.gov/ecological-services/energy-development/laws-policies.html>. 4961-008acp

apply for a Section 10 permit from the US Fish and Wildlife Service in order to proceed with Project construction and operation.

v. Impacts to Wild Horses and Other Migratory Animals May be Significant

The MND states that the Project area hosts wild horses.²²⁵ The MND states “[d]uring the February 26, 2012 field survey, a herd of approximately 30 wild horses were observed migrating from east to west approximately 1 mile southeast of the project lease area along the California/Nevada border.”²²⁶ The MND provided the image below of the wild horses migrating south of the project lease area.

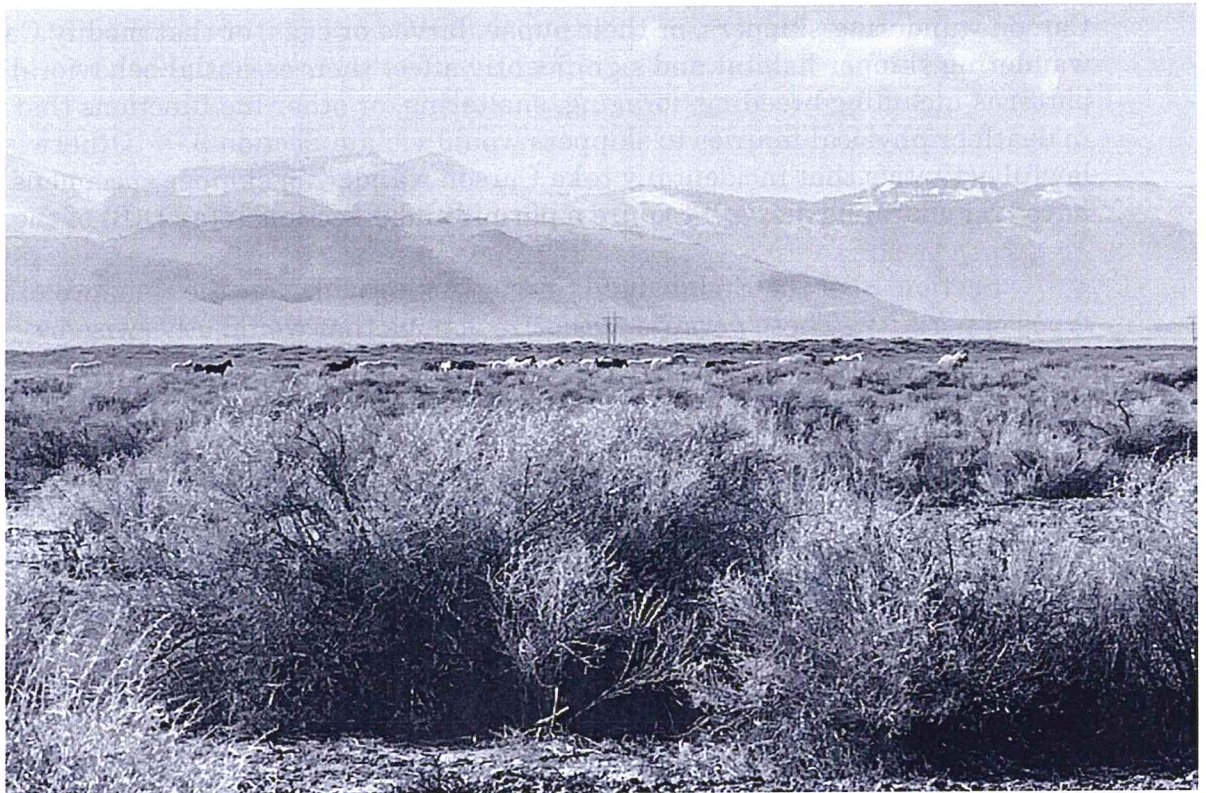


Figure 1: Biological Assessment p. A-15, Wild Horses migrating south of the project lease area.

²²⁵ MND, p. 39.

²²⁶ *Id.*

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Wild Horses are protected under the Wild Free-Roaming Horses and Burros Act of 1971 (“Act”).²²⁷ The Act requires that “[a]ll management activities... shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species. Any adjustments in forage allocations on any such lands shall take into consideration the needs of other wildlife species which inhabit such lands.”²²⁸

It is critical that Projects such as this, do not further endanger wild horses in California. The California Legislature passed the Wild and Free-Roaming Horses and Burros; protection: roundup moratorium in 2020. The Resolution recognized²²⁹:

Present plans of the BLM and USFS only continue to excessively reduce the wild horse and burro herds to illegally low, genetically nonviable levels, allowing other interest... to consume the greater quantities of forage and water, thus abrogating their responsibility to ensure that the resources of the legal wild horse and burro herd areas and territories are “principally devoted” to these national heritage species as fully accords with the true meaning and intent of the federal Wild Free-Roaming Horses and Burros Act of 1971...

The MND concludes the Project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species because mitigation measure BIO-20 incorporates measures to minimize impacts to nesting birds during construction of the Project.²³⁰ The MND’s conclusion is not supported by substantial evidence because minimizing impacts to nesting birds during construction of the Project does not address potentially significant impacts to *movement* (e.g., during migration). Moreover, the MND provides no analysis of Project impacts to movement of mammals, including the deer and pronghorn herds and wild horses that move through the Project area, and that rely heavily on foraging resources provided by sagebrush in the Project region during the winter.²³¹ An EIR must be prepared which adequately addresses impacts to migratory species.

²²⁷ Public Law 92-195.

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²²⁹ California State Assembly Joint Resolution 26.

²³⁰ IS/MND, p. 38.

²³¹ California Department of Fish and Wildlife. California Interagency Wildlife Task Group. 2005. CWHR version 9.0 personal computer program. Sacramento, CA. Life history account for pronghorn. *See also*, IS/MND, Attachment 4 (CDFW comment letter dated March 26, 2021), p. 4. 4961-008acp

vi. Impacts from Invasive Plants May be Significant

The Project has the potential to facilitate the colonization and spread of invasive plants because construction and operation activities: (a) provide vectors for transporting invasive plant propagules, (b) involve soil and vegetation disturbance, and (c) would be conducted in an environment susceptible to invasion.²³² The MND does not disclose this issue, nor does it provide any analysis of potentially significant impacts that could occur as the result of Project activities that facilitate the colonization or spread of invasive plants. This constitutes an informational omission in violation of CEQA. An EIR must be prepared to adequately address and analyze impacts from invasive plants.

D. Cumulative Impacts are Significant and Unmitigated

The MND states that “Any cumulative effect resulting from the Project will be less than significant based on the analysis above.”²³³ But the MND does not provide any “analysis above” to support this statement. The cumulative impacts of the Project especially with respect to biological resources, are significant and unmitigated.

The MND states that “While the project may contribute to the cumulative effects resulting from new development and road expansion, most of the impacts from the project are going to be temporary in nature, as habitat will be restored to preconstruction conditions following the completion of construction activities. It is likely that many of the habitats temporarily impacted by project construction will be fully restored by the time construction begins for many of the new developments planned in the area.”²³⁴ It is unclear how the County can determine the cumulative impacts from the Project will be temporary and less than significant in light of the forthcoming planned developments in the area including the Fish Springs Solar Project, Rock Springs Solar Project, and Sierra Plumas Rural Electric Cooperative Herlong to Fort Sage Intertie Line.²³⁵ In addition, road maintenance and improvements are planned for Calneva Road, and Rainbow Road between the Union Pacific railroad and Fort Sage Road. Gen-tie lines associated with Fish Springs and Rock Springs Solar project are planned for construction in 2022.²³⁶

²³² Cashen Comments, p. 21.

²³³ IS, p. 66.

²³⁴ Biological Assessment p. 48.

²³⁵ Biological Assessment, p. 48.

²³⁶ *Id.*

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The County did not adequately analyze the cumulative impacts of these forthcoming projects in violation of CEQA. CEQA requires a lead agency analyze “reasonable, foreseeable options for mitigating or avoiding the project’s contribution to any significant cumulative effects.”²³⁷

Further, the Biological Assessment’s statement that “many of the habitats temporarily impacted by project construction will be fully restored by the time construction begins for many of the new developments planned in the area” is not supported by evidence. To the contrary, the Biological Assessment reports: “[r]ecovery following severe disturbance in the Alkali Scrub, like other desert scrub types, requires decades and perhaps centuries, (Webb et al. 1982).”²³⁸ Even if the Applicant broadcasts seeds as an active restoration technique, scrub (e.g., sagebrush and saltbrush) seedlings grow slowly and do not fully mature for 25 to 40 years.²³⁹

Third, the BA identifies habitat fragmentation as one of the permanent impacts associated with new developments and road improvements planned in the region. Even if the Applicant implements habitat restoration efforts, those efforts would not mitigate the effects of the security fence (and other Project components) on habitat fragmentation.²⁴⁰

Substantial evidence supports a fair argument that an EIR must be prepared which adequately analyzes cumulative impacts to biological resources.

i. Cumulative Lake Effect

As each new solar project is developed in California’s deserts, cumulative impacts on wildlife and local and regional resources increase. Fortunately, there is now abundant scientific evidence demonstrating that industrial solar projects have significant impacts on avian and terrestrial species from direct collisions with solar structures, project construction, habitat fragmentation, and habitat loss. However, the County chose to ignore this valuable data collection over the past decade and,

²³⁷ CEQA Guidelines § 15130.

²³⁸ *Ibid*, p. 25.

²³⁹ Pyke DA. 2011. Restoring and rehabilitating sagebrush habitats. In: Knick ST, Connelly JW, Eds. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology, Vol. 38. Berkeley, CA: University of California Press. p. 534. *See also* Natural Resources Conservation Service. n.d. PLANTS Database. Characteristics of *Atriplex confertifolia* (shadscale saltbush). Available at: <<https://plants.usda.gov/home/plantProfile?symbol=atco>>.

²⁴⁰ Cashen Comments, p. 22.

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instead, fast tracked the Project to approval without meaningfully evaluating significant impacts and formulating mitigation.

The MND ignores the cumulative effect of potential impacts to birds, from what is known as the “lake effect” contributed by the nearby NextEra solar project on 60 acres with 29,000 single-axis tracker modules and panels. The MND does not mention the terms “collision” or “lake effect” in any of the provided documents.

Further, the MND does not adequately consider potential impacts to birds as a result of increased risk of injury and death from collisions striking panels as well as collisions with electrical wires. In a report by the USFWS Forensics Laboratory, an analysis of bird deaths at three different locations and different types of installations demonstrate that bird deaths due to strikes to solar panels and collisions with associated electrical wires associated do occur systematically, and are significant.²⁴¹

The Forensics report states that despite the type of facility or its technology, the solar facilities represent “equal-opportunity hazards for the bird species that encounter them”.²⁴² Seventy-one species were identified in the mortality report, and were not restricted to water birds by any standard. They were described as representing a broad range of ecological types from strictly aerial feeders (hummingbirds) to ground feeders (roadrunners) to raptors (hawks and owls.) The report points out that some deaths were caused by impact trauma, representing the same risk that the Project panels would pose by design, and conclude that the number of dead birds are “vastly” under-represented.²⁴³ Further evidence of bird deaths due to strikes to solar panels or from solar installation related electrocutions has been made available to the California Energy Commission.²⁴⁴ The data reveal that over the course of one year of monitoring, over 700 bird mortalities were detected, including 16 days where avian mortalities numbered ten or more. Although the Ivanpah facility where this study took place is a solar collector and a different technology than the Proposed Project, the data collected is relevant to the Project site considering that 84 bird mortalities were positively identified as being

²⁴¹ Kagan et. al. 2014 April. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. National Fish and Wildlife Forensics Laboratory.

²⁴² *Id.*

²⁴³ *Id.*

²⁴⁴ H.T. Harvey and Associates, April 2015. Ivanpah Solar Electric Generating System Avian and Bat Monitoring Plan. Retrieved from:
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=207105&DocumentContentId=2204.4961-008acp>

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the result of impacts (strikes or collisions) to the facility panels and wires, and are thus representative of the risks posed by the Project PV panel array design.

Mr. Cashen determined that the MND's failure to analyze the potential impacts to birds elucidates the lack of substantial evidence to support the determination that the cumulative impact would be less than significant with mitigation incorporated. The MND provides no analysis, and no mitigation for avian collisions, therefore this determination is not supported by substantial evidence in the record.

The US Fish and Wildlife Service has concluded, that "there is growing evidence of what is commonly referred to as a 'lake effect' or 'polarized light pollution' (Horvath et al. 2009), which may present a particular hazard to water-associated birds and other species seeking migratory stopover habitat typically found along rivers and lakeshores." USFWS further explained that "[s]ystematic bird mortality monitoring...has documented fatalities of over 50 different avian species with fatalities found at a range of facility components including solar fields, buildings, fence-lines, and gen-ties," including over 1300 bird fatalities in the 1-year period from February 2015-February 2016 at the Desert Sunlight solar PV project, a 550 MW project in the same geographic region as the Project (and the same project that the EIR had asserted had just 61 deaths in a year). USFWS explained that extensive avian mortality monitoring data existed in BLM and USFWS files, which were "available upon request." The USFWS/CDFW Records constitute substantial empirical evidence demonstrating that solar PV projects have direct and significant impacts on avian and other desert species on a scale that is exponentially higher than the nominal impacts ignored in the MND.

The County must take steps to reduce incidences of bird deaths at solar sites including retrofitting of solar panels, placement of perch deterrent devices where indicated, a two-year minimum of a well-designed monitoring protocol that includes daily surveys of all birds. A bird and bat monitoring plan is an essential part of any mitigation strategy to enable better assessment of Project mortalities necessary for an appropriate Adaptive Management Plan, or for that matter any measurable mitigation of the impacts described above, with performance criteria for what reduced impacts will mean in respect to bird (and bat) mortalities.

E. Hazardous Material Impacts are Significant and Unmitigated

The MND concludes that hazards from the ignition of the battery storage enclosure would be mitigated to less than significant level with the implementation

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of “mitigation measure HM-1 and design factors”²⁴⁵ Dr. Fox concluded that this statement is not supported by substantial evidence. Dr. Fox’s comments support a fair argument that the Project creates 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. Further there is substantial evidence supporting a fair argument that the Project creates a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. An EIR is required to adequately analyze and mitigate such impacts.

First, the MND fails as an informational document under CEQA because it fails to describe the type of battery that will be used for the Project. The MND indicates that the proposed BESS will use batteries with chemicals that include compounds that can release hydrogen fluoride and other toxic chemicals.²⁴⁶ Tests on a range of battery compositions revealed that they all release toxic chemicals.²⁴⁷ If other batteries are used, (and the specific lithium ion battery has not yet been selected) or there are advances in lithium-ion technologies, a subsequent analysis should be prepared to evaluate any new impacts. The chemical composition of the lithium-ion batteries based on current lithium-ion technology includes cobalt oxide; manganese dioxide; nickel oxide; carbon; unidentified electrolyte; polyvinylidene fluoride; aluminum foil; copper foil; aluminum; and inert materials.²⁴⁸ However, the Project has not yet selected a specific li-ion battery preventing a meaningful analysis.

Dr. Fox determined that an explosion at the proposed 25 MW BESS would be equivalent to 22 of TNT.²⁴⁹ This is sufficient to seriously damage adjacent Project facilities, including the solar panels, substation, and Gen-Tie. Such an accident could trigger a wildfire in the surrounding vegetation. The MND fails as an informational document under CEQA for failing to disclose and evaluate the risk and consequences of explosions and fires at the proposed BESS. Substantial evidence supports a fair argument that the Project creates a significant hazard to

²⁴⁵ IS, p. 6-103.

²⁴⁶ IS, p. 6-90 – 6-94.

²⁴⁷ Consolidated Edison and NYSEDA, Considerations for ESS Fire Safety, February 9, 2017; Fox Comments, p. 35.

²⁴⁸ Imperial County Planning and Development Services, Draft Supplemental Environmental Impact Report. Prepared by Burns McDonnell, July 15, 2019, Sec. 2.6.3.9; <http://www.icpds.com/?pid=6973>.

²⁴⁹ Fox Comments, p. 36 (“The 2 MW battery at the Arizona McMicken facility is equivalent to 1.72 tons of TNT. Thus, the proposed 25 MW BESS is equivalent to $(1.72)(25/2) = 22$ tons TNT.”)

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the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Further there is substantial evidence supporting a fair argument that the Project creates a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, as detailed in Dr. Fox's comments. Dr. Fox determined that the batteries will likely be shipped from warehouses in unknown location(s) and transported to the site from these undisclosed locations by undisclosed means (rail, truck, ship), over undisclosed routes and roadways. Transportation could result in crush or puncture damage, possibly leading to the release of electrolyte material along transport routes or in storage. These routes could include sensitive habitat that would be irreversibly damaged in the event of a transportation accident. Further, an explosion triggered by a fire during handling and transportation could result in injuries and deaths of workers and motorists.

Lithium-ion batteries are sensitive to damage, especially during handling and transport.²⁵⁰ They are also sensitive to high ambient temperatures,²⁵¹ which will be experienced by the Project's batteries as they will likely have to pass through sensitive biological habitat. It is well known that battery accidents occur during handling, loading, and unloading in warehouses and during transportation.²⁵² The MND fails to adequately discuss the risk of accidents during battery storage, handling, and transportation to the site. The evidence in the record, and laid out in Dr. Fox's comments provide substantial evidence to support a fair argument that the Project's hazardous materials impacts are significant and unmitigated. An EIR must be prepared to adequately analyze and mitigate hazardous materials impacts.

Moreover, CEQA Guidelines Section 15126(c) requires a discussion of any significant irreversible environmental change that would be caused by a project in an EIR.²⁵³ An upset of lithium-ion batteries from this Project would cause

²⁵⁰ Kjell-Arne Jonsson, The Dangerous Consequences of Taking Shortcuts When Shipping Lithium-Ion Batteries, March 9, 2018; <http://info.nefab.com/lib-blog/lithium-ion-batteries-shipping-shortcuts>.

²⁵¹ Allianz Risk Consulting, Lithium-Ion Batteries, Risk Bulletin, 2017; <https://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/pdfs-risk-advisory/risk-bulletins/ARC-Lithium-Ion-Batteries.pdf>.

²⁵² FAA Office of Security and Hazardous Materials Safety, Lithium Batteries & Lithium Battery-Powered Devices, August 1, 2019; https://www.faa.gov/hazmat/resources/lithium_batteries/media/Battery_incident_chart.pdf.

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irreversible environmental damage, as discussed in Dr. Fox's comments. An EIR must be prepared for this Project on this basis, and those bases described above.

F. Greenhouse Gas Emissions Impacts are Significant and Unmitigated

The MND erroneously suggests that no GHG analysis is required because "there are no thresholds of significance for the Northeast Plateau Air Basin."²⁵⁴ This does not allow the County to avoid analyzing the significance of the GHG impacts. Thresholds of significance may not be applied "in a way that forecloses the consideration of any other substantial evidence showing there may be a significant effect."²⁵⁵ Here, the County's failure to create or cite to a significance threshold does not shield the County from analyzing substantial evidence in the record that supports a fair argument that the Project has significant GHG impacts. Such impacts must be analyzed in an EIR.

The MND fails as an informational document under CEQA for failing to analyze operational emissions impacts. The MND asserts that "[n]o stationary emissions would result from the solar and battery component which constitute the proposed facility."²⁵⁶ But, Dr. Phyllis Fox determined that the Project will emit GHG emissions and other pollutants from recharging the BESS when the solar panels are not generating electricity.²⁵⁷ Further, a BESS requires electricity to operate its ancillary cooling and control systems, including inverters, transformers, and HVAC units. Supplying this electricity when the solar panels are off-line releases GHGs and criteria pollutants. The Project includes an emergency generator, presumed to be diesel fueled, to generate electricity when other sources are unavailable. The MND did not estimate any of these emissions, thus failing as an informational document under CEQA. Further, the MND provides that "[n]o specific mitigation measures will be required for the GHG emissions of the proposed Calneva BESS/PSES project."²⁵⁸

Greenhouse gas emissions include carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄), among other. In addition to these conventional GHG emissions, the Project will also emit sulfur hexafluoride (SF₆) from leakage of gas

²⁵⁴ IS for Use Permit, p. 65.

²⁵⁵ *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114.

²⁵⁶ IS, p. 6-29.

²⁵⁷ Fox Comments, p. 24.

²⁵⁸ IS, p. 6-83.

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from insulated switches and equipment. The MND is silent on this source of emissions, thus failing as an informational document under CEQA.

The MND states that the Project will have no impact from its conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.²⁵⁹ But this statement is not supported by substantial evidence. Dr. Fox determined that the batteries in the BESS facility must be charged with energy from the grid when the solar facility is not generating power, unless the developer commits to only charge the BESS with generation from the adjoining solar power plant.

The MND does not limit charging to the adjacent solar PV or to other sources that do not emit greenhouse gases, such as wind or hydro. While the MND suggests the batteries could be charged with the adjacent solar facility; for example, "The high solar resource means that during times of peak solar energy production, the proposed Calneva BESS/PSES project would be able to store excess energy in the BESS system for later use,"²⁶⁰ the IS/MND does not require this as an enforceable condition.

The MND asserts that operation of the BESS would be "a replacement power source for existing thermal power plants currently servicing the electrical grid, [and] will only serve to reduce [greenhouse gas] emissions."²⁶¹ This statement can only be true if 100% of the charging energy comes from the adjacent Photovoltaic Solar Energy System (PSES) and none of the charging energy comes from existing thermal power plants. The MND also asserts that "[t]he high solar resource means that during times of peak solar energy production, the proposed Calneva BESS/PSES project would be able to store excess energy in the BESS system for later use."²⁶² However, the MND does not include any condition requiring that the BESS only be charged with energy from the adjacent PSES.

As Dr. Fox details in her comments, in evening hours, the BESS would have to be charged with energy from the grid.²⁶³ If the charging energy is from conventional sources, such as gas or coal-fired generation, charging will generate emissions. Thus, if charging occurs in hours when the marginal fuel in the CAISO-controlled grid is a fossil fuel, the facility would increase GHG and criteria pollutant

²⁵⁹ IS, p. 65.

²⁶⁰ IS, p. 3-8.

²⁶¹ IS, p. 65.

²⁶² MND, pdf 476,792.

²⁶³ Fox Comments, p. 27.

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emissions that were not included in the IS/MND's analyses. Greenhouse gas emissions could be de minimis but would only be so if the developer commits to only charging the BESS with generation from the adjoining PV power plant and an enforceable mitigation measure is added to the MND. The MND and supporting documents contain no requirement that the BESS only be charged with renewable energy like wind or solar.²⁶⁴

Operation of the Project will increase GHG and criteria pollutant emissions to operate the BESS when the batteries are charged with nonrenewable energy sources, which will occur whenever incremental wind and solar are not available to meet incremental charging loads.²⁶⁵ An EIR should be circulated that contains an enforceable condition requiring that the BESS only be charged with energy from the adjacent PSES or off-site carbon-free sources such as wind or hydro. Otherwise, the MND must be revised to include charging emissions and recirculated for public review.²⁶⁶

G. Wildfire Risk is Significant and Unmitigated

The MND acknowledges the Project's fire risk, but claims without supporting evidence that the impact is less than significant.²⁶⁷ Dr. Fox determined that wildfire impacts are significant and unmitigated.²⁶⁸ Dr. Fox further concluded that the MND fails as an informational document because it "fails to disclose the causes and magnitude of fire risk or to impose effective and feasible mitigation and the current climatic conditions that have led to numerous fires."²⁶⁹

The Climate Change and Health Profile Report for Lassen County found that, as of 2010, 31% of Lassen County residents are within the "population in high-risk wildfire area".²⁷⁰ At the time of writing, there are two Complex fires burning in the Project vicinity. The Beckwourth Complex fire is burning 10 miles south of the Project site. The Beckwourth Complex fire has become the largest California

²⁶⁴ Fox Comments, p. 27.

²⁶⁵ Fox Comments, p. 27.

²⁶⁶ *Id.*

²⁶⁷ IS, p. 6-103.

²⁶⁸ Fox Comments, p. 38.

²⁶⁹ *Id.*

²⁷⁰ California Department of Public Health and UC Davis, Climate Change and Health Profile Report – Lassen County (Feb. 2017)

<https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/CHPRs/CHPR035LassenCounty2-23-17.pdf>.

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wildfire this year.²⁷¹ The town of Doyle California cannot afford another catastrophic wildfire. This Project would raise the risk of wildfire in the area to an unacceptable level of significance. The Beckwourth Complex fire destroyed 20 homes in Doyle, home to 675 people.²⁷² Nearly 100,000 acres has burned. If a fire burned like this in Herlong, with a population of 298, such a fire would be catastrophic. Wildfire impacts associated with the Project elements are significant and unmitigated, as demonstrated in Dr. Fox's comments. An EIR must be prepared to adequately analyze and mitigate impacts from wildfires.

H. Water Quality Impacts are Significant and Unmitigated

The MND fails to disclose the Project's potentially significant impacts on state and federal jurisdictional waters. Under CEQA, a potentially significant impact occurs when a project removes, fills, or interrupts hydrology or, by other means, adversely affects waters of the State or jurisdictional waters of the U.S. (wetlands), as defined by section 404 of the Clean Water Act.²⁷³ The MND's analysis of the Project's impacts on water resources failed to comply with CEQA (or NEPA) because the MND failed to include a jurisdictional wetlands delineation, and fails to disclose that the Project will require a Clean Water Act ("CWA") Section 404 permit from the U.S. Army Corps of Engineers ("USACE") and corresponding Section 401 permit from the Lahontan Regional Water Quality Control Board ("LRWQCB"). CEQA prohibits the deferral of such study and disclosure a project's environmental impacts.²⁷⁴

The IS/MND's analysis concludes with the County's determination that: "even if the project site were a wetland, it would be a wetland for very short duration, and therefore, any impacts to the area would be at the very most less than significant."²⁷⁵ The County's determination is illogical: the playas at the Project site are either State jurisdictional wetlands or not (i.e., they are not wetlands for part of the year, and non-wetlands for the remainder of the year).²⁷⁶ Furthermore, the ecological significance of the impacts, and the significance of impacts under CEQA,

²⁷¹ Plumas News, Updated: Beckwourth Complex now largest fire in California: destroys Doyle structures (July 11, 2021) <https://www.plumasnews.com/beckwourth-complex-now-largest-fire-in-california-destroys-doyle-structures/>.

²⁷² *Id.*

²⁷³ CEQA Guidelines, Appendix G (IX)(c) (hydrology/ drainage), (IV)(c) (federally protected wetlands).

²⁷⁴ 14 CCR §§ 14 CCR § 15126.2(a); 15143, 15151, 15162.2(a); *Madera Oversight Coalition*, 199 Cal.App.4th at 1370-71.

²⁷⁵ IS/MND, pp. 36-37.

²⁷⁶ Cashen Comments, p. 16.

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is not contingent on how long the wetlands are inundated.²⁷⁷ In fact, if the playas in the Project region only hold water for a very short duration, some of the ecological functions they provide (e.g., as a water source for wildlife) may be heightened.²⁷⁸

The MND concludes, absent substantial evidence, that the impact to wetlands would be less than significant. The MND recognizes that “Wetlands are lands that may be covered periodically, or permanently, with shallow water...”²⁷⁹ The MND provides that the U.S. Fish and Wildlife Service’s National Inventory Wetlands Map indicates the presence of Palustrine, Unconsolidated Shore, Temporarily Flooded (PUSA) water features onsite.²⁸⁰ According to the letter received from the California Department of Fish and Wildlife dated March 26, 2021, CDFW “will consider these areas wetlands until the Project applicant can demonstrate otherwise with updated wetland surveys,” especially because “it appears that the areas show a presence of water and there is a lack of vegetation. The alkali playa... shows water was present by the cracking appearance of the soil... which is two out of three requirements under the State definition.”²⁸¹

There is a fair argument that the effects anticipated from the Project will inflict significant impacts on these fragile ecosystems from even the slightest alterations. A more detailed analysis of hydrological and biological impacts in a full EIS/EIR is necessary to identify the extent of wetlands and to develop specific criteria which may be used to measure the success of mitigation.

If the Project is a wetland, but not federally recognized as such, because it is isolated, it would still be subject to state regulation under the Porter-Cologne Water Quality Control Act.²⁸² The Initial Study includes the Porter-Cologne Water Quality Control Act in its list of Applicable Compliance and Review Requirements, but the IS and MND fail to analyze the wetlands onsite under the Porter-Cologne Act. The failure to analyze the wetlands issue in light of applicable legislation is a violation of CEQA, and renders the MND insufficient. An EIR must be prepared to adequately analyze and mitigate impacts to wetlands on the Project site.

²⁷⁷ Cashen Comments, p. 16.

²⁷⁸ *Id.*

²⁷⁹ MND, 6.4 Biological Resources, pdf p. 771.

²⁸⁰ IS, p. 35.

²⁸¹ IS, p. 35.

²⁸² Cal. Water Code § 13000-16104.
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VII. THE MND FAILS TO ANALYZE ENERGY IMPACTS FROM THE BESS

The MND's energy impact section consists of 1 ½ pages concluding, with no supporting analysis, that the Project's energy impacts would be less than significant stating "According to the applicant, the solar array would produce 50 megawatts of electricity, while the battery storage system would be capable of storing 100 megawatt hours of electricity at any one time. At most then, the project would have a less than significant impact in this sense."²⁸³ This conclusion is patently inaccurate and supported by no evidence in the record. By contrast, Dr. Fox provides substantial evidence demonstrating that the Project may result in potentially significant direct and energy impacts from operation and functional inefficiencies of the BESS.

CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects and a detailed statement of mitigation measures designed to "minimize significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy." Pub. Res. Code § 21100(b)(3); CEQA Guidelines, Appendix F, Energy Conservation ("Appendix F"), § I.

Energy impacts may include:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Appendix F, Section II(C). "If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the

²⁸³ MND, o, 54.
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EIR shall mitigate that energy use.” 14 C.C.R. § 15126.2(b). Appendix F of the CEQA Guidelines declares as goals of the energy analysis: promoting conservation of energy and increasing reliance on renewable energy sources. Appendix F § I. Finally, Appendix F lists potential mitigation measures to be considered, such as measures to “reduce wasteful, inefficient and unnecessary consumption of energy during construction, operation, maintenance and/or removal,” and other measures to reduce peak energy demand and promote energy conservation. CEQA Guidelines, Appendix F § II.D.

Recent cases interpreting Appendix F hold that, to comply with CEQA, the lead agency must not only describe a project’s energy impacts in an EIR, it must also quantify them.²⁸⁴

The Project’s BESS is an energy storage device. Its sole purpose is to receive, store and return up to 25 MW of electric energy to the electric grid. In addition to storing energy, the Project will consume some of the energy it absorbs due to battery inefficiency. Yet, the MND fails to include any analysis of the Project’s direct energy consumption impacts from battery inefficiency, indirect energy impacts on grid electricity demand, or energy conservation measures, as required by Appendix F. Instead, the MND concludes, with no supporting evidence, that the Project’s energy impacts would be less than significant.

The MND fails as an informational document and is deficient as a matter of law because it fails to disclose or quantify the energy impacts of the Project, fails to include any conditions restricting battery charging to times that solar energy is available on the grid, and fails to describe potential energy mitigation measures, as required by CEQA.²⁸⁵

²⁸⁴ *Ukiah Citizens for Safety First v. City of Ukiah* (“Ukiah Citizens”) (2016) 248 Cal.App.4th 256, 264-65 (energy impact analysis requires clarification and technical information regarding project-related energy usage and conservation features); *Spring Valley Lake Association v. City of Victorville* (“Spring Valley”) (2016) 248 Cal.App.4th 91, 103 (EIR must show factual basis of its assumptions that both energy use and greenhouse gas emissions will be reduced); *California Clean Energy Committee v. City of Woodland* (“CCEC”) (2014) 225 Cal.App.4th 173, 210 (“CEQA EIR requirements are not satisfied by saying an environmental impact is something less than some previously unknown amount”). This is consistent with longstanding precedent which holds that unsupported conclusions are entitled to no judicial deference. *Comtys. for a Better Env’t v. City of Richmond* (“CBE v. Richmond”) (2010) 184 Cal.App.4th 70, 85; *Topanga*, 11 Cal.3d at 515 (EIR must provide reader with analytic bridge between ultimate findings and the facts in the record).

²⁸⁵ *People v. County of Kern* (1976) 62 Cal.App.3d 761, 774–775.
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VIII. CONCLUSION

The MND is inadequate as an environmental document because it fails to accurately describe the Project and its baseline conditions, fails to fully disclose and mitigate the Project's potentially significant impacts on air quality, public health, climate change, biology, and fire, and fails to disclose inconsistencies with local plans and policies. The MND's findings regarding Project impacts are not supported by substantial evidence. The County cannot approve the Project until it prepares a DEIR that resolves these issues and complies with CEQA's requirements.

Thank you for your attention to these comments. Please include them in the record of proceedings for the Project.

Sincerely,



Kelilah D. Federman

Attachments

KDF:acp

EXHIBIT A

Comments

on the

**Initial Study/
Mitigated Negative Declaration**

for the

**CALNEVA Battery Energy Storage System/
Photovoltaic Solar Energy System Project**

Lassen County, California

July 28, 2021

By

Phyllis Fox, PhD, PE

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1. INTRODUCTION

The Applicant, Dr. Charles Hooper, proposes to construct a 50-megawatt (MW) photovoltaic solar array and a battery energy storage system (BESS) along with related infrastructure, including a substation, dead-end tower, and 24 gen-tie transmission line poles to interconnect with the Plumas-Sierra Rural Electric 120-kV transmission line on 278 acres of land in Lassen County (Project). The Lead Agency for CEQA review, Lassen County Planning and Building Services, has prepared a draft Initial Study and Proposed Mitigated Negative Declaration (IS/MND) for the Project.¹ The Project consists of the following components:

- Approximately 143,000 to 163,000 solar PV modules
- A single axis track system
- Electrical inverters and transformers
- Battery energy storage system (BESS)
 - thirty (30) battery storage enclosures (i.e., 25 MW of power) store up to 25 megawatts (MW) or 100 megawatt hours (MWh) of electricity for dispatch
 - BESS power inverters, transformers switches, MV switchgear, SCADA enclosure,
- On-site electrical substation
- Meteorological stations
- Remote monitoring system (SCADA)
- Site access roads and maintenance access roads
- Security fencing
- Gen-Tie line structures to interconnect with the PSREC 120kV transmission line south of the site and
- Gen-Tie Laydown Area

I have reviewed the IS/MND and supporting documents included in the Project Report. In my opinion, based on reviewing many similar projects, I conclude as follows:

- An IS/MND under CEQA is inappropriate for this complex Project, which has several significant and unmitigated impacts. Further, the Project is subject to NEPA as portions of it will cross federal BLM land for the Gen-Tie transmission line.
- The IS/MND fails as an informational document under CEQA because it does not adequately describe the Project and is full of contradictory and erroneous statements.
- The IS/MND fails as an informational document under CEQA for failing to evaluate all impacts, including greenhouse gas emissions, operational health risks, risk of upset of the BESS facility, and fire impacts.

¹ Lassen County, Department of Planning and Building Services, Notice of Intent to Adopt a Mitigated Negative Declaration, June 25, 2021 (Project Report); <https://files.ceqanet.opr.ca.gov/265389-3/attachment/96IVZMQL431URJf15RfqvMTZmB148zVm498ydidNNi3QviVVpAmtOm9aksK44BjhlMYAzKeOQN74Hk0>. The IS/MND begins at pdf 442: Lassen County Planning and Building Services with Assistance by Sierra Geotech, DBE, Inc., Draft Initial Study and Proposed Mitigated Negative Declaration, June 2020.

- Construction NOx and particulate matter emissions are significant and unmitigated.
- Project construction requires the use of diesel generators to generate on-site power. The IS/MND failed to include these emissions or disclose design information required to estimate them.
- The Project requires the use of diesel generators to supply power during power outages. The IS/MND failed to estimate these emissions, which are usually significant. Further, the IS/MND failed to include any of the information required to estimate them.
- Risk of upset impacts, including fire and explosion, of the battery energy storage facility (BESS) were not evaluated and are potentially significant.
- Impacts from battery handling and transportation accidents and battery disposal were not evaluated and are potentially significant.
- Greenhouse gas emissions from battery charging were not estimated and are potentially significant and unmitigated.
- Wildfire impacts are significant.

I have over 40 years of experience in the field of environmental engineering, including air emissions and air pollution control; greenhouse gas (GHG) emission inventory and control; water quality and water supply investigations; hazardous waste investigations; risk of upset modeling; environmental permitting; nuisance investigations (odor, noise); environmental impact reports (EIRs), including CEQA/NEPA documentation; risk assessments; and litigation support. I have MS and PhD degrees in environmental engineering from the University of California at Berkeley and am a licensed professional engineer in California. My resume is included in Exhibit 1 to these comments.

I have prepared comments, responses to comments and sections of CEQA and NEPA documents on air quality, greenhouse gas emissions, water supply, water quality, hazardous waste, public health, risk assessment, worker health and safety, odor, risk of upset, noise, land use, traffic, and other areas for well over 500 CEQA and NEPA documents. This work includes EIRs, EISs, Initial Studies (ISs), Negative Declarations (NDs), and Mitigated Negative Declarations (MNDs). My work has been specifically cited in two published CEQA opinions: *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (2001) 111 Cal. Rptr. 2d 598, and *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal. 4th 310; and has supported the record in many

other CEQA and NEPA cases. I have also presented expert testimony in many California Energy Commission (CEC) cases and before the hearing boards of numerous air districts and other regulatory agencies across the United States.

2. PROJECT DESCRIPTION IS INACCURATE

The market for the energy generated by this Project is ambiguous. The Project Report asserts that the Project is a response to the CPUC's call for new storage generation in California: "Dr. Charles Hooper, DO, CDR (RET) MC USN, is responding to the California Public Utility Commission (CPUC) to develop cost-effective energy storage projects totaling approximately 567 MW statewide. CPUC Resolution E-4909 adopted January 11, 2018 authorized public utilities in California to procure energy storage to address local deficiencies in the various sub-areas of the public grid system and ensure local reliability."²

The Project Report explicitly claims Project generation would be delivered to the CAISO-controlled grid: "A PSREC 120kV transmission line is planned for locating approximately four (4) miles south from the Calneva BESS/PSES project lease area and has available 100 MW of excess capacity to connect to the California Independent System Operator (CAISO)-controlled grid without requiring system upgrades."³ Elsewhere: "System production forecasting and scheduling with PSREC and CAISO will be implemented as directed by the party or parties receiving the output of the solar project and the BESS..."⁴

However, the point of interconnection with the grid is proposed to be outside of California with a non-California utility. The Project will interconnect to SPPCo's/NV

² Project Report, pdf 143, 581.

³ Project Report, pdf 476, 500.

⁴ Project Report, pdf 510.

Energy's existing 345-kV Fort Sage Substation in Nevada.^{5,6,7,8,9} The connection line belongs to Plumas-Sierra REC. Thus, the CPUC is irrelevant. The PSREC does have an interconnection to PG&E, but it is elsewhere.

Further, I checked the CAISO's most recent local capacity report¹⁰ and the PSREC transmission line is not inside any of the CAISO's local areas, nor do any of the subareas

⁵ Project Report, pdf 150. The design characteristics of the Gen-tie are listed in Table 2, which identify the type of structure "Per SPPCo's/NV Energy Design Specifications." pdf 225: "This project involves the construction of approximately 50 megawatts of solar photovoltaic (PV) array power generation, with 25 megawatts of battery energy storage system on approximately 278 +/- acres of open cattle range land with a 120 kV to 345 kV Gen-tie line to connect the project to the **NV Energy Fort Sage substation** via the Plumas Sierra Rural Electric Cooperative (PSREC) intertie line between the Herlong Substation and Fort Sage Substation." pdf 237: "It is anticipated Calneva BESS/PSES will construct a project electric substation which will connect to **SPPCo's/NV Energy** existing Fort Sage Substation... The Gen-tie line will be constructed, operated, and maintained by Calneva BESS/PSES project and/or PSREC. The structures will be designed consistent with **SPPCo's/NV Energy's** specifications and design standards..." Elsewhere at pdf 237: "The electrical substation is the central hub for the 34.5kV (AC) collection system and where the produced solar electricity voltage would be stepped up from 34.5kV to 120 kV or 345kV to match the transmission grid voltage at the point of interconnection (POI) with **SPPCo/NV Energy**." Emphasis added.

⁶ Project Report, pdf 138 & 782: "This project involves the construction of approximately 50 megawatts of solar photovoltaic (PV) array power generation, with 25 megawatts of battery energy storage system on approximately 278 +/- acres of open cattle range land with a 120 kV to 345 kV Gen-tie line to connect the project to the NV Energy Fort Sage substation via the Plumas Sierra Rural Electric Cooperative (PSREC) intertie line between the Herlong Substation and Fort Sage Substation."

⁷ Project Report, pdf 148 and 235: "The Gen-Tie line final design will determine the conveyance of electricity from the project which will range between 120kV and 345 kV depending on the final plans of the PSREC intertie line. The final voltage, and route selection of the Gen-Tie line will be determined during the transmission interconnection approval process with the State of Nevada Public Utility Commission and Permit to Construct."

⁸ Project Report, pdf 150, 237: "Gen-tie Interconnection/Point of Change of Ownership Pole (POCO)" and "It is anticipated Calneva BESS/PSES will construct a project electric substation which will connect to SPPCo's/NV Energy existing Fort Sage Substation via a 345 kV Gen-tie approximately six (6) miles from the Calneva BESS/PSES substation. The Calneva BESS/PSES's POCO will be located just outside of the Fort Sage Substation. The Gen-tie line will be constructed, operated, and maintained by Calneva BESS/PSES project and/or PSREC... The electrical substation is the central hub for the 34.5kV (AC) collection system and where the produced solar electricity voltage would be stepped up from 34.5kV to 120 kV or 345kV to match the transmission grid voltage at the point of interconnection (POI) with SPPCo/NV Energy."

⁹ Project Report, pdf 226: "This project involves the construction of approximately 50 megawatts of solar photovoltaic (PV) array power generation, with 25 megawatts of battery energy storage system on approximately 278 +/- acres of open cattle range land with a 120 kV to 345 kV Gen-tie line to connect the project to the NV Energy Fort Sage substation via the Plumas Sierra Rural Electric Cooperative (PSREC) intertie line between the Herlong Substation and Fort Sage Substation." See Figure at pdf 80.

¹⁰ California ISO, 2022 Local Capacity Technical Study, Final Report and Study Results, April 30, 2021; <http://www.caiso.com/InitiativeDocuments/Final2022LocalCapacityTechnicalReport.pdf>.

contain any of the PSREC system. The cited CAISO document lists each of the local areas and computes the need for capacity (if any) within that local area and any identified subarea of each area. Further, the Ft. Sage subarea, cited repeatedly as the interconnection point, is not located within the CAISO. There is no evidence in the Project Report that PSREC is part of the CAISO.¹¹ Thus, the CPUC is irrelevant and the Project description is misleading.

Elsewhere, the Project Report asserts that “The proposed BESS facility has been evaluated by CAISO and determined to reduce, or eliminate, the local sub-area deficiencies at a reasonable cost.” This is simply wrong. No interconnection request has been filed. There is no “Ft. Sage sub-area” within the CAISO, let alone one with a subarea deficiency.¹² Further, the CAISO does not evaluate the economics of proposed generators, such as the Project. No CAISO documents are listed in the references.¹³

Finally, the Project Report asserts that the Project includes a 34.5/230kV generator step-up transformer.¹⁴ This makes no sense at all because elsewhere, the Project Report states that the interconnection will be a 120 kV line, which in turn will connect to the Ft. Sage 345-kV substation.¹⁵ Because there is no 230 kV line anywhere in the vicinity, there is no need for a 230 kV transformer. This mismatch is similar to trying to use electrical devices with 3-prong plugs in a house that only has 2-prong outlets.

3. CONSTRUCTION AIR QUALITY IMPACTS ARE SIGNIFICANT AND UNMITIGATED

The IS/MND estimated emissions from constructing the Project with the California Emissions Estimator Model (CalEEMod) Version 2016.3.2.¹⁶ Construction emissions are summarized in IS/MND Table 6.3-8, based on the CalEEMod analysis, as

¹¹ California ISO, Utility Distribution Companies;
<http://www.caiso.com/participate/Pages/ResourceInterconnectionGuide/UtilityDistributionCompanies.aspx>.

¹² California ISO, 2022 Local Capacity Technical Study, Final Report and Study Results, April 30, 2021. This document lists each of the local areas and computes the need for capacity (if any) within that local area and any identified subareas of each area;
<http://www.caiso.com/InitiativeDocuments/Final2022LocalCapacityTechnicalReport.pdf>.

¹³ Project Report, pdf 719.

¹⁴ Project Report, pdf 494.

¹⁵ Project Report, pdf 138, 150, 225, 237.

¹⁶ Project Report, pdf 546.

summarized in Table 1.¹⁷ These emissions are significantly underestimated. Further, the NOx and particulate matter emissions are significant.

Table 1: IS/MND Construction Emissions¹⁸

Pollutant	CalEEMod Estimate	Thresholds of Significance
Reactive organic gases	2.36 pounds/day	150 pounds/day
Nitrogen oxides	19.1 pounds/day	150 pounds/day
Sulfur oxides	0.05 pounds/day	150 pounds/day
Carbon monoxide	15.34 pounds/day	550 pounds/day
Particulate Matter (PM _{2.5} , PM ₁₀)	109.59 pounds/day	150 pounds/day

There are numerous errors and omissions in the CalEEMod analysis, resulting in a significant underestimate of construction emissions. The IS/MND fails to document all of the inputs used in this model and further fails to calculate construction emissions that are not included in this model. Thus, the IS/MND underestimates construction emissions which, when these errors and omissions are corrected, are significant for NOx and particulate matter.

3.1. Outdated Model Used

The IS/MND is based on an outdated version of the CalEEMod model. The most current version is 2020.4.0.¹⁹ use of the current version of CalEEMod is critical because the current version includes new analysis required by new regulatory requirements which was not available in older CalEEMod versions, such as calculating NOx emissions from vehicle trips²⁰ and the land use types applicable to different sizes of industrial facilities.²¹ Construction emissions should be revised using the current version of the model. Further, the IS/MND fails to document all of the inputs used in this model and further fails to calculate construction emissions that are not included in this model. Thus, the IS/MND underestimates construction emissions – which, when these errors and omissions are corrected, are significant.

¹⁷ Project Report, Table 6.3-8, pdf 547.

¹⁸ Project Report, Table 6.3-8, pdf 547. These emissions are calculated from Appendix F, pdf 6, which reports NOx emissions of 3.4798 ton/yr (3.4798x2000 lb/ton/365 days/yr = **19.07 lb/day**) and total particulate matter emissions of 20.0570 ton/yr (20.0570x2000 lb/ton/365 days/yr = **109.9 lb/day**).

¹⁹ CAPCOA, California Emissions Estimator Model, User's Guide, Version 2020.4.0; http://www.aqmd.gov/docs/default-source/calceemod/user-guide-2021/01_user-39-s-guide2020-4-0.pdf?sfvrsn=6

²⁰ *Id.* at p. 37, Section 4.4.2 Vehicle Emissions.

²¹ *Id.* at p. 28, Table 1: Trip Rates for Land Use Subtypes.

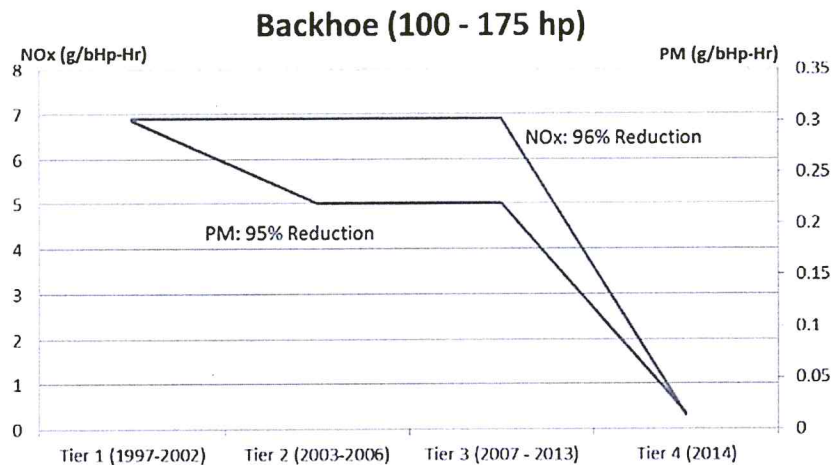
3.2. Construction Emissions Are Unsupported, Underestimated, and Significant

Particulate matter (PM₁₀, PM_{2.5}) and NO_x emissions are underestimated and significant due to the failure to require Tier 4 construction equipment, the use of an erroneously low grading area, the omission of fugitive dust emissions, and the failure to evaluate the Project described in the IS/MND.

3.2.1. Engine Tier

The amount of pollution from construction equipment is categorized using a system of “engine tiers.” The higher the tier, the lower the emissions.²² For example, for a typical backhoe, which will be used in construction of the Project,²³ the engine exhaust emissions of NO_x and particulate matter in grams per brake horsepower hour (g/bHp-hr) as a function of engine tier are shown in Figure 2.²⁴ Tier 1 equipment has the highest emissions and Tier 4 Final equipment the lowest emissions. The IS/MND and supporting appendices are totally silent on the tier of the engines assumed in the CalEEMod construction emission calculations. Further, the Mitigation Monitoring and Reporting Program in Appendix B is also silent on engine tier. Thus, the Applicant has no obligation to use lower-emitting, higher-tier (e.g., Tier 4 Final) equipment and is free to use high-emission Tier 1 equipment.

Figure 1: PM and NO_x Emissions by Tier for a Backhoe²⁵



²² See, e.g., DieselNet, Emission Standards: Nonroad Diesel Engines; <https://dieselnet.com/standards/us/nonroad.php>.

²³ Project Report, pdf 45, 145, 243, 504, 509(used 8 hr/day), 537, 619, 664, 691 and Appendix F, pdf 10.

²⁴ See also EPA, Nonroad Compression-Ignition Engines: Exhaust Emission Standards.

²⁵ Ibid.

Figure 1 shows that NO_x exhaust emissions would be about 35 (7/0.2) times higher if all Tier 1 construction equipment were used instead of Tier 4 equipment. Similarly, this figure shows that PM exhaust emissions would be about 15 (0.3/0.02) times higher if all Tier 1 equipment were used instead of Tier 4 equipment. Thus, if the Project's CalEEMod analysis assumed Tier 1 equipment, NO_x emissions would increase from 19.1 lb/day to 668 lb/day,²⁶ which exceeds the significance threshold of 150 lb/day. Particulate matter emissions would increase from 109.59 lb/day to 1,645.8 lb/day,²⁷ which exceeds the significance threshold of 150 lb/day.

It is standard practice to disclose the construction equipment engine tier used in CalEEMod analyses, as it is one of the inputs. Further, it is standard practice in CEQA documents to require the use of the engine tiers assumed in the CalEEMod analyses as mitigation. The engine tier of the off-road construction equipment that would be used to build the Project must be known to estimate construction emissions. The IS/MND and Appendix F only identify the equipment, but not the tiers assumed in the CalEEMod run.²⁸ Further, the IS/MND's discussion of construction emissions is also silent on construction equipment tier. In fact, the word "engine tier" does not appear anywhere in the Project Report or supporting appendices. The proposed construction mitigation in Appendices A and B is also silent on engine tier. See discussion of proposed construction mitigation in Comment 3.3.

Without identifying the tier of the construction equipment assumed in the CalEEMod construction emission calculations and requiring it as mitigation, the Applicant is free to use the cheapest, highest-emitting, Tier 1 equipment to build the Project.²⁹ Tier 1 construction equipment would emit over 7 times more NO_x and 15 times more PM₁₀ than the most efficient Tier 4 construction equipment. The Applicant has a significant financial incentive to use lower-tier, higher-polluting equipment as it is much cheaper than the newer, better controlled Tier 4 construction equipment. Thus, unmitigated increases in NO_x and PM₁₀ from construction equipment could exceed

²⁶ Increase in construction NO_x emissions if all Tier 1 construction equipment were used = (35)(19.1 lb/day) = 668.5 lb/day > 150 lb/day.

²⁷ Increase in construction particulate matter emissions if all Tier 1 construction equipment were used = (15)(109.59 lb/day) = 1,643.9 lb/day > 150 lb/day.

²⁸ IS/MND, Appendix F.

²⁹ CARB regulations are currently phasing in Tier 4 engines in over several years. Under the CARB regulations, lower tiered (more polluting) equipment may remain in construction fleets for

almost ten more years. For example, Tier 0 and Tier 1 (highest polluting equipment) may constitute up to half of small construction fleets in 2022, and will not be phase out until 2029. Large construction fleets are not required to phase out older equipment until 2023. See https://www.arb.ca.gov/msprog/offroadzone/pdfs/offroad_booklet.pdf at pp. 7-10)

significance thresholds for NO_x and particulate matter, even if all feasible BACT/BMPs are applied. See Comment 3.3.

There is nothing in the IS/MND to prevent the Applicant from selecting all Tier 1 construction equipment, which would result in NO_x emissions significantly higher than the significance threshold. Thus, the IS/MND fails as an informational document under CEQA for failing to disclose the assumed engine tier in the CalEEMod analysis. Absent enforceable limits on engine tiers, construction NO_x emissions are significant and unmitigated.

The significant NO_x emissions from construction equipment can be controlled by requiring the use of Tier 3 to 4 construction equipment or by retrofitting older Tier 1 to 2 equipment with similarly effective emissions controls, such as exhaust selective catalytic reduction (SCR). There are other recognized methods to reduce NO_x from construction equipment that should be required if Tier 4 Final construction equipment is not available for all equipment required to construct the Project. These are discussed in Comment 3.5.2.

3.2.2. Acres of Grading Underestimated

The CalEEMod analysis assumed that only 25 acres of the 278-acre site would require grading.³⁰ Elsewhere, the Project Report asserts that “[d]ue to the level topography of the proposed project area, no formal grading will be required. Earthwork will be limited to excavation of soil for pervious concrete slab, piles, conduit banks, transmission utility poles, steel support dead-end structures.” Excavated soil will remain on-site.³¹

However, the geotechnical report³² indicates the site is not flat and significant earthwork will be required.³³ The geotechnical report also states that significant on-site soil disturbance will occur, including surficial stripping to 3 to 12 inches below grade, grading,^{34,35} shrub removal, excavations to a depth of 12 inches, excavation backfilling,

³⁰ Appendix E, pdf 9.

³¹ Project Report, pdf 75.

³² Project Report, Attachment 7, Preliminary Report of Geotechnical Investigation, April 8, 2020 (“Geotechnical Report”), pdf 335.

³³ Project Report, pdf 341.

³⁴ Project Report, pdf 348. “A Sierra Geotech representative should be on site during **grading** and foundation construction.” (Emphasis added)

³⁵ Project Report, Geotechnical Report, pdf 349 “We recommend that final grading plans be provided for our review.” See also pdf 351.

subgrade preparation, compaction, and excavation.³⁶ Elsewhere, the IS/MND asserts that “Project grading requirements are anticipated to be approximately 200 acres....”³⁷ These operations will generate significant emissions and are not included in the CalEEMod analysis.

Assuming the IS/MND’s assertion of 200 acres of grading, the emissions reported in IS/MND Table 6.3-8 would be eight times higher than reported.³⁸ This will increase NOx emissions from 19.1 lb/day to 152.8 lb/day, which exceeds the IS/MND’s NOx significance threshold of 150 lb/day and is a significant construction air quality impact requiring mitigation. See Comment 3.3 for NOx mitigation.

The higher graded acreage will also increase particulate matter emissions (PM10, PM2.5) from 109.59 lb/day to 876.72 lb/day, exceeding the IS/MND’s particulate matter significance threshold of 150 lb/day³⁹ and is a significant impact requiring mitigation. The IS/MND asserts that “BMPs [best management practices] would reduce any temporary issue of fugitive dust emissions...”⁴⁰ The BMPs are identified in Appendix B to the IS/MND. The adequacy of these measures is discussed in Comment 3.3. The proposed measures are irrelevant and will not reduce particulate matter emissions below the significance threshold. Comment 3.3.

3.2.3. Fugitive Dust Emissions Are Not Included in the CalEEMod Analysis

Fugitive dust emissions (PM10, PM2.5) from Project construction are further underestimated because the CalEEMod model used to estimate construction emissions does not include all sources of PM10 and PM2.5 construction emissions. It omits a major source of fugitive dust emissions at construction sites – windblown dust from graded areas and storage piles and fugitive dust from off-road travel.⁴¹

³⁶ Project Report, Geotechnical Report, Section 7. Preliminary Recommendations, pdf 347-348.

³⁷ Project Report, IS/MND, pdf 497.

³⁸ Project Report, pdf 547. Increase in particulate emissions if 200 acres are graded = $200/25 = 8$.

³⁹ Project Report, pdf 547.

⁴⁰ Project Report, pdf 547.

⁴¹ CAPCOA, California Emissions Estimator Model, User’s Guide, Version 2016.3.2, pdf 7; http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf.

Fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads. (Fugitive dust from wind blown sources such as storage piles and inactive disturbed areas, as well as fugitive dust from off-road vehicle travel, are not quantified in CalEEMod, which is consistent with approaches taken in other comprehensive models.)

This same language also appears in the most recent version of the CalEEMod model.⁴²

Fugitive dust emissions must be separately calculated using methods in AP-42⁴³ and added to the CalEEMod PM10 and PM2.5 emissions. This was not done in the IS/MND and supporting appendices. Fugitive dust emissions arise from storage piles, grading, excavating, truck loading, particulate matter tracked off-site and deposited on adjacent roads, and inactive disturbed areas. Based on calculations I have made in other cases, these are the major sources of PM10 and PM2.5 emissions from construction projects. Fugitive dust emissions taken alone frequently exceed PM10 and PM2.5 significance thresholds. Thus, the IS/MND, which relied on the CalEEMod model, fails as an informational document under CEQA for failing to include all sources of PM10 and PM2.5.

Precise calculation of wind erosion emissions using AP-42⁴⁴ requires detailed information on site topography, wind profiles, and dispersion modeling. This information is not cited or included in the IS/MND. Generally, wind erosion ambient air quality impacts are estimated using the AERMOD model. The IS/MND does not include any calculations of wind erosion emissions, any of the information required to calculate them, or any estimation of ambient PM10 impacts from wind erosion. Rather, the IS/MND tacitly assumes that compliance with conventional construction mitigation measures listed in Appendix B constitutes adequate wind erosion control, without any analysis at all and without identifying the proposed mitigation.

Wind erosion emissions depend on the disturbed area of the construction site and material tracked out from the site and deposited on adjacent paved roads. The CalEEMod run in Appendix F assumed a disturbed area of 25 acres,⁴⁵ while the

⁴² CAPCOA, California Emissions Estimator Model, User's Guide, Version 2020.4.0, pdf 7; http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/01_user-39-s-guide2020-4-0.pdf?sfvrsn=6.

⁴³ U.S. EPA, Compilation of Air Pollutant Emission Factors, Report AP-42; <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors#Proposed>.

⁴⁴ U.S. EPA, Compilation of Air Pollutant Emission Factors, Report AP-42, Section 13.2.5, Industrial Wind Erosion; <https://www3.epa.gov/ttnchie1/ap42/ch13/final/c13s0205.pdf>.

⁴⁵ IS/MND, Appendix F, pdf 9.

IS/MND asserts the disturbed area is 200 acres.⁴⁶ In the absence of detailed information for a precise calculation of particulate matter emissions as here, they can be estimated from the EPA emission factor for construction activity of 1.2 tons per acre per month of activity, which excludes tracking emissions.⁴⁷ Studies indicate that on average, PM10 accounts for 34% to 52% of the total suspended particulates (TSP) when watering is used for dust control.⁴⁸

Thus, mitigated (dust control) earthmoving activities could generate an additional **10.2 ton PM10/mo**, assuming 25 acres are disturbed; and up to an additional **81.6 ton PM10/mo**, assuming 200 acres are disturbed⁴⁹ (not included in the IS/MND's construction emission calculations). The Project Report indicates that "[c]onstruction is anticipated to take 8 to 10 months."⁵⁰ Thus, fugitive dust would increase PM10 emissions by up to 102 to 816 ton/yr. The upper end of this range exceeds the particulate matter significance threshold of 150 lb/day relied on in the IS/MND for just wind erosion.⁵¹ In sum, PM10 emissions from wind erosion fugitive dust alone exceed the IS/MND's significance threshold and is a significant unmitigated impact. See discussion of mitigation in Comment 3.3.

3.2.4. Diesel Generator Emissions Are Unsupported and Potentially Omitted

The Project will use "fuel-powered" generator(s) during construction to supply electricity as there apparently is no on-site electricity. The IS/MND indicates that "[e]lectricity during construction and operations would be obtained from portable, fuel-powered on-site generators."⁵² The Project Report states that "temporary mobile generators" would be used to supply power for the main laydown area or from the

⁴⁶ Project Report, IS/MND, pdf 497.

⁴⁷ AP-42, Section 13.2.3 Heavy Construction Operations, pdf 1-2;
<https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s02-3.pdf>.

⁴⁸ Ingrid P. S. Araujo, Dayana B. Costa, and Rita J. B. de Moraes, Identification and Characterization of Particulate Matter Concentrations at Construction Job Sites, *Sustainability*, v. 6, pp. 7666-7688, 2014, Table 5, <https://ideas.repec.org/a/gam/jsusta/v6y2014i11p7666-7688d41878.html>.

⁴⁹ *Fugitive TSP emissions assuming 25 acres disturbed* = (1.2 ton TSP/acre-mo)(25 acres) = 30 ton TSP/mo. Assuming 34% of the TSP is PM10, PM10 emissions = (30 ton TSP/mo)(0.34) = **10.2 ton PM10/mo**.
Fugitive TSP emissions assuming 200 acres disturbed = (1.2 ton TSP/acre-mo)(200 acres) = 240 ton TSP/mo. Assuming 34% of the TSP is PM10, PM10 emissions = (240 ton TSP/mo)(0.34) = **81.6 ton PM10/mo**.

⁵⁰ Project Report, pdf 16.

⁵¹ Project Report, pdf 547 in IS/MND, Table 6.3-8.

⁵² Project Report, Section 3.9.13.3 Utilities, pdf 497. See also pdf 505,

nearby PSREC system.⁵³ The noise analysis specifically evaluates noise from a generator used during construction.⁵⁴ Elsewhere, the Project Report identifies the generator as 549 hp.⁵⁵ The CalEEMod output lists three 549-hp generator sets operating 8 hr/day at a load factor of 0.74.⁵⁶ However, elsewhere in the CalEEMod output, the section on “Fire Pumps and Emergency Generators” is blank,⁵⁷ suggesting generator emissions were not included in the CalEEMod run.

The files I reviewed are silent on whether generator emissions were included and if so, what the CalEEMod assumed for the fuel and emission factors for these generators. Generator calculations are an optional calculation in CalEEMod. The 2016 CalEEMod User’s Guide states:⁵⁸

The Operational - Off-Road Equipment sub-screen allows the user to identify any off-road equipment used during operational activities (e.g., forklifts, cranes, loaders, generator sets, pumps, pressure washers, etc.) at the project site. Because such equipment cannot be assumed to be needed for a particular land use project, a user must provide the data in order for CalEEMod to calculate the resulting emissions from off-road equipment operation. A dropdown list of off-road equipment is provided for the user to identify each piece of equipment. The model requires the following specific information per equipment type. The user would need to provide the number of pieces for each equipment type. The model assumes an operation activity of 8 hours per day and 260 days per year, as well as the horsepower and load factor of the equipment type, but the user has the ability to override the default assumptions with project specific information. Finally, the model assumes diesel fuel, but a dropdown menu is provided to allow the user to choose bio-diesel, compressed natural gas (CNG) or electrical if known, to power the equipment.

Note that “the user has the ability to override the default assumptions with project specific information.” Absolutely nothing beyond the horsepower rating (549 hp), load factor (0.74), and usage hours (8 hr/day) is known about the construction diesel generators.⁵⁹ The most important factors, the vendor equipment specifications, including emission factors in grams per brake horsepower hour, the fuel, and any controls (e.g., SCR is commonly used to control NOx) are not disclosed. Further, it is unknown whether the CalEEMod analysis overrode the default assumptions. It is also unknown whether generator emissions were even included in the CalEEMod analysis. Thus, the IS/MND fails as an informational document under CEQA.

Generators are typically powered by diesel unless otherwise specified. Diesel generators emit significant amounts of criteria pollutants and greenhouse gas emissions. These emissions taken alone are typically significant unless controls are

⁵³ Project Report, pdf 157, 244.

⁵⁴ Project Report, Table 6.13-4, pdf 664.

⁵⁵ Project Report, pdf 509.

⁵⁶ Appendix F, pdf 10.

⁵⁷ Appendix F, pdf 28.

⁵⁸ CalEEMod User’s Guide, Version 2016.3.2, Section 4.9, pdf 52.

⁵⁹ Appendix F, pdf 10.

required, such as SCR and particulate traps. Thus, the IS/MND fails as an informational document under CEQA.

3.2.5. Access Road Construction Emissions Omitted

The Project requires modifications to access roads outside of the Project boundary.⁶⁰ Emissions from these modifications were not included in the CalEEMod analysis. Further, construction equipment vehicle access, for example, to deliver construction equipment, haul away construction debris, deliver solar panels and other Project components, would generate emissions from travel over these compacted soil and gravel roads. These access road emissions were not included in the IS/MND's construction emissions.

3.2.6. Off-Site Project Components Omitted

The CalEEMod analysis did not include emissions from all Project components. It excluded emissions from construction of all off-site components, most notably the transmission line and substation. Specialized equipment would be required to construct the transmission line, such as drill rigs, puller and tensioners, reel trailers, and splice trailers, none of which are included in the CalEEMod output.⁶¹ Further, helicopters also may be required to support transmission line wire stringing.⁶² Helicopter emissions are substantial and were excluded.

3.2.7 Project Component Delivery Emissions Omitted

The CalEEMod analysis did not include emissions from delivering Project components to the site, including solar panels, inverters, steel mounts, Gen-Tie line poles, substation steel, substation circuit breakers, substation transformers, auxiliary substation equipment, cranes, BESS battery storage contains, and ready-mix concrete. This equipment would be delivered from 20 to 500 miles away,⁶³ which would contribute significant emissions.

3.2.7. Construction Duration

The CalEEMod Analysis is based on operation of construction equipment for 6 to 8 hrs/day between August 3, 2020 and May 28, 2021.⁶⁴ However, the Project Report

⁶⁰ Project Report, pdf 154.

⁶¹ Project Report, Appendix F.

⁶² Project Report, pdf 156.

⁶³ Project Report, Table 3.9-2/3, pdf 507.

⁶⁴ Appendix F, pdf 2, 4.

states that construction will last for 10 hrs/day, 6 days per week, beginning in Spring 2022 and lasting through Fall 2022.⁶⁵ Thus, construction emissions are underestimated by over a factor of two. Further, the IS/MND fails as an informational document under CEQA for failing to provide a detailed construction schedule, which is required to accurately estimate construction emissions.

3.3. Proposed Construction Mitigation

Construction mitigation is identified in IS/MND Section 3.10.3⁶⁶ and included in Appendices A and B to the IS/MND without comment or discussion of how these measures were selected, their impact on emissions, or how they would be enforced, beyond an assertion that Lassen County will be responsible for ensuring compliance.⁶⁷ The IS/MND explains that although “the project will not have a significant impact on air quality, the applicant has proposed the following conditions of approval...”, which include mitigation measures AQ-1, AQ-2, and AQ-3.⁶⁸ Thus, the IS/MND fails as an informational document under CEQA. Appendix B requires the following construction mitigation measures:⁶⁹

- AQ-1 Suspend excavation and grading activities when sustained winds exceed 20 mph or when gusts exceed 25 mph
- AQ-2 Use alternative fuel or catalyst equipped diesel construction equipment
- AQ-3 Minimize idling time (e.g., 10-minutes maximum)
- AQ-4 Replace fossil-fueled equipment with electrically driven equivalents when possible
- AQ-5 Limit or curtail construction activity during periods of high ambient pollution.

The following sections discuss the ability of these measures to reduce the significant NOx and particulate matter impacts documented in Comments 3.2 to a less than significant level.

The files I reviewed and have cited herein contain no calculations to demonstrate that these measures would reduce the significant NOx and fugitive dust PM emissions

⁶⁵ Project Report, pdf 157.

⁶⁶ Project Report, pdf 511.

⁶⁷ Project Report, pdf 454. See also pdf 468 and 733.

⁶⁸ Project Report, pdf 27. See also pdf 547, 601, 727, 738.

⁶⁹ Appendix B, Mitigation Monitoring and Reporting Program, Calneva Battery Energy Storage System/Photovoltaic Solar Energy System Project, June 2020, pp. 1-2. The same measures are also included in Appendix A.

estimated in Comments 3 and 3.2.3 to below the thresholds of significance. In my opinion, they would not reduce the significant NOx and fugitive particulate matter emissions to below the significance thresholds because they are too general and not practically enforceable. Further, most of them do not address fugitive particulate matter emissions but rather equipment exhaust.

Mitigation Measure AQ-1

This measure requires suspending excavation and grading activities when sustained winds exceed 20 mph or when gusts exceed 25 mph. However, the IS/MND did not include any fugitive dust emission calculations in its construction emission estimate. Comment 3.2.3. My calculations in Comment 3.2.3 are independent of wind speed. Thus, this measure does nothing to mitigate the significant particulate matter emissions in Comment 3.2.3.

Measures AQ-2, AQ-3, and AQ-4 only reduce equipment exhaust emissions, not fugitive dust. Neither the CalEEMod calculations nor my calculations in Comment – include emissions during sustained high winds, so AQ-1 does not mitigate the significant fugitive particulate matter emissions estimated in Comments 3 and 3.2.3.

Mitigation Measure AQ-2

This measure requires the use of alternative fuels or catalyst equipped diesel construction equipment. However, without identifying the fuels and catalysts and the specific equipment that would use them, there is no evidence in the record that this measure would reduce any emissions. To be effective, AQ-2 should be modified to require a specific alternative fuel(s) and specific catalyst(s) (e.g., SCR for NOx, oxidation catalyst for ROG) that would be used on each piece of equipment in the construction fleet. To assure that this measure is enforceable, these fuels and catalysts must be specified on the building plans and confirmed in the field by an on-site licensed professional engineer.

Mitigation Measure AQ-3

This measure requires limiting the idling time to a maximum of 10 minutes. This is a very high idling time and does nothing to minimize construction emissions. California law limits idling to 5 minutes.⁷⁰ The South Coast Air Quality Management

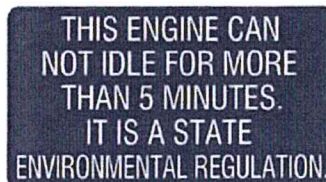
⁷⁰ 13 CCR § 2449: General Requirements for In-Use Off-Road Diesel-Fueled Fleets; <https://govt.westlaw.com/calregs/Document/ID1C693E02DDD11E197D9B83B68A61150?transitionType=Default&contextData=%28sc.Default%29>. See also CARB, Frequently Asked Questions, Regulation for In-Use Off-Road Diesel-Fueled Fleet (Off-Road Regulation); <https://www.arb.ca.gov/msprog/ordiesel/faq/idlepolicyfaq.pdf>.

District's (SCAQMD) CEQA Air Quality Handbook limits idling to 2 minutes.⁷¹ Many states limit idling time to 2 to 5 minutes.⁷² Finally, it is feasible to mandate no idling.

Further, this measure is not enforceable. The Mitigation and Monitoring Program in the IS/MND states that "[d]ocumentation required in quarterly compliance reports; Incorporate restriction into contractor's bid package to limit impacts."⁷³ However, it is extremely difficult on a large construction site such as this one to monitor the idling time of each piece of construction equipment. The following additional requirements should be included to enforce AQ-3:

- Signs that specify the idling requirements must be posted and enforced at the construction site.
- Idling restrictions should be added for on-road vehicles servicing the site.
- Signs must be posted in designated queuing areas and job sites to remind drivers of the 5-minute idling limits.
- Fleet owners should place stickers or labels on vehicles to indicate that an idling limit applies. CARB, for example, encourages fleet owners to place highly visible stickers or labels on each vehicle, for example:⁷⁴

Sample Idling Sticker



Mitigation Measure AQ-4

This measure requires replacing fossil-fueled equipment with electrically driven equivalents when possible. The IS/MND fails to define "when possible." Electric construction equipment at the horsepower ratings required for this Project may not be

⁷¹ SCAQMD, *CEQA Air Quality Handbook*, April 1993, Tables 11-2 and 11-3.

⁷² U.S. EPA, *Compilation of State, County, and Local Regulations Anti-Idling Regulations*, April 2006; <https://www.epa.gov/sites/default/files/documents/CompilationofStateIdlingRegulations.pdf>. See also *Putting the Brakes on Idling Vehicles*; <https://www.ncsl.org/research/environment-and-natural-resources/putting-the-brakes-on-idling-vehicles.aspx>.

⁷³ Project Report, *Mitigation Monitoring and Reporting Program*, pdf 738.

⁷⁴ CARB, *Off-Road Regulation*, p. 7.

available for all of the equipment required to construct the Project.⁷⁵ This equipment includes large excavators, trenchers, cranes, forklifts, rollers, dozers, tractors, backhoes, graders, and scrapers.^{76,77}

Further, there is no evidence in the record that electricity to power electric construction equipment is available at the site. Available electric construction equipment requires a 240-volt, Level 2 A/C setup, the same as for electric cars.⁷⁸ The IS/MND indicates that “[e]lectricity during construction and operations would be obtained from portable, fuel-powered on-site generators.”⁷⁹ The CalEEMod analysis is not based on an electric construction fleet powered by diesel generators.

Diesel generators are significant sources of ROG, NO_x, particulate matter, and other emissions that were not included in the CalEEMod analysis. Further, these generators would not be adequate to power large pieces of construction equipment, particularly when multiple pieces of equipment are operating simultaneously across the 268-acre site without significantly increasing emissions, defeating the purpose of using electric construction equipment.

Electricity to power the construction fleet without significant emission increases would have to be imported from elsewhere. A 34 kV power line could be run from the nearest source of electricity. Alternatively, the interconnection line could be constructed first, along with the on-site 34.5 kV/120 kV transformer, which could then be tapped on the low side for construction electricity.

Regardless, the IS/MND is silent on the source of electricity that would be used to power electric construction, should it be required. The IS/MND did not consider any method(s) to generate the electricity required to operate electric construction equipment, thus failing as an informational document under CEQA. Producing this electricity would increase emissions, which were not considered in the IS/MND.

Further, the IS/MND is silent on which specific pieces of construction equipment would be electric, i.e., all construction equipment or only select smaller pieces of equipment. This measure is practically unenforceable unless the specific equipment

⁷⁵ Frank Raczon, Current State of Electric Equipment, *Green Resources*, July 21, 2020; <https://www.constructionequipment.com/current>.

⁷⁶ Appendix F, pdf 2, 3, 10.

⁷⁷ Kendall Jones, Electric Dreams: Will Heavy Construction Equipment Go All-Electric?, *Construction Technology*, February 22, 2019; <https://www.constructconnect.com/blog/electric-dreams-will-heavy-construction-equipment-go-electric>.

⁷⁸ Volvo, Electric Construction Equipment vs. Diesel Performance Comparisons, May 17, 2021; <https://volvoceblog.com/electric-construction-equipment-vs-diesel-performance-comparisons/>.

⁷⁹ Project Report, Section 3.9.13.3 Utilities, pdf 497.

that would be electric and the source of electricity are identified and required as enforceable mitigation.

Mitigation Measure AQ-5

This mitigation measure requires limiting or curtailing construction activity during periods of high ambient pollution. It will do nothing to mitigate significant emissions during periods when construction occurs.

3.4. Compliance With Construction Mitigation

The Mitigation and Monitoring Program in the IS/MND states that “[d]ocumentation required in quarterly compliance reports; Incorporate restriction into contractor’s bid package to limit impacts.”⁸⁰ However, compliance with all of the proposed construction mitigation requires that construction plans specify the mitigation. Compliance further requires the presence of one or more on-site monitors—licensed professional engineers experienced in construction—throughout the active construction period to document compliance by observation, measurement, and recording. No construction plans specifying mitigation, and no on-site monitors are required. Thus, all of these measures are unenforceable as a practical matter.

3.5. Additional Construction Mitigation

There are numerous feasible particulate matter and NO_x control methods that could be required to reduce the significant NO_x and particulate matter emissions calculated in Comments 3 and 3.2.3. These measures have been required in other CEQA documents, are recommended by various air pollution control districts (including the Bay Area Air Quality Management District (BAAQMD)⁸¹ and the South Coast Air Quality Management District (SCAQMD)⁸²) and are feasible for this Project.

3.5.1. Construction Particulate Matter Mitigation

The following should be required to control significant fugitive particulate matter emissions from Project construction:

⁸⁰ Project Report, Mitigation Monitoring and Reporting Program, pdf 738.

⁸¹ BAAQMD, CEQA Air Quality Guidelines, May 2017, Tables 8-2 and 8-2; https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

⁸² SCAQMD, Fugitive Dust Mitigation Measure Tables; <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/fugitive-dust>.

- 1) All diesel-powered construction equipment shall use Tier 4 Final construction equipment, to be confirmed on site by the on-site construction supervisor during each day of use. If a Tier 4 Final engine is not available for select construction equipment, controls shall be installed on the highest tier equipment available to achieve Tier 4 Final standards. Controls for particulate matter emissions include diesel particulate filters⁸³ and use of alternative fuels.
- 2) Apply water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle trackout.
- 3) Use a gravel apron, 25 feet long by road width, to reduce mud/dirt trackout from unpaved truck exit routes.
- 4) Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition.
- 5) Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup.
- 6) Apply water every 3 hours to disturbed areas within a construction site.
- 7) Require minimum soil moisture of 12% for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.
- 8) Limit on-site vehicle speeds (on unpaved roads) to 15 mph by radar enforcement.
- 9) Replace ground cover in disturbed areas as quickly as possible.
- 10) All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.⁸⁴
- 11) Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads.

⁸³ See Comment 2.8.1.2.

⁸⁴ SCAQMD, Fugitive Dust Mitigation Measure Table XI-A, <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-table-xi-a.doc?sfvrsn=2>.

3.5.2. NOx Construction Mitigation

The following should be required to control significant NOx emissions from Project construction estimated in Comment 3:

- 1) All diesel-powered construction equipment shall use Tier 4 Final construction equipment, to be confirmed on site by the on-site construction supervisor during each day of use. If a Tier 4 Final engine is not available for select construction equipment, controls shall be installed on the highest tier equipment available to achieve Tier 4 Final standards. Effective controls include selective catalytic reduction (SCR) for NOx.
- 2) Require the use of biodiesel in all construction equipment.
- 3) Purchase emission offsets.
- 4) Use Voluntary Emission Reduction Agreements (VERAs), which have been used as mitigation in other CEQA documents.⁸⁵
- 5) Employ an on-site construction site manager(s) to assure that all mitigation is achieved in practice and to verify that engines are properly maintained. Observation shall be documented in a log submitted weekly to Lassen County.

4. OPERATIONAL EMISSIONS

The IS/MND did not estimate operational emissions, asserting “No stationary emissions would result from the solar and battery component which constitute the proposed facility.” The only emissions would be vehicle trips to maintain the facility, routine inspection, and occasional maintenance.⁸⁶ This is wrong.

4.1. Emissions from Diesel Generator Are Potentially Significant

The Project includes at least one emergency diesel generator; namely, “[a] back-up emergency generator will be installed, but only operated in the event the electrical grid is down.”⁸⁷ The IS/MND contains no information on this generator—for example, vendor specification sheet, fuel, horsepower rating, and emission factors. Thus, it is impossible to estimate emissions. However, in other similar cases that I have worked

⁸⁵ SJVAPCD, Summary of Comments and Responses to Proposed Revisions to the GAMAQI-2012, May 31, 2012, p. 3; <https://www.valleyair.org/transportation/GAMAQIDRAFT-2012/GAMAQIResponsetoComments5-10-12%20.pdf>.

⁸⁶ Project Report, pdf 547.

⁸⁷ Project Report, pdf 155.

on, NO_x emissions from standby generators at much smaller facilities were significant, requiring mitigation. Thus, the IS/MND fails as an informational document under CEQA for failing to include generator emissions and the information required to verify them, e.g., vendor specification information.

4.2. Operational Greenhouse Gas Emissions Are Potentially Significant

The Project will emit greenhouse gases (GHGs) and other pollutants from recharging the BESS when the solar panels are not generating electricity. Further, a BESS requires electricity to operate its ancillary cooling and control systems, including inverters, transformers, and HVAC units. Supplying this electricity when the solar panels are off-line releases GHGs and criteria pollutants. The Project includes an emergency generator, presumed to be diesel fueled, to generate electricity when other sources are unavailable. The IS/MND did not estimate any of these emissions, thus failing as an informational document under CEQA.

Greenhouse gas emissions include carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄), among other. In addition to these conventional GHG emissions, the Project will also emit sulfur hexafluoride (SF₆) from leakage of gas from insulated switches and equipment. The IS/MND is silent on this source of emissions, thus failing as an informational document under CEQA.

The IS/MND asserts with no analysis that GHG emissions are less than significant and do not conflict with any plan, policy, or regulations.⁸⁸ Both of these unsupported assertions are incorrect. The batteries in the BESS facility must be charged with energy from the grid when the solar facility is not generating power, unless the developer commits to only charge the BESS with generation from the adjoining solar power plant.

The IS/MND does not limit charging to the adjacent solar PV or to other sources that do not emit greenhouse gases, such as wind or hydro. While the IS/MND suggests the batteries could be charged with the adjacent solar facility; for example, "The high solar resource means that during times of peak solar energy production, the proposed Calneva BESS/PS ES project would be able to store excess energy in the BESS system for later use,"⁸⁹ the IS/MND does not require this as an enforceable condition, nor does it include any evidence demonstrating that battery charging would come directly from the adjacent solar project, because it will not. The IS/MND explains that charging energy will be absorbed directly from the grid: "Electric energy is transferred from the

⁸⁸ Project Report, pdf 69.

⁸⁹ Project Report, pdf p. 476,.

existing power grid to the project batteries during a battery charging cycle and from the project batteries to the power grid during a battery discharge cycle.”⁹⁰

The grid contains a mix of renewable and fossil fuel-sourced energy. If the developer charges the BESS when the PV plant is not operating (e.g., at night), then charging energy from the grid is likely to come from the marginal source of energy, which is virtually always thermal generation that emits CO₂. If the BESS charges during times when thermal generation is present on the grid, this will result in indirect GHG emissions. The developer may wish to claim that it will still reduce net CO₂ emissions even if it increases them during certain hours while charging, but that is a different claim than the one made in the IS. The truth or falsity of such a claim would depend on the hours when the BESS was charged, evidence documenting the marginal grid fuels during those hours, the hours when the BESS was discharged and evidence documenting the marginal fuels during those hours, and on the round-trip efficiency of the BESS (which is necessarily less than 100% due to the laws of thermodynamics, thus guaranteeing that the BESS will consume more energy than it generates).

The IS/MND asserts that operation of the BESS would be “a replacement power source for existing thermal power plants currently servicing the electrical grid, [and] will only serve to reduce [greenhouse gas] emissions.”⁹¹ This statement can only be true if 100% of the charging energy comes from the adjacent Photovoltaic Solar Energy System (PSES) and none of the charging energy comes from existing thermal power plants. The IS/MND also asserts that “[t]he high solar resource means that during times of peak solar energy production, the proposed Calneva BESS/PSES project would be able to store excess energy in the BESS system for later use.”⁹² However, the IS/MND does not include any condition requiring that the BESS only be charged with energy from the adjacent PSES, or even a condition restricting BESS charging to daytime hours, when some solar generation would be present on the grid.

Energy from the adjacent PSES would only be available for charging the BESS when the sun is shining. In evening hours, the BESS would have to be charged with energy from the grid. If the charging energy is from conventional sources, such as gas or coal-fired generation, charging will generate emissions as those sources would not otherwise operate because there would be no market for them. Even during daylight hours when the adjacent solar project is operating, that Project will only produce “excess energy” if the solar generation plant’s output would have had to be curtailed for lack of a market if the BESS were not available to use the otherwise-curtailed energy

⁹⁰ IS/MND, p. 16.

⁹¹ Project Report, pdf 69.

⁹² MND, pdf 476,792.

for BESS charging. When solar generation would not otherwise be curtailed, it is not “excess.” The fraction of solar generation that is subject to curtailment and is thus “excess” is likely quite low because only a small fraction of solar generation (and virtually no non-solar renewable generation) is curtailed⁹³ generation that could instead be used for battery charging.

Thus, if charging occurs in hours when the marginal fuel in the CAISO-controlled grid is a fossil fuel, the facility would increase GHG and criteria pollutant emissions that were not included in the IS/MND’s analyses. Greenhouse gas emissions could be de minimis, but would only be so if the developer commits to only charging the BESS with generation from the adjoining PV power plant and an enforceable mitigation measure is added to the IS/MND. The Project Report and supporting documents contain no requirement that the BESS only be charged with renewable energy like wind or solar.

BESSes are commonly charged in evening hours when solar is not on the grid. As drafted, there is nothing in the IS/MND to prevent charging when the PV plant is not operating (e.g., at night). If charged at night or other times when the BESS is offline, the BESS would have to obtain the charging energy from the grid, where the marginal source of energy is virtually always thermal generation that emits greenhouse gas emissions, including nitrous oxide (N₂O), carbon dioxide (CO₂), and methane (CH₃). Thus, the revised IS/MND and any issued permits must contain an enforceable condition requiring that the BESS only be charged with energy from the adjacent PSES or off-site carbon-free sources such as wind or hydro. Otherwise, the IS/MND must be revised to include charging emissions and recirculated for public review.

The Applicant may wish to claim that it will still reduce net GHG emissions even if it increases them during certain hours while charging, but that is a different claim than the one made in the IS/MND. The validity of such a claim would depend on the hours when the BESS is charged and the marginal grid fuels during those hours; the

⁹³ Renewable energy is “curtailed” when it could have been physically produced (e.g., the sun is shining or the wind is blowing), but it was not produced due to economic (e.g., prices too low to be worth generating) or electrical system factors (e.g., the renewable generation would cause a nonrenewable generator to be turned off that is expected to be needed in the near future, without adequate time to restart it if it is turned off, and thus the CAISO orders renewable curtailment to avoid nonrenewable curtailment). The great majority of curtailment in California to date has been economic (over 99% in 2017, in 2018, and in 2019; over 98% in 2020, and over 99% to date in 2021). See http://www.caiso.com/Documents/Wind_SolarReal-TimeDispatchCurtailmentReportDec31_2017.pdf; http://www.caiso.com/Documents/Wind_SolarReal-TimeDispatchCurtailmentReportDec31_2018.pdf; http://www.caiso.com/Documents/Wind_SolarReal-TimeDispatchCurtailmentReportDec31_2019.pdf; https://www.caiso.com/Documents/Wind_SolarReal-TimeDispatchCurtailmentReportDec30_2020.pdf; and http://www.caiso.com/Documents/Wind_SolarReal-TimeDispatchCurtailmentReportJul18_2021.pdf.

hours when the BESS is discharged and the marginal fuels during those hours; and on the round-trip efficiency of the BESS, which is necessarily less than 100% due to the laws of thermodynamics, thus guaranteeing that the BESS will consume more energy than it generates.

I have not made any calculations of the net GHG (and criteria pollutant) emissions attributable to the BESS if it is not restricted to using generation from the adjacent PV plant for charging because the IS/MND does not contain ANY of the information required to make such calculations, thus failing as an informational document under CEQA. I have made these calculations for other BESS projects, and they generally result in significant GHG emissions and often also significant NOx emissions.

However, here the IS/MND and supporting documents fail to provide the key information required to estimate charging emissions, including the battery storage efficiency and expected energy output of the batteries. The storage efficiency (sometimes also called “round-trip efficiency”) depends on the battery technology used and should have been included in the Project Report because lower efficiency means more grid generation required for each MWh of expected energy output. It is the ratio of energy output per MWh of charging energy (i.e., MWh of battery generation divided by MWh of battery charging energy). Finally, the facility is a net consumer of electricity (to operate support equipment).

Thus, operation of the Project will result in direct energy loss, GHG and criterial pollutant impacts incurred from battery inefficiency during charging, and will indirectly increase GHG and criteria pollutant emissions to operate the BESS when the batteries are charged with nonrenewable energy sources, which will occur whenever incremental⁹⁴ wind and solar are not available to meet incremental charging loads because they are already being fully used.

The IS/MND also erroneously suggests that no analysis is required as “there are no thresholds of significance for the Northeast Plateau Air Basin.”⁹⁵ Greenhouse gas emissions are a global pollutant, not restricted to the Project area, and are required to be analyzed pursuant to CEQA. The GHG significance thresholds developed by other agencies, regardless of location, are also relevant for this Project. Many California

⁹⁴ “Incremental” is analogous to marginal. Incremental wind and solar means solar and wind in addition to what is already generating; incremental charging loads means charging loads in addition to whatever charging loads, if any, are already happening. Marginal can refer to small changes either up or down from the status quo ante, while incremental refers to upward changes only (“decremental” refers to small downward changes).

⁹⁵ MND, pdf 69.

agencies have developed GHG significance thresholds, including the South Coast Air Quality Management District (SCAQMD),⁹⁶ the Sacramento Metropolitan Air Quality Management District (SMAQMD),⁹⁷ the Bay Area Air Quality Management District (BAAQMD), the Santa Barbara County Air Pollution Control District,⁹⁸ and Placer County,⁹⁹ among others.¹⁰⁰ These air districts generally use a significance threshold of 10,000 metric tons of CO₂ equivalent (MTCO₂e) per year.

In sum, absent a defensible calculation by the Applicant subject to CEQA and NEPA review that demonstrates no significant GHG or air quality impacts from non-solar charging, the IS/MND must be modified to contain a condition limiting charging hours to those when non-GHG sources are available that would not otherwise be used, e.g., solar or wind that would otherwise be curtailed.

5. RISK OF UPSET IMPACTS WERE NOT EVALUATED AND ARE POTENTIALLY SIGNIFICANT

The Project includes 25 MW (100 MWh) of lithium-ion batteries.¹⁰¹ The IS/MND concludes that all potential hazards are less than significant if mitigation measure HM-1 and undisclosed “design features” are implemented¹⁰² without conducting any analysis.¹⁰³

The impacts of the proposed BESS facilities, based on experience with operating BESS facilities, are well known and should have been explicitly disclosed rather than glossed over by proposing a fire safety plan as mitigation without ever identifying the impact(s) that would be mitigated.

⁹⁶ South Coast AQMD Air Quality Significance Thresholds; <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>.

⁹⁷ SMAQMD Thresholds of Significance Table; https://files.ceqanet.opr.ca.gov/123569-2/attachment/UL9obk_yjl5aUBxUrjyQ9P3HVyFSL0CEnhvRpgSHGIQmRUgvfjw0ZXCcdqPM73IOOUtFc8RI7yI_48800#:~:text=A%20project%20is%20considered%20significant,than%205%25%20of%20a%20CA%20AQS.

⁹⁸ <https://www.ourair.org/wp-content/uploads/ceqa-ghg-faq.pdf>.

⁹⁹ <https://www.placerair.org/DocumentCenter/View/2047/Chapter-2-Thresholds-of-Significance-PDF>.

¹⁰⁰ See, e.g., Overview of CEQA Significance Thresholds for GHG Emissions & Climate Adaptation Chapters; https://www.sandiego.gov/sites/default/files/legacy/planning/genplan/cap/pdf/eestf_powerpoint%20120513.pdf.

¹⁰¹ Project Report, IS/MND, Section 3.9.2 Battery Modules, Lithium-Ion Battery Technology, and Fire Protection, and Section 3.9.3 Battery Storage System Components, pdf 491-493.

¹⁰² Project Report, pdf 621, 730

¹⁰³ Project Report, Section 6.9.7.2, pdf 620.

5.1. Impacts of Operating BESS Facilities Using Lithium-Ion Batteries

The starting point for any analysis is a review of the current state of knowledge regarding BESS impacts. The IS/MND is silent on the history of BESS accidents. Instead, it review applicable regulations and discusses fire safety and suppression systems that would be activated in the event of an emergency.¹⁰⁴ However, accidents happen even when such measures are in place.

The National Fire Protection Association (NFPA) recently published a brochure that identified the follow impacts of energy storage systems:¹⁰⁵

- Thermal runaway (rapid uncontrolled release of heat energy, resulting in fire or explosion);
- Shock hazard from stranded energy;
- Release of toxic and flammable gases;
- Deep-seated fires within metal or plastic casing, blocking firefighting agents;
- Mechanical abuse;
- Thermal abuse from exposure to external heat source;
- Environmental impacts including rodent damage to wiring, extreme heat, and floods; and
- Electrical abuse from overcharging.

The IS/MND only briefly mentioned thermal runaway and overcharging and presented the results of an unsupported analysis of the release of hazardous substances.¹⁰⁶ The IS/MND made no attempt to conduct any analyses to quantify other consequences of these failure modes (fire, explosion) nor did it review the history of accidents at existing BESSes.

5.2. Lithium-Ion Battery Fires Pose a Serious Risk to Human Health and the Environment

The NFPA brochure starts with this warning:¹⁰⁷

An explosion at a 4 megawatt battery energy storage systems (BESS) facility in April of 2019 is a reminder that this rapidly proliferating technology introduces new hazards into the community. The serious injury of several Arizona firefighters in that explosion highlights the pressing need to educate local officials and first responders on BESS.

¹⁰⁴ Project Report, pdf 611-612.

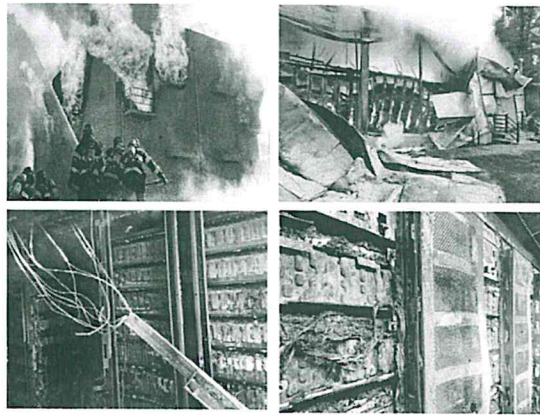
¹⁰⁵ NFPA, Energy Storage Systems Safety Fact Sheet, June 2020. Exhibit 18.

¹⁰⁶ Project Report, pdf 614-616.

¹⁰⁷ Ibid.

The IS/MND is silent on the serious risks of the proposed BESS facility. Fires at existing battery storage facilities demonstrate the severe risk that lithium-ion battery fires pose to human health and the environment. Fires have occurred at many battery storage facilities around the world, including in the European Union (e.g., Belgium).^{108,109} Fires have also occurred at 23 battery storage facilities in South Korea, caused by faulty temperature control, negligence during construction, operational negligence, failure to separate the PCS system and batteries, faulty battery management, system control, or battery protection systems.¹¹⁰ The largest fire loss in Korea was reported at a 47 MW BESS facility, estimated at US \$18 million.¹¹¹ Figure 14.

Figure 14: Fire Damage at Korean BESS Facilities¹¹²



Several battery fires have occurred in Hawaii and Arizona. These fires resulted in significant impacts that are not addressed in the IS/MND, including significant worker and public health impacts from hazardous air pollutants (HAPs) and damage to the adjacent facilities. While the IS/MND estimate acute health impacts from runaways and overcharging,¹¹³ the Project Report contains no support for these analyses.

¹⁰⁸ Jason Deign, *Engie Investigates Source of Belgian Battery Blaze*, December 18, 2017; <https://www.greentechmedia.com/articles/read/engie-investigates-source-of-belgian-battery-blaze#gs.y25569>.

¹⁰⁹ Patrice Nigon and others, *Battery Storage*, IMIA Working Group Paper 112 (19), pdf 55, 58; <https://www.imia.com/wp-content/uploads/2020/01/IMIA-WGP-112-19-Battery-Storage.pdf>.

¹¹⁰ Andy Colthorpe, *Korea's ESS Fires: Batteries Not to Blame But Industry Takes Hit Anyway*, *PVTech*, June 19, 2019; <https://www.energy-storage.news/news/koreas-ess-fires-batteries-not-to-blame-but-industry-takes-hit-anyway>.

¹¹¹ Nigon and others, pdf 60.

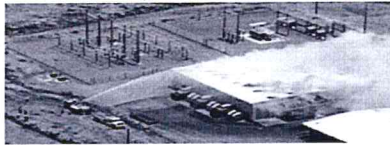
¹¹² *Ibid.*

¹¹³ Project Report, Table 6.9-4, pdf 616.

Two fires occurred at First Wind's 30 MW Kahuku project in Hawaii in 2012. The first fire broke out in March 2011. The second fire, on August 3, 2012, was so fierce that firefighters could not enter the building for several hours. They used dry chemicals, which failed. This fire resulted in a \$30 million battery loss that closed the wind farm.¹¹⁴

In describing firefighting challenges at the Hawaiian 10-MW battery storage system, the Honolulu Fire Department reported:^{115,116}

"This is a very dangerous environment to fight a fire in because of the confined nature of the warehouse. It's a big warehouse, but what's inside are rows of racks of batteries that have very small aisles in between"



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"The risks from scalding heat, poisonous fumes, a collapsing structure and the potential for battery explosions kept firefighters outside the warehouse."¹¹⁷ Firefighters at this site faced thick smoke, toxic fumes, and other hazards.^{118,119} "The August ... fire, the third since opening in March 2011, was so fierce that firefighters could not enter the

¹¹⁴ Nigon and others, pdf 55.

¹¹⁵ Fire at Kahuku Wind Farm Destroys Crucial Building, *Hawaii News Now*, August 1, 2012; <https://www.hawaiinewsnow.com/story/19173811/hfd-battling-kahuku-wind-farm-blaze/>.

¹¹⁶ Michael A. Stosser, What Are the Risks and What Regulations Should We Consider, DOE Energy Storage Safety Meeting, 2014. See also <https://www.energy.gov/sites/prod/files/2014/12/f19/OE%20Safety%20Strategic%20Plan%20December%202014.pdf>; <http://www.hawaiinewsnow.com/story/19173811/hfd-battling-kahuku-wind-farm-blaze/>; <https://www.scientificamerican.com/article/battery-fires-pose-new-risks-to-firefighters/>.

¹¹⁷ Umair Irfan, Battery Fires Pose New Risks to Firefighters, *Scientific American*, February 27, 2015; available at: <https://www.scientificamerican.com/article/battery-fires-pose-new-risks-to-firefighters/>.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

building for seven hours.”¹²⁰ Other fire departments have reported: “Basically you need to overwhelm it with more water than you think you need.”¹²¹

As discussed in Comment 6.5.2, the fire stations that would respond to the fires are not nearby. There is no on-site water for fire fighting. Comment 6.5.1. In the case of the Hawaii fires discussed above, a recent article in *Scientific American* reported: “By the time you get enough firefighting forces and the right extinguishing sources, the fire is going to progress quite a bit.”¹²² It also explained: “One important lesson is to have fire response resources on-site, like dry chemicals and deployment systems.” Further, in the case of the Project, the facility would be unmanned in a rural location. This means firefighters from a distant location may have to extinguish a blaze without knowing what chemicals to use, where the electrical shutoffs are, or what kind of fire retardant to use.

Firefighters did not enter the building until 7 hours after the flames started due to questions about the toxicity of the 12,000 batteries. Two other fires occurred in the battery storage building, attributed to ECI capacitors in inverters from Dynapower.^{123,124}

A fire broke out at a BESS in Wisconsin in 2016. The fire began in a utility-scale energy storage system that was in a partially assembled state that was not in operation and not connected to a power source or load. The fire occurred when a technician from the battery manufacturer was working on the energy storage system and was started in one of the DC power and control compartments adjacent to a battery rack. Once started, it spread to other batteries.¹²⁵

Another major fire in the United States recently occurred on April 19, 2019, in Surprise, Arizona at the APS McMicken Energy Storage Facility, equipped with two 2-

¹²⁰ Ros Davidson, Analysis: First Wind Project Avoids Storage After \$30m Fire, *Wind Power*, March 6, 2014; <https://www.windpowermonthly.com/article/1284038/analysis-first-wind-project-avoids-storage-30m-fire>. See also Eric Wesoff, Battery Room Fire at Kahuku Wind-Energy Storage Farm, *Energy Storage*, August 3, 2012; <https://www.greentechmedia.com/articles/read/battery-room-fire-at-kahuku-wind-energy-storage-farm#gs.xdxv6h> and Nigon and others, 2019, pdf 55.

¹²¹ Cameron Polom, Solar Storage Facilities Present Unique Hazard for Firefighters, *West Valley News*, April 21, 2019; <https://www.abc15.com/news/region-west-valley/surprise/solar-storage-facilities-present-unique-hazard-for-firefighters>.

¹²² Irfan 2015.

¹²³ Eric Wesoff, Battery Room Fire at Kahuku Wind-Energy Storage Farm, *GTM*, August 3, 2012; <https://www.greentechmedia.com/articles/read/battery-room-fire-at-kahuku-wind-energy-storage-farm#gs.9exghx>.

¹²⁴ *Hawaii News Now*, August 1, 2012.

¹²⁵ Nigon and others, pdf 58.

MW AES Advancion battery arrays.^{126,127} An explosion in the McMicken battery system led to a fire.^{128,129} This event injured eight firefighters, one critically.¹³⁰ Four firefighters were hospitalized for chemical inhalation burns.¹³¹ Of the firefighters injured, three required an extended hospital stay. The most serious injuries included a firefighter who had a “nose fracture, skull fracture, collapsed lung, rib fractures, broken tibia and fibula and an artery cut in his left leg.” Others sustained multiple fractures, burns, and concussions.¹³²

Firefighters are a significant at-risk population because batteries may rupture when exposed to extreme heat/fire, leaking corrosive materials, and/or emit toxic fumes, regardless of the specific battery technology. Burning batteries may emit acrid smoke, irritating fumes, and toxic fumes of fluoride, resulting in acute and chronic health effects in responding firefighters. Acute health hazards include chemical inhalation burns and damage to lungs, eyes, and skin. Cobalt, present in lithium-ion batteries, is a suspected human carcinogen.¹³³

¹²⁶ Ibid.

¹²⁷ Jennifer Runyon, APD Battery Energy Storage Facility Explosion Injures Four Firefighters; Industry Investigates, *Renewable Energy World*, April 23, 2019; <https://www.renewableenergyworld.com/2019/04/23/aps-battery-energy-storage-facility-explosion-injures-four-firefighters-industry-investigates/>.

¹²⁸ Arizona Public Service, Equipment Failure at McMicken Battery Facility, April 26, 2019; <https://www.aps.com/en/About/Our-Company/Newsroom/Articles/Equipment-failure-at-McMicken-Battery-Facility>.

¹²⁹ Julian Spector, What We Know and Don't Know About the Fire at an APS Battery Facility, April 23, 2019; <https://www.greentechmedia.com/articles/read/what-we-know-and-dont-know-about-the-fire-at-an-aps-battery-facility#gs.9czowd>.

¹³⁰ Eight AZ Firefighters Hurt, One Critically, in Explosion, Firehouse.Com News, April 20, 2019; <https://www.firehouse.com/safety-health/news/21077221/eight-az-firefighters-injured-one-critically-in-a-large-utility-battery-explosion>.

¹³¹ Julian Spector, What We Know and Don't Know About the Fire at an APS Battery Facility, GTM, April 23, 2019; <https://www.greentechmedia.com/articles/read/what-we-know-and-dont-know-about-the-fire-at-an-aps-battery-facility#gs.w82d63>.

¹³² Chris Dubay, Vice President/Chief Engineer, National Fire Protection Association, ENR Letters, August 21, 2019; <https://www.enr.com/articles/47377-letter-battery-storage-fire-risks-need-greater-attention>.

¹³³ Honeywell, Material Safety Data Sheet, Lithium-Ion Battery; <https://honeywellaidc.force.com/supportppr/s/article/Lithium-ION-battery-specifications-MSDS-shipping-LI-ION-batteries>.

The McMicken Facility fire was not the first APS battery fire. Another smaller fire has been reported at another APS system.¹³⁴ In November 2012, a 1.5-MW system at the APS Elden Substation near Flagstaff, Arizona, also caught fire.¹³⁵ The root cause analysis for this fire identified a near-miss in May 2012 when a battery cell was severely discharged and the cell was continuously charged against its intended design.¹³⁶ Arizona Public Service recently shut down two other battery systems following the explosion.¹³⁷

The Arizona Corporation Commission (ACC) recently reviewed the 2019 APS McMicken Energy Storage Facility and 2012 APS Elden Substation near-miss and concluded that “utility scale lithium-ion batteries using the chemistries in those types of lithium-ion batteries are not prudent and create unacceptable risks, particularly those with chemistries that include compounds that can release hydrogen fluoride in the event of a fire and/or explosion.”¹³⁸ The IS/MND admits that hydrogen fluoride could be present in the Project’s batteries.¹³⁹

Other battery fires have occurred on airplanes, including in a Dreamliner 787 at Heathrow Airport,¹⁴⁰ in-flight on an All Nippon Airways 787 over Japan, forcing an emergency landing, and aboard a Japan Airlines 787 at Boston’s Logan International Airport, resulting from the release of flammable electrolytes, heat damage, and smoke on the aircraft.¹⁴¹

¹³⁴ Karl-Erik Stromsta, APS and Fluence Investigating Explosion at Arizona Energy Storage Facility, *GTM*, April 22, 2019; <https://www.greentechmedia.com/articles/read/aps-and-fluence-investigating-explosion-at-arizona-energy-storage-facility#gs.9cnh9x>.

¹³⁵ H. J. Mai, APS Storage Facility Explosion Raises Questions about Battery Safety, *Utility Dive*, April 30, 2019; <https://www.utilitydive.com/news/aps-storage-facility-explosion-raises-questions-about-battery-safety/553540/>. See also Eckhouse and Chediak, April 24, 2019; Nigon and others 2019, pdf 57; and Colthorpe, June 2019.

¹³⁶ Sandra D. Kennedy, Commissioner, Re: In the Matter of the Commission’s Inquiry of Arizona Public Service Battery Incident at the McMicken Energy Storage Facility Pursuant to Arizona Administrative Code R14-2-101, Docket No. E-01345A-19-076, August 2, 2019, p. 2; <https://docket.images.azcc.gov/E000002248.pdf>.

¹³⁷ Mai, April 30, 2019.

¹³⁸ 8/2/19 APS Report.

¹³⁹ Project Report, pdf 613, 615.

¹⁴⁰ AIG, Lithium-ion Battery Energy Storage Systems: The Risks and How to Manage Them; <https://www.aig.co.uk/content/dam/aig/emea/united-kingdom/documents/Insights/battery-storage-systems-energy.pdf>.

¹⁴¹ Nigon and others, pdf 55.

My review of the limited available information in the IS/MND indicates that the proposed BESS will use batteries with similar chemistries, mostly notably chemicals that include compounds that can release hydrogen fluoride and other toxic chemicals.¹⁴² Tests on a range of battery compositions revealed that they all release toxic chemicals.¹⁴³ If other batteries are used, (and the specific lithium ion battery has not yet been selected) or there are advances in lithium-ion technologies, a subsequent analysis should be prepared to evaluate any new impacts.

The chemical composition of the lithium-ion batteries based on current lithium-ion technology includes cobalt oxide; manganese dioxide; nickel oxide; carbon; unidentified electrolyte; polyvinylidene fluoride; aluminum foil; copper foil; aluminum; and inert materials.¹⁴⁴ However, the Project has not yet selected a specific Li ion battery,¹⁴⁵ preventing a meaningful analysis. A recent letter from Tesla to the Arizona Corporation Commission explained that the term “lithium-ion batteries”:¹⁴⁶

actually encompasses a broad set of storage technologies – there are many different sub-chemistries of lithium-ion batteries, each with their own unique characteristics. Common lithium-ion sub-chemistries for stationary storage include nickel manganese cobalt oxide (NMC) and lithium iron phosphate (LFP) but there are many other sub-chemistries such as lithium manganese oxide (LMO) and nickel cobalt aluminum oxide (NCA). Different types of lithium-ion battery systems have different properties and associated risks.

Thus, the IS/MND fails as an informational document under CEQA for failing to evaluate the specific battery technology that will be used.

The 2019 Kennedy analysis of the Arizona fires discloses fires with flame lengths of 10 to 15 feet that grew into flame lengths of 50 to 75 feet. The Flagstaff Fire Department Report for the 2012 incident expressed concerns about “a serious risk of a large-scale explosion.” The ACC concluded that “a similar fire event at a very large lithium-ion battery facility (250 MW+) would have very severe and potentially catastrophic consequences, and that responders would have a very difficult time trying to handle such an incident.” The 2019 Kennedy report goes on to conclude:

¹⁴² Project Report, pdf 608-612.

¹⁴³ Consolidated Edison and NYSERDA, Considerations for ESS Fire Safety, February 9, 2017.

¹⁴⁴ Imperial County Planning and Development Services, Draft Supplemental Environmental Impact Report. Prepared by Burns McDonnell, July 15, 2019, pdf 78, Sec. 2.6.3.9; <http://www.icpds.com/?pid=6973>.

¹⁴⁵ Project Report, pdf 608.

¹⁴⁶ Letter from Sarah Van Cleve, Manager, US Energy Policy, Tesla, Inc., to Arizona Corporation Commission, Re: Tesla Response to Commissioner Kennedy’s August 2nd Letter Regarding Lithium-Ion Battery Safety/Docket No. E-01345A-19-0076, August 19, 2019; <https://docket.images.azcc.gov/E000002454.pdf>.

To appropriately plan for such a catastrophic event, the large-scale lithium ion battery facility using the same chemistries as the APS Elden Substation (Flagstaff) facility fire and the McMicken facility would need to be built in isolation far from everything else, because an explosion could potentially level buildings at some distance from the battery facility site. The energy stored at a 2 MW battery facility is equivalent to 1.72 tons of TNT. The energy stored at a 250 MW battery facility is equivalent to 215 tons of TNT. Also, large amounts of hydrogen fluoride could be released and dispersed that would affect and harm the public at a substantial distance downwind. There would be concerns also about lingering hydrogen fluoride contamination in the affected areas.

Based on this analysis, an explosion at the proposed 25 MW BESS would be equivalent to 22 of TNT.¹⁴⁷ This is sufficient to seriously damage adjacent Project facilities, including the solar panels, substation, and Gen-Tie. Such an accident could trigger a wildfire in the surrounding vegetation. The IS/MND fails as an informational document under CEQA for failing to disclose and evaluate the risk and consequences of explosions and fires at the proposed BESS. The NFPA concluded as follows based on the experience in Arizona:¹⁴⁸

However, as the Arizona fire illustrates, this technology is not risk free. BESS technologies, which are typically large configurations of chemical batteries, can explode, catch fire, and release toxic gases under certain conditions. They are also subject to the phenomena of thermal runaway, which means they can burn intensely for significant periods of time.

These hazards are dangerous for firefighters and for anyone else nearby an emergency incident. Policymakers must make sure first responders and other officials have the tools necessary to deploy BESS safely.

5.3. Battery Handling and Transportation Accidents

CEQA Guidelines Section 15126(c) requires a discussion of any significant irreversible environmental change that would be caused by a project. A project would result in significant irreversible changes if it involves uses in which irreversible damage could result from any potential environmental accidents associated with the project.¹⁴⁹ The batteries will likely be shipped from warehouses in unknown location(s) and transported to the site from these undisclosed locations by undisclosed means (rail, truck, ship?), over undisclosed routes and roadways. Transportation could result in crush or puncture damage, possibly leading to the release of electrolyte material along transport routes or in storage. These routes could include sensitive habitat that would be irreversibly damaged in the event of a transportation accident. Further, an explosion

¹⁴⁷ The 2 MW battery at the Arizona McMicken facility is equivalent to 1.72 tons of TNT. Thus, the proposed 25 MW BESS is equivalent to $(1.72)(25/2) = 22$ tons TNT.

¹⁴⁸ NPFA, August 2019, p. 1.

¹⁴⁹ 14 CCR § 15126.2.

triggered by a fire during handling and transportation could result in injuries and deaths of workers and motorists.

Lithium-ion batteries are sensitive to damage, especially during handling and transport.¹⁵⁰ They are also sensitive to high ambient temperatures,¹⁵¹ which will be experienced by the Project's batteries as they will likely have to pass through sensitive biological habitat. It is well known that battery accidents occur during handling, loading, and unloading in warehouses and during transportation.¹⁵² The IS/MND fails to discuss the risk of accidents during battery storage, handling, and transportation to the site, instead dismissing this issue as the transportation of the batteries is subject to 49 CFR 173.185. Thus, the IS/MND fails as an informational document under CEQA.

6. WILDFIRE IMPACTS

The IS/MND asserts that the Project itself poses no wildfire risks¹⁵³ and that the Project will have "no impact" on wildfires. Specifically, it concludes the Project will not "require the installation or maintenance of associated infrastructure () that may exacerbate fire risk..."¹⁵⁴ Thus, the IS/MND concludes that adherence to the attached fire suppression plan which "would adequately reduce any potentially significant impacts to a less than significant level."¹⁵⁵ The "fire suppression plan" was not in any produced Project documents. This conclusion is unsupported and incorrect and fails to recognize the reality of fire risks in the local area under current climatic conditions and the presence of sources of fire in the Project design and in the surrounding area.

In fact, both Project construction and operation pose a significant wildfire risk that was not disclosed in the Project Report. The Project will install facilities that will exacerbate fire risk. Further, the site contains utilities that present fire risks to the Project as well as the surrounding area and the surrounding area contains vegetation

¹⁵⁰ Kjell-Arne Jonsson, The Dangerous Consequences of Taking Shortcuts When Shipping Lithium-Ion Batteries, March 9, 2018; <http://info.nefab.com/lib-blog/lithium-ion-batteries-shipping-shortcuts>.

¹⁵¹ Allianz Risk Consulting, Lithium-Ion Batteries, Risk Bulletin, 2017; <https://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/pdfs-risk-advisory/risk-bulletins/ARC-Lithium-Ion-Batteries.pdf>.

¹⁵² FAA Office of Security and Hazardous Materials Safety, Lithium Batteries & Lithium Battery-Powered Devices, August 1, 2019; https://www.faa.gov/hazmat/resources/lithium_batteries/media/Battery_incident_chart.pdf.

¹⁵³ Project Report, IS/MND, pdf 750

¹⁵⁴ Project Report, IS/MND Section 10, pdf 50.

¹⁵⁵ Project Report, IS/MND, pdf 51.

that could support a wildfire. Thus, as discussed below, wildfire impacts are significant and unmitigated.

6.1. Project Design Elements Present Fire Risks

The Project includes two well-known sources of fire — a 3- to 4-mile long Gen-Tie 120 KV transmission line¹⁵⁶ and the BESS.

6.1.1. Transmission Line

The IS/MND fails to disclose and discuss the huge number of fires that have been caused by transmission lines and related facilities,¹⁵⁷ as summarized below. It also fails to disclose the causes and magnitude of fire risk or to impose effective and feasible mitigation and the current climatic conditions that have led to numerous fires.

The IS/MND also fails to disclose that recent history shows wildfires have the potential to cause horrible catastrophes and are frequently caused by transmission lines, such as the proposed Gen-Tie.¹⁵⁸

6.2. CalFire Hazard Map Out of Date

The IS/MND relies on the CalFire hazard map to conclude that the Project is not located in a high fire hazard zone, but rather a “moderate” fire zone and thus that there would be no wildfire risks.¹⁵⁹ However, this map was adopted in November 2007¹⁶⁰ and fails to reflect current climatic conditions that have led to many catastrophic wildfires.

Current wildfires have no allegiance to this map. High temperatures and dry conditions have created perfect conditions for wildfires, regardless of the hazard zone. A comparison of the 2007 CalFire map with a map showing fires currently burning in

¹⁵⁶ Project Report, pdf 2, 7, 81, 92, 211, 301, pdf 500 (4 miles), 638, 642 (4 miles), 703 (4 miles)

¹⁵⁷ Pacific Gas and Electric Company — Fire Incident Data Collection Plan, Report Data Compiled from 2014–2017; available at https://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/About_Us/Organization/Divisions/News_and_Outreach_Office/PGE_Fire%20Incident%20Data%202014-2017.pdf

¹⁵⁸ See, e.g., William Atkinson, The Link Between Power Lines and Wildfires, *Electrical Contractor*, November 2018; available at <https://www.ecmag.com/section/systems/link-between-power-lines-and-wildfires>.

¹⁵⁹ Project Report, pdf 50, 710.

¹⁶⁰ CalFire, Lassen County; <https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/>.

California¹⁶¹ shows that most current wildfires are raging in moderate or unclassified fire zones. Fires are burning faster, hotter, more intensely, and getting harder to fight. They have recently burned more than 140,000 acres, from the mountains along the California-Nevada border to the forest north of Mount Shasta.

This year, a winter and spring of little rain and minimal snow runoff, followed by months of unusually warm conditions and several heat waves, have left vegetation primed to burn fast. Intense fires fueled by dry vegetation have a greater tendency to hop over barriers, jump over control lines, roads, and bodies of water and create their own weather conditions. The IS/MND is silent on the dryness of vegetation, primed by long-term drought and heat waves, which could well turn local vegetation into kindling, making it easy for fires to ignite and spread in the area,¹⁶² even though most of the Project site is in a moderate fire zone.

Even this outdated 2007 fire map shows high fire hazard areas in Lassen County, around the city of Susanville. As demonstrated by numerous catastrophic fires in California over the past decade, wildfires propagate rapidly and over great distances. The IS/MND admits that high fire hazard zones are located 17 miles to the west and 26 miles to the south.¹⁶³ A fire in these high hazard zones near Susanville, for example, could be transported by winds onto the Project site.

Further, a catastrophic wildfire is currently burning south of the Project. The Beckwourth Complex Fire, Figure 2, the largest wildfire of the year so far in California,¹⁶⁴ is currently burning near the Project location, roughly 42 miles south of Herlong.¹⁶⁵ This fire is a combination of two lightning-caused fires near the community of Beckwourth.¹⁶⁶ The fire covers 100,531 acres and is currently only 68%

¹⁶¹ Los Angeles Times, California Wildfires Map: https://www.latimes.com/wildfires-map/?utm_id=33567&sfmc_id=16285.

¹⁶² Hayley Smith and Alex Wigglesworth, California Fires Are Burning Faster, Hotter, More Intensely—And Getting Harder to Fight, *Los Angeles Times*, July 13, 2021; <https://www.latimes.com/california/story/2021-07-13/california-fires-are-burning-hotter-faster-than-even-putting-them-out-if-getting-harder>.

¹⁶³ Project Report, pdf 710.

¹⁶⁴ <https://www.sfgate.com/california-wildfires/article/Video-shows-scary-behavior-of-California-s-raging-16311854.php>.

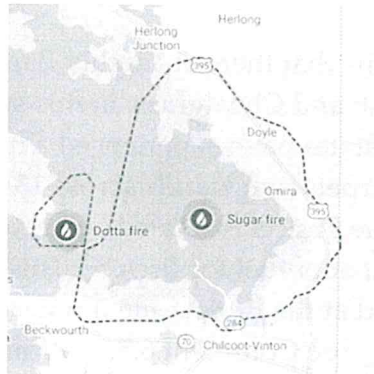
¹⁶⁵ Project Report, pdf 1: The Project site is about 9 miles northeast of Herlong.

¹⁶⁶ Amy Graff, Video Shows Scary Behavior of California's Raging Beckwourth Fire, SFGate, July 13, 2021; <https://www.sfgate.com/california-wildfires/article/Video-shows-scary-behavior-of-California-s-raging-16311854.php>.

contained.^{167,168} The fuels involved include timber (litter and understory), brush (2 feet) and closed timber litter. Eastside pine is the primary fuel type, with continuous white fir in the drainages and montaine chapparal.¹⁶⁹ While none of these fuels is reported at the Project site,¹⁷⁰ they are present in the surrounding area and could support a wildfire similar to the Beckwourth Complex fire that could reach the Project site. In fact, as of July 22, 2021, evacuation warnings have been extended east of US 395 including the town of Herlong. The Project site is 9 miles northeast of Herlong.¹⁷¹

However, the IS/MND is silent on vegetation in the surrounding areas, most notably along the Gen-Tie and outside of the Project site that could serve as fuel for the start of a similar fire, which could spread onto the Project site. Further, the IS/MND fails to evaluate potential fire impacts, which could be triggered by lightening, other external factors, or accidents at the BESS facility. See Comments 5 to 6.5.7.

Figure 2: Location of the Beckwourth Fire¹⁷²



¹⁶⁷ Beckwourth Complex Fires. <https://inciweb.nwcg.gov/incident/7601>.

¹⁶⁸ Plumas National Forest, Beckwourth Complex Morning Update, July 5, 2021; <https://www.fs.usda.gov/detail/plumas/news-events/?cid=FSEPRD928958>.

¹⁶⁹ Incident Information System, Beckwourth Complex – Morning Update, July 15, 2021, <https://inciweb.nwcg.gov/incident/7601/>.

¹⁷⁰ Project Report, IS/MND, pdf 172, 321, 408, 761.

¹⁷¹ Lassen County Evacuations 7/10 4:40 pm; <https://inciweb.nwcg.gov/incident/article/7601/60792/>.

¹⁷² Google Maps; <https://www.google.com/maps/@39.9432499,-120.4629745,10z/data=!4m3!15m2!1m1!1s%2Fg%2F11q84x4hzk>. See also U.S. Fire Service, Beckworth Complex, July 15, 2021; https://inciweb.nwcg.gov/photos/CAPNF/2021-07-04-1129-Beckwourth-Complex/picts/2021_07_15-09.29.37.116-CDT.png.

6.3. On-Site and Surrounding Vegetation Could Support Wildfire

The IS/MND asserts there is no wildfire risk because the site is surrounded by “open range lands” and “no wildlands or forests.”¹⁷³ The Special Status Plant Survey Report¹⁷⁴ did not survey the vegetation along the 30-foot right-of-way centered on the transmission line (Gen-Tie), which is a major Project component nor the area outside of Project facilities. The IS/MND only states the Gen-Tie would be kept “free of deep-rooted vegetation for safety purposes.”¹⁷⁵

However, visual examination of Google maps indicates that vegetation surrounding these facilities is dominated by the same shallow-rooted native desert brush and grasses,¹⁷⁶ including sagebrush, bitterbrush, spiny hopsage, greasewood, rabbitbrush, tumbleweed, and annual grasses found on the Project site.¹⁷⁷ This shallow-rooted vegetation apparently will not be removed. “Sagebush will burn when the surrounding grasses are dry. With strong winds, fire spreads rapidly with flames sometimes reaching over 30 feet.”¹⁷⁸

The Project Report admits that there is “highly flammable vegetation such as thousands of acres of Sagebrush and Cheatgrass, in this specific location” [along the transmission line].¹⁷⁹ Western states have experienced a massive bloom of cheatgrass, a highly flammable grass that carpets rangelands across 13 states, including California and northern Nevada where the Project is located. Cheatgrass dries out early in the summer and makes a thick carpet of fuel for fires.¹⁸⁰ This weed could fuel major wildfires along the Gen-Tie and at the Project site if not stripped in a safe zone around the Project site and Gen-Tie.¹⁸¹ See Comment 6.5.7. While the IS/MND admits that

¹⁷³ Project Report, pdf 710.

¹⁷⁴ Project Report, pdf 400, Attachment 8, Special Status Plant Survey Report for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES), May 2021.

¹⁷⁵ Project Report, pdf 180, 270.

¹⁷⁶ Project Report, pdf 90, 341. The vegetation along the Gen-Tie was not surveyed, but Google Maps suggests that it is similar to vegetation on the main Project site.

¹⁷⁷ Project Report, pdf 321, 324, 325, 402, 406, 408, 411, 412, 429, 575.

¹⁷⁸ National Park Service, Wildland Fire in Sagebrush; <https://www.nps.gov/articles/wildland-fire-in-sagebrush.htm>.

¹⁷⁹ Project Report, pdf 427-428.

¹⁸⁰ Ibid.

¹⁸¹ Sophie Quinton, Invasive Grass Increases Wildfire Threat in Western States, July 2, 2019; <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2019/07/02/invasive-grass-increases-wildfire-threat-in-western-states>.

cheatgrass is present along the Gen-tie route,¹⁸² it apparently only would be removed from pole sites¹⁸³ but not elsewhere. The IS/MND fails as an informational document under CEQA for failing to disclose the fire risk presented by the shallow-rooted, desert vegetation present along the Gen-Tie route and elsewhere around the Project site.

Thus, vegetation along the Gen-Tie that would not be removed presents a significant fire hazard in the event of a triggering natural event—for example, a lightning strike, or an accident at Project facilities, particularly the BESS. Mitigation should include stripping all vegetation within a safe distance of all Project components; not just “deep-rooted” vegetation.

6.4. Project Facilities That Will Exacerbate Fire Risk

The Project includes a BESS, transmission line, and solar panels. All of these facilities exacerbate the risks triggered by the Project

6.4.1. The Proposed BESS Presents a Significant Fire Risk

The proposed 50 MW of lithium-ion batteries in the on-site BESS presents a significant risk of fire, as discussed in Comment 5. The remote location, dirt access roads, absence of nearby emergency response agencies, absence of on-site water, and proximity of flammable vegetation could trigger a wildfire.

6.4.2. The Proposed Transmission Line Presents a Significant Fire Risk

The IS/MND fails to disclose that recent history shows wildfires are frequently caused by transmission lines, such as the proposed Gen-Tie, and have the potential to cause horrible catastrophes.¹⁸⁴ Thousands of wildfires have been triggered by transmission lines and their overhead conductors in California¹⁸⁵ and elsewhere.¹⁸⁶ Of the top 20 largest California wildfires, three were caused by powerlines. The Thomas

¹⁸² Project Report, pdf 428.

¹⁸³ Project Report, pdf 428.

¹⁸⁴ See, e.g., William Atkinson, *The Link Between Power Lines and Wildfires*, *Electrical Contractor*, November 201.

¹⁸⁵ Taryn Luna, *California Utility Equipment Sparked More Than 2,000 Fires in Over Three Years*, *Los Angeles Times*, January 28, 2019; available at <https://www.latimes.com/politics/la-pol-ca-california-utilities-wildfires-regulators-20190128-story.html>.

¹⁸⁶ Texas Wildfire Mitigation Project, *How Do Power Lines Cause Wildfires?*; <https://wildfiremitigation.tees.tamus.edu/faqs/how-power-lines-cause-wildfires>.

fire (December 2017) burned 281,893 acres and 1,063 structures and caused two deaths. The Witch fire (October 2007) burned 197,990 acres and 1,650 structures and resulted in two deaths. The Laguna fire (September 1970) burned 175,425 and 382 structures and resulted in five deaths.¹⁸⁷

Of the top 20 most destructive California wildfires, six were caused by powerlines. The Camp fire (November 2018) burned 153,336 acres and 18,804 structures and caused 85 deaths. The Witch fire (October 2007) burned 197,990 acres and 1,650 structures and caused 2 deaths. The Nuns fire (October 2017) burned 54,382 acres and 1,355 structures and caused 3 deaths. The Thomas fire burned 281,893 acres and 1,063 structures and caused 2 deaths. The Butte fire burned 70,868 acres and 921 structures and caused 2 deaths.¹⁸⁸

Currently, utility equipment on a PG&E transmission line may have sparked the Dixie fire, the largest fire in California this year.^{189,190} The report filed with the CPUC indicates the fire may have been triggered by blown fuses on the Bucks Creek 1101 12 kV Overhead Distribution Circuit.¹⁹¹

Major causes of transmission fires include downed lines, downed conductors, and contact with vegetation. A single energized line conductor, for example, could break and fall to the ground during high winds, where it produces high-energy, high-temperature arcing, which can trigger a fire. An arcing downed conductor could readily ignite proximate vegetation,¹⁹² such as native sagebrush. The proposed mitigation, removing deep-rooted vegetation, would not mitigate this impact.

¹⁸⁷ CalFire, Top 20 Largest California Wildfires;
https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf.

¹⁸⁸ CalFire, Top 20 Most Destructive California Wildfires;
https://www.fire.ca.gov/media/t1rdhizr/top20_destruction.pdf.

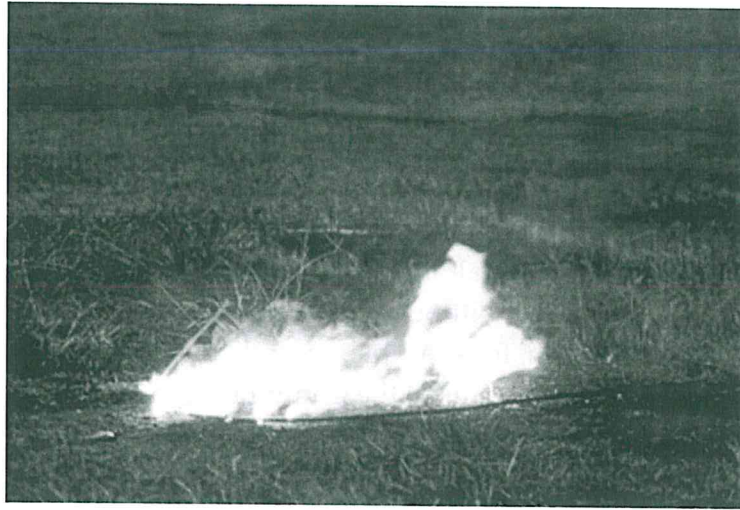
¹⁸⁹ Faith E. Pinho, PG&E Equipment May Have Sparked Dixie Fire, Growing Near Burn Scar of Deadly Camp Fire, Los Angeles Times, July 24, 2021; https://www.latimes.com/california/story/2021-07-19/pg-e-says-its-equipment-may-have-sparked-dixie-fire?utm_id=33890&sfmc_id=1628513.

¹⁹⁰ Hayley Smith, Anatomy of a Monster: How the Dixie Fire Became California's Biggest of the Year, Los Angeles Times, July 24, 2021; https://www.latimes.com/california/story/2021-07-24/how-the-dixie-fire-became-californias-largest-of-the-year-so-far?utm_id=33893&sfmc_id=1628513.

¹⁹¹ CPUC, PG&E Incident Report;
https://s1.q4cdn.com/880135780/files/doc_downloads/wildfire_updates/2021/07/071821.pdf. Also posted on PG&E website at:
https://s1.q4cdn.com/880135780/files/doc_downloads/wildfire_updates/2021/07/071821.pdf.

¹⁹² Texas Wildfire Mitigation Project, How Do Power Lines Cause Wildfires?;
<https://wildfiremitigation.tees.tamus.edu/faqs/how-power-lines-cause-wildfires>.

Figure 3: Fire Caused by Downed Conductor¹⁹³



A transmission line has recently been implicated in the Camp Fire as the “deadliest and most destructive fire in California history.” This fire killed 85 people, destroyed 18,804 structures and burned 153,336 acres. CalFire has determined that the Camp Fire was caused by an electrical transmission line located in the Pulga area.¹⁹⁴ In response to this tragedy, PG&E has announced that it will rebuild the transmission lines underground.¹⁹⁵ The Project’s proposed mitigation, removing deep-rooted vegetation along the Gen-Tie route, cannot eliminate these types of accidents.

None of the proposed mitigation measures will reduce the risk of wildfires to a less than significant level. As long as the Gen-Tie is above ground, even if deep-rooted vegetation is removed from along its route, significant fire impacts are still possible, if, for example, high winds downed a line or conductor, which triggered a fire in the surrounding sagebrush. Further, even with the plans in these mitigation measures, maintenance – critical to prevent fires – is commonly set aside throughout the industry in favor of profits.¹⁹⁶

¹⁹³ Ibid.

¹⁹⁴ CalFire News Release, CAL FIRE Investigators Determine Cause of the Camp Fire, May 15, 2019; available at http://calfire.ca.gov/communications/downloads/newsreleases/2019/CampFire_Cause.pdf. See also: Butte County District Attorney, Press Release, CAL Fire Press Release on Camp Fire, May 15, 2019. Exhibit 2.

¹⁹⁵ Dale Kasler, PG&E Says It Will Build Paradise Power Lines Underground, *The Sacramento Bee*, May 22, 2019; available at <https://amp.sacbee.com/latest-news/article230732884.html#referrer=https%3A%2F%2Fwww.google.com&tf=From%20%251%24s>.

¹⁹⁶ Penn et al., March 18, 2019 (“Regulators have found that in many fires, PG&E violated state law or could have done more to make its equipment safer. Long before the failure suspected in the Paradise fire, a company email had noted that some of PG&E’s structures in the area, known for fierce winds, were at

The IS/MND fails to disclose the consequences of a fire along the Gen-Tie but based on the long documented history of transmission line triggered fires, the consequences are potentially highly significant due to the proximity of combustible material along the Gen-Tie route. Thus, “plans” will not mitigate the risk as they have failed to mitigate the risk elsewhere in the state. The source of the risk must be eliminated. The only effective way to mitigate fire impacts from a transmission line is to underground the line. The IS/MND is silent on undergrounding.

The adverse fire and biological impacts of the Gen-Tie can be completely eliminated by undergrounding it, without substantially increasing ground disturbance or causing other impacts. PG&E, for example, recently announced that it will underground the power lines that caused the Camp Fire¹⁹⁷ as well as 10,000 miles of power lines.¹⁹⁸ Further, there are many other benefits to undergrounding the Gen-Tie.^{199,200,201}

First, undergrounding the Gen-Tie would eliminate electrocution and collision hazards for rodents, squirrels, and birds. It also eliminates fire risk from arcing lines during windy conditions.²⁰²

risk of collapse. It reported corrosion of one tower so severe that it endangered crews trying to repair the tower. The company’s own guidelines put Tower 27/222 a quarter-century beyond its useful life—but the tower remained.”)

¹⁹⁷ <https://amp.sacbee.com/latest-news/article230732884.html#referrer=https%3A%2F%2Fwww.google.com&tf=From%20%251%24s>.

¹⁹⁸ Ryan Sabalow and Dalte Kasler, PG&E Vows to Bury 10,000 Miles of California Power Lines, as the Dixie Fire Explodes, July 21, 2021, Sacramento Bee; <https://www.sacbee.com/news/california/fires/article252927498.html>.

¹⁹⁹ Vince Curci, Underground Transmission Technical Lead, Blog, Top 5 Reasons to Use Underground Transmission Lines, February 19, 2018; available at <https://www.hdrinc.com/insights/top-5-reasons-use-underground-transmission-lines>.

²⁰⁰ RETA, Burying High Voltage Lines; available at <https://retasite.wordpress.com/burying-high-voltage-lines/>.

²⁰¹ Leonardo Energy, What are the Main Benefits of Underground Cables, March 28, 2019; available at <https://help.leonardo-energy.org/hc/en-us/articles/202706932-What-are-the-main-benefits-of-underground-cables->. See also: Canadian Copper & Brass Development Association, Section 3 – Advantages of Underground Cables; <http://en.coppercanada.ca/videos-publications/publications/pub21/21e-section3.html>.

²⁰² See, e.g., Vince Curci, Top 5 Reasons to Use Underground Transmission Lines, February 19, 2018; available at <https://www.hdrinc.com/insights/top-5-reasons-use-underground-transmission-lines>; and Peter H. Larsen, A Method to Estimate the Costs and Benefits of Undergrounding Electricity Transmission and Distribution Lines, Lawrence Berkeley National Laboratory and Stanford University, October 2016; available at <https://emp.lbl.gov/publications/method-estimate-costs-and-benefits>.

Second, underground transmission lines are more reliable as they are not impacted by atmospheric conditions (e.g., high winds, ice storms, and lightning) that may result in outages or cause wildfires.

Third, underground transmission lines provide better voltage support, have lower transmission losses, and can absorb emergency power loads.

Fourth, undergrounding reduces costs by: (1) reducing the cost of clearing deep-rooted vegetation; (2) reducing the number of maintenance repairs; (3) reducing maintenance time, by maintaining the system at ground level, rather than from poles and bucket trucks; (4) reducing maintenance cost because underground lines are not subject to tornadoes and other high wind storms, ice storms, general weather deterioration, birds colliding with lines and knocking out the power, and so forth; (5) reducing costs of transmission loss and feeder energy losses; (6) avoiding power outage costs due to less frequent outages; (7) avoiding ecosystem-related restoration costs; (8) reducing transmission loss (electricity to heat) costs by 50% to 67% and (9) longer life expectancy. Recent experience indicates they can be buried for almost the same capital cost as overhead lines.²⁰³

Fifth, undergrounding eliminates the risk from human activities, such as vandalism and terrorism, and minimizes the risk from natural disasters, including earthquakes, landslides, and floods, thus improving system reliability.²⁰⁴

Sixth, underground transmission lines are inherently safe, as cables are insulated, electrically shielded, and out of the way. Underground lines are not affected by fires and do not cause fires. They also decrease the need to shut down the line during a wildfire.

Seventh, undergrounding reduces the area required around the line by about a factor of three, reducing construction impacts, biological impacts, and GHG emissions by reducing permanently disturbed surface vegetation.²⁰⁵

Eighth, undergrounding reduces concerns regarding the use of fire retardants on overhead transmission lines.

²⁰³ RETA, Burying High Voltage Lines: Benefits of Underground Lines; available at <https://retasite.wordpress.com/burying-high-voltage-lines/>

²⁰⁴ Kenneth L. Hall, Out of Sight, Out of Mind 2012. An Updated Study on the Undergrounding of Overhead Power Lines, Prepared for: Edison Electric Institute, January 2013; available at <http://www.eei.org/issuesandpolicy/electricreliability/undergrounding/Documents/UndergroundReport.pdf>.

²⁰⁵ Siemens, Power Transmission Lines: Forward-looking Solutions for Electricity Transmission; available at <https://new.siemens.com/in/en/products/energy/high-voltage/power-transmission-lines.html>.

Undergrounding is clearly feasible as California currently has 72,000 miles of underground distribution lines as well as a program to encourage undergrounding²⁰⁶ (e.g., PUC Rule 20²⁰⁷). San Diego Gas & Electric reports that 60% of its lines are now underground.²⁰⁸ Utilities now often underground power lines in newer urban developments²⁰⁹ and elsewhere to avoid permitting delays and environmental impacts. Direct Connect Development Company (DC DevCo) has proposed a 349-mile, 2.1 GH, high-voltage direct current transmission line to bring renewable energy from the wind-rich West (starting in Mason City, Iowa) into wholesale power markets of the Upper Midwest to avoid permitting delays.²¹⁰

6.4.3. The Solar Panels Present a Significant Fire Risk

The project includes 143,000 to 163,000 PV modules, depending upon the technology ultimately selected during final design.²¹¹ These solar panels could be the source of a wildfire. A 50 MW solar farm will generally have over 500,000 electrical connections. Each one of these connections operates at around 1500 volts and each could fail, resulting in fire.²¹² The IS/MND is silent on this important source of fire, thus failing as an informational document under CEQA.

²⁰⁶ CPUC, Overhead to Underground Conversion Programs, p. 9; available at <https://www.delmar.ca.us/DocumentCenter/View/4239/CPUC-Undergrounding-Rules-PDF?bidId=>.

²⁰⁷ See, e.g., PG&E, Electric Undergrounding Program; available at <https://www.pge.com/mybusiness/customerservice/energystatus/streetconstruction/rule20/index.shtml>.

²⁰⁸ Atkinson, The Link Between Power Lines and Wildfires, November 2018.

²⁰⁹ Tony Bizjak, Sophia Bollag, and Dale Kasler, Power Lines Keep Sparking Wildfires: Why Don't California Utility Companies Bury Them, November 29, 2018, *The Sacramento Bee*; available at <https://www.sacbee.com/news/business/article221707650.html>.

²¹⁰ Michelle Froese, Proposed New Transmission Project Would Deliver Renewables Between PJM & MISO, *WindPower*, March 11, 2019; available at <https://www.windpowerengineering.com/business-news-projects/uncategorized/proposed-new-transmission-project-would-deliver-renewables-between-pjm-miso/>; Julia Gheorghiu, Independent Developer Proposes \$2.5B Underground Transmission Line, to Bring Iowa Wind to PJM, MISO, *Utility Dive*, March 13, 2019; available at <https://www.utilitydive.com/news/independent-developer-proposes-25b-underground-transmission-line-adding/550399/>. See also: <https://www.desmoinesregister.com/story/money/business/2019/03/11/underground-transmission-line-would-take-wind-power-iowa-chicago/3128357002/> and <https://www.chicagotribune.com/business/ct-biz-iowa-wind-power-to-chicago-20190312-story.html>.

²¹¹ Project Report, pdf 148.

²¹² Luke Magon, Mitigating the Risk of Fire on Utility Scale Solar Facilities, February 11, 2020; <https://www.linkedin.com/pulse/mitigating-risk-fire-utility-scale-solar-facilities-luke-magon/>.

Electrical failure at these terminations can occur due to various factors, including:

- Poor connections and terminations
- Formation of oxidation and calcification around connections
- Product failure
- Ingress or disturbance from flora and fauna

Electrical connection temperatures can reach over 250°F, at which point equipment will begin to deteriorate, plastics will deform or melt, visible signs or smells will be present, and ultimately fire will result. Grass fires, for example, could easily occur in the surrounding areas if O&M practices are neglected and control measures are ignored. A buildup of dry vegetation adjacent to the solar panels or underneath single axis trackers or fixed tilt arrays from cracks in the concrete slab can become a fuel load for an unwanted fire. Neglecting PV module health, visual inspections, periodic testing, and quality control could also lead to failure. The IS/MND is silent on maintenance procedures for the solar panels to prevent fires, thus failing as an informational document under CEQA.

The following mitigation measures should be required to prevent accidental fires triggered by the solar panels:²¹³

- Visually inspect connectors to assure they have been closed the whole way.
- Visually inspect cable terminations and conduct pull tests to confirm cables are locked down.
- Monitor and clear vegetation and debris away from PV modules and electrical connections.
- Inspect areas under PV modules and around any electrical terminations to identify any cracks in the concrete pad, accumulated debris and intruders, such as birds, possums, rats, or mice that could build grass nests underneath. Clear any debris and intruders and repair any cracks.
- Monitor vegetation growth year-round to prevent its buildup around the PV modules. Eliminate all vegetation around the PV modules.

²¹³ Ibid.

6.5. Existing Conditions That Will Exacerbate Fire Risk

6.5.1. No On-Site Water Supply

Fire suppression will require an on-site water supply in addition to specialized fire suppression agents. There is no permanent on-site water supply. Water for construction will be provided by a 5.2-mile connection to the Tahoe Meadows Water Agency in Nevada and brought on site using water trucks.²¹⁴ Thus, the Project is proposing to import water across the state line.

If this source is required for fire fighting to supplement local sources, it could result in a significant delay in responding to an on-site fire, potentially allowing a fire to burn out of control. The Fire Safety Plan lists other fire water sources located in Doyle, 6.5 miles from the Gen-Tie²¹⁵ and 14.5 miles from the Project site²¹⁶ and Herlong, 9 miles northeast.²¹⁷

The wildfire analysis concludes the Project would have “no impact,” including the following:²¹⁸

Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

This analysis incorrectly concluded “no impact” even though the Project requires “emergency water sources” that must be imported from Nevada and other distant locations. The delay in water delivery could exacerbate fire risk by delaying water required for firefighting.²¹⁹ In fact, the delay in securing a water supply to fight a fire could result in an out-of-control fire, resulting in a significant impact. The Project should install and maintain water storage tanks on the Project site and along the Gen-Tie.

²¹⁴ Project Report, pdf 155.

²¹⁵ Project Report, pdf 422.

²¹⁶ Project Report, pdf 612.

²¹⁷ Project Report, pdf 434.

²¹⁸ Project Report, pdf 710.

²¹⁹ Project Report, Table 6.20-1, pdf 710.

6.5.2. Fire Response

The nearest fire station is 14.5 miles to the southwest in Doyle. Response time to the Project site is estimated as 15 to 20 minutes.²²⁰ The fire station is operated by volunteer fire fighters who respond under a mutual aid agreement or memorandum of understanding with Lassen County. There is no evidence in the record that personnel at this station have expertise in fighting the unique conditions of a BESS fire, discussed in Comment 5.2. Further, the long response time could lead to an out-of-control fire, given the dry, windy conditions in the local area. Comment 5.2. Further, the only access available is via Calneva Road,²²¹ a dirt road.²²²

6.5.3. Natural Gas Line

The Tuscarora Natural Gas Pipeline runs through the middle of the Project site.²²³ Further, a lateral tap valve assembly is present on the site.²²⁴ Accidents involving natural gas infrastructure are legendary and could easily trigger a significant fire which could engulf the solar panels and result in a catastrophic fire. This issue is not addressed in the IS/MND, which thus fails as an informational document under CEQA.

6.5.4. Railroad Track

A railroad track runs through the middle of the Project site. Trains moving over tracks generate sparks, which could ignite a fire. Further, the proximity of solar panels to the tracks could divert the attention of the conductor, resulting in accidents.

6.5.5. Local Roads

The proposed solar arrays, BESS facility, and substation are located adjacent to two roads—County Road 8283, which runs through the middle of the site (and solar panels) and Calpey Road, adjacent to the substation and BESS.²²⁵ Figure 4. Traffic on these roads could be involved in accidents, leading to a devastating fire from, for

²²⁰ Project Report, pdf 434, 612, 673.

²²¹ Project Report, pdf 74.

²²² Project Report, pdf 8.

²²³ Project Report, pdf 198, Photo 8.

²²⁴ Project Report, pdf 197, Photo 6.

²²⁵ See: Project Report, pdf 90, 335, 575; Google Map at <https://www.google.com/maps/place/Calneva,+CA+96109/@40.146808,-120.0164061,12z/data=!4m5!3m4!1s0x809e85321dbd04e1:0xf1ea821a40e7a401!8m2!3d40.15278!4d-120.00778!5m2!1e4!1e1>. Rural Road Listing at: https://tigerweb.geo.census.gov/tigerwebmain/Files/tab10/tigerweb_tab10_roads_loc_ca_035.html.

example, leaking fuel tanks and lines or a battery fire in an electric vehicle. Even a small fuel leak can quickly lead to a raging fire that could rapidly spread onto the Project site. Alternatively, vehicles could collide with Project facilities such as the BESS, triggering accidents that cause fires.

The Project facilities are surrounded by native desert brush and grasses,²²⁶ including “bitterbrush, spiny hopsage, greasewood, rabbitbrush, tumbleweed, and annual grasses.”²²⁷ This vegetation presents a significant fire hazard in the event of an accident along roads passing through or adjacent to Project facilities, particularly the BESS.

Figure 4: Location of Road in Project Vicinity



6.5.6. Weather Conditions

Lightning is a common cause of wildfires. Of the top 16 largest California wildfires with confirmed causes, five have been caused by lightening.²²⁸ The IS/MND failed to evaluate the occurrence of lightning in the area and evaluate its consequences, thus failing as an informational document under CEQA.

²²⁶ Project Report, pdf 90, 341.

²²⁷ Project Report, pdf 575.

²²⁸ CalFire, Top 20 Largest California Wildfires;
https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf.

6.5.7. Construction Equipment Could Increase Fire Risk

Fire risks from construction including welding and all construction equipment, especially those with spark arresters, were not evaluated in the IS/MND.^{229,230} The Project Report includes a “Gen-Tie Line Fire Management Plan,”²³¹ but it is silent on fire risks from construction equipment and constructing other Project components. The construction of all Project components should be covered by a similar fire management plan as they all pose similar to identical fire risks.

Heat generation from multiple motors in many off-road vehicles increases the risk of ignition, especially of combustible liquids in mechanical systems from fuel, oil, grease for lubrication, and hydraulic fluid.²³² Construction will begin in Spring 2022 and last through Fall 2022,²³³ thus occurring over the hot dry summer months most prone to wildfires.

Mitigation must be added to address this issue, including all measures in the Gen-Tie Line Fire Management Plan plus an on-site, full-scale fire suppression system and professional inspection and maintenance of high-risk areas, such as the electrical system, engine blocks, exhaust manifolds, turbochargers, and braking systems of all construction equipment. Routine cleaning of accumulated debris and any areas touched by flammable liquid should be required to prevent fire.²³⁴

7. THE PROJECT REQUIRES NEPA REVIEW AND POTENTIAL REVIEW BY NEVADA UTILITY REGULATORY AGENCIES

The Project is described as providing “renewable energy and critically needed flexibility attributes needed to advance California’s and Nevada’s Renewable Portfolio Standard (RPS) goals, climate policies, and to enhance electrical grid reliability.”²³⁵ The Project’s transmission line will connect at an SPP/NV 345 kW or 120 kV substation

²²⁹ Project Report, pdf 129.

²³⁰ Jeff Wyatt, Best Practices for Protecting Construction Equipment from Fire Damage, January 25, 2018; <https://www.acppubs.com/articles/5971-best-practices-for-protecting-construction-equipment-from-fire-damage>.

²³¹ Project Report, Gen-Tie Line Fire Management Plan, August 6, 2020, pdf 422.

²³² Wyatt 2018.

²³³ Appendix F, pdf 2, 4.

²³⁴ Wyatt 2018.

²³⁵ Project Report, pdf 77 (“provide renewable energy and critically needed flexibility attributes needed to advance California’s and Nevada’s renewable Portfolio Standard (RPS) goal, climate policies...”) 150, 230, 237.

located in Nevada.²³⁶ It will not benefit California's RPS goals. See Comment 2. The IS/MND explains that the Project's Gen-Tie transmission line will cross federal BLM land. Because the Project includes the transmission line, the Project is also subject to federal NEPA review.

The IS/MND also states that "The final voltage, and route selection of the Gen-Tie will be determined during the transmission interconnection approval process with the State of Nevada Public Utility Commission and Permit to Construct."²³⁷ Elsewhere, the IS/MND reveals that both equipment specification and monitoring would be jointly shared by SPPCo and NV Energy: "A separate SCADA system would be installed at the proposed project's substation or BESS to monitor and control the required revenue metering and transmission system protection equipment. This system would be specified and monitored by the transmission provider (SPPCo/NVEnergy) and the CAISO."²³⁸ Similarly, "The proposed project's location... allows the proposed BESS/PSES facilities to service the deficiencies created by the shutdown of fossil fuel peaker plants and enabling connection to the existing grid both in Lassen County, California, and Nevada."²³⁹ However, as discussed in Comment 2, the transmission line does not connect with California's CAISO, but rather only with NVEnergy. Thus, the Project may also require permits from the State of Nevada's utility regulatory agency, which may require additional environmental review under Nevada laws.

²³⁶ Project Report, IS/MND, pdf 77, 83, 89.

²³⁷ Project Report, IS/MND, pdf 148, 235.

²³⁸ Project Report, IS/MND, pdf 241.

²³⁹ Project Report, IS/MND, pdf 474. See also pdf 476 (provides NV Energy with access to renewable energy and storage).

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Dr. Fox has over 40 years of experience in the field of environmental engineering, including air pollution control (BACT, BART, MACT, LAER, RACT), greenhouse gas emissions and control, cost effectiveness analyses, water quality and water supply investigations, hydrology, hazardous waste investigations, environmental permitting, nuisance investigations (odor, noise), environmental impact reports, CEQA/NEPA documentation, risk assessments, and litigation support.

EDUCATION

Ph.D. Environmental/Civil Engineering, University of California, Berkeley, 1980.
M.S. Environmental/Civil Engineering, University of California, Berkeley, 1975.
B.S. Physics (with high honors), University of Florida, Gainesville, 1971.

REGISTRATION

Registered Professional Engineer: Arizona (2001-2014: #36701; retired), California (2002-present; CH 6058), Florida (2001-2016; #57886; retired), Georgia (2002-2014; #PE027643; retired), Washington (2002-2014; #38692; retired), Wisconsin (2005-2014; #37595-006; retired)
Board Certified Environmental Engineer, American Academy of Environmental Engineers,
Certified in Air Pollution Control (DEE #01-20014), 2002-2014; retired)
Qualified Environmental Professional (QEP), Institute of Professional Environmental Practice (QEP #02-010007, 2001-2015: retired).

PROFESSIONAL HISTORY

Environmental Management, Principal, 1981-present
Lawrence Berkeley National Laboratory, Principal Investigator, 1977-1981
University of California, Berkeley, Program Manager, 1976-1977
Bechtel, Inc., Engineer, 1971-1976, 1964-1966

PROFESSIONAL AFFILIATIONS

American Chemical Society (1981-2010)
Phi Beta Kappa (1970-present)
Sigma Pi Sigma (1970-present)
Who's Who Environmental Registry, PH Publishing, Fort Collins, CO, 1992.
Who's Who in the World, Marquis Who's Who, Inc., Chicago, IL, 11th Ed., p. 371, 1993-present.

Who's Who of American Women, Marquis Who's Who, Inc., Chicago, IL, 13th Ed., p. 264, 1984-present.

Who's Who in Science and Engineering, Marquis Who's Who, Inc., New Providence, NJ, 5th Ed., p. 414, 1999-present.

Who's Who in America, Marquis Who's Who, Inc., 59th Ed., 2005.

Guide to Specialists on Toxic Substances, World Environment Center, New York, NY, p. 80, 1980.

National Research Council Committee on Irrigation-Induced Water Quality Problems (Selenium), Subcommittee on Quality Control/Quality Assurance (1985-1990).

National Research Council Committee on Surface Mining and Reclamation, Subcommittee on Oil Shale (1978-80)

REPRESENTATIVE EXPERIENCE

Performed environmental and engineering investigations, as outlined below, for a wide range of industrial and commercial facilities including: petroleum refineries and upgrades thereto; reformulated fuels projects; refinery upgrades to process heavy sour crudes, including tar sands and light sweet crudes from the Eagle Ford and Bakken Formations; petroleum, gasoline and ethanol distribution terminals; coal, coke, and ore/mineral export terminals; LNG export, import, and storage terminals; crude-by-rail projects; shale oil plants; crude oil/condensate marine and rail terminals; coal gasification and liquefaction plants; oil and gas production, including conventional, thermally enhanced, hydraulic fracking, and acid stimulation techniques; underground storage tanks; pipelines; compressor stations; gasoline stations; landfills; railyards; hazardous waste treatment facilities; nuclear, hydroelectric, geothermal, wood, biomass, waste, tire-derived fuel, gas, oil, coke and coal-fired power plants; wind farms; solar energy facilities; battery storage facilities; transmission lines; airports; hydrogen plants; petroleum coke calcining plants; coke plants; activated carbon manufacturing facilities; asphalt plants; cement plants; incinerators; flares; manufacturing facilities (e.g., semiconductors, electronic assembly, aerospace components, printed circuit boards, amusement park rides); lanthanide processing plants; ammonia plants; nitric acid plants; urea plants; food processing plants; wineries; almond hulling facilities; composting facilities; grain processing facilities; grain elevators; ethanol production facilities; soy bean oil extraction plants; biodiesel plants; paint formulation plants; wastewater treatment plants; marine terminals and ports; gas processing plants; steel mills; iron nugget production facilities; pig iron plant, based on blast furnace technology; direct reduced iron plant; acid regeneration facilities; railcar refinishing facility; battery manufacturing plants; pesticide manufacturing and repackaging facilities; pulp and paper mills; olefin plants; methanol plants; ethylene crackers; alumina plants, desalination plants; battery storage facilities; data centers; covered lagoon anaerobic digesters with biogas generators and upgrading equipment to produce renewable natural gas and electricity; selective catalytic reduction (SCR) systems; selective noncatalytic reduction (SNCR) systems; halogen acid furnaces; contaminated property

redevelopment projects (e.g., Mission Bay, Southern Pacific Railyards, Moscone Center expansion, San Diego Padres Ballpark); residential developments; commercial office parks, campuses, and shopping centers; server farms; transportation plans; and a wide range of mines including sand and gravel, hard rock, limestone, nacholite, coal, molybdenum, gold, zinc, and oil shale.

EXPERT WITNESS/LITIGATION SUPPORT

- For plaintiffs-intervenors (Sierra Club), in civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications at Rush Island Units 1 and 2 and Labadie Energy Center, assist counsel in evaluating best available control technology (BACT) to reduce SO₂ emissions, including wet and dry scrubbing, sorbent injection, and offsets. Case settled. *U.S. and Sierra Club vs. Ameren Missouri*, Case No. 4-11 CV 77 RWS, U.S. District Court, Eastern District of Missouri, Eastern Division, September 30, 2019.
- For the California Attorney General, assist in determining compliance with probation terms in the matter of *People v. Chevron USA*.
- For plaintiffs, assist in developing Petitioners' proof brief for National Parks Conservation Association et al v. U.S. EPA, Petition for Review of Final Administrative Action of the U.S. EPA, In the U.S. Court of Appeals for the Third Circuit, Docket No. 14-3147.
- For plaintiffs, expert witness in civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1997-2000) at the Cemex cement plant in Lyons, Colorado. Reviewed produced documents, prepared expert and rebuttal reports on PSD applicability based on NO_x emission calculations for a collection of changes considered both individually and collectively. Deposed August 2011. *United States v. Cemex, Inc.*, In U.S. District Court for the District of Colorado (Civil Action No. 09-cv-00019-MSK-MEH). Case settled June 13, 2013.
- For plaintiffs, in civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1988 – 2000) at James De Young Units 3, 4, and 5. Reviewed produced documents, analyzed CEMS and EIA data, and prepared netting and BACT analyses for NO_x, SO₂, and PM₁₀ (PSD case). Expert report February 24, 2010 and affidavit February 20, 2010. *Sierra Club v. City of Holland, et al.*, U.S. District Court, Western District of Michigan (Civil Action 1:08-cv-1183). Case settled. Consent Decree 1/19/14.
- For plaintiffs, in civil action alleging failure to obtain MACT permit, expert on potential to emit hydrogen chloride (HCl) from a new coal-fired boiler. Reviewed record, estimated HCl emissions, wrote expert report June 2010 and March 2013 (Cost to Install a Scrubber at the Lamar Repowering Project Pursuant to Case-by-Case MACT), deposed August 2010 and

March 2013. *Wildearth Guardian et al. v. Lamar Utilities Board*, Civil Action No. 09-cv-02974, U.S. District Court, District of Colorado. Case settled August 2013.

- For plaintiffs, expert witness on permitting, emission calculations, and wastewater treatment for coal-to-gasoline plant. Reviewed produced documents. Assisted in preparation of comments on draft minor source permit. Wrote two affidavits on key issues in case. Presented direct and rebuttal testimony 10/27 - 10/28/10 on permit enforceability and failure to properly calculate potential to emit, including underestimate of flaring emissions and omission of VOC and CO emissions from wastewater treatment, cooling tower, tank roof landings, and malfunctions. *Sierra Club, Ohio Valley Environmental Coalition, Coal River Mountain Watch, West Virginia Highlands Conservancy v. John Benedict, Director, Division of Air Quality, West Virginia Department of Environmental Protection and TransGas Development System, LLC*, Appeal No. 10-01-AQB. Virginia Air Quality Board remanded the permit on March 28, 2011 ordering reconsideration of potential to emit calculations, including: (1) support for assumed flare efficiency; (2) inclusion of startup, shutdown and malfunction emissions; and (3) inclusion of wastewater treatment emissions in potential to emit calculations.
- For plaintiffs, expert on BACT emission limits for gas-fired combined cycle power plant. Prepared declaration in support of CBE's Opposition to the United States' Motion for Entry of Proposed Amended Consent Decree. Assisted in settlement discussions. *U.S. EPA, Plaintiff, Communities for a Better Environment, Intervenor Plaintiff, v. Pacific Gas & Electric Company, et al.*, U.S. District Court, Northern District of California, San Francisco Division, Case No. C-09-4503 SI.
- Technical expert in confidential settlement discussions with large coal-fired utility on BACT control technology and emission limits for NO_x, SO₂, PM, PM_{2.5}, and CO for new natural gas fired combined cycle and simple cycle turbines with oil backup. (July 2010). Case settled.
- For plaintiffs, expert witness in remedy phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1998-99) at Gallagher Units 1 and 3. Reviewed produced documents, prepared expert and rebuttal reports on historic and current-day BACT for SO₂, control costs, and excess emissions of SO₂. Deposed 11/18/09. *United States et al. v. Cinergy, et al.*, In U.S. District Court for the Southern District of Indiana, Indianapolis Division, Civil Action No. IP99-1693 C-M/S. Settled 12/22/09.
- For plaintiffs, expert witness on MACT, BACT for NO_x, and enforceability in an administrative appeal of draft state air permit issued for four 300-MW pet-coke-fired CFBs. Reviewed produced documents and prepared prefiled testimony. Deposed 10/8/09 and 11/9/09. Testified 11/10/09. *Application of Las Brisas Energy Center, LLC for State Air Quality Permit*, before the State Office of Administrative Hearings, Texas. Permit remanded 3/29/10 as LBEC failed to meet burden of proof on a number of issues including MACT.

Texas Court of Appeals dismissed an appeal to reinstate the permit. The Texas Commission on Environmental Quality and Las Brisas Energy Center, LLC sought to overturn the Court of Appeals decision but moved to have their appeal dismissed in August 2013.

- For defense, expert witness in unlawful detainer case involving a gasoline station, minimart, and residential property with contamination from leaking underground storage tanks. Reviewed agency files and inspected site. Presented expert testimony on July 6, 2009, on causes of, nature and extent of subsurface contamination. *A. Singh v. S. Assaedi*, in Contra Costa County Superior Court, CA. Settled August 2009.
- For plaintiffs, expert witness on netting and enforceability for refinery being upgraded to process tar sands crude. Reviewed produced documents. Prepared expert and rebuttal reports addressing use of emission factors for baseline, omitted sources including coker, flares, tank landings and cleaning, and enforceability. Deposed. *In the Matter of Objection to the Issuance of Significant Source Modification Permit No. 089-25484-00453 to BP Products North America Inc., Whiting Business Unit, Save the Dunes Council, Inc., Sierra Club, Inc., Hoosier Environmental Council et al., Petitioners, B. P. Products North American, Respondents/Permittee*, before the Indiana Office of Environmental Adjudication. Case settled.
- For plaintiffs, expert witness on BACT, MACT, and enforceability in appeal of Title V permit issued to 600 MW coal-fired power plant burning Powder River Basin coal. Prepared technical comments on draft air permit. Reviewed record on appeal, drafted BACT, MACT, and enforceability pre-filed testimony. Drafted MACT and enforceability pre-filed rebuttal testimony. Deposed March 24, 2009. Testified June 10, 2009. *In Re: Southwestern Electric Power Company*, Arkansas Pollution Control and Ecology Commission, Consolidated Docket No. 08-006-P. Recommended Decision issued December 9, 2009 upholding issued permit. Commission adopted Recommended Decision January 22, 2010.
- For plaintiffs, expert witness in remedy phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications (1989-1992) at Wabash Units 2, 3 and 5. Reviewed produced documents, prepared expert and rebuttal report on historic and current-day BACT for NO_x and SO₂, control costs, and excess emissions of NO_x, SO₂, and mercury. Deposed 10/21/08. *United States et al. v. Cinergy, et al.*, In U.S. District Court for the Southern District of Indiana, Indianapolis Division, Civil Action No. IP99-1693 C-M/S. Testified 2/3/09. Memorandum Opinion & Order 5-29-09 requiring shutdown of Wabash River Units 2, 3, 5 by September 30, 2009, run at baseline until shutdown, and permanently surrender SO₂ emission allowances.
- For plaintiffs, expert witness in liability phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for three historic modifications (1997-2001) at two portland cement plants involving three cement kilns. Reviewed produced documents, analyzed CEMS data covering subject period, prepared netting analysis for NO_x, SO₂ and CO, and prepared expert and rebuttal reports. *United States v. Cemex California*

Cement, In U.S. District Court for the Central District of California, Eastern Division, Case No. ED CV 07-00223-GW (JCRx). Settled 1/15/09.

- For intervenors Clean Wisconsin and Citizens Utility Board, prepared data requests, reviewed discovery and expert report. Prepared prefiled direct, rebuttal and surrebuttal testimony on cost to extend life of existing Oak Creek Units 5-8 and cost to address future regulatory requirements to determine whether to control or shutdown one or more of the units. Oral testimony 2/5/08. Application for a Certificate of Authority to Install Wet Flue Gas Desulfurization and Selective Catalytic Reduction Facilities and Associated Equipment for Control of Sulfur Dioxide and Nitrogen Oxide Emissions at Oak Creek Power Plant Units 5, 6, 7 and 8, WPSC Docket No. 6630-CE-299.
- For plaintiffs, expert witness on alternatives analysis and BACT for NOx, SO2, total PM10, and sulfuric acid mist in appeal of PSD permit issued to 1200 MW coal fired power plant burning Powder River Basin and/or Central Appalachian coal (Longleaf). Assisted in drafting technical comments on NOx on draft permit. Prepared expert disclosure. Presented 8+ days of direct and rebuttal expert testimony. Attended all 21 days of evidentiary hearing from 9/5/07 – 10/30/07 assisting in all aspects of hearing. *Friends of the Chatahooche and Sierra Club v. Dr. Carol Couch, Director, Environmental Protection Division of Natural Resources Department, Respondent, and Longleaf Energy Associates, Intervener*. ALJ Final Decision 1/11/08 denying petition. ALJ Order vacated & remanded for further proceedings, Fulton County Superior Court, 6/30/08. Court of Appeals of GA remanded the case with directions that the ALJ's final decision be vacated to consider the evidence under the correct standard of review, July 9, 2009. The ALJ issued an opinion April 2, 2010 in favor of the applicant. Final permit issued April 2010.
- For plaintiffs, expert witness on diesel exhaust in inverse condemnation case in which Port expanded maritime operations into residential neighborhoods, subjecting plaintiffs to noise, light, and diesel fumes. Measured real-time diesel particulate concentrations from marine vessels and tug boats on plaintiffs' property. Reviewed documents, depositions, DVDs, and photographs provided by counsel. Deposed. Testified October 24, 2006. *Ann Chargin, Richard Hackett, Carolyn Hackett, et al. v. Stockton Port District*, Superior Court of California, County of San Joaquin, Stockton Branch, No. CV021015. Judge ruled for plaintiffs.
- For plaintiffs, expert witness on NOx emissions and BACT in case alleging failure to obtain necessary permits and install controls on gas-fired combined-cycle turbines. Prepared and reviewed (applicant analyses) of NOx emissions, BACT analyses (water injection, SCR, ultra low NOx burners), and cost-effectiveness analyses based on site visit, plant operating records, stack tests, CEMS data, and turbine and catalyst vendor design information. Participated in negotiations to scope out consent order. *United States v. Nevada Power*. Case settled June 2007, resulting in installation of dry low NOx burners (5 ppm NOx averaged over 1 hr) on four units and a separate solar array at a local business.

- For plaintiffs, expert witness in appeal of PSD permit issued to 850 MW coal fired boiler burning Powder River Basin coal (Iatan Unit 2) on BACT for particulate matter, sulfuric acid mist and opacity and emission calculations for alleged historic violations of PSD. Assisted in drafting technical comments, petition for review, discovery requests, and responses to discovery requests. Reviewed produced documents. Prepared expert report on BACT for particulate matter. Assisted with expert depositions. Deposed February 7, 8, 27, and 28, 2007. *In Re PSD Construction Permit Issued to Great Plains Energy, Kansas City Power & Light – Iatan Generating Station, Sierra Club v. Missouri Department of Natural Resources, Great Plains Energy, and Kansas City Power & Light*. Case settled March 27, 2007, providing offsets for over 6 million ton/yr of CO₂ and lower NO_x and SO₂ emission limits.
- For plaintiffs, expert witness in remedy phase of civil action relating to alleged violations of the Clean Air Act, Prevention of Significant Deterioration, for historic modifications of coal-fired boilers and associated equipment. Reviewed produced documents, prepared expert report on cost to retrofit 24 coal-fired power plants with scrubbers designed to remove 99% of the sulfur dioxide from flue gases. Prepared supplemental and expert report on cost estimates and BACT for SO₂ for these 24 complaint units. Deposed 1/30/07 and 3/14/07. *United States and State of New York et al. v. American Electric Power*, In U.S. District Court for the Southern District of Ohio, Eastern Division, Consolidated Civil Action Nos. C2-99-1182 and C2-99-1250. Settlement announced 10/9/07.
- For plaintiffs, expert witness on BACT, enforceability, and alternatives analysis in appeal of PSD permit issued for a 270-MW pulverized coal fired boiler burning Powder River Basin coal (City Utilities Springfield Unit 2). Reviewed permitting file and assisted counsel draft petition and prepare and respond to interrogatories and document requests. Reviewed interrogatory responses and produced documents. Assisted with expert depositions. Deposed August 2005. Evidentiary hearings October 2005. *In the Matter of Linda Chipperfield and Sierra Club v. Missouri Department of Natural Resources*. Missouri Supreme Court denied review of adverse lower court rulings August 2007.
- For plaintiffs, expert witness in civil action relating to plume touchdowns at AEP's Gavin coal-fired power plant. Assisted counsel draft interrogatories and document requests. Reviewed responses to interrogatories and produced documents. Prepared expert report "Releases of Sulfuric Acid Mist from the Gavin Power Station." The report evaluates sulfuric acid mist releases to determine if AEP complied with the requirements of CERCLA Section 103(a) and EPCRA Section 304. This report also discusses the formation, chemistry, release characteristics, and abatement of sulfuric acid mist in support of the claim that these releases present an imminent and substantial endangerment to public health under Section 7002(a)(1)(B) of the Resource Conservation and Recovery Act ("RCRA"). *Citizens Against Pollution v. Ohio Power Company*, In the U.S. District Court for the Southern District of Ohio, Eastern Division, Civil Action No. 2-04-cv-371. Case settled 12-8-06.

- For petitioners, expert witness in contested case hearing on BACT, enforceability, and emission estimates for an air permit issued to a 500-MW supercritical Power River Basin coal-fired boiler (Weston Unit 4). Assisted counsel prepare comments on draft air permit and respond to and draft discovery. Reviewed produced file, deposed (7/05), and prepared expert report on BACT and enforceability. Evidentiary hearings September 2005. *In the Matter of an Air Pollution Control Construction Permit Issued to Wisconsin Public Service Corporation for the Construction and Operation of a 500 MW Pulverized Coal-fired Power Plant Known as Weston Unit 4 in Marathon County, Wisconsin*, Case No. IH-04-21. The Final Order, issued 2/10/06, lowered the NOx BACT limit from 0.07 lb/MMBtu to 0.06 lb/MMBtu based on a 30-day average, added a BACT SO2 control efficiency, and required a 0.0005% high efficiency drift eliminator as BACT for the cooling tower. The modified permit, including these provisions, was issued 3/28/07. Additional appeals in progress.
- For plaintiffs, adviser on technical issues related to Citizen Suit against U.S. EPA regarding failure to update New Source Performance Standards for petroleum refineries, 40 CFR 60, Subparts J, VV, and GGG. *Our Children's Earth Foundation and Sierra Club v. U.S. EPA et al.* Case settled July 2005. CD No. C 05-00094 CW, U.S. District Court, Northern District of California – Oakland Division. Proposed revisions to standards of performance for petroleum refineries published 72 FR 27178 (5/14/07).
- For interveners, reviewed proposed Consent Decree settling Clean Air Act violations due to historic modifications of boilers and associated equipment at two coal-fired power plants. In response to stay order, reviewed the record, selected one representative activity at each of seven generating units, and analyzed to identify CAA violations. Identified NSPS and NSR violations for NOx, SO2, PM/PM10, and sulfuric acid mist. Summarized results in an expert report. *United States of America, and Michael A. Cox, Attorney General of the State of Michigan, ex rel. Michigan Department of Environmental Quality, Plaintiffs, and Clean Wisconsin, Sierra Club, and Citizens' Utility Board, Intervenors, v. Wisconsin Electric Power Company, Defendant*, U.S. District Court for the Eastern District of Wisconsin, Civil Action No. 2:03-CV-00371-CNC. Order issued 10-1-07 denying petition.
- For a coalition of Nevada labor organizations (ACE), reviewed preliminary determination to issue a Class I Air Quality Operating Permit to Construct and supporting files for a 250-MW pulverized coal-fired boiler (Newmont). Prepared about 100 pages of technical analyses and comments on BACT, MACT, emission calculations, and enforceability. Assisted counsel draft petition and reply brief appealing PSD permit to U.S. EPA Environmental Appeals Board (EAB). Order denying review issued 12/21/05. *In re Newmont Nevada Energy Investment, LLC, TS Power Plant*, PSD Appeal No. 05-04 (EAB 2005).
- For petitioners and plaintiffs, reviewed and prepared comments on air quality and hazardous waste based on negative declaration for refinery ultra low sulfur diesel project located in SCAQMD. Reviewed responses to comments and prepared responses. Prepared declaration and presented oral testimony before SCAQMD Hearing Board on exempt sources (cooling towers) and calculation of potential to emit under NSR. Petition for writ of mandate filed

March 2005. Case remanded by Court of Appeals to trial court to direct SCAQMD to re-evaluate the potential environmental significance of NO_x emissions resulting from the project in accordance with court's opinion. California Court of Appeals, Second Appellate Division, on December 18, 2007, affirmed in part (as to baseline) and denied in part. *Communities for a Better Environment v. South Coast Air Quality Management District and ConocoPhillips and Carlos Valdez et al v. South Coast Air Quality Management District and ConocoPhillips*. Certified for partial publication 1/16/08. Appellate Court opinion upheld by CA Supreme Court 3/15/10. (2010) 48 Cal.4th 310.

- For amici seeking to amend a proposed Consent Decree to settle alleged NSR violations at Chevron refineries, reviewed proposed settlement, related files, subject modifications, and emission calculations. Prepared declaration on emission reductions, identification of NSR and NSPS violations, and BACT/LAER for FCCUs, heaters and boilers, flares, and sulfur recovery plants. *U.S. et al. v. Chevron U.S.A.*, Northern District of California, Case No. C 03-04650. Memorandum and Order Entering Consent Decree issued June 2005. Case No. C 03-4650 CRB.
- For petitioners, prepared declaration on enforceability of periodic monitoring requirements, in response to EPA's revised interpretation of 40 CFR 70.6(c)(1). This revision limited additional monitoring required in Title V permits. 69 FR 3203 (Jan. 22, 2004). *Environmental Integrity Project et al. v. EPA* (U.S. Court of Appeals for the District of Columbia). Court ruled the Act requires all Title V permits to contain monitoring requirements to assure compliance. *Sierra Club v. EPA*, 536 F.3d 673 (D.C. Cir. 2008).
- For interveners in application for authority to construct a 500 MW supercritical coal-fired generating unit before the Wisconsin Public Service Commission, prepared pre-filed written direct and rebuttal testimony with oral cross examination and rebuttal on BACT and MACT (Weston 4). Prepared written comments on BACT, MACT, and enforceability on draft air permit for same facility.
- For property owners in Nevada, evaluated the environmental impacts of a 1,450-MW coal-fired power plant proposed in a rural area adjacent to the Black Rock Desert and Granite Range, including emission calculations, air quality modeling, comments on proposed use permit to collect preconstruction monitoring data, and coordination with agencies and other interested parties. Project cancelled.
- For environmental organizations, reviewed draft PSD permit for a 600-MW coal-fired power plant in West Virginia (Longview). Prepared comments on permit enforceability; coal washing; BACT for SO₂ and PM₁₀; Hg MACT; and MACT for HCl, HF, non-Hg metallic HAPs, and enforceability. Assist plaintiffs draft petition appealing air permit. Retained as expert to develop testimony on MACT, BACT, offsets, enforceability. Participate in settlement discussions. Case settled July 2004.
- For petitioners, reviewed record produced in discovery and prepared affidavit on emissions of carbon monoxide and volatile organic compounds during startup of GE 7FA combustion

turbines to successfully establish plaintiff standing. *Sierra Club et al. v. Georgia Power Company* (Northern District of Georgia).

- For building trades, reviewed air quality permitting action for 1500-MW coal-fired power plant before the Kentucky Department for Environmental Protection (Thoroughbred).
- For petitioners, expert witness in administrative appeal of the PSD/Title V permit issued to a 1500-MW coal-fired power plant. Reviewed over 60,000 pages of produced documents, prepared discovery index, identified and assembled plaintiff exhibits. Deposed. Assisted counsel in drafting discovery requests, with over 30 depositions, witness cross examination, and brief drafting. Presented over 20 days of direct testimony, rebuttal and sur-rebuttal, with cross examination on BACT for NO_x, SO₂, and PM/PM₁₀; MACT for Hg and non-Hg metallic HAPs; emission estimates for purposes of Class I and II air modeling; risk assessment; and enforceability of permit limits. Evidentiary hearings from November 2003 to June 2004. *Sierra Club et al. v. Natural Resources & Environmental Protection Cabinet, Division of Air Quality and Thoroughbred Generating Company et al.* Hearing Officer Decision issued August 9, 2005 finding in favor of plaintiffs on counts as to risk, BACT (IGCC/CFB, NO_x, SO₂, Hg, Be), single source, enforceability, and errors and omissions. Assist counsel draft exceptions. Cabinet Secretary issued Order April 11, 2006 denying Hearing Offer's report, except as to NO_x BACT, Hg, 99% SO₂ control and certain errors and omissions.
- For citizens group in Massachusetts, reviewed, commented on, and participated in permitting of pollution control retrofits of coal-fired power plant (Salem Harbor).
- Assisted citizens group and labor union challenge issuance of conditional use permit for a 317,000 ft² discount store in Honolulu without any environmental review. In support of a motion for preliminary injunction, prepared 7-page declaration addressing public health impacts of diesel exhaust from vehicles serving the Project. In preparation for trial, prepared 20-page preliminary expert report summarizing results of diesel exhaust and noise measurements at two big box retail stores in Honolulu, estimated diesel PM₁₀ concentrations for Project using ISCST, prepared a cancer health risk assessment based on these analyses, and evaluated noise impacts.
- Assisted environmental organizations to challenge the DOE Finding of No Significant Impact (FONSI) for the Baja California Power and Sempra Energy Resources Cross-Border Transmissions Lines in the U.S. and four associated power plants located in Mexico (DOE EA-1391). Prepared 20-page declaration in support of motion for summary judgment addressing emissions, including CO₂ and NH₃, offsets, BACT, cumulative air quality impacts, alternative cooling systems, and water use and water quality impacts. Plaintiff's motion for summary judgment granted in part. U.S. District Court, Southern District decision concluded that the Environmental Assessment and FONSI violated NEPA and the APA due to their inadequate analysis of the potential controversy surrounding the project, water impacts, impacts from NH₃ and CO₂, alternatives, and cumulative impacts. *Border Power Plant Working Group v. Department of Energy and Bureau of Land Management*, Case No. 02-CV-513-IEG (POR) (May 2, 2003).

- For Sacramento school, reviewed draft air permit issued for diesel generator located across from playfield. Prepared comments on emission estimates, enforceability, BACT, and health impacts of diesel exhaust. Case settled. BUG trap installed on the diesel generator.
- Assisted unions in appeal of Title V permit issued by BAAQMD to carbon plant that manufactured coke. Reviewed District files, identified historic modifications that should have triggered PSD review, and prepared technical comments on Title V permit. Reviewed responses to comments and assisted counsel draft appeal to BAAQMD hearing board, opening brief, motion to strike, and rebuttal brief. Case settled.
- Assisted California Central Coast city obtain controls on a proposed new city that would straddle the Ventura-Los Angeles County boundary. Reviewed several environmental impact reports, prepared an air quality analysis, a diesel exhaust health risk assessment, and detailed review comments. Governor intervened and State dedicated the land for conservation purposes April 2004.
- Assisted Central California city to obtain controls on large alluvial sand quarry and asphalt plant proposing a modernization. Prepared comments on Negative Declaration on air quality, public health, noise, and traffic. Evaluated process flow diagrams and engineering reports to determine whether proposed changes increased plant capacity or substantially modified plant operations. Prepared comments on application for categorical exemption from CEQA. Presented testimony to County Board of Supervisors. Developed controls to mitigate impacts. Assisted counsel draft Petition for Writ. Case settled June 2002. Substantial improvements in plant operations were obtained including cap on throughput, dust control measures, asphalt plant loadout enclosure, and restrictions on truck routes.
- Assisted oil companies on the California Central Coast in defending class action citizen's lawsuit alleging health effects due to emissions from gas processing plant and leaking underground storage tanks. Reviewed regulatory and other files and advised counsel on merits of case. Case settled November 2001.
- Assisted oil company on the California Central Coast in defending property damage claims arising out of a historic oil spill. Reviewed site investigation reports, pump tests, leachability studies, and health risk assessments, participated in design of additional site characterization studies to assess health impacts, and advised counsel on merits of case. Prepare health risk assessment.
- Assisted unions in appeal of Initial Study/Negative Declaration ("IS/ND") for an MTBE phaseout project at a Bay Area refinery. Reviewed IS/ND and supporting agency permitting files and prepared technical comments on air quality, groundwater, and public health impacts. Reviewed responses to comments and final IS/ND and ATC permits and assisted counsel to draft petitions and briefs appealing decision to Air District Hearing Board. Presented sworn direct and rebuttal testimony with cross examination on groundwater impacts of ethanol spills on hydrocarbon contamination at refinery. Hearing Board ruled 5 to 0 in favor of appellants, remanding ATC to district to prepare an EIR.

- Assisted Florida cities in challenging the use of diesel and proposed BACT determinations in prevention of significant deterioration (PSD) permits issued to two 510-MW simple cycle peaking electric generating facilities and one 1,080-MW simple cycle/combined cycle facility. Reviewed permit applications, draft permits, and FDEP engineering evaluations, assisted counsel in drafting petitions and responding to discovery. Participated in settlement discussions. Cases settled or applications withdrawn.
- Assisted large California city in federal lawsuit alleging peaker power plant was violating its federal permit. Reviewed permit file and applicant's engineering and cost feasibility study to reduce emissions through retrofit controls. Advised counsel on feasible and cost-effective NO_x, SO_x, and PM₁₀ controls for several 1960s diesel-fired Pratt and Whitney peaker turbines. Case settled.
- Assisted coalition of Georgia environmental groups in evaluating BACT determinations and permit conditions in PSD permits issued to several large natural gas-fired simple cycle and combined-cycle power plants. Prepared technical comments on draft PSD permits on BACT, enforceability of limits, and toxic emissions. Reviewed responses to comments, advised counsel on merits of cases, participated in settlement discussions, presented oral and written testimony in adjudicatory hearings, and provided technical assistance as required. Cases settled or won at trial.
- Assisted construction unions in review of air quality permitting actions before the Indiana Department of Environmental Management ("IDEM") for several natural gas-fired simple cycle peaker and combined cycle power plants.
- Assisted coalition of towns and environmental groups in challenging air permits issued to 523 MW dual fuel (natural gas and distillate) combined-cycle power plant in Connecticut. Prepared technical comments on draft permits and 60 pages of written testimony addressing emission estimates, startup/shutdown issues, BACT/LAER analyses, and toxic air emissions. Presented testimony in adjudicatory administrative hearings before the Connecticut Department of Environmental Protection in June 2001 and December 2001.
- Assisted various coalitions of unions, citizens groups, cities, public agencies, and developers in licensing and permitting of over 110 coal, gas, oil, biomass, and pet coke-fired power plants generating over 75,000 MW of electricity. These included base-load, combined cycle, simple cycle, and peaker power plants in Alaska, Arizona, Arkansas, California, Colorado, Georgia, Florida, Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio, Oklahoma, Oregon, Texas, West Virginia, Wisconsin, and elsewhere. Prepared analyses of and comments on applications for certification, preliminary and final staff assessments, and various air, water, wastewater, and solid waste permits issued by local agencies. Presented written and oral testimony before various administrative bodies on hazards of ammonia use and transportation, health effects of air emissions, contaminated property issues, BACT/LAER issues related to SCR and SCONO_x, criteria and toxic pollutant emission estimates, MACT analyses, air quality modeling, water supply and water quality issues, and methods to reduce

water use, including dry cooling, parallel dry-wet cooling, hybrid cooling, and zero liquid discharge systems.

- Assisted unions, cities, and neighborhood associations in challenging an EIR issued for the proposed expansion of the Oakland Airport. Reviewed two draft EIRs and prepared a health risk assessment and extensive technical comments on air quality and public health impacts. The California Court of Appeals, First Appellate District, ruled in favor of appellants and plaintiffs, concluding that the EIR "2) erred in using outdated information in assessing the emission of toxic air contaminants (TACs) from jet aircraft; 3) failed to support its decision not to evaluate the health risks associated with the emission of TACs with meaningful analysis," thus accepting my technical arguments and requiring the Port to prepare a new EIR. See *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (August 30, 2001) 111 Cal.Rptr.2d 598.
- Assisted lessor of former gas station with leaking underground storage tanks and TCE contamination from adjacent property. Lessor held option to purchase, which was forfeited based on misrepresentation by remediation contractor as to nature and extent of contamination. Remediation contractor purchased property. Reviewed regulatory agency files and advised counsel on merits of case. Case not filed.
- Advised counsel on merits of several pending actions, including a Proposition 65 case involving groundwater contamination at an explosives manufacturing firm and two former gas stations with leaking underground storage tanks.
- Assisted defendant foundry in Oakland in a lawsuit brought by neighbors alleging property contamination, nuisance, trespass, smoke, and health effects from foundry operation. Inspected and sampled plaintiff's property. Advised counsel on merits of case. Case settled.
- Assisted business owner facing eminent domain eviction. Prepared technical comments on a negative declaration for soil contamination and public health risks from air emissions from a proposed redevelopment project in San Francisco in support of a CEQA lawsuit. Case settled.
- Assisted neighborhood association representing residents living downwind of a Berkeley asphalt plant in separate nuisance and CEQA lawsuits. Prepared technical comments on air quality, odor, and noise impacts, presented testimony at commission and council meetings, participated in community workshops, and participated in settlement discussions. Cases settled. Asphalt plant was upgraded to include air emission and noise controls, including vapor collection system at truck loading station, enclosures for noisy equipment, and improved housekeeping.
- Assisted a Fortune 500 residential home builder in claims alleging health effects from faulty installation of gas appliances. Conducted indoor air quality study, advised counsel on merits of case, and participated in discussions with plaintiffs. Case settled.

- Assisted property owners in Silicon Valley in lawsuit to recover remediation costs from insurer for large TCE plume originating from a manufacturing facility. Conducted investigations to demonstrate sudden and accidental release of TCE, including groundwater modeling, development of method to date spill, preparation of chemical inventory, investigation of historical waste disposal practices and standards, and on-site sewer and storm drainage inspections and sampling. Prepared declaration in opposition to motion for summary judgment. Case settled.
- Assisted residents in east Oakland downwind of a former battery plant in class action lawsuit alleging property contamination from lead emissions. Conducted historical research and dry deposition modeling that substantiated claim. Participated in mediation at JAMS. Case settled.
- Assisted property owners in West Oakland who purchased a former gas station that had leaking underground storage tanks and groundwater contamination. Reviewed agency files and advised counsel on merits of case. Prepared declaration in opposition to summary judgment. Prepared cost estimate to remediate site. Participated in settlement discussions. Case settled.
- Consultant to counsel representing plaintiffs in two Clean Water Act lawsuits involving selenium discharges into San Francisco Bay from refineries. Reviewed files and advised counsel on merits of case. Prepared interrogatory and discovery questions, assisted in deposing opposing experts, and reviewed and interpreted treatability and other technical studies. Judge ruled in favor of plaintiffs.
- Assisted oil company in a complaint filed by a resident of a small California beach community alleging that discharges of tank farm rinse water into the sanitary sewer system caused hydrogen sulfide gas to infiltrate residence, sending occupants to hospital. Inspected accident site, interviewed parties to the event, and reviewed extensive agency files related to incident. Used chemical analysis, field simulations, mass balance calculations, sewer hydraulic simulations with SWMM44, atmospheric dispersion modeling with SCREEN3, odor analyses, and risk assessment calculations to demonstrate that the incident was caused by a faulty drain trap and inadequate slope of sewer lateral on resident's property. Prepared a detailed technical report summarizing these studies. Case settled.
- Assisted large West Coast city in suit alleging that leaking underground storage tanks on city property had damaged the waterproofing on downgradient building, causing leaks in an underground parking structure. Reviewed subsurface hydrogeologic investigations and evaluated studies conducted by others documenting leakage from underground diesel and gasoline tanks. Inspected, tested, and evaluated waterproofing on subsurface parking structure. Waterproofing was substandard. Case settled.
- Assisted residents downwind of gravel mine and asphalt plant in Siskiyou County, California, in suit to obtain CEQA review of air permitting action. Prepared two declarations analyzing

air quality and public health impacts. Judge ruled in favor of plaintiffs, closing mine and asphalt plant.

- Assisted defendant oil company on the California Central Coast in class action lawsuit alleging property damage and health effects from subsurface petroleum contamination. Reviewed documents, prepared risk calculations, and advised counsel on merits of case. Participated in settlement discussions. Case settled.
- Assisted defendant oil company in class action lawsuit alleging health impacts from remediation of petroleum contaminated site on California Central Coast. Reviewed documents, designed and conducted monitoring program, and participated in settlement discussions. Case settled.
- Consultant to attorneys representing irrigation districts and municipal water districts to evaluate a potential challenge of USFWS actions under CVPIA section 3406(b)(2). Reviewed agency files and collected and analyzed hydrology, water quality, and fishery data. Advised counsel on merits of case. Case not filed.
- Assisted residents downwind of a Carson refinery in class action lawsuit involving soil and groundwater contamination, nuisance, property damage, and health effects from air emissions. Reviewed files and provided advice on contaminated soil and groundwater, toxic emissions, and health risks. Prepared declaration on refinery fugitive emissions. Prepared deposition questions and reviewed deposition transcripts on air quality, soil contamination, odors, and health impacts. Case settled.
- Assisted residents downwind of a Contra Costa refinery who were affected by an accidental release of naphtha. Characterized spilled naphtha, estimated emissions, and modeled ambient concentrations of hydrocarbons and sulfur compounds. Deposed. Presented testimony in binding arbitration at JAMS. Judge found in favor of plaintiffs.
- Assisted residents downwind of Contra Costa County refinery in class action lawsuit alleging property damage, nuisance, and health effects from several large accidents as well as routine operations. Reviewed files and prepared analyses of environmental impacts. Prepared declarations, deposed, and presented testimony before jury in one trial and judge in second. Case settled.
- Assisted business owner claiming damages from dust, noise, and vibration during a sewer construction project in San Francisco. Reviewed agency files and PM10 monitoring data and advised counsel on merits of case. Case settled.
- Assisted residents downwind of Contra Costa County refinery in class action lawsuit alleging property damage, nuisance, and health effects. Prepared declaration in opposition to summary judgment, deposed, and presented expert testimony on accidental releases, odor, and nuisance before jury. Case thrown out by judge, but reversed on appeal and not retried.

- Presented testimony in small claims court on behalf of residents claiming health effects from hydrogen sulfide from flaring emissions triggered by a power outage at a Contra Costa County refinery. Analyzed meteorological and air quality data and evaluated potential health risks of exposure to low concentrations of hydrogen sulfide. Judge awarded damages to plaintiffs.
- Assisted construction unions in challenging PSD permit for an Indiana steel mill. Prepared technical comments on draft PSD permit, drafted 70-page appeal of agency permit action to the Environmental Appeals Board challenging permit based on faulty BACT analysis for electric arc furnace and reheat furnace and faulty permit conditions, among others, and drafted briefs responding to four parties. EPA Region V and the EPA General Counsel intervened as amici, supporting petitioners. EAB ruled in favor of petitioners, remanding permit to IDEM on three key issues, including BACT for the reheat furnace and lead emissions from the EAF. Drafted motion to reconsider three issues. Prepared 69 pages of technical comments on revised draft PSD permit. Drafted second EAB appeal addressing lead emissions from the EAF and BACT for reheat furnace based on European experience with SCR/SNCR. Case settled. Permit was substantially improved. See *In re: Steel Dynamics, Inc.*, PSD Appeal Nos. 99-4 & 99-5 (EAB June 22, 2000).
- Assisted defendant urea manufacturer in Alaska in negotiations with USEPA to seek relief from penalties for alleged violations of the Clean Air Act. Reviewed and evaluated regulatory files and monitoring data, prepared technical analysis demonstrating that permit limits were not violated, and participated in negotiations with EPA to dismiss action. Fines were substantially reduced and case closed.
- Assisted construction unions in challenging PSD permitting action for an Indiana grain mill. Prepared technical comments on draft PSD permit and assisted counsel draft appeal of agency permit action to the Environmental Appeals Board challenging permit based on faulty BACT analyses for heaters and boilers and faulty permit conditions, among others. Case settled.
- As part of a consent decree settling a CEQA lawsuit, assisted neighbors of a large west coast port in negotiations with port authority to secure mitigation for air quality impacts. Prepared technical comments on mobile source air quality impacts and mitigation and negotiated a \$9 million CEQA mitigation package. Represented neighbors on technical advisory committee established by port to implement the air quality mitigation program. Program successfully implemented.
- Assisted construction unions in challenging permitting action for a California hazardous waste incinerator. Prepared technical comments on draft permit, assisted counsel prepare appeal of EPA permit to the Environmental Appeals Board. Participated in settlement discussions on technical issues with applicant and EPA Region 9. Case settled.

- Assisted environmental group in challenging DTSC Negative Declaration on a hazardous waste treatment facility. Prepared technical comments on risk of upset, water, and health risks. Writ of mandamus issued.
- Assisted several neighborhood associations and cities impacted by quarries, asphalt plants, and cement plants in Alameda, Shasta, Sonoma, and Mendocino counties in obtaining mitigations for dust, air quality, public health, traffic, and noise impacts from facility operations and proposed expansions.
- For over 100 industrial facilities, commercial/campus, and redevelopment projects, developed the record in preparation for CEQA and NEPA lawsuits. Prepared technical comments on hazardous materials, solid wastes, public utilities, noise, worker safety, air quality, public health, water resources, water quality, traffic, and risk of upset sections of EIRs, EISs, FONSIs, initial studies, and negative declarations. Assisted counsel in drafting petitions and briefs and prepared declarations.
- For several large commercial development projects and airports, assisted applicant and counsel prepare defensible CEQA documents, respond to comments, and identify and evaluate "all feasible" mitigation to avoid CEQA challenges. This work included developing mitigation programs to reduce traffic-related air quality impacts based on energy conservation programs, solar, low-emission vehicles, alternative fuels, exhaust treatments, and transportation management associations.

SITE INVESTIGATION/REMEDiation/CLOSURE

- Technical manager and principal engineer for characterization, remediation, and closure of waste management units at former Colorado oil shale plant. Constituents of concern included BTEX, As, 1,1,1-TCA, and TPH. Completed groundwater monitoring programs, site assessments, work plans, and closure plans for seven process water holding ponds, a refinery sewer system, and processed shale disposal area. Managed design and construction of groundwater treatment system and removal actions and obtained clean closure.
- Principal engineer for characterization, remediation, and closure of process water ponds at a former lanthanide processing plant in Colorado. Designed and implemented groundwater monitoring program and site assessments and prepared closure plan.
- Advised the city of Sacramento on redevelopment of two former railyards. Reviewed work plans, site investigations, risk assessment, RAPS, RI/FSs, and CEQA documents. Participated in the development of mitigation strategies to protect construction and utility workers and the public during remediation, redevelopment, and use of the site, including buffer zones, subslab venting, rail berm containment structure, and an environmental oversight plan.

- Provided technical support for the investigation of a former sanitary landfill that was redeveloped as single family homes. Reviewed and/or prepared portions of numerous documents, including health risk assessments, preliminary endangerment assessments, site investigation reports, work plans, and RI/FSs. Historical research to identify historic waste disposal practices to prepare a preliminary endangerment assessment. Acquired, reviewed, and analyzed the files of 18 federal, state, and local agencies, three sets of construction field notes, analyzed 21 aerial photographs and interviewed 14 individuals associated with operation of former landfill. Assisted counsel in defending lawsuit brought by residents alleging health impacts and diminution of property value due to residual contamination. Prepared summary reports.
- Technical oversight of characterization and remediation of a nitrate plume at an explosives manufacturing facility in Lincoln, CA. Provided interface between owners and consultants. Reviewed site assessments, work plans, closure plans, and RI/FSs.
- Consultant to owner of large western molybdenum mine proposed for NPL listing. Participated in negotiations to scope out consent order and develop scope of work. Participated in studies to determine premining groundwater background to evaluate applicability of water quality standards. Served on technical committees to develop alternatives to mitigate impacts and close the facility, including resloping and grading, various thickness and types of covers, and reclamation. This work included developing and evaluating methods to control surface runoff and erosion, mitigate impacts of acid rock drainage on surface and ground waters, and stabilize nine waste rock piles containing 328 million tons of pyrite-rich, mixed volcanic waste rock (andesites, rhyolite, tuff). Evaluated stability of waste rock piles. Represented client in hearings and meetings with state and federal oversight agencies.

REGULATORY (PARTIAL LIST)

- In June to August 2020, researched and wrote 69 pages of comments on inadequate project description, construction impacts, operational air quality impacts, cumulative air quality impacts, public health impacts, valley fever, hazards, geologic impacts, water use, CEC licensing, and extended lifetime impacts for the repower of a geothermal power plant in Imperial County.
- In June 2020, review revised quarry reclamation plan and draft 27 pages of comments on proposed modification.
- In June and July 2020, researched and wrote 23 pages of comments on cement terminal at Port of Stockton on construction impacts, emission baseline, operational emissions, and greenhouse gas mitigation.

- In May 2020, researched and wrote 10 pages of comments on FEIR for a new apartment project in Contra Costa County on GHG emissions from vegetation removal, mobile sources, and water use and mitigation for same.
- In March/April 2020, researched and wrote 50 pages of comments on IS/MND for battery energy storage project in San Jose (Hummingbird) on inadequate project description, criteria pollutant and GHG emissions, significant and unmitigated energy impacts, cumulative impacts, construction impacts, public health impacts from BESS accidents, and battery handling and transportation accidents. Wrote 15 pages of responses to comments on vendor specifications, battery composition, cumulative impacts, construction impacts, fire control methods, and battery accidents.
- In April 2020, researched and wrote 47 pages of comments on IS/MND for data center in Santa Clara (SV1) on operational NOx emissions; out-of-district emissions; interbasin pollutant transport; omitted emission sources; GHG compliance with plans, policies and regulations; indirect GHG emissions; air quality impacts; construction emissions; cumulative impacts; and risk of upset from battery accidents.
- In March 2020, researched and wrote 30 pages of comments on IS/MND for data center in San Jose (Hummingbird) on operational GHG and criteria pollutant emissions, cumulative impacts, and public health risks. Research and write responses to comments.
- In February-March 2020, researched and wrote 30 pages on an IS/MND for a data center in San Jose (Stack) on operational NOx and GHG emissions, cumulative impacts, health risks, and odor.
- In February 2020, researched and wrote 33 pages of comments on Initial Study for a battery storage facility in Ventura County (Orni) on criteria pollutant and GHG emissions, worker and public health impacts, cumulative impacts, valley fever, and consistency with general plan.
- In February 2020, researched and wrote 20 pages of comments on valley fever in response to applicant's global response to comments on Valley Fever for a wind project in San Diego County.
- In January 2020, researched and wrote 32 pages of comments on the Orni battery storage facility (BESS) on incomplete project description, cumulative GHG and NOx impacts, BESS accidents, and health impacts, including soil contamination and valley fever.
- In January 2020, research and wrote 41 pages of comments on the DEIR for the NuStar Port of Stockton Liquid Bulk Terminal on operational emission calculations, significant NOx emissions, significant GHG emissions. GHG mitigation, and cumulative impacts.
- In December 2019, researched and wrote 3 pages of comments on the Silverstrand Grid battery storage facility on greenhouse gas emissions.

- In December 2019, researched and wrote 15 pages of comments on the Initial Study for the K2 Pure – Chlorine Rail Transportation Curtailment Project, including on air quality baseline, project description, emissions, cancer risks, risk of upset.
- In November 2019, reviewed agency files and researched and wrote 42 pages of comments on the Belridge Solar Project on compliance with local zoning ordinances, water quality impacts, air quality impacts, and worker and public health impacts due to soil contamination and valley fever.
- In October 2019, researched and wrote 49 pages of comments on IS/MND for data center in Santa Clara, CA on operational criteria pollutants (mobile sources, off-site electricity generation, emergency generators), ambient air quality impacts, greenhouse gas emissions and mitigation, and cumulative impacts.
- In October 2019, researched and wrote 9 pages of comments on the Application, Statement of Basis and draft Permit to Construct and Temporary Permit to Operate for proposed changes at the Paramount Refinery to facilitate refining of biomass-based feedstock to produce renewable fuels.
- In September 2019, reviewed City of Sunnyvale's file on Google's proposed Central Utility Plant and researched and wrote 34 pages of comments on construction and operational air quality impacts, cumulative impacts, and battery fire and explosion impacts. In October 2019, researched and wrote 15 pages of responses to comments.
- In August 2019, research and wrote 37 pages of comments on the DSEIR for the Le Conte Battery Energy Storage System on GHG emissions, hazards and hazardous material impacts, and health impacts.
- In August 2019, researched and wrote 38 pages of comments on IS/MND for the Hanford-Lakeside Dairy digester Project, Kings County, on project description (piecemealing), cumulative impacts, construction impacts, air quality impacts, valley fever and risk of upset.
- In July 2019, researched and wrote 48 pages of comments on IS/MND for the Five Points Pipeline Dairy Digester Cluster Project, including on air quality, cumulative impacts, worker and public health impacts (including on pesticide-contaminated soils), Valley Fever, construction air quality impacts, and risk of upset.
- In June 2019, researched and wrote 15 pages of responses to comments on IS/MND for SV1 Data Center, including operational NOx emissions, air quality analyses, construction emissions, battery hazards, and mitigation plans for noise, vibration, risk management, storm water pollution, and emergency response and evacuation plans.
- In June 2019, researched and wrote 30 pages of comments on DEIR for the Humboldt Wind Energy Project on fire and aesthetic impacts of transmission line, construction air quality impacts and mitigation, and greenhouse gas emissions.

- In May 2019, researched and wrote 25 pages of comments on the DEIR for the ExxonMobil Interim Trucking for Santa Ynez Phased Restart Project on project description, baseline, and mitigation.
- In April 2019, researched and wrote a 16 page letter critiquing the adequacy of the FEIR for CalAm Desalination Project to support a Monterey County Combined Development Permit, consisting of a Use Permit, an Administrative Permit, and Design Approval for the Desalination Plant and Carmel Valley Pump Station.
- In April 2019, researched and wrote 22 pages of comments on DEIR for the Eco-Energy Liquid Bulk Terminal at the Port of Stockton on emissions, air quality impact mitigation, and health risk assessment.
- In March 2019, researched and wrote 43 pages of comments on DEIR for Contanda Renewable Diesel Bulk Liquid Terminal at the Port of Stockton on operational emissions, air quality impacts and mitigation and health risks.
- In February 2019, researched and wrote 36 pages of comments on general cumulative impacts, air quality, accidents, and valley fever for IS/MND for biogas cluster project in Kings County.
- In January 2019, researched and wrote 30 pages of comments on air quality and valley fever for IS/MND for energy storage facility in Kings County.
- In December 2018, researched and wrote 11 pages of comments on air quality for IS/MND for biomass gasification facility in Madera County.
- In December 2018, researched and wrote 10 pages of responses to comments on IS/MND for a wind energy project in Riverside County.
- In December 2018, researched and wrote 12 pages of responses to comments on IS/MND for a large Safeway fueling station in Petaluma. The Planning Commission voted unanimously to require an EIR.
- In November 2018, researched and wrote 30 pages of comments on IS/MND on wind energy project in Riverside County on construction health risks, odor impacts, waste disposal, transportation, construction emissions and mitigation and Valley Fever.
- In November 2018, researched and wrote 32 pages of comments on the DEIR for a solar energy generation and storage project in San Bernardino County on hazards, health risks, odor, construction emissions and mitigation, and Valley Fever.
- In September 2018, researched and wrote 36 pages of comments on the FEIR for the Newland Sierra Project including on greenhouse gas emissions, construction emissions, and cumulative impacts.
- In August 2018, researched and wrote 20 pages of comments on the health risk assessment in the IS/MND for a large Safeway fueling station in Petaluma.

- In August 2018, researched and wrote responses to comments on DEIR for the Newland Sierra Project, San Diego County on greenhouse gas emissions, construction emissions, odor, and Valley Fever.
- In July/August 2018, researched and wrote 12 pages of comments on DEIR for proposed Doheny Desal Project, on GHG, criteria pollutant, and TAC emissions and public health impacts during construction and indirect emissions during operation.
- In June 2018, researched and wrote 12 pages of technical comments rebutting NDDH responses to comments on Meridian Davis Refinery.
- In April 2018, researched and wrote 26 pages of comments on greenhouse gas emissions and mitigation as proposed in the San Diego County Climate Action Plan.
- In April 2018, researched and wrote 24 pages of comments on the FEIR for Monterey County water supply project, including GHG mitigation, air quality impacts and mitigation, and Valley Fever.
- In March-June 2018, researched and wrote 37 pages of comments on the IS/MND for the 2305 Mission College Boulevard Data Center, Santa Clara, California and responded to responses to comments.
- In March 2018, researched and wrote 40 pages of comments on the IS/MND for the Diablo Energy Storage Facility in Pittsburg, California.
- In March 2018, researched and wrote 19 pages of comments on Infill Checklist/Mitigated Negative Declaration for the Legacy@Livermore Project on CalEEMod emission calculations, including NOx and PM10 and construction health risk assessment, including Valley Fever.
- In January 2018, researched and wrote 28 pages of comments on draft Permit to Construct for the Davis Refinery Project, North Dakota, as a minor source of criteria pollutants and HAPs.
- In December 2017, researched and wrote 19 pages of comments on DEIR for the Rialto Bioenergy Facility, Rialto, California.
- In November and December 2017, researched and wrote 6 pages of comments on the Ventura County Air Pollution Control District's Preliminary Determination of Compliance (PDOC) for Mission Rock Energy Center.
- In November 2017, researched and wrote 11 pages of comments on control technology evaluation for the National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry Residual Risk and Technology Review.
- In September and November 2017, prepared comments on revised Negative Declaration for Delicato Winery in San Joaquin County, California.

- In October and November 2017, researched and wrote comments on North City Project Pure Water San Diego Program DEIR/DEIS to reclaim wastewater for municipal use.
- In August 2017, reviewed DEIR on a new residential community in eastern San Diego County (Newland Sierra) and research and wrote 60 pages of comments on air quality, greenhouse gas emissions and health impacts, including Valley Fever.
- In August 2017, reviewed responses to comments on Part 70 operating permit for IGP Methanol's Gulf Coast Methanol Complex, near Myrtle Grove, Louisiana, and researched and wrote comments on metallic HAP issues.
- In July 2017, reviewed the FEIS for an expansion of the Port of Gulfport and researched and wrote 10 pages of comments on air quality and public health.
- In June 2017, reviewed and prepared technical report on an Application for a synthetic minor source construction permit for a new Refinery in North Dakota.
- In June 2017, reviewed responses to NPCA and other comments on the BP Cherry Point Refinery modifications and assisted counsel in evaluating issues to appeal, including GHG BACT, coker heater SCR cost effectiveness analysis, and SO₂ BACT.
- In June 2017, reviewed Part 70 Operating Permit Renewal/Modification for the Noranda Alumina LC/Gramercy Holdings I, LLC alumina processing plant, St. James, Louisiana, and prepared comments on HAP emissions from bauxite feedstock.
- In May and June 2017, reviewed FEIR on Tesoro Integration Project and prepared responses to comments on the DEIR.
- In May 2017, prepared comments on tank VOC and HAP emissions from Tesoro Integration Project, based on real time monitoring at the Tesoro and other refineries in the SCAQMD.
- In April 2017, prepared comments on Negative Declaration for Delicato Winery in San Joaquin County, California.
- In March 2017, reviewed Negative Declaration for Ellmore geothermal facility in Imperial County, California and prepared summary of issues.
- In March 2017, prepared response to Phillips 66 Company's Appeal of the San Luis Obispo County Planning Commission's Decision Denying the Rail Spur Extension Project Proposed for the Santa Maria Refinery.
- In February 2017, researched and wrote comments on Kalama draft Title V permit for 10,000 MT/day methanol production and marine export facility in Kalama, Washington.
- In January 2017, researched and wrote 51 pages of comments on proposed Title V and PSD permits for the St. James Methanol Plant, St. James Louisiana, on BACT and enforceability of permit conditions.

- In December 2016, researched and wrote comments on draft Title V Permit for Yuhuang Chemical Inc. Methanol Plant, St. James, Louisiana, responding to EPA Order addressing enforceability issues.
- In November 2016, researched and wrote comments on Initial Study/Mitigated Negative Declaration for the AES Battery Energy Storage Facility, Long Beach, CA.
- In November 2016, researched and wrote comments on Campo Verde Battery Energy Storage System Draft Environmental Impact Report.
- In October 2016, researched and wrote comments on Title V Permit for NuStar Terminal Operations Partnership L.P, Stockton, CA.
- In October 2016, prepared expert report, Technical Assessment of Achieving the 40 CFR Part 423 Zero Discharge Standard for Bottom Ash Transport Water at the Belle River Power Plant, East China, Michigan. Reported resulted in a 2 year reduction in compliance date for elimination of bottom ash transport water. 1/30/17 DEQ Letter.
- In September 2016, researched and wrote comments on Proposed Title V Permit and Environmental Assessment Statement, Yuhuang Chemical Inc. Methanol Plant, St. James, Louisiana.
- In September 2016, researched and wrote response to “Further Rebuttal in Support of Appeal of Planning Commission Resolution No. 16-1, Denying Use Permit Application 12PLN-00063 and Declining to Certify Final Environmental Impact Report for the Valero Benicia Crude-by-Rail Project.
- In August 2016, reviewed and prepared comments on manuscript: Hutton et al., Freshwater Flows to the San Francisco Bay-Delta Estuary over Nine Decades: Trends Evaluation.
- In August/September 2016, researched and wrote comments on Mitigated Negative Declaration for the Chevron Long Wharf Maintenance and Efficiency Project.
- In July 2016, researched and wrote comments on the Ventura County APCD Preliminary Determination of Compliance and the California Energy Commission Revised Preliminary Staff Assessment for the Puente Power Project.
- In June 2016, researched and wrote comments on an Ordinance (1) Amending the Oakland Municipal Code to Prohibit the Storage and Handling of Coal and Coke at Bulk Material Facilities or Terminals Throughout the City of Oakland and (2) Adopting CEQA Exemption Findings and supporting technical reports. Council approved Ordinance on an 8 to 0 vote on June 27, 2016.
- In May 2016, researched and wrote comments on Draft Title V Permit and Draft Environmental Impact Report for the Tesoro Los Angeles Refinery Integration and Compliance Project.

- In March 2016, researched and wrote comments on Valero's Appeal of Planning Commission's Denial of Valero Crude-by-Rail Project.
- In February 2016, researched and wrote comments on Final Environmental Impact Report, Santa Maria Rail Spur Project.
- In February 2016, researched and wrote comments on Final Environmental Impact Report, Valero Benicia Crude by Rail Project.
- In January 2016, researched and wrote comments on Draft Programmatic Environmental Impact Report for the Southern California Association of Government's (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy.
- In November 2015, researched and wrote comments on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) (Focused on Oil and Gas Local Permitting), November 2015.
- In October 2015, researched and wrote comments on Revised Draft Environmental Report, Valero Benicia Crude by Rail Project.
- In September 2015, prepared report, "Environmental, Health and Safety Impacts of the Proposed Oakland Bulk and Oversized Terminal, and presented oral testimony on September 21, 2015 before Oakland City Council on behalf of the Sierra Club.
- In September 2015, researched and wrote comments on revisions to two chapters of EPA's Air Pollution Control Cost Manual: Docket ID No. EPA-HQ-OAR-2015-0341.
- In June 2015, researched and wrote comments on DEIR for the CalAm Monterey Peninsula Water Supply Project.
- In April 2015, researched and wrote comments on proposed Title V Operating Permit Revision and Prevention of Significant Deterioration Permit for Arizona Public Service's Ocotillo Power Plant Modernization Project (5 GE LMS100 105-MW simple cycle turbines operated as peakers), in Tempe, Arizona; Final permit appealed to EAB.
- In March 2015, researched and wrote "Comments on Proposed Title V Air Permit, Yuhuang Chemical Inc. Methanol Plant, St. James, Louisiana". Client filed petition objecting to the permit. EPA granted majority of issues. In the Matter of Yuhuang Chemical Inc. Methanol Plant, St. James Parish, Louisiana, Permit No. 2560-00295-V0, Issued by the Louisiana Department of Environmental Quality, Petition No. VI-2015-03, Order Responding to the Petitioners' Request for Objection to the Issuance of a Title V Operating Permit, September 1, 2016.
- In February 2015, prepared compilation of BACT cost effectiveness values in support of comments on draft PSD Permit for Bonanza Power Project.
- In January 2015, prepared cost effectiveness analysis for SCR for a 500-MW coal fire power plant, to address unpermitted upgrades in 2000.

- In January 2015, researched and wrote comments on Revised Final Environmental Impact Report for the Phillips 66 Propane Recovery Project. *Communities for a Better Environment et al. v. Contra Costa County et al. Contra Costa County (Superior Court, Contra Costa County, Case No. MSN15-0301, December 1, 2016).*
- In December 2014, researched and wrote “Report on Bakersfield Crude Terminal Permits to Operate.” In response, the U.S. EPA cited the Terminal for 10 violations of the Clean Air Act. The Fifth Appellate District Court upheld the finding in this report in CBE et al v. San Joaquin Valley Unified Air Pollution Control District and Bakersfield Crude Terminal LLC et al, Super. Ct. No. 284013, June 23, 2017.
- In December 2014, researched and wrote comments on Revised Draft Environmental Impact Report for the Phillips 66 Propane Recovery Project.
- In November 2014, researched and wrote comments on Revised Draft Environmental Impact Report for Phillips 66 Rail Spur Extension Project and Crude Unloading Project, Santa Maria, CA to allow the import of tar sands crudes.
- In November 2014, researched and wrote comments on Draft Environmental Impact Report for Phillips 66 Ultra Low Sulfur Diesel Project, responding to the California Supreme Court Decision, *Communities for a Better Environment v. South Coast Air Quality Management Dist. (2010) 48 Cal.4th 310.*
- In November 2014, researched and wrote comments on Draft Environmental Impact Report for the Tesoro Avon Marine Oil Terminal Lease Consideration.
- In October 2014, prepared: “Report on Hydrogen Cyanide Emissions from Fluid Catalytic Cracking Units”, pursuant to the Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards, 79 FR 36880.
- In October 2014, researched and wrote technical comments on Final Environmental Impact Reports for Alon Bakersfield Crude Flexibility Project to build a rail terminal to allow the import/export of tar sands and Bakken crude oils and to upgrade an existing refinery to allow it to process a wide range of crudes.
- In October 2014, researched and wrote technical comments on the Title V Permit Renewal and three De Minimis Significant Revisions for the Tesoro Logistics Marine Terminal in the SCAQMD.
- In September 2014, researched and wrote technical comments on the Draft Environmental Impact Report for the Valero Crude by Rail Project.
- In August 2014, for EPA Region 6, prepared technical report on costing methods for upgrades to existing scrubbers at coal-fired power plants.
- In July 2014, researched and wrote technical comments on Draft Final Environmental Impact Reports for Alon Bakersfield Crude Flexibility Project to build a rail terminal to allow the

import/export of tar sands and Bakken crude oils and to upgrade an existing refinery to allow it to process a wide range of crudes.

- In June 2014, researched and wrote technical report on Initial Study and Draft Negative Declaration for the Tesoro Logistics Storage Tank Replacement and Modification Project.
- In May 2014, researched and wrote technical comments on Intent to Approve a new refinery and petroleum transloading operation in Utah.
- In March and April 2014, prepared declarations on air permits issued for two crude-by-rail terminals in California, modified to switch from importing ethanol to importing Bakken crude oils by rail and transferring to tanker cars. Permits were issued without undergoing CEQA review. One permit was upheld by the San Francisco Superior Court as statute of limitations had run. The Sacramento Air Quality Management District withdrew the second one due to failure to require BACT and conduct CEQA review.
- In March 2014, researched and wrote technical report on Negative Declaration for a proposed modification of the air permit for a bulk petroleum and storage terminal to allow the import of tar sands and Bakken crude oil by rail and its export by barge, under the New York State Environmental Quality Review Act (SEQRA).
- In February 2014, researched and wrote technical report on proposed modification of air permit for midwest refinery upgrade/expansion to process tar sands crudes.
- In January 2014, prepared cost estimates to capture, transport, and use CO₂ in enhanced oil recovery, from the Freeport LNG project based on both Selexol and Amine systems.
- In January 2014, researched and wrote technical report on Draft Environmental Impact Report for Phillips 66 Rail Spur Extension Project, Santa Maria, CA. Comments addressed project description (piecemealing, crude slate), risk of upset analyses, mitigation measures, alternative analyses and cumulative impacts.
- In November 2013, researched and wrote technical report on the Phillips 66 Propane Recovery Project, Rodeo, CA. Comments addressed project description (piecemealing, crude slate) and air quality impacts.
- In September 2013, researched and wrote technical report on the Draft Authority to Construct Permit for the Casa Diablo IV Geothermal Development Project Environmental Impact Report and Declaration in Support of Appeal and Petition for Stay, U.S. Department of the Interior, Board of Land Appeals, Appeal of Decision Record for the Casa Diablo IV Geothermal Development Project.
- In September 2013, researched and wrote technical report on Effluent Limitation Guidelines for Best Available Technology Economically Available (BAT) for Bottom Ash Transport Waters from Coal-Fired Power Plants in the Steam Electric Power Generating Point Source Category.

- In July 2013, researched and wrote technical report on Initial Study/Mitigated Negative Declaration for the Valero Crude by Rail Project, Benicia, California, Use Permit Application 12PLN-00063.
- In July 2013, researched and wrote technical report on fugitive particulate matter emissions from coal train staging at the proposed Coyote Island Terminal, Oregon, for draft Permit No. 25-0015-ST-01.
- In July 2013, researched and wrote technical comments on air quality impacts of the Finger Lakes LPG Storage Facility as reported in various Environmental Impact Statements.
- In July 2013, researched and wrote technical comments on proposed Greenhouse Gas PSD Permit for the Celanese Clear Lake Plant, including cost analysis of CO₂ capture, transport, and sequestration.
- In June/July 2013, researched and wrote technical comments on proposed Draft PSD Preconstruction Permit for Greenhouse Gas Emission for the ExxonMobil Chemical Company Baytown Olefins Plant, including cost analysis of CO₂ capture, transport, and sequestration.
- In June 2013, researched and wrote technical report on a Mitigated Negative Declaration for a new rail terminal at the Valero Benicia Refinery to import increased amounts of "North American" crudes. Comments addressed air quality impacts of refining increased amounts of tar sands crudes.
- In June 2013, researched and wrote technical report on Draft Environmental Impact Report for the California Ethanol and Power Imperial Valley 1 Project.
- In May 2013, researched and wrote comments on draft PSD permit for major expansion of midwest refinery to process 100% tar sands crudes, including a complex netting analysis involving debottlenecking, piecemealing, and BACT analyses.
- In April 2013, researched and wrote technical report on the Draft Supplemental Environmental Impact Statement (DSEIS) for the Keystone XL Pipeline on air quality impacts from refining increased amount of tar sands crudes at Refineries in PADD 3.
- In October 2012, researched and wrote technical report on the Environmental Review for the Coyote Island Terminal Dock at the Port of Morrow on fugitive particulate matter emissions.
- In October 2012-October 2014, review and evaluate Flint Hills West Application for an expansion/modification for increased (Texas, Eagle Ford Shale) crude processing and related modification, including netting and BACT analysis. Assist in settlement discussions.
- In February 2012, researched and wrote comments on BART analysis in PA Regional Haze SIP, 77 FR 3984 (Jan. 26, 2012). On Sept. 29, 2015, a federal appeals court overturned the U.S. EPA's approval of this plan, based in part on my comments, concluding "...we will vacate the 2014 Final Rule to the extent it approved Pennsylvania's source-specific BART

analysis and remand to the EPA for further proceedings consistent with this Opinion.” Nat’l Parks Conservation Assoc. v. EPA, 3d Cir., No. 14-3147, 9/19/15.

- Prepared cost analyses and comments on New York’s proposed BART determinations for NO_x, SO₂, and PM and EPA’s proposed approval of BART determinations for Danskammer Generating Station under New York Regional Haze State Implementation Plan and Federal Implementation Plan, 77 FR 51915 (August 28, 2012).
- Prepared cost analyses and comments on NO_x BART determinations for Regional Haze State Implementation Plan for State of Nevada, 77 FR 23191 (April 18, 2012) and 77 FR 25660 (May 1, 2012).
- Prepared analyses of and comments on New Source Performance Standards for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 FR 22392 (April 13, 2012).
- Researched and wrote comments on CASPR-BART emission equivalency and NO_x and PM BART determinations in EPA proposed approval of State Implementation Plan for Pennsylvania Regional Haze Implementation Plan, 77 FR 3984 (January 26, 2012).
- Researched and wrote comments and statistical analyses on hazardous air pollutants (HAPs) emission controls, monitoring, compliance methods, and the use of surrogates for acid gases, organic HAPs, and metallic HAPs for proposed National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, 76 FR 24976 (May 3, 2011).
- Prepared cost analyses and comments on NO_x BART determinations and emission reductions for proposed Federal Implementation Plan for Four Corners Power Plant, 75 FR 64221 (October 19, 2010).
- Prepared cost analyses and comments on NO_x BART determinations for Colstrip Units 1- 4 for Montana State Implementation Plan and Regional Haze Federal Implementation Plan, 77 FR 23988 (April 20, 2010).
- For EPA Region 8, prepared report: Revised BART Cost Effectiveness Analysis for Tail-End Selective Catalytic Reduction at the Basin Electric Power Cooperative Leland Olds Station Unit 2 Final Report, March 2011, in support of 76 FR 58570 (Sept. 21, 2011).
- For EPA Region 6, prepared report: Revised BART Cost-Effectiveness Analysis for Selective Catalytic Reduction at the Public Service Company of New Mexico San Juan Generating Station, November 2010, in support of 76 FR 52388 (Aug. 22, 2011).
- For EPA Region 6, prepared report: Revised BART Cost-Effectiveness Analysis for Flue Gas Desulfurization at Coal-Fired Electric Generating Units in Oklahoma: Sooner Units 1 & 2, Muskogee Units 4 & 5, Northeastern Units 3 & 4, October 2010, in support of 76 FR 16168

(March 26, 2011). My work was upheld in: *State of Oklahoma v. EPA*, App. Case 12-9526 (10th Cir. July 19, 2013).

- Identified errors in N₂O emission factors in the Mandatory Greenhouse Gas Reporting Rule, 40 CFR 98, and prepared technical analysis to support Petition for Rulemaking to Correct Emissions Factors in the Mandatory Greenhouse Gas Reporting Rule, filed with EPA on 10/28/10.
- Assisted interested parties develop input for and prepare comments on the Information Collection Request for Petroleum Refinery Sector NSPS and NESHAP Residual Risk and Technology Review, 75 FR 60107 (9/29/10).
- Technical reviewer of EPA's "Emission Estimation Protocol for Petroleum Refineries," posted for public comments on CHIEF on 12/23/09, prepared in response to the City of Houston's petition under the Data Quality Act (March 2010).
- Researched and wrote comments on SCR cost effectiveness for EPA's Advanced Notice of Proposed Rulemaking, Assessment of Anticipated Visibility Improvements at Surrounding Class I Areas and Cost Effectiveness of Best Available Retrofit Technology for Four Corners Power Plant and Navajo Generating Station, 74 FR 44313 (August 28, 2009).
- Researched and wrote comments on Proposed Rule for Standards of Performance for Coal Preparation and Processing Plants, 74 FR 25304 (May 27, 2009).
- Prepared comments on draft PSD permit for major expansion of midwest refinery to process up to 100% tar sands crudes. Participated in development of monitoring and controls to mitigate impacts and in negotiating a Consent Decree to settle claims in 2008.
- Reviewed and assisted interested parties prepare comments on proposed Kentucky air toxic regulations at 401 KAR 64:005, 64:010, 64:020, and 64:030 (June 2007).
- Prepared comments on proposed Standards of Performance for Electric Utility Steam Generating Units and Small Industrial-Commercial-Industrial Steam Generating Units, 70 FR 9706 (February 28, 2005).
- Prepared comments on Louisville Air Pollution Control District proposed Strategic Toxic Air Reduction regulations.
- Prepared comments and analysis of BAAQMD Regulation, Rule 11, Flare Monitoring at Petroleum Refineries.
- Prepared comments on Proposed National Emission Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electricity Utility Steam Generating Units (MACT standards for coal-fired power plants).

- Prepared Authority to Construct Permit for remediation of a large petroleum-contaminated site on the California Central Coast. Negotiated conditions with agencies and secured permits.
- Prepared Authority to Construct Permit for remediation of a former oil field on the California Central Coast. Participated in negotiations with agencies and secured permits.
- Prepared and/or reviewed hundreds of environmental permits, including NPDES, UIC, Stormwater, Authority to Construct, Prevention of Significant Deterioration, Nonattainment New Source Review, Title V, and RCRA, among others.
- Participated in the development of the CARB document, *Guidance for Power Plant Siting and Best Available Control Technology*, including attending public workshops and filing technical comments.
- Performed data analyses in support of adoption of emergency power restoration standards by the California Public Utilities Commission for “major” power outages, where major is an outage that simultaneously affects 10% of the customer base.
- Drafted portions of the Good Neighbor Ordinance to grant Contra Costa County greater authority over safety of local industry, particularly chemical plants and refineries.
- Participated in drafting BAAQMD Regulation 8, Rule 28, Pressure Relief Devices, including participation in public workshops, review of staff reports, draft rules and other technical materials, preparation of technical comments on staff proposals, research on availability and costs of methods to control PRV releases, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 18, Valves and Connectors, including participation in public workshops, review of staff reports, proposed rules and other supporting technical material, preparation of technical comments on staff proposals, research on availability and cost of low-leak technology, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 25, Pumps and Compressors, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak and seal-less technology, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 5, Storage of Organic Liquids, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of controlling tank emissions, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 18, Valves and Connectors at Petroleum Refinery Complexes, including participation in public workshops, review of staff reports, proposed rules and other supporting technical material, preparation of technical

comments on staff proposals, research on availability and costs of low-leak technology, and presentation of testimony before the Board.

- Participated in amending BAAQMD Regulation 8, Rule 22, Valves and Flanges at Chemical Plants, etc, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak technology, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 25, Pump and Compressor Seals, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability of low-leak technology, and presentation of testimony before the Board.
- Participated in the development of the BAAQMD Regulation 2, Rule 5, Toxics, including participation in public workshops, review of staff proposals, and preparation of technical comments.
- Participated in the development of SCAQMD Rule 1402, Control of Toxic Air Contaminants from Existing Sources, and proposed amendments to Rule 1401, New Source Review of Toxic Air Contaminants, in 1993, including review of staff proposals and preparation of technical comments on same.
- Participated in the development of the Sunnyvale Ordinance to Regulate the Storage, Use and Handling of Toxic Gas, which was designed to provide engineering controls for gases that are not otherwise regulated by the Uniform Fire Code.
- Participated in the drafting of the Statewide Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries, including participation in workshops, review of draft plans, preparation of technical comments on draft plans, and presentation of testimony before the SWRCB.
- Participated in developing Se permit effluent limitations for the five Bay Area refineries, including review of staff proposals, statistical analyses of Se effluent data, review of literature on aquatic toxicity of Se, preparation of technical comments on several staff proposals, and presentation of testimony before the Bay Area RWQCB.
- Represented the California Department of Water Resources in the 1991 Bay-Delta Hearings before the State Water Resources Control Board, presenting sworn expert testimony with cross examination and rebuttal on a striped bass model developed by the California Department of Fish and Game.
- Represented the State Water Contractors in the 1987 Bay-Delta Hearings before the State Water Resources Control Board, presenting sworn expert testimony with cross examination and rebuttal on natural flows, historical salinity trends in San Francisco Bay, Delta outflow, and hydrodynamics of the South Bay.

- Represented interveners in the licensing of over 20 natural-gas-fired power plants and one coal gasification plant at the California Energy Commission and elsewhere. Reviewed and prepared technical comments on applications for certification, preliminary staff assessments, final staff assessments, preliminary determinations of compliance, final determinations of compliance, and prevention of significant deterioration permits in the areas of air quality, water supply, water quality, biology, public health, worker safety, transportation, site contamination, cooling systems, and hazardous materials. Presented written and oral testimony in evidentiary hearings with cross examination and rebuttal. Participated in technical workshops.
- Represented several parties in the proposed merger of San Diego Gas & Electric and Southern California Edison. Prepared independent technical analyses on health risks, air quality, and water quality. Presented written and oral testimony before the Public Utilities Commission administrative law judge with cross examination and rebuttal.
- Represented a PRP in negotiations with local health and other agencies to establish impact of subsurface contamination on overlying residential properties. Reviewed health studies prepared by agency consultants and worked with agencies and their consultants to evaluate health risks.

WATER QUALITY/RESOURCES

- Directed and participated in research on environmental impacts of energy development in the Colorado River Basin, including contamination of surface and subsurface waters and modeling of flow and chemical transport through fractured aquifers.
- Played a major role in Northern California water resource planning studies since the early 1970s. Prepared portions of the Basin Plans for the Sacramento, San Joaquin, and Delta basins including sections on water supply, water quality, beneficial uses, waste load allocation, and agricultural drainage. Developed water quality models for the Sacramento and San Joaquin Rivers.
- Conducted hundreds of studies over the past 40 years on Delta water supplies and the impacts of exports from the Delta on water quality and biological resources of the Central Valley, Sacramento-San Joaquin Delta, and San Francisco Bay. Typical examples include:
 1. Evaluate historical trends in salinity, temperature, and flow in San Francisco Bay and upstream rivers to determine impacts of water exports on the estuary;
 2. Evaluate the role of exports and natural factors on the food web by exploring the relationship between salinity and primary productivity in San Francisco Bay, upstream rivers, and ocean;
 3. Evaluate the effects of exports, other in-Delta, and upstream factors on the abundance of salmon and striped bass;

4. Review and critique agency fishery models that link water exports with the abundance of striped bass and salmon;
5. Develop a model based on GLMs to estimate the relative impact of exports, water facility operating variables, tidal phase, salinity, temperature, and other variables on the survival of salmon smolts as they migrate through the Delta;
6. Reconstruct the natural hydrology of the Central Valley using water balances, vegetation mapping, reservoir operation models to simulate flood basins, precipitation records, tree ring research, and historical research;
7. Evaluate the relationship between biological indicators of estuary health and down-estuary position of a salinity surrogate (X2);
8. Use real-time fisheries monitoring data to quantify impact of exports on fish migration;
9. Refine/develop statistical theory of autocorrelation and use to assess strength of relationships between biological and flow variables;
10. Collect, compile, and analyze water quality and toxicity data for surface waters in the Central Valley to assess the role of water quality in fishery declines;
11. Assess mitigation measures, including habitat restoration and changes in water project operation, to minimize fishery impacts;
12. Evaluate the impact of unscreened agricultural water diversions on abundance of larval fish;
13. Prepare and present testimony on the impacts of water resources development on Bay hydrodynamics, salinity, and temperature in water rights hearings;
14. Evaluate the impact of boat wakes on shallow water habitat, including interpretation of historical aerial photographs;
15. Evaluate the hydrodynamic and water quality impacts of converting Delta islands into reservoirs;
16. Use a hydrodynamic model to simulate the distribution of larval fish in a tidally influenced estuary;
17. Identify and evaluate non-export factors that may have contributed to fishery declines, including predation, shifts in oceanic conditions, aquatic toxicity from pesticides and mining wastes, salinity intrusion from channel dredging, loss of riparian and marsh habitat, sedimentation from upstream land alternations, and changes in dissolved oxygen, flow, and temperature below dams.

- Developed, directed, and participated in a broad-based research program on environmental issues and control technology for energy industries including petroleum, oil shale, coal mining, and coal slurry transport. Research included evaluation of air and water pollution, development of novel, low-cost technology to treat and dispose of wastes, and development and application of geohydrologic models to evaluate subsurface contamination from in-situ retorting. The program consisted of government and industry contracts and employed 45 technical and administrative personnel.
- Coordinated an industry task force established to investigate the occurrence, causes, and solutions for corrosion/erosion and mechanical/engineering failures in the waterside systems (e.g., condensers, steam generation equipment) of power plants. Corrosion/erosion failures caused by water and steam contamination that were investigated included waterside corrosion caused by poor microbiological treatment of cooling water, steam-side corrosion caused by ammonia-oxygen attack of copper alloys, stress-corrosion cracking of copper alloys in the air cooling sections of condensers, tube sheet leaks, oxygen in-leakage through condensers, volatilization of silica in boilers and carry over and deposition on turbine blades, and iron corrosion on boiler tube walls. Mechanical/engineering failures investigated included: steam impingement attack on the steam side of condenser tubes, tube-to-tube-sheet joint leakage, flow-induced vibration, structural design problems, and mechanical failures due to stresses induced by shutdown, startup and cycling duty, among others. Worked with electric utility plant owners/operators, condenser and boiler vendors, and architect/engineers to collect data to document the occurrence of and causes for these problems, prepared reports summarizing the investigations, and presented the results and participated on a committee of industry experts tasked with identifying solutions to prevent condenser failures.
- Evaluated the cost effectiveness and technical feasibility of using dry cooling and parallel dry-wet cooling to reduce water demands of several large natural-gas fired power plants in California and Arizona.
- Designed and prepared cost estimates for several dry cooling systems (e.g., fin fan heat exchangers) used in chemical plants and refineries.
- Designed, evaluated, and costed several zero liquid discharge systems for power plants.
- Evaluated the impact of agricultural and mining practices on surface water quality of Central Valley streams. Represented municipal water agencies on several federal and state advisory committees tasked with gathering and assessing relevant technical information, developing work plans, and providing oversight of technical work to investigate toxicity issues in the watershed.

AIR QUALITY/PUBLIC HEALTH

- Prepared or reviewed the air quality and public health sections of hundreds of EIRs and EISs on a wide range of industrial, commercial and residential projects.

- Prepared or reviewed hundreds of NSR and PSD permits for a wide range of industrial facilities.
- Designed, implemented, and directed a 2-year-long community air quality monitoring program to assure that residents downwind of a petroleum-contaminated site were not impacted during remediation of petroleum-contaminated soils. The program included real-time monitoring of particulates, diesel exhaust, and BTEX and time integrated monitoring for over 100 chemicals.
- Designed, implemented, and directed a 5-year long source, industrial hygiene, and ambient monitoring program to characterize air emissions, employee exposure, and downwind environmental impacts of a first-generation shale oil plant. The program included stack monitoring of heaters, boilers, incinerators, sulfur recovery units, rock crushers, API separator vents, and wastewater pond fugitives for arsenic, cadmium, chlorine, chromium, mercury, 15 organic indicators (e.g., quinoline, pyrrole, benzo(a)pyrene, thiophene, benzene), sulfur gases, hydrogen cyanide, and ammonia. In many cases, new methods had to be developed or existing methods modified to accommodate the complex matrices of shale plant gases.
- Conducted investigations on the impact of diesel exhaust from truck traffic from a wide range of facilities including mines, large retail centers, light industrial uses, and sports facilities. Conducted traffic surveys, continuously monitored diesel exhaust using an aethalometer, and prepared health risk assessments using resulting data.
- Conducted indoor air quality investigations to assess exposure to natural gas leaks, pesticides, molds and fungi, soil gas from subsurface contamination, and outgassing of carpets, drapes, furniture and construction materials. Prepared health risk assessments using collected data.
- Prepared health risk assessments, emission inventories, air quality analyses, and assisted in the permitting of over 70 1 to 2 MW emergency diesel generators.
- Prepare over 100 health risk assessments, endangerment assessments, and other health-based studies for a wide range of industrial facilities.
- Developed methods to monitor trace elements in gas streams, including a continuous real-time monitor based on the Zeeman atomic absorption spectrometer, to continuously measure mercury and other elements.
- Performed nuisance investigations (odor, noise, dust, smoke, indoor air quality, soil contamination) for businesses, industrial facilities, and residences located proximate to and downwind of pollution sources.

PUBLICATIONS AND PRESENTATIONS (Partial List - Representative Publications)

J.P. Fox, P.H. Hutton, D.J. Howes, A.J. Draper, and L. Sears, Reconstructing the Natural Hydrology of the San Francisco Bay-Delta Watershed, *Hydrology and Earth System Sciences*, Special Issue: Predictions under Change: Water, Earth, and Biota in the Anthropocene, v. 19, pp. 4257-4274, 2015. <http://www.hydrol-earth-syst-sci.net/19/4257/2015/hess-19-4257-2015.pdf>. See also: Estimates of Natural and Unimpaired Flows for the Central Valley of California: Water Years 1922-2014 at: <https://msb.water.ca.gov/documents/86728/a702a57f-ae7a-41a3-8bff-722e144059d6>.

D. Howes, P. Fox, and P. Hutton, Evapotranspiration from Natural Vegetation in the Central Valley of California: Monthly Grass Reference Based Vegetation Coefficients and the Dual Crop Coefficient Approach, *Journal of Hydrologic Engineering*, v.20, no. 10, October 2015.

Phyllis Fox and Lindsey Sears, *Natural Vegetation in the Central Valley of California*, June 2014, Prepared for State Water Contractors and San Luis & Delta-Mendota Water Authority, 311 pg.

J.P. Fox, T.P. Rose, and T.L. Sawyer, Isotope Hydrology of a Spring-fed Waterfall in Fractured Volcanic Rock, 2007.

C.E. Lambert, E.D. Winegar, and Phyllis Fox, Ambient and Human Sources of Hydrogen Sulfide: An Explosive Topic, Air & Waste Management Association, June 2000, Salt Lake City, UT.

San Luis Obispo County Air Pollution Control District and San Luis Obispo County Public Health Department, *Community Monitoring Program*, February 8, 1999.

The Bay Institute, *From the Sierra to the Sea. The Ecological History of the San Francisco Bay-Delta Watershed*, 1998.

J. Phyllis Fox, *Well Interference Effects of HDPP's Proposed Wellfield in the Victor Valley Water District*, Prepared for the California Unions for Reliable Energy (CURE), October 12, 1998.

J. Phyllis Fox, *Air Quality Impacts of Using CPVC Pipe in Indoor Residential Potable Water Systems*, Report Prepared for California Pipe Trades Council, California Firefighters Association, and other trade associations, August 29, 1998.

J. Phyllis Fox and others, *Authority to Construct Avila Beach Remediation Project*, Prepared for Unocal Corporation and submitted to San Luis Obispo Air Pollution Control District, June 1998.

J. Phyllis Fox and others, *Authority to Construct Former Guadalupe Oil Field Remediation Project*, Prepared for Unocal Corporation and submitted to San Luis Obispo Air Pollution Control District, May 1998.

J. Phyllis Fox and Robert Sears, *Health Risk Assessment for the Metropolitan Oakland International Airport Proposed Airport Development Program*, Prepared for Plumbers & Steamfitters U.A. Local 342, December 15, 1997.

Levine-Fricke-Recon (Phyllis Fox and others), *Preliminary Endangerment Assessment Work Plan for the Study Area Operable Unit, Former Solano County Sanitary Landfill, Benicia, California*, Prepared for Granite Management Co. for submittal to DTSC, September 26, 1997.

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Air Pollutant Emission Calculations, UC Berkeley Extension, 6-7/94
Assessment, Control and Remediation of LNAPL Contaminated Sites, API and USEPA, 9/94
Pesticides in the TIE Process, SETAC, 6/96
Sulfate Minerals: Geochemistry, Crystallography, and Environmental Significance,
Mineralogical Society of America/Geochemical Society, 11/00.
Design of Gas Turbine Combined Cycle and Cogeneration Systems, Thermoflow, 12/00
Air-Cooled Steam Condensers and Dry- and Hybrid-Cooling Towers, Power-Gen, 12/01
Combustion Turbine Power Augmentation with Inlet Cooling and Wet Compression,
Power-Gen, 12/01
CEQA Update, UC Berkeley Extension, 3/02
The Health Effects of Chemicals, Drugs, and Pollutants, UC Berkeley Extension, 4-5/02
Noise Exposure Assessment: Sampling Strategy and Data Acquisition, AIHA PDC 205, 6/02
Noise Exposure Measurement Instruments and Techniques, AIHA PDC 302, 6/02
Noise Control Engineering, AIHA PDC 432, 6/02
Optimizing Generation and Air Emissions, Power-Gen, 12/02
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McIlvaine Hot Topic Hour, Mercury and Toxics Monitoring, 2/5/09
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McIlvaine Hot Topic Hour, 98% Limestone Scrubber Efficiency, 7/9/09
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EXHIBIT B

July 26, 2021

Ms. Kelilah D. Federman
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

**Subject: Comments on the Initial Study and Mitigated Negative Declaration for the
Hooper Solar Project**

Dear Ms. Federman:

This letter contains my comments on the Initial Study and Mitigated Negative Declaration (“IS/MND”) prepared by the County of Lassen (“County”) for the Hooper Solar Project (“Project”). Dr. Charles Hooper (“Applicant”) is proposing construction and operation of a 50-megawatt solar generation facility and a battery energy storage system, along with related infrastructure. The related infrastructure would include a substation, a dead-end tower up to 90 feet tall, 24 130-foot-tall steel gen-tie transmission line poles to interconnect with the Plumas-Sierra Rural Electric 120-kV transmission line approximately 3 miles south of the Project site, access roads, and perimeter fencing. The Project would have a footprint of approximately 278 acres, not including the proposed gen-tie lines.

I am an environmental biologist with 28 years of professional experience in wildlife biology and natural resources management. I have served as a biological resources expert for over 150 projects, the majority of which have been renewable energy facilities in California. My experience and scope of work in this regard has included assisting various clients with evaluations of biological resource issues, reviewing environmental compliance documents prepared pursuant to the California Environmental Quality Act (“CEQA”) and the National Environmental Policy Act (“NEPA”), and submitting written comments in response to CEQA and NEPA documents. My work has included the preparation of written and oral testimony for the California Energy Commission, California Public Utilities Commission, and Federal courts. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University. A copy of my current curriculum vitae is attached hereto.

The comments herein are based on my review of the environmental documents prepared for the Project, a review of scientific literature pertaining to biological resources known to occur in the Project area, consultations with other biological resource experts, and the knowledge and experience I have acquired during my 28-year career in the field of natural resources management.

PROJECT DESCRIPTION

Gen-tie Line

The Project includes construction of a 4-mile-long gen-tie line to interconnect with the Plumas-Sierra Rural Electric 120-kV transmission line.¹ Construction of the gen-tie line would require a laydown area, staging area, conductor pull and tension (stringing) sites, and work areas around each transmission line pole.² The IS/MND does not quantify the size of these features, nor does it depict them on any of the figures in the IS/MND. This precludes thorough understanding of the Project's impacts on biological resources.

The IS/MND and appendices provide inconsistent information on the amount of grading associated with the Project. For example, the cultural resources section of the IS/MND states: "current Project construction plans do not call for excavation or grading."³ This is inconsistent with the Project's Biological Assessment ("BA"), which states the Project would require 11 to 16 acres of grading for the roadways, substation, battery energy storage container areas, laydown areas, and work areas associated with the gen-tie line structures.⁴ According to the Draft IS/MND: "[p]roject grading requirements are anticipated to be approximately 200 acres, of the Solar Field Area and in the locations of the substation, BESS, and laydown areas."⁵

Sierra Geotech's *Preliminary Report of Geotechnical Investigation* ("Geotechnical Report") states that ground shaking caused by regionally active faults during a seismic event is a key seismic hazard for the Project. As a result, the Geotechnical Report provides preliminary geotechnical recommendations that "are intended to reduce the seismic risk to an 'acceptable level,' which means a level of mitigation that provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project (14 CCR 3721 (a))."⁶ Specifically, the Geotechnical Report recommends the following:

- "Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight. Based on our site observations, surficial stripping should extend about 3 to 12 inches below existing grade but a final geotechnical investigation is required to confirm this depth."
- "Shrubs should have the root balls and any roots greater than 1/2-inch diameter removed completely."
- "After site clearing and demolition is complete, and prior to backfilling any excavations resulting from fill removal or demolition, the excavation subgrade and

¹ The IS/MND (p. 3) indicates the gen-tie line would be 3 miles long. However, according to Google Earth imagery and the Use Permit Project Detail Supplement (IS/MND, Attachment 1), it would be approximately 4 miles long.

² Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). pp. 21 and 22.

³ IS/MND, p. 59.

⁴ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). pp. 20 through 22.

⁵ Draft IS/MND, p. 3-29.

⁶ IS/MND, Attachment 7 (Geotechnical Report), p. 12.

subgrade within areas to receive additional site fills, slabs-on-grade and/or pavements should be scarified to a depth of 12 inches, moisture conditioned, and compacted.”

- “All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements as shown in the table below.”
- “Surface runoff should not be allowed to pond. Ponding should also not be allowed on or adjacent to pavements or concrete flatwork. Surface drainage should be directed towards suitable drainage facilities such as lined v-ditches or drain inlets. All v-ditches and drain inlets should be sized to accommodate the design storm events.”
- “Loose surficial soils are present at various locations to depths of 2 to 4 feet below existing grade. All loose, surficial soils within the footprint of the proposed shallow foundations (spread footings and mat foundations), must be excavated, moisture conditioned and recompactd to at least 95% of the maximum dry density in accordance with ASTM D1557.”⁷

Implementation of these recommendations would have substantial effects on biological resources and the validity of the analysis provided in the IS/MND. As a result, the IS/MND must articulate which (if any) of the recommendations provided in the Geotechnical Report would be implemented for the Project.

ENVIRONMENTAL SETTING

The Project includes 24 130-foot tall steel gen-tie transmission line poles to interconnect with the Plumas-Sierra Rural Electric 120-kV transmission line approximately 4 miles south of the Project site. The IS/MND fails to identify the biological resources that occur along the gen-tie line route and associated right of way (“ROW”). For example, although the BA and Special Status Plant Survey Report provide maps of the habitat types within the footprint of the photovoltaic solar array and battery energy storage system, there are no maps of the habitat types within the 30-foot-wide gen-tie line ROW. In addition, neither the BA nor the Special Status Plant Survey Report discussed surveys of the gen-tie line ROW. This suggests the Applicant’s consultant, Sierra Geotech, did not survey the gen-tie line ROW to determine presence of sensitive biological resources that may be impacted by construction and operation of the gen-tie line.

Natural Areas

The IS/MND provides the following description of natural areas in the vicinity of the Project area:

Natural areas include officially designated wilderness areas, wildlife preserves, sanctuaries, and refuges, wild and scenic rivers, national parks, forests, monuments, wildlife sanctuaries, preserves, refuges, and federal wilderness areas. Based on an electronic search of federal data from the Bureau of Land Management, National Park Service, National Forest Service, and Fish and Wildlife Service, CDFW no officially

⁷ *Ibid*, pp. 13 through 16.

designated natural areas exist on or within one (1) mile of the proposed project lease area. CDFW manages the Doyle Wildlife Area which is located approximately three (3) miles south of the proposed project lease area and includes some 10,400 acres of foothills and alluvial terraces.⁸

This information is incorrect. The Doyle Wildlife Area is located approximately 0.5 mile south of the proposed site for the photovoltaic solar array and battery energy storage system.⁹ In addition, the northern boundary of the proposed solar field would be located 300 to 350 south of lands that are owned in fee and protected for open space purposes by the California State Lands Commission.¹⁰ Furthermore, a portion of the proposed gen-tie line route would be enveloped by lands that are owned in fee and protected for open space purposes by the Bureau of Land Management (“BLM”) and California Department of Fish and Wildlife (“CDFW”) (Figure 1).¹¹ The proposed Project includes permanent removal of “deep-rooted vegetation” within a 30-foot-wide strip centered on electrical infrastructure facilities.¹² Accordingly, if the electrical infrastructure facilities associated with the gen-tie are located at the edge of Calneva Road, permanent impacts to vegetation would extend at least 15 feet into protected lands owned by the BLM or CDFW (depending on whether the gen-tie is installed on the east or west side of Calneva Road).

The entire Project area is located within the Honey Lake Valley Important Bird Area (“IBA”).¹³ IBAs are officially designated places of international significance for the conservation of birds and other biodiversity.¹⁴ In addition, IBAs are:

- Recognized world-wide as practical tools for conservation.
- Distinct areas amenable to practical conservation action.
- Identified using robust, standardized criteria.
- Sites that together form part of a wider integrated approach to the conservation and sustainable use of the natural environment.¹⁵

⁸ IS/MND, Section 6.4 (provided in Attachment 11).

⁹ Data obtained from California Protected Areas Database. Available at: <<https://www.calands.org/cpad/>>. (Accessed July 24, 2021).

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 48.

¹³ See National Audubon Society. 2013. Important Bird Areas: Honey Lake Valley, California [online]. Available at: <<https://www.audubon.org/important-bird-areas/honey-lake-valley>>. (Accessed July 23, 2021).

¹⁴ See BirdLife International. 2021. Important Bird and Biodiversity Areas (IBAs) [website]. Available at: <<http://www.birdlife.org/worldwide/programme-additional-info/important-bird-and-biodiversity-areas-ibas>>. (Accessed July 23, 2021).

¹⁵ *Ibid.*

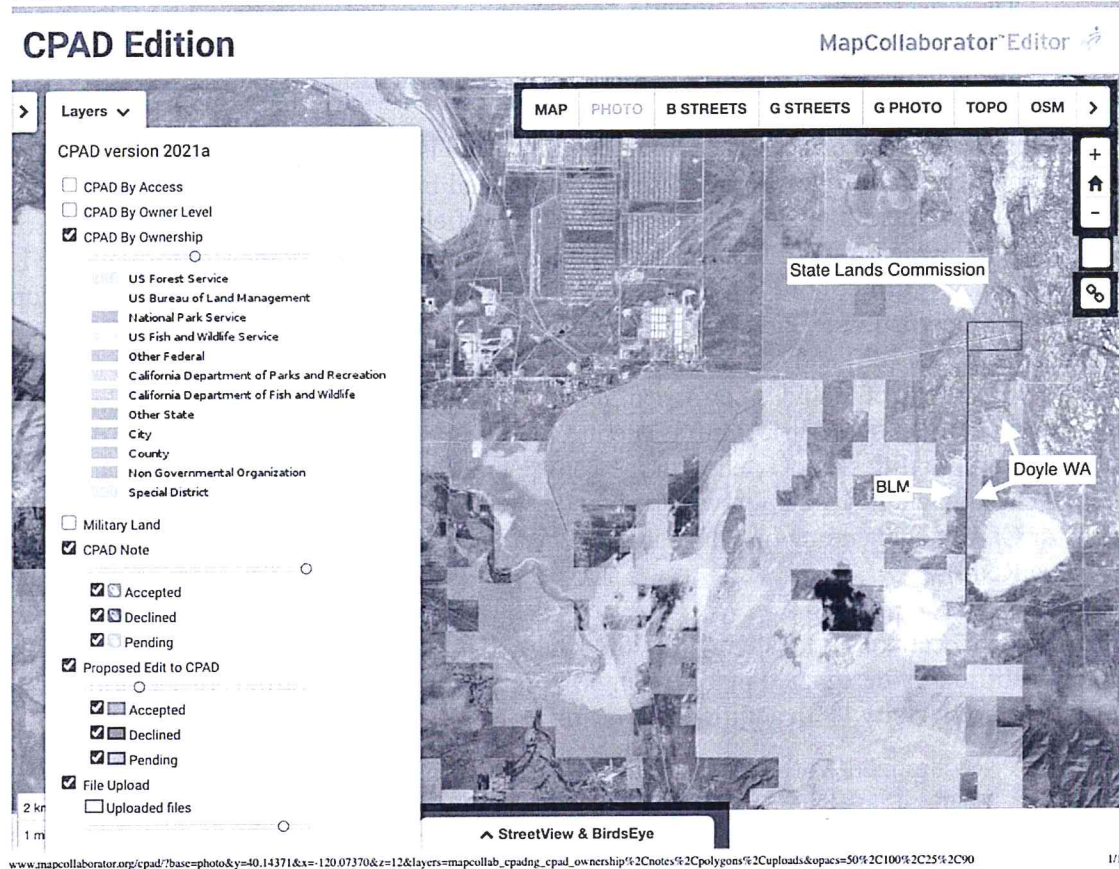


Figure 1. Proposed Project site and gen-tie (red lines) in relation to lands owned in fee and protected for open space purposes by the BLM, CDFW, and CA State Lands Commission.

Sensitive Natural Communities

Vegetation communities in California are classified through application of the state standards embodied in the Survey of California Vegetation.¹⁶ This is reflected in CDFW's (2018) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* ("Protocols").¹⁷ CDFW repeatedly informed the County that the Protocols should be implemented to provide a thorough assessment of rare plants and rare natural communities at the Project site.¹⁸

Sierra Geotech did not use the statewide standards (described in the Protocols) to classify vegetation at the Project site. This precludes understanding of whether there are Sensitive

¹⁶ California Department of Fish and Wildlife. 2021. VegCAMP [website]. Available at: <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>. (Accessed July 23, 2021).

¹⁷ California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 9.

¹⁸ IS/MND, Attachment 4 (CDFW comment letters dated 13 Nov 2020, 22 Dec 2020, and 26 Mar 2021).

Natural Communities on the Project site. However, based on the botanical information provided in the IS/MND, the following Sensitive Natural Communities may occur at the Project site:¹⁹

- *Artemisia tridentata* / *Distichlis spicata*
- *Leymus cinereus*²⁰
- *Sarcobatus vermiculatus* – *Atriplex confertifolia* – (*Picrothamnus desertorum*, *Suaeda moquinii*)
- *Sarcobatus vermiculatus* / *Leymus cinereus*
- *Sarcobatus vermiculatus* / *Distichlis spicata*
- *Sarcobatus vermiculatus* – *Artemisia tridentata*²¹

Rare Plants

According to the BA:

A protocol blooming survey was conducted in 1994 for the Tuscarora Natural Gas Pipeline on the project lease area and no special status plant species were found at that time. Because special-status plants were not found in protocol-level blooming surveys historically with other projects conducted (Tuscarora Natural Gas Pipeline, Sierra Plumas Intertie Line, and Alturas Transmission Line) within the Proposed Project Area and are not likely to have populated in the project lease area since the last focused survey (April and May 2021), temporary, permanent, direct, and indirect impacts to these special status species are not expected to result from the project.²²

The information reported in the BA is incorrect; the following special-status plant species were detected within the Project area during surveys conducted for the Tuscarora Natural Gas Pipeline:²³

- Hillman's cleomella (*Cleomella hillmanii* var. *hillmanii*)
- Dugway wild buckwheat (*Eriogonum nutans* var. *nutans*)
- Nelson's evening-primrose (*Eremothera minor*)²⁴

Sierra Geotech conducted focused surveys for special-status plants in the Project area on April 22, April 30, May 4, and May 15, 2021. The IS/MND states:

According to the biological assessment, the special status plant-focused surveys “carried out in the blooming season of 2021 did not find any special status plant species on the proposed project area.” Therefore, the existing environmental conditions, the baseline at

¹⁹ See IS/MND, p. 36 and Attachment 10 (Draft IS/MND), p. 6-35.

²⁰ *Leymus cinereus* is a synonym for *Elymus cinereus*.

²¹ California Department of Fish and Wildlife. 2020 Sep 9. California Sensitive Natural Communities. Available at: <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline>>. (Accessed July 23, 2021).

²² Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 49.

²³ *Ibid*, Figure 6. See also California Natural Diversity Database. 2021. RareFind 5 [Internet]. California Department of Fish and Wildlife [July 6, 2021].

²⁴ Formerly called *Camissonia minor*.

the project site, is that there are no known special status plant species that exists at the project site.²⁵

There are several problems with the County's determination. First, the statement that the surveys were conducted during the peak blooming periods is not supported by evidence because, contrary to the CDFW Protocols, Sierra Geotech did not visit reference sites to verify that special-status plants known to occur in the region were identifiable at the time of the surveys.²⁶ The failure to visit reference sites is a critical error because Sierra Geotech's surveys were conducted during a drought year, and many of the special-status species that have potential to occur at the Project site may not be evident and identifiable during drought years.

Second, it appears Sierra Geotech made no effort to relocate the special-status plant populations that had been detected in the Project area during surveys conducted for the Tuscarora Natural Gas Pipeline. Nevertheless, the CDFW Protocols state: "[t]he failure to locate a known special status plant occurrence during one field season does not constitute evidence that the plant occurrence no longer exists at a location, particularly if adverse conditions are present."²⁷ Because Sierra Geotech's surveys were limited to one field season during a drought year, the County must assume Hillman's cleomella, Dugway wild buckwheat, and Nelson's evening-primrose continue to occupy the Project site.

Third, the IS/MND fails to provide evidence that the botanical field surveyors had the qualifications needed to identify sensitive botanical resources in the Project area.²⁸

Fourth, it appears the botanical surveys were limited to area for the proposed photovoltaic solar array and battery energy storage system, and did not encompass areas that would be impacted by installation of the gen-tie line.

Vegetation Communities

According to the Special Status Plant Survey Report: there are only two "primary" vegetation plant communities in the Proposed Project Area: (1) Desert Sink Scrub, and (2) Disturbed Habitat. According to the report, the Disturbed Habitat "consists mostly of bare dirt" (i.e., no plant species were associated with this habitat). The report provides the following description of the Desert Sink Scrub community:

Shrub species common to this community type at the project lease area included: Big sagebrush (*Artemisia tridentata*), bud sagebrush (*Artemisia spinescens*), shadscale saltbush (*Atriplex confertifolia*), downy brome (*Bromus tectorum*), great basin wild-rye (*Elymus cinereus*), spiny hopsage (*Grayia spinosa*), prickly Russian thistle (*Kali tragus*), clasping pepperweed (*Lepidium perfoliatum*), black greasewood (*Sarcobatus vermiculatus*), littleleaf horsebrush (*Tetradymia glabrata*), and interconnected basins also known as alkali basins/flats/playas which are barren of vegetation.²⁹

²⁵ IS/MND, p. 33.

²⁶ California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 6.

²⁷ *Ibid*, p. 7.

²⁸ *Ibid*, p. 11.

²⁹ IS/MND, Attachment 8 (Special Status Plant Survey Report), p. 5.

Use of the terms “common to” and “included” suggest other (less common) plant species were detected in the vegetation community. Indeed, it would be extremely unusual for there to be only 10 plant species across the entire 278-acre Project area. Per the CDFW Protocols, botanical survey reports submitted with project environmental documents should contain: “[a] list of all plant taxa occurring in the project area, with all taxa identified to the taxonomic level necessary to determine whether or not they are a special status plant.”³⁰ A list of all plant taxa identified in the Project area is essential to understanding: (a) the environmental setting; (b) adverse conditions that may have prevented the field surveyors from adequately capturing the floristic diversity of the Project area; and (c) habitat conditions for the Carson wandering skipper (discussed further below).

American Badger

According to the IS/MND, no burrows or dens of suitable size for American badger were observed during field surveys conducted by Sierra Geotech in September 2019, December 2019, and February 2021. However, it then states: “burrows were surveyed in April and May 2021 and all burrows found on site [*sic*], but all burrows were abandoned at the time of the special-status plant surveys.”³¹ The IS/MND subsequently suggests that determining occupancy of burrows requires installation of a game camera at the burrows for three days and nights. Sierra Geotech did not install game cameras at the burrows to infer vacancy. Therefore, the County’s conclusion that the burrows at the Project site were unoccupied is not supported by substantial evidence.

Long-eared Owl

The IS/MND provides the following discussion of the long-eared owl:

Furthermore, according to the May 2021 biological assessment, “[n]o long-eared owls were observed during the [2019] or 2021 surveys. The project lease area provides no suitable habitats for nesting and roosting. The project lease area only provides potential for foraging areas.” In light of the above, then, the project will have at most a less than significant impact to long-eared owl.³²

In most locations long-eared owls nest almost exclusively in trees. However, the Honey Lake Valley contains a breeding population of long-eared owls that nest under sagebrush (which occurs at the Project site).³³ As a result, the County cannot assume absence of nesting habitat, and thus, that the Project would have a less than significant impact on the long-eared owl.

³⁰ California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 10.

³¹ IS/MND, p. 33.

³² IS/MND, p. 34.

³³ National Audubon Society. 2013. Important Bird Areas: Honey Lake Valley, California [online]. Available at: <<https://www.audubon.org/important-bird-areas/honey-lake-valley>>. (Accessed July 23, 2021).

Species Not Addressed in the IS/MND

Swainson's Hawk

The IS/MND fails to address Project impacts on the Swainson's hawk, which is listed as threatened under the California Endangered Species Act. Studies have shown that Swainson's hawks may travel up to 18 miles from the nest to forage.³⁴ To reverse the decline of Swainson's hawk populations, it is CDFW's policy that new development projects that adversely modify nesting or foraging habitat within 10 miles of an active nest should mitigate the project's impacts by providing compensatory mitigation.³⁵ According to CDFW, the 10-mile foraging radius recognizes the need to strike a balance between the biological needs of reproducing pairs (including eggs and nestlings) and the economic benefit of development(s) consistent with Fish and Game Code Section 2053.³⁶

Several Swainson's hawk nest sites (or nest territories) have been detected within 10 miles of the Project site.³⁷ Although the Project site does not provide nesting habitat for Swainson's hawks, it provides foraging habitat for Swainson's hawks that nest in the area. Loss of foraging habitat is one of the primary threats to Swainson's hawks in California.³⁸ In addition to generating a potentially significant impact under CEQA, the loss of foraging habitat from the Project site may result in the take (killing) of Swainson's hawks, which would be a violation of Section 2080 of California Fish and Game Code.³⁹ Because the IS/MND does not incorporate mitigation for the loss of foraging habitat from the Project site, Project impacts on the Swainson's hawk remain potentially significant.

Burrowing Owl

The IS/MND does not address the burrowing owl, which is a California Species of Special Concern. The overriding characteristics of burrowing owl habitat are burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs or taller vegetation.⁴⁰ Burrowing owls have been observed nesting along the Herlong lateral, which passes through the Project site.⁴¹ Portions of the Project site provide suitable nesting and foraging habitat for burrowing owls.

³⁴ California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.

³⁵ *Ibid.*

³⁶ *Ibid.* p. 2.

³⁷ California Natural Diversity Database. 2021. RareFind 5 [Internet]. California Department of Fish and Wildlife [July 6, 2021].

³⁸ California Department of Fish and Wildlife. 2016. Status Review: Swainson's Hawk (*Buteo swainsoni*) in California.

³⁹ California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.

⁴⁰ Gervais JA, DK Rosenberg, LA Comrack. 2008. Burrowing Owl (*Athene cunicularia*). Pages 218-226 *In*: Shuford WD, T Gardali, editors. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

⁴¹ Federal Energy Regulatory Commission and California State Lands Commission. 1995 Apr. Final EIR/EIS: Tuscarora Natural Gas Pipeline Project. p. ES-14.

Burrowing owls can be difficult to detect due to their cryptic coloration, extensive use of burrows, and tendency to flush (fly away) when approached.⁴² As a result, burrowing owl researchers and the CDFW have concluded that four independent breeding season surveys are necessary to provide reliable information on the presence of burrowing owls.⁴³ Data from the four surveys (termed “detection surveys” in CDFW’s Staff Report on Burrowing Owl Mitigation) are essential to avoiding, minimizing, and properly mitigating the direct and indirect effects of the Project on burrowing owls. Sierra Geotech did not conduct any “detection surveys” for burrowing owls, and because burrowing owls that nest at higher elevations (e.g., Modoc Plateau) migrate to lower elevations in winter, it is unlikely Sierra Geotech would have incidentally detected burrowing owls during their biological reconnaissance surveys (conducted in September 2019, December 2019, and February 2021). As a result, the County lacks the information needed to properly disclose and evaluate Project impacts to burrowing owls, and perhaps more importantly, to ensure effective mitigation.⁴⁴

Loggerhead Shrike

The loggerhead shrike is a California Species of Special Concern. As stated in CDFW’s comment letter to the County: “[a] major threat to this species is habitat loss [from] both breeding and wintering grounds.”⁴⁵ According to the BA:

During the field surveys, loggerhead shrikes were more common on the northern portion of the project lease area north of the Union Pacific railroad tracks. During the most recent field survey February 26, 2021, a total of 8 loggerhead shrikes were observed. One nest was observed on the northwest corner of the project lease area; however, it was believed to be inactive.^{46, 47}

The BA subsequently states the Project could have direct and indirect impacts on the loggerhead shrike and its habitat. Nevertheless, the IS/MND fails to disclose or analyze the significance of Project impacts on the loggerhead shrike.

Carson Wandering Skipper

The Carson wandering skipper is a federally endangered butterfly that occurs in a small region east of the Sierra Nevada in northwestern Nevada and northeastern California. There are

⁴² Klute DS, LW Ayers, MT Green, WH Howe, SL Jones, JA Shaffer, SR Sheffield, TS Zimmerman. 2003. Status assessment and conservation plan for the western Burrowing Owl in the United States. Bio Tech Pub FWS/BTP-R6001-2003. Washington: US Fish and Wildlife. Available at: <<https://www.fws.gov/mountain-prairie/migbirds/species/birds/wbo/Western%20Burrowing%20Owlrev73003a.pdf>>.

⁴³ California Department of Fish and Wildlife. 2012. Staff Report on Burrowing Owl Mitigation. Appendix D (Breeding and Non-breeding Season Surveys and Reports).

⁴⁴ *Ibid*, pp. 5, 6 and 29.

⁴⁵ IS/MND, Attachment 4 (CDFW comment letter dated 26 Mar 2021), p. 4.

⁴⁶ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 40.

⁴⁷ One would expect the nest to be inactive in February. Barton and Holmes (2004) reported clutch initiation dates that ranged from the first week of April through the last week of June in Lassen County. *See* California Partners in Flight. 2005. Version 1.0. The sagebrush bird conservation plan: a strategy for protecting and managing sagebrush habitats and associated birds in California. PRBO Conservation Science, Stinson Beach, CA. p. 31.

believed to be four extant populations of the Carson wandering skipper: three in Nevada and one in Honey Lake Valley, California.⁴⁸ The Project site and gen-tie line ROW are within the range of the Carson wandering skipper (Figure 2).⁴⁹

The U.S. Fish and Wildlife Service (“USFWS”) provided the following description of habitat for the Carson wandering skipper (“CWS”):

Little is known about the specific habitat requirements of the CWS beyond the similarities recognized among known locations of this subspecies. Carson wandering skipper habitat is generally characterized as lowland grassland habitats on alkaline substrates. Based on observations of known occupied sites, suitable habitat for the CWS has the following characteristics: elevation of less than 1,524 m (5,000 ft), location east of the Sierra Nevada, and presence of green *Distichlis spicata* cover with a flowering nectar source available during May through July (flight season) near springs or other water sources. *Distichlis spicata* is a common species in the *Atriplex-Sarcobatus* (saltbush-greasewood) vegetation communities of the Intermountain West and is widely distributed in lowland areas of now dry pluvial lakes. Different *Distichlis* communities exist, ranging from near-monotypic communities in meadow areas to understories in shrub-dominated communities (Young et al. 1986). Some *Distichlis* communities have roots in contact with the groundwater table while others rely on soil moisture from precipitation. There may also be a habitat association with geothermal activity (Brussard et al. 1999).⁵⁰

According to the Draft IS/MND: “[t]he approximately +/- 278 acre proposed project area is predominately flat with regional habitats comprised mainly of big sagebrush, greasewood scrub, and saltgrass flats.”⁵¹ If saltgrass [*Distichlis spicata*] flats are present in the Project area, they may provide habitat for the Carson wandering skipper. As a result, the IS/MND needs to provide an assessment of the potential for the Project to impact the Carson wandering skipper.

⁴⁸ United States Fish and Wildlife Service. 2012. Carson Wandering Skipper (*Pseudocopaodes eunus obscurus*), 5-Year Review: Summary and Evaluation. 44 pp.

⁴⁹ United States Fish and Wildlife Service. 2021. ECOS Environmental Conservation Online System. Carson wandering skipper (*Pseudocopaodes eunus obscurus*). Available at: <<https://ecos.fws.gov/ecp/species/674>>. (Accessed July 24, 2021).

⁵⁰ United States Fish and Wildlife Service. 2012. Carson Wandering Skipper (*Pseudocopaodes eunus obscurus*), 5-Year Review: Summary and Evaluation. p. 16.

⁵¹ Draft IS/MND, p. 6-35.

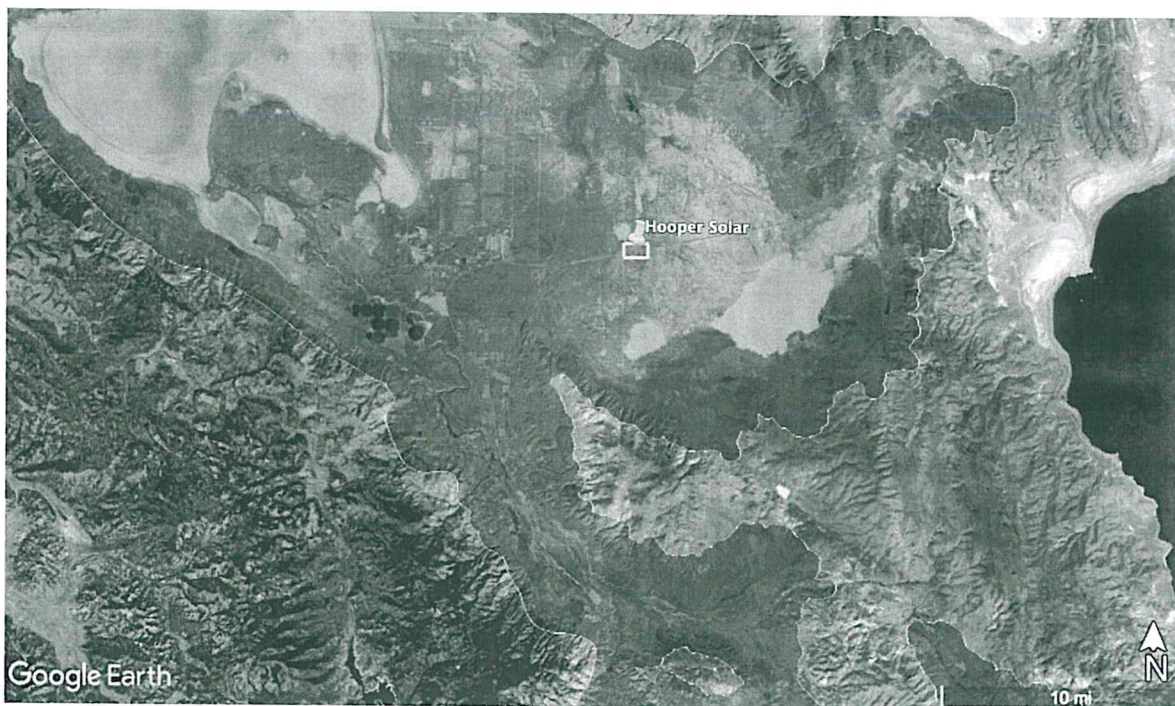


Figure 2. Proposed Project site (yellow rectangle) in relation to the geographic range of the Carson wandering skipper (shaded blue).⁵²

Nesting Birds

According to the IS/MND: “[n]o nesting birds were found during the biological assessments conducted by Sierra Geotech. The current baseline conditions, then, are that there are no nesting birds on-site.” These statements are misleading and misrepresent the value of the Project site to nesting birds. The surveys for the biological assessments were conducted outside of the avian nesting season, which is not a reliable approach for detecting bird nests. Most bird species construct well-concealed or camouflaged nests.⁵³ As a result, finding bird nests generally requires observations of bird behaviors (e.g., territorial defense behavior, food deliveries) that are only evident during the breeding season.⁵⁴ Whereas Sierra Geotech’s special-status plant surveys were conducted during the avian breeding season, the survey report provides no evidence that the biologists searched for bird nests. Despite these limitations, the BA states that a loggerhead shrike nest was detected onsite during the February 26, 2021, field survey, but that the biologist *believed* (i.e., did not confirm) the nest was inactive.⁵⁵ Having conducted nesting

⁵² Data obtained from: United States Fish and Wildlife Service. 2021. ECOS Environmental Conservation Online System. Carson wandering skipper (*Pseudocopa eunus obscurus*). Available at: <<https://ecos.fws.gov/ecp/species/674>>. (Accessed July 24, 2021).

⁵³ DeSante DF, GR Geupel. 1987. Landbird productivity in central coastal California: the relationship to annual rainfall and a reproductive failure in 1986. *Condor*. 89:636-653.

⁵⁴ *Ibid.* See also Martin TE, GR Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. *J. Field Ornithol.* 64(4):507-519. See also Rodewald AD. 2004. Nest-Searching Cues and Studies of Nest-Site Selection and Nesting Success. *J. Field Ornithol.* 75(1):31-39.

⁵⁵ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 40.

bird surveys throughout California for nearly 30 years, I conclude with absolute certainty that it is impossible a 278-acre site does not support any nesting birds.

Jurisdictional Waters

The CDFW submitted comments to the County indicating it considers the alkali playas at the Project site to be State wetlands until the Project applicant can demonstrate otherwise with updated wetland surveys.⁵⁶ Sierra Geotech argues the playas do not qualify as wetlands. The IS/MND expresses the County's determination that, based on Sierra Geotech's analysis, the playas are not wetlands.⁵⁷

The California Water Boards define wetlands as follows:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.⁵⁸

The Applicant argues the playas in the Project area do not satisfy these three criteria:

First, the Applicant argues: "the entire project site is made up of Epot-Ragtown Playas complex soils, which is 'incapable of continuous or recurrent saturation of the upper substrate caused by groundwater,' as it well-drained with very high runoff characteristics."⁵⁹ This argument conflicts with soil survey data provided by the Natural Resources Conservation Service. Detailed soil maps are comprised of map units. Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small area that they cannot be shown separately on the maps.⁶⁰ For example, the Epot-Ragtown-Playas complex has three components: (1) Epot, (2) Ragtown, and (3) Playas.

Surface runoff refers to the loss of water from an area by flow over the land surface.⁶¹ Surface runoff classes are based on slope, climate, and vegetative cover. Epot soils have medium surface runoff, whereas Ragtown soils have high surface runoff. Playas have *negligible* surface runoff.⁶² Thus, none of the components of the soils at the Project site have "very high runoff characteristics" as asserted in the Applicant's argument.

Drainage class refers to the frequency and duration of wet periods under conditions similar to those under which the soil developed. Soils in the Epot component are "well drained" (water is

⁵⁶ IS/MND, Attachment 4.

⁵⁷ IS/MND, p. 36.

⁵⁸ IS/MND, p. 34.

⁵⁹ IS/MND, p. 35.

⁶⁰ See Natural Resources Conservation Service. 2004. Soil Survey of Susanville Area, Parts of Lassen and Plumas Counties, California. p. 8.

⁶¹ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey [online]. Available at: <<http://websoilsurvey.sc.egov.usda.gov/>>. (Accessed July 24, 2021).

⁶² *Ibid.*

removed from the soil readily but not rapidly).⁶³ Soils in the Ragtown and Playas components are “moderately well drained” (water is removed from the soil somewhat slowly during some periods of the year).⁶⁴ Thus, the Applicant’s argument that the soils are “incapable of continuous or recurrent saturation [because they are] well-drained with very high runoff characteristics” is false.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. Ragtown soils are in Group C. Epot soils and Playas are in Group D.⁶⁵

- Group C soils have a slow infiltration rate when thoroughly wet. They consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. Group C soils have a slow rate of water transmission.⁶⁶
- Group D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet. They consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. Group D soils have a very slow rate of water transmission.⁶⁷

Ponding is standing water in a closed depression.⁶⁸ The ponding duration for Epot and Ragtown soils is “none,” which means that ponding is not probable.⁶⁹ The ponding duration for Playas is “none” between October and January, but “frequent” (on the average, more than once in 2 years) and “long” (7-30 days) between February and September.⁷⁰

The Applicant argues: “[t]he alkali basins/flats/playas on the lease area do not qualify as jurisdictional wetlands because of the lack of hydrophytic vegetation and lack of wetland hydrology and hydric soils.”⁷¹ This is not a valid argument because: (1) the Playas component of the Epot-Ragtown-Playas complex is classified as a hydric soil;⁷² (2) the lack of hydrophytic vegetation cannot be used to eliminate the potential for State wetlands (which encompass areas

⁶³ University of California at Davis, University of California Agriculture and Natural Resources, and USDA Natural Resources Conservation Service. SoilWeb [online application]. Available at: <<https://casoilresource.lawr.ucdavis.edu/gmap/>>. (Accessed July 24, 2021).

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*

⁶⁶ *Ibid.*

⁶⁷ *Ibid.*

⁶⁸ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey [online]. Available at: <<http://websoilsurvey.sc.egov.usda.gov/>>. (Accessed July 24, 2021).

⁶⁹ *Ibid.*

⁷⁰ *Ibid.*

⁷¹ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. *iii*.

⁷² University of California at Davis, University of California Agriculture and Natural Resources, and USDA Natural Resources Conservation Service. SoilWeb [online application]. Available at: <<https://casoilresource.lawr.ucdavis.edu/gmap/>>. (Accessed July 24, 2021).

that lack vegetation); and (3) efforts to evaluate hydrology were limited to evaluation of a single indicator (i.e., visual observations of inundation).

The Applicant argues: “[i]n addition, borings conducted by Sierra Geotech and monitoring wells within the vicinity of the project site indicate that groundwater is not present until approximately 30 feet below the surface.”⁷³ I do not dispute the claim that groundwater is not present until approximately 30 feet below the surface. However, the criterion used to define State wetlands is: “the area has continuous or recurrent saturation of the upper substrate caused by groundwater, *or shallow surface water*, or both.” Because of their physical properties, the playas in the Project area have recurrent saturation of the upper substrate due to shallow *surface water* that ponds within the playas after precipitation events. As discussed previously, ponding of playas in the Epot-Ragtown-Playas complex is “frequent” and for “long” durations (7-30 days) between February and September.

Indicators of wetland hydrology include but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gage data and flood predictions, historic records, visual observation of saturated soils, and visual observation of inundation.⁷⁴ Sierra Geotech’s efforts to investigate wetland hydrology were limited to visual observations of inundation. According to the BA: “[w]ater has been observed to collect temporarily during rain events, and then dry within 24 hours (reconnaissance survey December 2019 and February 2021) in the alkali basin/flats/playa areas of the project lease area.”⁷⁵ Visual observations from these two surveys cannot be used to disqualify the playas as wetlands. The BA provides no evidence of a rain event prior to the February 2021 survey, and according to Sierra Geotech: “[t]he December field survey had *a few short rain events* during the visit.”⁷⁶ According to the soil survey data, ponding of the playas at the Project site occurs between February and September, and the chance of ponding is more than 50 percent in a given year. Thus, visual observations from a single visit between February and September does not provide conclusive evidence, especially because: (a) the February 2021 survey was conducted during a drought year; and (b) as reported by Sierra Geotech: “puddling is sporadic and unpredictable from one year to the next.”⁷⁷ Most importantly, the Army Corps of Engineers’ *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* states:

Hydrology indicators are often the most transitory of wetland indicators. Those involving direct observation of surface water or saturated soils are usually present only during the normal wet portion of the growing season and may be absent during the dry season or during drier-than-normal years. The Arid West is characterized by extended dry seasons in most years and by extreme temporal and spatial variability in rainfall, even in “normal” years. Many wetlands in the region are dry for much of the year and, at those

⁷³ IS/MND, p. 35.

⁷⁴ Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. pp. 30 and 31.

⁷⁵ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. iii.

⁷⁶ IS/MND, Attachment 11 (Draft Biological Section Submitted by Applicant), *Field Survey* (no page number). [emphasis added].

⁷⁷ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 27.

times, may lack hydrology indicators entirely. Therefore, *lack of an indicator is not evidence for the absence of wetland hydrology*.⁷⁸

Furthermore, Sierra Geotech's claim that the playas were dry within 24 hours of rain events conflicts with the photos provided in the BA and Phase I Environmental Site Assessment. Several of the photos depict inundation, or at a minimum, saturated soil conditions (an indicator of wetland hydrology).⁷⁹

The IS/MND's analysis concludes with the County's determination that: "even if the project site were a wetland, it would be a wetland for very short duration, and therefore, any impacts to the area would be at the very most less than significant."⁸⁰ The County's determination is illogical: the playas at the Project site are either State jurisdictional wetlands or not (i.e., they are not wetlands for part of the year, and non-wetlands for the remainder of the year). Furthermore, the ecological significance of the impacts, and the significance of impacts under CEQA, is not contingent on how long the wetlands are inundated. In fact, if the playas in the Project region only hold water for a very short duration, some of the ecological functions they provide (e.g., as a water source for wildlife) may be heightened.

I have the following additional comments pertaining to the alkali playas in the Project area:

1. The Corps of Engineers considered the playas in the Tuscarora pipeline project area to be federally jurisdictional waters of the U.S.⁸¹ Waters of the State include all waters of the U.S. Although subsequent U.S. Supreme Court decisions (i.e., SWANCC and Rapanos) affected the definition of waters of the U.S, they did not affect the definition of waters of the State. Therefore, if the playas in the Tuscarora pipeline project area were waters of the U.S, they were also waters of the state, and they remain waters of the state.
2. The State Water Board identifies playas as non-vegetated features that could satisfy the State definition of wetlands.⁸²
3. Sierra Geotech conducted a geotechnical exploration, which consisted of 14 borings in the Project area. These borings were sent to a laboratory for testing. The IS/MND and technical appendices point to the borings as evidence that: "project site soils do not meet the first criteria of the California State Water Resources Control Board definition of a wetland."⁸³ The IS/MND provides no evidence that any of the borings were in a playa. Furthermore, although the borings demonstrated absence of groundwater within 24.5 feet

⁷⁸ U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center. p. 58.

⁷⁹ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES), pp. A-9 and A-10. *See also* Sierra Geotech. 2019 Dec 30. Phase I Environmental Site Assessment. p. A-5 (Photograph No. 7).

⁸⁰ IS/MND, pp. 36-37.

⁸¹ Federal Energy Regulatory Commission and California State Lands Commission. 1995 Apr. Final EIR/EIS: Tuscarora Natural Gas Pipeline Project. p. 4-111.

⁸² State Water Resources Control Board. 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Staff Report Including the Substitute Environmental Documentation. p. 54.

⁸³ *For example, see* Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 28.

of the ground surface, the borings cannot be used to demonstrate absence of recurrent saturation caused by shallow surface water.

4. Criterion number two for identifying state wetlands is whether the duration of soil saturation is sufficient to cause anaerobic conditions in the upper substrate. Identifying anaerobic conditions in the upper substrate requires digging soil pits (approximately 16 inches deep) and carefully examining the soil cores for hydric soils indicators.⁸⁴ Sierra Geotech did not implement these procedures, and no wetland data forms were completed. Instead, Sierra Geotech merely asserted: “[t]here is no data available that establishes the proposed project site soils have anaerobic conditions in the upper substrate.”⁸⁵

PROJECT IMPACTS

The IS/MND does not quantify or categorize Project impacts on biological resources. However, the BA portrays most (250 acres) of the impacts as “temporary,”⁸⁶ contrary to CDFW guidance⁸⁷ and CEQA documents for other solar energy facilities in California. According to the BA:

Potential temporary construction impacts may include loss of foraging and/or nesting habitat, decreased habitat value, disturbance of nesting sites, or habitat fragmentation. However, the majority of these impacts will be temporary, as Calneva BESS/PSES plans to restore all disturbed habitats within the project lease area following construction. Temporary impacts resulting from construction activities will be reduced to less than significant levels with the implementation of the avoidance, minimization, and mitigation measures outlined in Section 8 of this report.⁸⁸

Habitat restoration is not incorporated into the Project Description or any of the IS/MND’s mitigation measures. Even if the Applicant voluntarily attempts habitat restoration, the Applicant has not established performance standards for the restored habitats. As a result, there are no assurances that habitat restoration would occur, or that it would be successful. Furthermore, even if the Applicant successfully restores the *vegetation communities* associated with the “temporary construction impacts,” there would be permanent impacts to *habitat*. For example, mammals would no longer be able to access the Project site due to the proposed security fence, and the solar arrays would eliminate habitat for birds (e.g., burrowing owl) that depend on open habitat conditions for predator avoidance and prey acquisition.

Gen-tie

The IS/MND fails to disclose, analyze, or mitigate potentially significant impacts associated with the gen-tie line. Based on the description provided in the IS/MND, installation and maintenance of the gen-tie would involve substantial ground disturbance. For example, the IS/MND states:

⁸⁴ See Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Appendix D.

⁸⁵ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 29.

⁸⁶ *Ibid.* p. 47.

⁸⁷ See IS/MND, Attachment 4, CDFW comment letter (dated March 26, 2021), p. 4.

⁸⁸ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 47.

- “The Gen-Tie and Service Line would have work areas around each structure location which may require grading and vegetation removal for various construction activities. Stringing sites would support required equipment to perform wire stringing and sagging operations.”⁸⁹
- “Dirt access roads and Calneva Road will be permanently impacted where a 30-foot-wide permanent strip of the permanent ROW centered on electrical infrastructure facilities will be maintained by Calneva BESS/PSES to keep the area free of deep-rooted vegetation for safety purposes.”⁹⁰

Avian Collisions and Electrocutions

Power Lines

Overhead power lines are a major source of bird mortality.⁹¹ Loss et al. (2014) estimated that between 12 and 64 million birds are killed each year at U.S. power lines, with between 8 and 57 million birds killed by collision and between 0.9 and 11.6 million birds killed by electrocution.⁹² Some of this mortality is preventable through implementation of bird-friendly design strategies, such as those recommended by the Avian Power Line Interaction Committee (“APLIC”).⁹³

The Project’s gen-tie would have an optical ground wire and fiber optic cable strung above the 120 kV to 345 kV conductor.⁹⁴ These wires are especially hazardous to birds because they are the highest wires and are smaller in diameter than phase conductors, making them more difficult to see.⁹⁵ The IS/MND does not disclose or analyze the avian collision and electrocution hazard associated with the Project’s gen-tie line, nor does it require implementation of the bird-friendly design strategies recommended by APLIC. As a result, installation of the new gen-tie line represents an unexamined, potentially significant impact to birds (especially raptors and waterfowl).

⁸⁹ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 22.

⁹⁰ *Ibid*, p. 45.

⁹¹ Loss SR, T Will, PP Marra. 2014. Refining Estimates of Bird Collision and Electrocution Mortality at Power Lines in the United States. PLOS ONE 9(7):1-10.

⁹² *Ibid*.

⁹³ Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute and APLIC. Washington, D.C. Available at: <[https://www.aplic.org/uploads/files/2613/SuggestedPractices2006\(LR-2watermark\).pdf](https://www.aplic.org/uploads/files/2613/SuggestedPractices2006(LR-2watermark).pdf)>. See also Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C. Available at: <https://www.aplic.org/uploads/files/15518/Reducing_Avian_Collisions_2012watermarkLR.pdf>.

⁹⁴ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). Table 2.

⁹⁵ Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C. Available at: <https://www.aplic.org/uploads/files/15518/Reducing_Avian_Collisions_2012watermarkLR.pdf>.

Solar Panels

The presence of dead and injured birds at solar facilities operating in California demonstrates that solar facilities present a collision hazard to birds.⁹⁶ At photovoltaic (“PV”) facilities, birds appear to mistake the broad reflective surfaces of the solar arrays for water, trees, and other attractive habitat.⁹⁷ When this occurs, the birds become susceptible to mortality by: (a) colliding with the solar panels; or (b) becoming stranded (often injured) on a substrate from which they cannot take flight, thereby becoming susceptible to predation and starvation.⁹⁸

There is also evidence that PV solar panels produce polarized light pollution that attracts insects, which in turn attract insectivores (insect-eating birds).⁹⁹ Those birds then become susceptible to injury or death when they attempt to prey upon the insects that have been attracted to the PV solar panels. Dead and injured insectivores then attract avian predators and scavengers, which too become susceptible to collision with the PV panels and other project features. This creates an entire food chain vulnerable to injury and death.

A recent study completed by the National Fish and Wildlife Forensics Laboratory (2014) reported: “solar facilities appear to represent “equal-opportunity” hazards for the bird species that encounter them.¹⁰⁰ Although solar facilities kill all types of birds, monitoring reports have documented an unexpectedly high proportion of waterbird deaths at recently constructed solar energy facilities, including those that use PV solar panels. This phenomenon appears to be due to waterbirds mistaking the PV arrays for a lake (or other water body).¹⁰¹ A letter from the USFWS confirms that this “lake effect” is a growing concern for all types of solar projects:

“Incidental fatalities are increasingly being documented and reported at a range of solar projects. . . All [solar] technology types appear to present a hazard to water-associated bird species from the lake effect, based on the species composition of avian mortalities documented at ISEGS, Genesis (solar trough), and Desert Sunlight (photovoltaic) projects. The magnitude of this lake effect remains unclear, but may be location specific and may be correlated with migratory flyways or the availability of other habitat for migratory stopovers.”¹⁰²

The USFWS concluded in its analysis of another solar facility that, given the large sizes of existing and proposed PV facilities, and the lack of opportunity for effective adaptive

⁹⁶ Kagan RA, TC Viner, PW Trail, EO Espinoza. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. National Fish and Wildlife Forensics Laboratory. 28 pp.

⁹⁷ *Ibid.*

⁹⁸ *Ibid.*

⁹⁹ *Ibid.* See also Horváth G, Kriska G, Malik P, Robertson B. 2009. Polarized light pollution: A new kind of ecological photopollution. *Frontiers in Ecology and the Environment* 7:317–325. See also Horváth G, M Blaho, A Egri, G Kriska, I Seres, B Robertson. 2010. Reducing the Maladaptive Attractiveness of Solar Panels to Polarotactic Insects. *Conservation Biology* 24(6):1644-1653. See also Lovich JE, JR Ennen. 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. *Bioscience* 61(12):982-992.

¹⁰⁰ *Ibid.*

¹⁰¹ U.S. Fish and Wildlife Service. 2018 May 2. Energy Development: Energy Technologies and Impacts – Solar Energy [web page]. Available at: <<https://www.fws.gov/ecological-services/energy-development/solar.html>>. (Accessed June 15, 2020).

¹⁰² Letter from Kennon Corey, U.S. Fish and Wildlife Service, to Christine Stora, California Energy Commission dated August 7, 2014. [emphasis added].

management measures and other design modifications sufficient to avoid take of birds, PV facilities could have significant effects on migratory birds.¹⁰³ I concur with that conclusion.

The IS/MND fails to disclose, analyze, or provide mitigation for the avian collision hazard posed by the Project. As a result, collision with the Project's PV panels represents a potentially significant, unmitigated impact.

Wildlife Movement

The IS/MND concludes the Project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species because mitigation measure BIO-20 incorporates measures to minimize impacts to nesting birds during construction of the Project.¹⁰⁴ The IS/MND's conclusion is not supported by evidence because minimizing impacts to nesting birds during construction of the Project does not address potentially significant impacts to *movement* (e.g., during migration). Moreover, the IS/MND provides no analysis of Project impacts to movement of mammals, including the deer and pronghorn herds that move through the Project area, and that rely heavily on foraging resources provided by sagebrush in the Project region during the winter.¹⁰⁵

Invasive Plants

Invasive plants threaten native diversity, alter ecosystem processes,¹⁰⁶ and can cause extinction of native species.¹⁰⁷ Indeed, next to habitat loss, invasive species pose the greatest threat to the nation's biodiversity and natural resources.¹⁰⁸ Three things are required for an invasive plant to become established in an area:

1. A vector for transporting the plant or its propagules from one place to another. Some vectors are natural (e.g., wind, water, and wildlife); however, most are related to human activities. Tools, equipment, vehicles, livestock, clothing, and boots are potential vectors for the spread of invasive plants.
2. Suitable conditions for invasive plant colonization. Soil and vegetation disturbance create suitable conditions for the establishment of invasive plants.
3. A suitable environment for the invasive plant to survive, reproduce, and spread.

¹⁰³ U.S. Fish and Wildlife Service. 2014 Aug 4. Comments on the Draft Environmental Impact Report (EIR 529) for the Blythe Mesa Solar Project (CUP 2685), Riverside County, California.

¹⁰⁴ IS/MND, p. 38.

¹⁰⁵ California Department of Fish and Wildlife. California Interagency Wildlife Task Group. 2005. CWHR version 9.0 personal computer program. Sacramento, CA. Life history account for pronghorn. *See also*, IS/MND, Attachment 4 (CDFW comment letter dated March 26, 2021), p. 4.

¹⁰⁶ Vitousek P. 1990. Biological invasions and ecosystem processes: towards an integration of population biology and ecosystem studies. *Oikos* 57:7–13. *See also* Theoharides KA, Dukes JS. 2007. Plant invasion across space and time: factors affecting nonindigenous species success during four stages of invasion. *New Phytologist* 176:256–273.

¹⁰⁷ Gurevitch J, Padilla DK. 2004. Are invasive species a major cause of extinctions? *Trends in Ecology and Evolution* 19(9):470–474.

¹⁰⁸ U.S. Department of the Interior, Office of Congressional and Legislative Affairs. 2013. Invasive Species Management. Statement for the Record: U.S. Department of the Interior Before the House Natural Resources Subcommittee on Public Lands and Environmental Regulation's oversight hearing on "Invasive Species Management on Federal Lands."

Many invasive species possess a competitive advantage over native species in an area. As a result, invasive species can reproduce and spread exponentially, especially if the ecosystem lacks a mechanism for keeping them in check.¹⁰⁹

The Project has the potential to facilitate the colonization and spread of invasive plants because construction and operation activities: (a) provide vectors for transporting invasive plant propagules, (b) involve soil and vegetation disturbance, and (c) would be conducted in an environment susceptible to invasion. The IS/MND does not disclose this issue, nor does it provide any analysis of potentially significant impacts that could occur as the result of Project activities that facilitate the colonization or spread of invasive plants.

Cumulative Impacts

The IS/MND's analysis of cumulative impacts is limited to the following statement: "[a]ny cumulative effect resulting from the project will be less than significant based on the analysis above."¹¹⁰ This determination is not supported by evidence because there is no "analysis above."

Although the County's IS/MND provided no analysis of cumulative impacts, Sierra Geotech's BA provided the following analysis:

The project may contribute to the cumulative effects to special-status species and their habitats resulting from numerous developments and road expansions that are planned in the region. Planned developments in the area include the Fish Springs Solar Project, Rock Springs Solar Project, and Sierra Plumas Rural Electric Cooperative Herlong to Fort Sage Intertie Line. In addition, road maintenance and improvements are planned for Calneva Road, and Rainbow Road between the Union Pacific railroad and Fort Sage Road. Gentle lines associated with Fish Springs and Rock Springs Solar project are planned for construction in 2022.

These new developments and road improvements are likely to permanently impact the habitats of special-status species, including rare plants and wildlife associated with local habitats found in the Basin and Range of northeastern California, raptors and other avian species that utilize alkali desert scrub, and alkali basins/flats/playas for foraging and roosting. These impacts may include take of special-status species, fragmentation or permanent loss of habitat, or reductions in the quality of habitat.

While the project may contribute to the cumulative effects resulting from new development and road expansion, most of the impacts from the project are going to be temporary in nature, as habitat will be restored to preconstruction conditions following the completion of construction activities. It is likely that many of the habitats temporarily impacted by project construction will be fully restored by the time construction begins for many of the new developments planned in the area.¹¹¹

¹⁰⁹ California Department of Food and Agriculture, California Invasive Weed Awareness Coalition. 2005. California Noxious & Invasive Weed Action Plan. California Dept. of Food and Agriculture, Sacramento, CA.

¹¹⁰ IS/MND, p. 66.

¹¹¹ Sierra Geotech. 2021 May. Biological Assessment for the Calneva Battery Energy Storage System (BESS) and Photovoltaic Solar Energy System (PSES). p. 52.

There are several problems with the BA's analysis. First, although the BA states there would be cumulative impacts, and that the Project may contribute to those cumulative impacts, there is no analysis of the significance of the cumulative impacts.

Second, the BA's statement that "many of the habitats temporarily impacted by project construction will be fully restored by the time construction begins for many of the new developments planned in the area" is not supported by evidence. To the contrary, the BA reports: "[r]ecovery following severe disturbance in the Alkali Scrub, like other desert scrub types, requires decades and perhaps centuries, (Webb et al. 1982)."¹¹² Even if the Applicant broadcasts seeds as an active restoration technique, scrub (e.g., sagebrush and saltbrush) seedlings grow slowly and do not fully mature for 25 to 40 years.¹¹³

Third, the BA identifies habitat fragmentation as one of the permanent impacts associated with new developments and road improvements planned in the region. Even if the Applicant implements habitat restoration efforts, those efforts would not mitigate the effects of the security fence (and other Project components) on habitat fragmentation.

MITIGATION

BR-1 / MM 21 (American Badger)

Measure BR-1 requires American badger surveys in the Project area. It states:

These surveys will be conducted not more than 30 days prior to initial ground-disturbing activities. If the survey results are negative (no badger dens observed), no additional work would be necessary. If the results are positive (badger dens observed), the qualified biologist shall install a game camera at the den(s) for three (3) days and three (3) nights to determine if the den is in use. If the game camera does not capture an individual entering/exiting the den, the den can be excavated by hand. If the camera captures badger use of the den, the qualified biologist shall install a one-way door in the den opening and continue use of the game camera. Once the camera captures the individual exiting the one-way door, the den can be excavated by hand.

Badgers have relatively large home ranges, and some badgers dig a new den each night.¹¹⁴ As a result, a survey conducted up to 30 days prior to ground-disturbing activities does not ensure Project impacts to badger dens would be avoided.

As discussed in CDFW's comment letters, badger kits do not emerge from the natal burrow until they are six to eight weeks old. Consequently, CDFW recommended the County modify the mitigation measure such that installation of one-way doors would only be implemented outside

¹¹² *Ibid*, p. 25.

¹¹³ Pyke DA. 2011. Restoring and rehabilitating sagebrush habitats. In: Knick ST, Connelly JW, Eds. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology, Vol. 38. Berkeley, CA: University of California Press. p. 534. *See also* Natural Resources Conservation Service. n.d. PLANTS Database. Characteristics of *Atriplex confertifolia* (shadscale saltbush). Available at: <<https://plants.usda.gov/home/plantProfile?symbol=atco>>.

¹¹⁴ California Department of Fish and Wildlife. California Interagency Wildlife Task Group. 2005. CWHR version 9.0 personal computer program. Sacramento, CA. Life history account for American badger.

of the natal rearing period (typically March through May).¹¹⁵ Measure BR-1 ignores CDFW's recommendation and allows installation of one-way doors during the natal rearing period, which would cause significant impacts by precluding nursing and other natal activities essential to survival of the kits.

BR-2 /MM 22 (Burrow Avoidance)

Measure BR-2 states:

If occupied [badger] burrows are identified during surveys, Calneva BESS/PSES will maintain a buffer of approximately 160 feet from occupied burrows during the nonbreeding season of October through July, and approximately 250 feet during the breeding season of August through September. Occupied burrows will not be disturbed within these buffers during the breeding season, from August through September, unless a qualified biologist has verified that the badgers have not begun mating, or the offspring from those burrows are foraging independently and capable of independent survival at a given date.

The provisions of measure BR-2 conflict with those of BR-1, which allow installation of one-way doors (i.e., disturbance) at burrows regardless of season. In addition, the breeding and non-breeding season dates reported in BR-2 are incorrect. Although badgers mate in the summer or fall, they do not give birth until the following March and April, and young badgers do not disperse to their own burrows until July or August.¹¹⁶

The buffers proposed in BR-2 might be sufficient for badger burrows located less than 160 feet (non-breeding season) or 250 feet (breeding season) from the Project boundary. However, they would not be effective for badger burrows located in interior portions of the Project site. After traveling 160 feet (or 250 feet) through the buffer zone, the badgers would need to travel through the construction zone to reach habitat unaffected by construction activities. These badgers would be subject to being killed or injured by construction vehicles and heavy equipment.

BR-3 / BIO 19 (Bird Nest Surveys)

Measure BR-3 states:

Because construction will take place during the breeding and nesting season of avian species in the project area (typically February 1 through August 31), Calneva BESS/PSES will conduct nesting bird surveys prior to construction for avian species with potential to occur on-site, or where accessible, in areas adjacent to construction. Where nesting migratory birds are found in or near the project area, the birds and their nests will be evaluated by a qualified biologist. If nest disturbance is anticipated, the biologist will ensure adequate mitigation measures are implemented (BIO 20).

This mitigation measure is too vague to ensure potentially significant impacts to nesting birds are mitigated to less than significant levels. Specifically, the measure fails to establish any standards

¹¹⁵ IS/MND, Attachment 4 (CDFW comment letter dated Dec 22, 2020), pp. 5 and 6.

¹¹⁶ *Ibid.* See also California Department of Fish and Wildlife. California Interagency Wildlife Task Group. 2005. CWHR version 9.0 personal computer program. Sacramento, CA. Life history account for American badger.

for the: (a) nest searching techniques, (b) minimum level of effort (i.e., survey hours per unit area), (c) qualifications of the biologist responsible for the surveys, or (d) timing of the surveys in relation to construction activities.

Invasive Plants

It is well established that invasive plants (or “weeds”) disrupt ecosystem processes and degrade habitat for native plants and animals. Although some invasive plant species are already present in the Project area, the Project has the potential to: (1) introduce new weed species, and (2) facilitate the spread of existing weed species. The California Invasive Plant Council has published guidelines for preventing the spread of invasive plants.¹¹⁷ The BMPs described therein are feasible and they should be incorporated as required mitigation measures. Because the IS/MND fails to incorporate mitigation, potentially significant impacts associated with the colonization and spread of weeds remain unmitigated.

Conclusion

Substantial evidence demonstrates that the Project could have significant, unmitigated impacts on sensitive biological resources. The IS/MND that was prepared for the Project does not adequately disclose and analyze those impacts, nor does it provide the mitigation necessary to ensure significant impacts are reduced to less-than-significant levels. To comply with CEQA, the County needs to prepare an Environmental Impact Report for the Project.

Sincerely,



Scott Cashen, M.S.
Senior Biologist

¹¹⁷ Cal-IPC. 2012. Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers (3rd ed.). Cal-IPC Publication 2012-03. California Invasive Plant Council, Berkeley, CA.

Scott Cashen, M.S.
Senior Wildlife Biologist

Scott Cashen has 28 years of professional experience in natural resources management. During that time he has worked as a field biologist, forester, environmental consultant, and instructor of Wildlife Management. Mr. Cashen focuses on CEQA/NEPA compliance issues, endangered species, scientific field studies, and other topics that require a high level of scientific expertise.

Mr. Cashen has knowledge and experience with numerous taxa, ecoregions, biological resource issues, and environmental regulations. As a biological resources expert, Mr. Cashen is knowledgeable of the various agency-promulgated guidelines for field surveys, impact assessments, and mitigation. Mr. Cashen has led field investigations on several special-status species, including ones focusing on the yellow-legged frog, red-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and various forest carnivores.

Mr. Cashen is a recognized expert on the environmental impacts of renewable energy development. He has been involved in the environmental review process of over 100 solar, wind, biomass, and geothermal energy projects. Mr. Cashen's role in this capacity has encompassed all stages of the environmental review process, from initial document review through litigation support. Mr. Cashen provided expert witness testimony on several of the Department of the Interior's "fast-tracked" renewable energy projects. His testimony on those projects helped lead agencies develop project alternatives and mitigation measures to reduce environmental impacts associated with the projects.

Mr. Cashen was a member of the independent scientific review panel for the Quincy Library Group project, the largest community forestry project in the United States. As a member of the panel, Mr. Cashen was responsible for advising the U.S. Forest Service on its scientific monitoring program, and for preparing a final report to Congress describing the effectiveness of the Herger-Feinstein Forest Recovery Act of 1998.

AREAS OF EXPERTISE

- CEQA, NEPA, and Endangered Species Act compliance issues
- Comprehensive biological resource assessments
- Endangered species management
- Renewable energy development
- Scientific field studies, grant writing and technical editing

EDUCATION

M.S. Wildlife and Fisheries Science - The Pennsylvania State University (1998)

Thesis: *Avian Use of Restored Wetlands in Pennsylvania*

B.S. Resource Management - The University of California, Berkeley (1992)

PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

Mr. Cashen has served as a biological resources expert for over 125 projects subject to environmental review under the California Environmental Quality Act (CEQA) and/or the National Environmental Policy Act (NEPA). As a biological resources expert, Mr. Cashen reviews CEQA/NEPA documents and provides his clients with an assessment of biological resource issues. He then submits formal comments on the scientific and legal adequacy of the project's environmental documents (e.g., Environmental Impact Report). If needed, Mr. Cashen conducts field studies to generate evidence for legal testimony, or he can obtain supplemental testimony from his deep network of species-specific experts. Mr. Cashen has provided written and oral testimony to the California Energy Commission, California Public Utilities Commission, and U.S. district courts. His clients have included law firms, non-profit organizations, and citizen groups.

REPRESENTATIVE EXPERIENCE

Solar Energy

- Abengoa Mojave Solar Project
- Avenal Energy Power Plant
- Beacon Solar Energy Project
- Blythe Solar Power Project
- Calico Solar Project
- California Flats Solar Project
- Calipatria Solar Farm II
- Carrizo Energy Solar Farm
- Catalina Renewable Energy
- Fink Road Solar Farm
- Genesis Solar Energy Project
- Heber Solar Energy Facility
- Imperial Valley Solar Project
- Ivanpah Solar Electric Generating
- Maricopa Sun Solar Complex
- McCoy Solar Project
- Mt. Signal and Calxico Solar
- Panoche Valley Solar
- San Joaquin Solar I & II
- San Luis Solar Project
- Stateline Solar Project
- Solar Gen II Projects
- SR Solis Oro Loma
- Vestal Solar Facilities
- Victorville 2 Power Project
- Willow Springs Solar

Geothermal Energy

- Casa Diablo IV Geothermal
- East Brawley Geothermal
- Mammoth Pacific 1 Replacement
- Orni 21 Geothermal Project
- Western GeoPower Plant

Wind Energy

- Catalina Renewable Energy
- Ocotillo Wind Energy Project
- SD County Wind Energy
- Searchlight Wind Project
- Shu'luuk Wind Project
- Tres Vaqueros Repowering Project
- Tule Wind Project
- Vasco Winds Relicensing Project

Biomass Facilities

- CA Ethanol Project
- Colusa Biomass Project
- Tracy Green Energy Project

Other Development Projects

- Cal-Am Desalination Project
- Carnegie SVRA Expansion Project
- Lakeview Substation Project
- Monterey Bay Shores Ecoresort
- Phillips 66 Rail Spur
- Valero Benecia Crude By Rail
- World Logistics Center

Project Management

Mr. Cashen has managed several large-scale wildlife, forestry, and natural resource management projects. Many of the projects have required hiring and training field crews, coordinating with other professionals, and communicating with project stakeholders. Mr. Cashen's experience in study design, data collection, and scientific writing make him an effective project manager, and his background in several different natural resource disciplines enable him to address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

Wildlife Studies

- Peninsular Bighorn Sheep Resource Use and Behavior Study: (CA State Parks)
- "KV" Spotted Owl and Northern Goshawk Inventory: (USFS, Plumas NF)
- Amphibian Inventory Project: (USFS, Plumas NF)
- San Mateo Creek Steelhead Restoration Project: (Trout Unlimited and CA Coastal Conservancy, Orange County)
- Delta Meadows State Park Special-Status Species Inventory: (CA State Parks, Locke)

Natural Resources Management

- Mather Lake Resource Management Study and Plan – (Sacramento County)
- Placer County Vernal Pool Study – (Placer County)
- Weidemann Ranch Mitigation Project – (Toll Brothers, Inc., San Ramon)
- Ion Communities Biological Resource Assessments – (Ion Communities, Riverside and San Bernardino Counties)
- Del Rio Hills Biological Resource Assessment – (The Wyro Company, Rio Vista)

Forestry

- Forest Health Improvement Projects – (CalFire, SD and Riverside Counties)
- San Diego Bark Beetle Tree Removal Project – (SDG&E, San Diego Co.)
- San Diego Bark Beetle Tree Removal Project – (San Diego County/NRCS)
- Hillslope Monitoring Project – (CalFire, throughout California)

Biological Resources

Mr. Cashen has a diverse background with biological resources. He has conducted comprehensive biological resource assessments, habitat evaluations, species inventories, and scientific peer review. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and forest carnivores.

REPRESENTATIVE EXPERIENCE

Biological Assessments/Biological Evaluations ("BA/BE")

- Aquatic Species BA/BE – Reliable Power Project (*SFPUC*)
- Terrestrial Species BA/BE – Reliable Power Project (*SFPUC*)
- Management Indicator Species Report – Reliable Power Project (*SFPUC*)
- Migratory Bird Report – Reliable Power Project (*SFPUC*)
- Terrestrial and Aquatic Species BA – Lower Cherry Aqueduct (*SFPUC*)
- Terrestrial and Aquatic Species BE – Lower Cherry Aqueduct (*SFPUC*)
- Terrestrial and Aquatic Species BA/BE – Public Lands Lease Application (*Society for the Conservation of Bighorn Sheep*)
- Terrestrial and Aquatic Species BA/BE – Simon Newman Ranch (*The Nature Conservancy*)
- Draft EIR (Vegetation and Special-Status Plants) - Wildland Fire Resiliency Program (*Midpeninsula Regional Open Space District*)

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-Status Species Inventory (*CA State Parks: Locke*)
- Study design and lead bird surveyor - Placer County Vernal Pool Study (*Placer County: throughout Placer County*)
- Surveyor - Willow flycatcher habitat mapping (*USFS: Plumas NF*)
- Surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects (*Ducks Unlimited/USGS: San Pablo Bay*)
- Study design and Lead Investigator - Bird use of restored wetlands research (*Pennsylvania Game Commission: throughout Pennsylvania*)
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County (*HCV Associates: Napa*)
- Surveyor - Baseline inventory of bird abundance following diesel spill (*LFR Levine-Fricke: Suisun Bay*)

- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site (*City of Fairfield: Fairfield, CA*)
- Surveyor - Burrowing owl relocation and monitoring (*US Navy: Dixon, CA*)
- Surveyor - Pre-construction burrowing owl surveys (*various clients: Livermore, San Ramon, Rio Vista, Napa, Victorville, Imperial County, San Diego County*)
- Surveyor - Backcountry bird inventory (*National Park Service: Eagle, Alaska*)
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)
- Surveyor - Pre-construction surveys for nesting birds (*various clients and locations*)

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys (*USFS: Plumas NF*)
- Surveyor - Foothill yellow-legged frog surveys (*PG&E: North Fork Feather River*)
- Surveyor - Mountain yellow-legged frog surveys (*El Dorado Irrigation District: Desolation Wilderness*)
- Crew Leader - Bullfrog eradication (*Trout Unlimited: Cleveland NF*)

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys (*USFS: Plumas NF*)
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping (*City of Fairfield: Fairfield, CA*)
- GPS Specialist - Salmonid spawning habitat mapping (*CDFG: Sacramento River*)
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use (*CA Coastal Conservancy: Gualala River estuary*)
- Crew Leader - Exotic species identification and eradication (*Trout Unlimited: Cleveland NF*)

Mammals

- Principal Investigator - Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)

- Scientific Advisor – Study on red panda occupancy and abundance in eastern Nepal (*The Red Panda Network: CA and Nepal*)
- Surveyor - Forest carnivore surveys (*University of CA: Tahoe NF*)
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals (*US Navy: Skagg's Island, CA*)
- Surveyor – Surveys for Monterey dusky-footed woodrat. Relocation of woodrat houses (*Touré Associates: Prunedale*)

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the scientific review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units (*CDF: San Diego, San Bernardino, and Riverside Counties*)
- Biological Resources Expert – Peer review of CEQA/NEPA documents (*various law firms, non-profit organizations, and citizen groups*)
- Lead Consultant - Pre- and post-harvest biological resource assessments of tree removal sites (*SDG&E: San Diego County*)
- Crew Leader - T&E species habitat evaluations for Biological Assessment in support of a steelhead restoration plan (*Trout Unlimited: Cleveland NF*)
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park (*County of Sacramento: Sacramento, CA*)
- Lead Investigator - Biological Resources Assessment for 1,070-acre Alfaro Ranch property (*Yuba County, CA*)
- Lead Investigator - Wildlife Strike Hazard Management Plan (*HCV Associates: Napa*)
- Lead Investigator - Del Rio Hills Biological Resource Assessment (*The Wyro Company: Rio Vista, CA*)
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: Validation of California's Wildlife Habitat Relationships (CWHR) Model (*University of California: Tahoe NF*)

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. Mr. Cashen has consulted with landowners and timber operators on forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CalFire fuels treatment projects (*SD and Riverside Counties*)
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project (*San Diego*)
- Crew Leader - Hillslope Monitoring Program (*CalFire: throughout California*)
- Consulting Forester – Forest inventories and timber harvest projects (*various clients throughout California*)

Grant Writing and Technical Editing

Mr. Cashen has prepared and submitted over 50 proposals and grant applications. Many of the projects listed herein were acquired through proposals he wrote. Mr. Cashen's clients and colleagues have recognized his strong scientific writing skills and ability to generate technically superior proposal packages. Consequently, he routinely prepares funding applications and conducts technical editing for various clients.

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society

Cal Alumni Foresters

Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

TEACHING EXPERIENCE

Instructor: Wildlife Management - The Pennsylvania State University, 1998

Teaching Assistant: Ornithology - The Pennsylvania State University, 1996-1997

PUBLICATIONS

Gutiérrez RJ, AS Cheng, DR Becker, S Cashen, et al. 2015. Legislated collaboration in a conservation conflict: a case study of the Quincy Library group in California, USA. Chapter 19 *in*: Redpath SR, et al. (eds). *Conflicts in Conservation: Navigating Towards Solutions*. Cambridge Univ. Press, Cambridge, UK.

Cheng AS, RJ Gutiérrez RJ, S Cashen, et al. 2016. Is There a Place for Legislating Place-Based Collaborative Forestry Proposals?: Examining the Herger-Feinstein Quincy Library Group Forest Recovery Act Pilot Project. *Journal of Forestry*.

